SHAMSHIR GHAR: HISTORIC CAVE SITE IN KANDAHAR PROVINCE, AFGHANISTAN

LOUIS DUPREE

VOLUME 46 : PART 2
ANTHROPOLOGICAL PAPERS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK : 1958

SHAMSHIR GHAR: HISTORIC CAVE SITE IN KANDAHAR PROVINCE, AFGHANISTAN

SHAMSHIR GHAR: HISTORIC CAVE SITE IN KANDAHAR PROVINCE, AFGHANISTAN

LOUIS DUPREE

VOLUME 46 : PART 2
ANTHROPOLOGICAL PAPERS OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
NEW YORK : 1958

FOREWORD

THE SECOND AFGHAN EXPEDITION of the American Museum of Natural History was organized by Walter A. Fairservis, Jr., who also led the First Afghan Expedition in the summer of 1949. The first expedition (Walter Fairservis, Henry Hart, surveyor, and I) concentrated on geological-archeological reconnaissance and random surface collecting from mounds near Bamiyan, Kandahar, Farah, and in Seistan. Although inconclusive, the survey brought several problem areas into sharper focus.[1]

The Second Afghan Expedition (August, 1950, to April, 1951) was much more comprehensive in scale.[2] Members of the expedition included: Walter A. Fairservis, Jr., director; Rose Lilien, archeologist; John Zeigler, geologist; Howard W. Stoudt, archeologist; Louis Dupree, archeologist; George Maranjian, physical anthropologist; George McClellan, naturalist; A. Franklin MacKenzie, orientalist; Jan Fairservis, artist; Ann Dupree, who collected botanical specimens and assisted me in my excavations. Lawrence Kelsey, radio operator, joined the group in Pakistan.

Although technically named the Second Afghan Expedition, most archeological work by Fairservis, Lilien, and Stoudt was done in West Pakistan, Baluchistan Province, whereas all three of my excavations were in Afghanistan.[3]

I went to Afghanistan in search of Stone Age evidence and hoped to dig in the limestone foothills of the northern Hindu Kush because of the Russian successes across the Amu Darya (or Oxus) River, and the promising beginnings of Carleton Coon's work in northern Iran.

Dr. Sultan Khan, a German-trained geologist in the Ministry of Mines, and Mr. Myles Walsh, an American geological adviser to the Afghan Government, supplied me with information concerning limestone caves that they had located during their years of geological and mining research. Figure 1 shows the approximate location of these caves. Those underlined were visited by the author.

While waiting for authorization to excavate, Zeigler, Maranjian, my wife, and I received permission to undertake an archeological, ethnological, physical-anthropological reconnaissance into the Panjshir Valley (Fig. 1). We subsequently spent 15 days in the Panjshir region and examined two caves: Nokri Khaneh, a labyrinth of tunnels in an abandoned silver mine, and Parian Ghar, a natural limestone cave which is still used by nomads as a sheep haven. I would like to have tested this cave. Such an operation was impossible for three reasons: the inaccessibility and isolated position of the cave, the approaching winter snows, and the lack of sufficient funds. We left Parian Ghar with regret.

When the Afghan Government failed to grant permission to excavate in north Afghanistan, an understandable decision dictated by political expediency, we requested permission to examine the several caves in Kandahar Province mentioned by Dr. Sultan. Permission was granted, and Zeigler, my wife, and I left Kabul for Kandahar on October 10, arriving there October 11.

Our first objective was to find a cave called Shamshir Ghar, "Cave of the Sword," reportedly northeast of Panjwai and west of Kandahar. In spite of excellent cooperation by government officials and local inhabitants it took two days to locate the cave. We decided to dig a test section. Preparations were made, and actual excavation started on October 16, 1950.

As in any scholastic endeavor, many hands and minds, some willing, some unwilling, some even unknowingly, affected this monograph in one way or another. My first thanks go to those who made the Second Afghan Expedition possible: the Trustees of the American Museum of Natural History; its Director, Dr. Albert E. Parr; Dr. Harry L. Shapiro, Chairman, Department of Anthropology; Miss Bella Weitzner and others of the Museum staff who assisted in the launching of the expedition; and, especially, to Mr. Walter A. Fairservis, Jr., who led the expedition in the field.

On my return from the field, Dr. Shapiro and Mr. Fairservis permitted me to transport over 1500 pounds of pottery and other specimens from New York to Cambridge and then from Cambridge to Montgomery, Alabama. For thus allowing me to continue and complete my research, I am eternally grateful.

[1] Fairservis, 1950a, 174; 1950b. An Afghan view of the expedition is in Kohzad, 1950.

[2] Fairservis and Davidson, 1951a; 1951b; 1952.

[3] Dupree, 1951.

Many people showed us enormous kindness while we were in Afghanistan:

Afghan Government officials in Kabul: His Excellency Dr. Abdul Majid Khan, Minister of Education; His Excellency Gholam Mohammed Khan, Minister of Communications; His Excellency Dr. Yusef Khan, Deputy Minister of Education; Dr. Ahmad Ali Kohzad, Director of Antiquities and Director of the Kabul Museum; Mr. Mohammed Nabi Kohzad, editor of the cultural magazine "Afghanistan"; Dr. Sultan Khan and Mr. Myles Walsh, Geological Consultants to the Ministry of Mines; Mr. Mohammed Ibrahim Khan, Government Archeologist, the official government representative and interpreter. Much of our success was due to Mohammed Ibrahim's cooperation and friendliness.

American Embassy: His Excellency Louis Dreyfus, Ambassador, and Mrs. Dreyfus were both cordial and helpful; Mr. Frederick Jandrey, the First Secretary, did much of the work at the highest governmental level. Other members of the Embassy staff did their best to make our stay in Kabul pleasant.

French Archeological Mission in Afghanistan: Dr. and Mme. Daniel Schlumberger and staff welcomed us as colleagues, gave us access to their well-stocked library and aided in the negotiations with the Afghan Government. Several Afghan officials in Kandahar Province (His Excellency Mohammed Unas Khan, Governor of Kandahar; His Excellency Asadullah Khan, Governor of the Sub-province of Panjwai; Nasar Mohammed Khan, assistant headman of Badwan and labor foreman at the excavation) contributed to the success of our excavation. The people of Badwan village deserve special mention for their cooperation, with an added nod to the workmen who patiently and quickly learned what was required of them. The Government hotel keeper at Kandahar, Abdul Aziz Khan, and his assistants went out of their way to help us.

All the Morrison-Knudsen Afghanistan Company, Inc., personnel made us feel at home in the company's construction camps, which were (in 1950–1951) a bit of America transplanted to Afghanistan. To name a few would be to leave out many, so all are thanked.

I wish to thank Dr. John O. Brew, Director of the Peabody Museum, Harvard University, for giving me laboratory space. Mr. Frederick Orchard, the excellent photographer and technician at the Peabody Museum, gave me much advice and took the photographs for Plates 33, 34, and 35. Miss Helen Cabot, also of Peabody Museum, drew accurate sketches of the seals. Other photographs were taken by me or the Photographic Division of the American Museum. The fine line drawings are the work of Mr. Nicholas Amorosi, staff artist at the American Museum. Incidentally, the scales for the plates were inadvertently omitted. The scale for Pls. 1–31 is three-fifths to one-half natural size. Measurements for Pls. 32, 33, 34b, 35a, 35b, and 37a are in the body of the text.

Dean Paul Stone, Librarian Willa N. Boysworth, and Assistant Librarian Evelyn Kocher permitted me to use the attic of Houghton Library, Huntingdon College, Montgomery, Alabama, as a laboratory. Without this space, I could never have completed my research.

Librarians of the Metropolitan Museum of Art, New York, and the library staff at the Air University, Maxwell Air Force Base, Alabama, (especially Mr. John K. Cameron and Miss Mildred McKinnon) were very helpful in obtaining obscure sources.

The entire staff of the Arctic, Desert, Tropic Information Center, especially the Chief, Dr. Paul H. Nesbitt, encouraged, stimulated, and in some instances contributed materially to the completion of the monograph: Prof. Frederick K. Morris drew the maps showing the distribution of the historic tribes (Figs. 101 and 102); Mr. Robert F. Burgh did the artifact chart (Table 5); Mr. Z. F. Shelton, Jr., redrew several of the stratigraphic sections; Dr. Oliver L. Austin, Jr., gave advice on the modern fauna of Afghanistan; Dr. George A. Llano checked my botany.

Mr. George G. Goodwin, the American Museum of Natural History, identified the mammal bones, and Dr. Dean Amadon, also of the American Museum, analyzed the bird bones. I am most grateful to them for this work above and beyond the call of duty.

For the pottery analyses, I drew heavily on the conversations and works of Dr. Frederick R. Matson (the Pennsylvania State University), Dr. Florence Day (Metropolitan Musuem of Art, New York City), Dr. Jean-Claude Gardin (French Archeological Mission in Lebanon), Dr. Rene Ghirshman (Director, French Archeological Mission in Iran), Dr. Gordon

Willey (Harvard University), Dr. Richard Ettinghausen (Freer Gallery of Art in Washington), Mr. Walter A. Fairservis, Jr. (the American Museum of Natural History).

Without the various technical appendixes, this monograph would be incomplete. Dr. Frederick R. Matson contributed the notes on the pottery. Dr. Ray W. Smith, International Committee on Ancient Glass, commented on the analysis of the glass by Mr. R. H. Close and Mr. H. C. Ross of the Corning Museum of Glass. Dr. Earle Caley of Ohio State University discussed the metal objects which he analyzed. Other technical advice integrated into the monograph came from: Dr. Joseph C. Bequaert, Museum of Comparative Zoölogy, Harvard College (mollusks); Dr. G. William Holmes, United States Geological Survey, and Mr. Jack Ralston, Morrison-Knudsen Afghanistan Company, Inc. (soil analysis); Dr. R. N. Frye, Harvard (Kufic script); Dr. A. D. H. Bivar, Ashmolean Museum of Oxford, and Dr. W. B. Henning, University of London (coins).

The bulk of the geology section is abstracted from the excellent report of Dr. John Zeigler, expedition geologist, now with the Woods Hole Oceanographic Institute. Surveying equipment used by Dr. Zeigler and me was lent by the Institute of Geographical Exploration, Cambridge, Massachusetts, and we gratefully acknowledge this loan.

Mr. Lauristan Ward, Sr., Harvard University, my thesis adviser, patiently guided my work even though handicapped by distance. Without his encouragement this monograph would not have been completed. Others on my thesis committee, Drs. John Pelzel and Bruce Howe, also of Harvard, are thanked for their fortitude in reading my thesis and for their valuable post-reading suggestions.

My wife, Annie, deserves a junior authorship, for she not only typed the original manuscript, but also did the lion's share of the painted sherd sketches.

The time and energy expended by Miss Bella Weitzner and Mrs. Helen Kenyon in editing this manuscrpt can never be properly acknowledged. My humble thanks, written over and over on all the blackboards of all the schools in the world, go to them.

Errors in fact and interpretation are mine alone.

LOUIS DUPREE

Department of Sociology and Anthropology
The Pennsylvania State University
University Park, Pennsylvania
September, 1957

CONTENTS

FOREWORD 141
INTRODUCTION 153
THE GEOGRAPHIC SETTING: KANDAHAR PROVINCE AND THE AREA AROUND SHAMSHIR GHAR . 154
Location of the Cave and Geography of the Region 154
Geological History of the Region 154
Climate 156
Vegetation 159
Fauna 159
ARCHEOLOGICAL WORK IN AFGHANISTAN 161
The Exploratory Period: pre-1922 161
French Mission Period I: 1922–1940 161
Other Excavations of the French Mission I Period 162
Non-French Intrusion I: 1938 163
Evaluation of the French Mission I Period 163
French Mission Period II: 1940–1954 163
Non-French Intrusion IIa: post-World-War-II Surveys and Surface Collecting 165
Non-French Intrusion IIb: Excavations since World War II 165
EXCAVATIONS AND STRATIGRAPHY 167
Structure and History of the Cave 167
Techniques of Recording and Excavation at Shamshir Ghar 169
Excavations 170
Stratigraphy 174
Interpretation of the Soil Samples 179
THE CULTURAL FINDS 180
Method of Pottery Classification 180
Definitions 181
Pottery Subdivisions 184
Glaze 184
Graffito I 189
Graffito II 190
Graffito III 190
Graffito IV 191
Mottled and Plain Green 191
Champlevé: Yellow and Green 191
Bole Red Slip 193
Blue and Blue-Green 193
Imitation Celadon 194
Imitation T'ang Splash Wares 195
Samarkand-Brahminabad Bowl Sherds 195
Samarkand Kufic Ware 196
Nishapur 1 Ware 196
Nishapur 2 Ware 196
Nishapur 3 Ware 197
Nishapur 4 Ware 197
Brown-Green Ware 197
Unique Sherds 198
Grit Ware: Sherd Temper 198
Grit Ware: Quartz-Sand Temper 198
Grit Ware: Fiber Temper 199
Grit Ware: Lime Temper 199

Grit Ware: Mica-Sand Temper . . . 199
Hand-Made Grit Ware . . . 200
Red Ware Undecorated . . . 200
Black Inside, Red Outside Ware . . . 201
Black-Centered Red Ware . . . 201
Distinctive Bowl . . . 201
Red Streak Pattern-Burnished Ware . . . 202
Metallic Black Ware . . . 202
Type I . . . 202
Type II . . . 203
Red Ware with Cream Slip . . . 203
Bisque Paste Wares . . . 204
Red Wash, Outside, and Red Wash, Inside and Outside . . . 205
Greenish Paste Ware . . . 205
Stamped Ware . . . 205
THE CULTURAL PERIODS . . . 208
Early Kushan Period at Shamshir Ghar: *Circa* 100 B.C. to 100 A.D. . . . 208
Pottery . . . 208
Metal Objects . . . 212
Spindle Whorls . . . 212
Polished Stone . . . 212
Rounded Pebbles . . . 212
Hearths . . . 212
Animal Bones . . . 212
Late Kushan: *Circa* 100 to 300 A.D. . . . 213
Pottery . . . 213
Metal Objects . . . 231
Beads . . . 232
Glass Fragments . . . 232
Spindle Whorls (or Large Beads) . . . 232
Pendants . . . 232
Seals . . . 232
Stone Artifacts . . . 234
Rounded Pebbles . . . 235
Hearths . . . 236
Mollusks . . . 236
Kushano-Sassanian: *Circa* 300 to 700 A.D. . . . 236
Pottery . . . 236
Metal Objects . . . 246
Beads . . . 247
Glass . . . 247
Coins . . . 247
Spindle Whorls or Large Beads . . . 247
Pendants . . . 247
Seals . . . 248
Stone Artifacts . . . 248
Rounded Pebbles . . . 248
Hearths . . . 248
Early Islamic Afghanistan Cultural Levels: 700 to 1222 A.D. . . . 248
Pottery . . . 249
Iron Objects . . . 260
Bronze and Copper Objects . . . 264
Beads . . . 264

Glass Fragments . . . 265
Coins . . . 266
Spindle Whorls or Large Beads . . . 266
Pendants . . . 266
Seals . . . 266
Stone Artifacts . . . 266
Hearths . . . 268
Textiles . . . 268
Mollusks . . . 268
IMPORTANT MISCELLANEOUS AND UNSTRATIFIED FINDS . . . 269
Cut 4 . . . 269
Cut 6, Second Chamber . . . 270
Cut 7 . . . 271
Cut 8 . . . 272
Front Porch . . . 273
Fifth Chamber . . . 273
HISTORICAL PERSPECTIVE: SECOND CENTURY B.C. TO 1222 A.D. . . . 276
The Movements out of Central Asia: Second Century B.C. to the B.C.–A.D. Boundary . 276
The Rise and Fall of the Kushans: First to Fourth Centuries A.D. . . . 277
The Kushano-Sassanian Period of Small, Semi-independent States: Fourth to Fifth Centuries A.D. . . . 278
The Epthalite Huns (White Huns): Fifth to Seventh Centuries A.D. . . . 279
From the Islamic to the Mongol Invasion: Eighth Century to 1222 A.D. . . . 280
CONCLUSIONS . . . 283
The Cultural Sequence Summarized . . . 283
Early Kushan Period: *Circa* 100 B.C. to 100 A.D. . . . 283
Late Kushan: *Circa* 100 to 300 A.D. . . . 283
Kushano-Sassanian: *Circa* 300 to 700 A.D. . . . 284
Early Islamic Period: 700 to 1222 A.D. . . . 284
Who? Why? . . . 285
APPENDIX 1. ANIMAL AND BIRD BONES . . . 288
APPENDIX 2. TECHNICAL REPORT ON SHAMSHIR GHAR GLASS SPECIMENS . . . 289
APPENDIX 3. CHEMICAL EXAMINATION OF METAL SPECIMENS . . . 291
APPENDIX 4. A TECHNOLOGICAL LOOK AT THE SHAMSHIR GHAR POTSHERDS. FREDERICK R. MATSON . . . 294
LITERATURE CITED . . . 299
CATALOGUE DATA FOR CERTAIN PLATES . . . 305

TABLES

1. The Climatic Stratigraphy of North Iraq, from Wright (1952) . . . 158
2. Classification of Soil Samples by Gessner's Triangular System . . . 176
3. Classification in Percentages of Soil Samples by Wentworth System . . . 176
4. Preliminary Count of Total Number of Sherds Collected in Afghanistan, 1950 . . . 182
5. Artifact Counts . . . 185
6. Color Chart for Painted Grit Ware Types: Late Kushan . . . 217
7. Color Chart for Painted Red Ware Types: Late Kushan . . . 222
8. Color Chart for Painted Grit Ware Types: Kushano-Sassanian . . . 238
9. Color Chart for Painted Red Ware Sherds: Kushano-Sassanian . . . 240
10. Color Chart for Painted Grit Ware Sherds: Early Islamic . . . 253
11. Color Chart for Painted Red Ware Sherds: Early Islamic . . . 254
12. Identification of Animal and Bird Bones . . . 288
13. Spectrographic Examination of Ancient Glass . . . 290

14. Analysis of Bronze Coin 291
15. Analysis of Fragment of Object Composed of Thin Bronze 291
16. Analysis of Pewter Fragment from a Pin or Clasp 292
17. Analysis of Flat Piece of Cast Iron 293

ILLUSTRATIONS

PLATES

(AT END)

7. Ancient lake bed and desert vegetation, Dasht-i-Margo
8. The Arghandab River in southwestern Afghanistan, ruins in once fertile Registan, and the Helmand River
9. a. Boulders being removed from entrance to Shamshir Ghar. b. Mohammed Ibrahim Khan, Afghan archeologist, standing on limestone floor of Cut 2 and holding stadia rod along point H
10. a. Mrs. Ann Dupree stands in Trench 3, Cut 5. b. Close-up of north face, Trench 2, Cut 2, and east face, Trench 3, Cut 5
11. a. Mohammed Ibrahim Khan stands directly beneath a Major Hearth Complex pit, Trench 2, Cut 2, east face. b. Workmen washing pottery. c. Pottery lamp was found in fissure to the left of Mrs. Ann Dupree. d. Shamshir Ghar after excavation
12. Glaze Wares
13. Glaze Wares
14. Glaze Wares
15. Glaze Wares
16. Grit Wares, Sherd Temper
17. Grit Wares, Quartz-Sand Temper, Fiber Temper, Lime Temper, Mica-Sand Temper
18. Painted Grit Ware
19. Grit Ware
20. Red Ware, Red Slip, undecorated
21. Red Ware subtypes
22. Red Ware, decorated
23. Red Ware, painted sherds
24. Red Streak Pattern-Burnished Ware and Metallic Black
25. Red Ware with Cream Slip
26. Red Ware with Cream Slip
27. Bisque and Greenish Paste Wares
28. Bisque and Greenish Paste Wares, decorated
29. Bisque and Greenish Paste Wares, decorated
30. Bisque Ware, Red Inside and Outside Slip
31. Stamped Ware
32. Metal, beads, alabaster, and glass
33. Stone artifacts
34. a. Rounded pebbles. b. Seal impression of hare on base sherd
35. a, b. Utilized basaltic pebble. c–e. Red Ware vessels
36. Early Islamic schist bowl fragments
37. a. Cast of bronze animal figurine, Cut 6. b. Ravine opposite Shamshir Ghar leading to Badwan
38. View of area about halfway from Shamshir Ghar to Badwan. a. Looking towards Arghandab River. b. Looking towards path to Shamshir Ghar from Arghandab floodplain

TEXT FIGURES

1. General map of Afghanistan . . . 155
2. Village of Badwan and Shamshir Ghar Cave, Kandahar Province, Afghanistan. After Zeigler . . . 156
3. Geology of Kandahar region, southern Afghanistan . . . 157
4. Idealized cross-section of the Helmand Valley. After Morris . . . 158
5. Relationship of Shamshir Ghar Cave to mountain and river. After Zeigler . . . 167
6. Cave of Shamshir Ghar. After Zeigler . . . 168
7. Floor plan of Shamshir Ghar Cave. After Zeigler . . . 169
8. Diagrammatic history of Shamshir Ghar Cave. After Zeigler . . . 170
9. Cross-section of the front chambers. After Zeigler . . . 170
10. Floor plan of excavations in the First and Second Chambers . . . 171
11. Cross-section, Trench 1, Cut 1, east face . . . 172
12. Cross-section, Trench 2, Cut 2, east face . . . 173
13. Cross-section, Trench 2, Cut 2, north face, and Trench 3, Cut 5, north face . . . 174
14. Cross-section, Trench 2, Cut 3, east face . . . 175
15. Cross-section, Trench 2, Cut 4, east face . . . 175
16. Cross-section, Trench 3, Cut 5, east face . . . *facing* 176
17. Cross-section, Trench 2, Cut 2, and Trench 3, Cut 5, south face . . . 177
18. Cross-section, Cut 8, south face . . . 178
19. Wall engraving, Fifth Chamber . . . 178
20. Wall paintings, Fifth Chamber . . . 179
21. Rim profiles and bases. a–l. Graffito I. m. Graffito II. n. Graffito III. . . . 189
22. Rim profiles and bases, Mottled and Plain Green . . . 192
23. Rim profiles and bases. a–b. Champlevé Yellow. c–e. Bole Red Slip. f. Blue and Blue-Green Glaze. g. Imitation T'ang Splash. h. Samarkand-Brahminabad bowl sherd . 193
24. Decoration on inside of rim of Samarkand-Brahminabad bowls . . . 195
25. Rim profiles and bases. a–e. Nishapur 1. f. Nishapur 2. g–i. Nishapur 3. j–k. Nishapur 4. l–p. Brown-Green Ware . . . 197
26. Cross-section of Metallic Black . . . 203
27. Diagrammatic representation of ridge variations on Red with Cream Slip . . . 203
28. Rim profiles and bases, Sherd-Tempered Grit Ware, Early Kushan . . . 209
29. Rim profiles and designs. a–c. Mica-Tempered Grit Ware. d. Painted Grit Ware, polychrome. e–g. Painted Grit Ware, Sherd-Tempered, Early Kushan . . . 209
30. Rim profiles and bases. Red Ware, Early Kushan . . . 210
31. Painted designs, Early Kushan. a–c. Red Ware. d. Red Streak Pattern-Burnished Ware 210
32. Bases and rim profiles, Red Ware, Cream Slip, Early Kushan. a–c. Concave bases. d–e. Bases, Inside Ridges I, sub-ware. f–i. Variations on thickened rims. j. Small jar . 211
33. Bases, rim profiles, and handle, Bisque Paste Ware, Early Kushan . . . 212
34. An iron object, probably a bridle ornament, Early Kushan . . . 212
35. Rim profiles, Sherd-Tempered Grit Ware, Late Kushan . . . 213
36. Rim profiles, body form and design, Sherd-Tempered Grit Ware, Late Kushan . . . 214
37. Bases, spouts, and rim profiles, Sherd-Tempered Grit Ware, Late Kushan . . . 215
38. Rim profiles and base, Grit Ware, Late Kushan. a. Cream-slipped, Fiber-Tempered. b–e. Lime-Tempered. f–u. Mica-Sand-Tempered . . . 216
39. Painted Grit Ware, Late Kushan . . . 217
40. Painted Grit Ware, Late Kushan . . . 218
41. Painted Grit Ware, Late Kushan . . . 219
42. Painted Grit Ware, Late Kushan . . . 220
43. Rim profiles and designs, Red Ware, Late Kushan . . . 220
44. Rim profiles and bases, Red Ware, Late Kushan . . . 221
45. Common designs on painted Red Ware, Late Kushan . . . 223

46. Design motives on painted Red Ware, Late Kushan 223
47. Design motives on painted Red Ware, Late Kushan 224
48. Designs, rim profile, and base, Red Streak Pattern-Burnished Ware, Late Kushan . . 224
49. Designs and rim profiles, Red Streak Pattern-Burnished Ware, Late Kushan 225
50. Rim profile and bases, Metallic Black Ware, Late Kushan 225
51. Rim profiles, Red Ware, Cream Slip, Late Kushan 226
52. Rim profiles and bases, Red Ware, Cream Slip, Late Kushan 227
53. Rim profiles and bases, Bisque Paste Ware, Late Kushan 228
54. Rim profiles, bases, and designs, Red Inside and Outside sub-ware, Late Kushan . . 229
55. Bases, Bisque Paste Ware, Late Kushan. a–l. Red Wash Inside and Outside. m–n. Greenish Paste Ware 230
56. Cross-section of hollow-sided, three-bladed, iron projectile point, Late Kushan . . . 231
57. Metal and stone objects, Late Kushan. a. Iron projectile point. b. Bronze projectile point. c. Black stone pendant 231
58. Design on seals, Late Kushan 233
59. Stone artifacts, Late Kushan. a. Pebble lamp. b. Fragment of doughnut-shaped mace head 235
60. Rim profiles. a–b. Glaze Ware, Kushano-Sassanian. c–j. Grit Ware, Sherd-Temper, Kushano-Sassanian. k. Grit Ware, Quartz-Sand Temper, Kushano-Sassanian. l. Grit Ware, Lime-Temper, Kushano-Sassanian 237
61. Rim profiles and bases, Grit Ware, Mica-Sand Temper, Kushano-Sassanian 238
62. Rim profiles, Red Ware, Kushano-Sassanian 239
63. Rim profiles and bases. a–i. Red Ware, Kushano-Sassanian. j–k. Red Ware, Black Slip, Kushano-Sassanian. l. Black-centered Ware, Kushano-Sassanian 240
64. Painted designs, Kushano-Sassanian. a–i. Red Ware. j–l. Distinctive bowl sub-ware . . 241
65. Burnished designs and rim profiles, Red Streak Pattern-Burnished Ware, Kushano-Sassanian 242
66. Burnished designs, rim profiles, and bases, Red Streak Pattern-Burnished Ware, Kushano-Sassanian 242
67. Rim profiles and bases, Kushano-Sassanian. a–b. Metallic Black Ware. c–i. Red Ware, Cream Slip, No Inside Ridges sub-ware 243
68. Painted designs, Bisque Paste Ware, Kushano-Sassanian 243
69. Painted designs, rim profiles, and bases, Bisque Paste Ware, Kushano-Sassanian . . . 244
70. Handle profiles, Bisque Paste Ware, Kushano-Sassanian 245
71. Leg and grooved handles, Greenish Paste Ware, Kushano-Sassanian 246
72. Metal objects, Kushano-Sassanian. a. Triangular lance blade, iron. b. Buckle or handle, iron. c. Earring, bronze or copper. d. Bit or rein ring (?), iron 247
73. Design on wooden bead or spindle whorl, Kushano-Sassanian 247
74. Pendants, Kushano-Sassanian. a. Perforated stone. b. Perforated basalt pebble. c. Incised shell circle, fragmentary. d. Seal 248
75. Rim profiles, bases, and lid, Grit Ware, Early Islamic. a–o, u. Grit Ware, Sherd Temper. p–q, t. Grit Ware, Fiber Temper. r–s. Grit Ware, Mica-Sand Temper 250
76. Painted designs on Grit Ware, Early Islamic 251
77. Rim profiles and bases, Red Ware, Early Islamic 252
78. Rim profiles and bases, Red Ware, Early Islamic. a–h. Red Ware, Black Slip sub-ware. i. Red Ware, Black Center sub-ware 253
79. Painted designs on Red Ware, Early Islamic 254
80. Incised channeled and appliquéd decoration on Red Ware, Early Islamic 255
81. Bases, rim profiles, and designs, Red Streak Pattern-Burnished Ware, Early Islamic . . 255
82. Rim profiles and bases, Red Ware, Cream Slip, No Inside Ridges sub-ware, Early Islamic 256
83. Rim profiles and designs, Bisque Paste Ware, Early Islamic 256
84. Bases and rim profiles, Bisque Paste Ware, Early Islamic 257

85. Types of handles, Bisque Paste Ware, Early Islamic 258
86. Painted designs, Bisque Paste Ware, Early Islamic 259
87. Rim profiles, bases, and designs, Red Wash, Inside and Outside sub-ware, Early Islamic 260
88. Handles and bases, Greenish Paste Ware, Early Islamic 261
89. Metal objects, Early Islamic. a. Iron scissors. b. Bronze buckle. c–f. Iron projectile points. g–h. Iron projectile points, elliptical in cross-section. i. Iron, leaf-shaped, tanged spearpoint 262
90. Metal objects, Early Islamic. a. Tapered cross-section of knife blade. b. Tanged iron knife blade with tapered cross-section. c. Lozenge-shaped cross-section of bronze projectile point. d. Bronze projectile point. e. Bronze cup, handle fragments. f. Finger ring 263
91. Beads, Early Islamic. a–b. Glass. c. Painted and incised clay. d. Lapis lazuli. e. Carnelian 264
92. Fragments of glass. a–c. Possible bottleneck forms, green. d. Cross-section of glass stopper, greenish yellow. e. Outline of flaring rim fragment. f. Bangle fragment, polychrome . 265
93. Designs on stone, and wood spindle whorls or large beads, Early Islamic. a. Steatite spheroid. b. Wooden spheroid. c. Wooden truncated biconical bead 266
94. Soapstone pendant and limestone seal, Early Islamic 266
95. Rim profiles from fragmentary schist bowls and Red Ware jar, Early Islamic. a–c. Schist bowls. d–e. Red Ware jar 267
96. Metal artifacts, Cut 4. a. Iron knife or spear head. b. Iron, leaf-shaped spearpoint with bent tang. c. Bronze stamp seal 269
97. Designs on beads or spindle whorls, Cut 4. a. Wood. b. Quartzite 270
98. Painted motifs and rim profiles on Red Ware sherds, Cut 6 270
99. Rim profiles, base, and handle, Cut 6. a. Red Ware, Red Slip. b–c. Red Ware. d. Bisque Ware 272
100. Pottery designs, Cut 7. a. Black on Bisque Ware. b. Red cross-hatching on Metallic Black or extremely fire-burned Red Ware 272
101. East Asia in the second century B.C., showing the route by which the Śaka and Yueh-Chih (Kushans) reached Bactria and Arachosia. After Morris 277
102. Political boundaries of East Asia, first century A.D. After Morris 279

INTRODUCTION

AFGHANISTAN is relatively isolated from the rest of the world. It has no outlet to the sea, no railroads, no extensive macadamized road system, and, until recently, no scheduled airline flights. In spite of these and other handicaps, internal and external, Afghanistan is today taking its place among the responsible nations of the world. Before the day of the steamship and the airplane, however, Afghanistan was a thriving commercial center. Great caravans plodded across its deserts and plains and over its high mountain passes, trading goods between the Far East and Europe.

Shamshir Ghar is a cave tucked away in the limestone hills near the city of Kandahar. Today the cave is seldom visited, even by natives of the region, but it was sporadically occupied for long periods of time.

The present monograph is the story of Shamshir Ghar, how it was formed and grew, who occupied it, and when. It is the story of its excavation in 1950 and what the excavation reveals of the history of Afghanistan.

My goal is twofold:

1. To describe in detail and to illustrate the artifacts found in the various levels, so that future excavators in Afghanistan will have an artifact index for the historic periods discussed.

2. To establish a site chronology for Afghanistan and surrounding countries, extending from about the birth of Christ to the Mongol invasion. This site chronology is tentative, as are all such schemes, because many of the older excavation reports are incomplete or unreliable, and because future excavation and half-truths always alter the half-truths we possess today.

The comparative method used in the discussion of the excavated material is simple: begin at Shamshir Ghar and then spread out in time and space as far as bibliographical and museum sources permit.

I hoped to find evidence of paleolithic, or at least late prehistoric, occupation at Shamshir Ghar. In this sense I was unsuccessful. I did, however, succeed in achieving an excellent stratigraphic sequence of the Afghan historic periods ranging from about the birth of Christ to the Mongol invasion (1220–1227 A.D. or 598–605 A.H.).[1]

Knowledge about Afghanistan has a number of abysmal gaps. Fuzzy outlines are known, but whole chapters in the text are missing. Information about Afghanistan is important not only *per se* but also to fill gaps outside the country. Compared to that of Afghanistan, more is known about the prehistory of Iran, West Pakistan, Chinese Sinkiang, and Soviet Asia—the areas that surround and geographically and culturally blend into Afghanistan.

[1] A.H. signifies "after Hegira"; the Hegira, or flight of Mohammad from Mecca to Medina, took place in 622 A.D., which is reckoned as the year 1 in the Muslim calendar.

THE GEOGRAPHIC SETTING: KANDAHAR PROVINCE AND THE AREA AROUND SHAMSHIR GHAR

Location of the Cave and Geography of the Region

Shamshir Ghar is located in Kandahar Province, Panjwai Sub-province (Figs. 1–3). It is about 15 miles west-southwest of Kandahar City (latitude 31° 35′ N., longitude 65° 45′ E.), and about 3.5 miles north-northeast of Panjwai town. Badwan (latitude 31° 35′ N., longitude 65° 30′ E.), a small Pathan farming community on the east bank of the Arghandab River, is the nearest village to the cave. The cave is about a 15- to 30-minute uphill walk southeast of the village.

Shamshir Ghar is situated on the edge of the great desert region of southwest Afghanistan. The Dori River, which flows into the Arghandab River (Pl. 8a) about 20 miles southwest of Panjwai, is roughly the boundary between the limestone foothills of Kandahar Province and the Registan desert zone.

The Registan sandy desert is a part of the great desert and semi-desert[1] areas that stretch from the Thar or Sind Desert of India and West Pakistan through southwest Afghanistan and across into Iran. Registan itself is a region of shifting sand dunes with underlying basaltic pebbles. These dunes reach heights of from 50 to 100 feet. In central Registan dunes are more fixed; interspersed between them are areas of sandy-clay which become very gluey and sticky after one of the sporadic spring-summer rainfalls. These *pat* zones, as they are called in Baluchi, add to the difficulties of normal travel. Though barren and lifeless today, Registan once supported many Sassanian and even Early Islamic cities (see Pl. 8b).

North and northwest of Registan are the Dasht-i-Margo (Pl. 7a–b) and the Dasht-i-Khash (*dasht* means desert in Persian); both are hot, waterless, barren, pebble-strewn deserts with scattered patches of volcanic ash a few inches thick.

The predominantly sandy deserts of Registan are divided from the stony deserts of the north by the Helmand River (Pl. 8c), which creates a thin, fertile, intensely cultivated strip between the barren zones. (See Fig. 4 for idealized cross-section.)

Shamshir Ghar and Badwan are situated on the northwest flank of the last line of limestone foothills that separates the Dori from the Arghandab River (Figs. 2–3, 5). A bare, waterless plain stretches north from the Arghandab to the next limestone ranges.

Cutting between the foothills south and southwest of Kandahar and the Registan Desert is the Dori River. The region between the Dori and the Arghandab, including Panjwai Sub-province, is made fertile by a series of open canals leading from the rivers and underground tunnel-canals called *qanats* (Persian) or *karez* (Pushto), which bring water from the foothills to the villages and streams. Other important rivers draining Kandahar Province are the Tarnak, the Arghastan, and their tributaries.

Farther north and northeast the great central Hindu Kush Mountains of the Hazarajat dominate the geographic scene and effectively block north-south movement through central Afghanistan. These mountains are largely unsurveyed and unstudied, but they appear to be mainly undifferentiated metamorphic rocks, limestone, sandstone, and red shales, with many igneous intrusions.[2] The country is rugged, and inhabited by the Mongoloid-appearing Hazara and Chehar Aimak.

Geological History of the Region

Figures 2–3

John Zeigler summarizes the geology of the Kandahar region as follows:

> With the exception of the flood plain silt and the mixed detritus and loess of the *dasht*, the only other rocks studied by the writer were the limestone termed by Griesbach (1887) the Upper Cretaceous Hippuritic limestone. Near Badwan it is light gray, massive, and dense, showing very poor bedding, and no in-

[1] For purposes of this monograph, the term "desert" is defined as a barren, arid region, with not enough moisture to support a vegetative cover. A semi-desert is defined as a region with bare patches of ground showing through the vegetative cover. Both definitions are the result of conversations with Dr. Frederick Morris, geologist, and Dr. George Llano, botanist, of the Arctic, Desert, Tropic Information Center, Research Studies Institute, Air University, Maxwell Air Force Base, Alabama.

[2] Zeigler, MS.

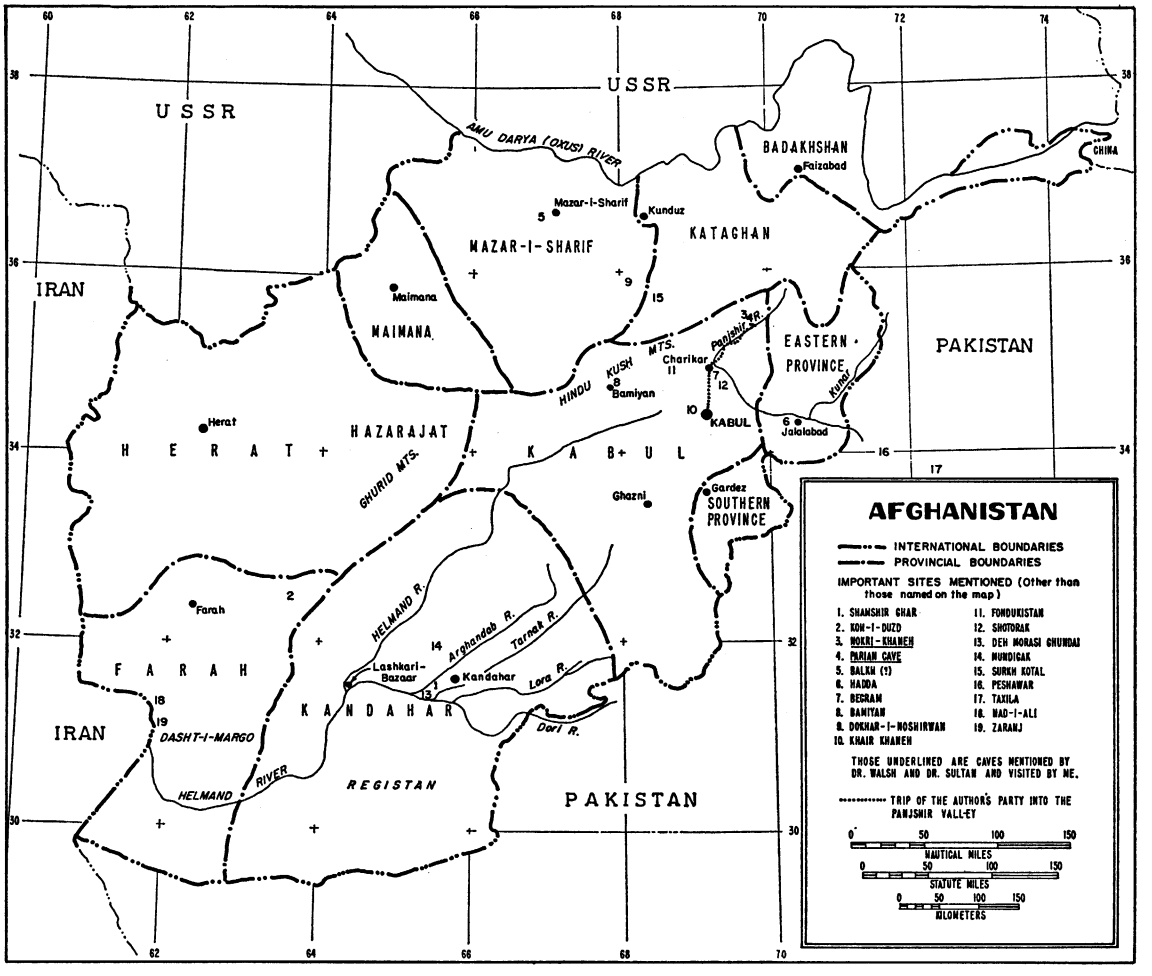


FIG. 1. General map of Afghanistan.

ternal structure. Its surface is styolitic, providing footing much better than does ordinary limestone. This same limestone was mapped in other parts of the same mountain block by Griesbach in 1881.

The entire face of the mountains is pitted and marked by innumerable small solution cavities a few feet across. The presence of these cavities in the styolithic surface leads the writer to assume the existence of other, larger caverns, which may or may not be connected to the surface of the mountain.

The limestone mountain trending northeast-southwest near Badwan is part of the numerous ridge-type ranges in this part of Afghanistan. These mountains rise precipitously from the flat featureless plains, and are the remnants of complex folds of post-Miocene times.[1]

Uplift and erosion of the limestone beds followed this retreat of the seas, and continued into Late Cenozoic times, when anthropoids and later man made their appearance.

If the early Cenozoic sea in Afghanistan did not retreat until Miocene times, the present drainage system of the Arghandab must represent drainage of post-Miocene age. Streams eroded the uplifted area and dumped debris into inland basins in the form of sand, gravels, and conglomerate. The nature of the sediments covering the *dasht* suggests that aggradation has followed erosion. The valleys—once having been cut to eustatic level—ceased downcutting and spread the veneer of outwash over the bedrock. Sometime later the whole region was covered by loess, which today forms the valley surface.[2]

[1] Griesbach, 1887.

[2] Zeigler, MS.

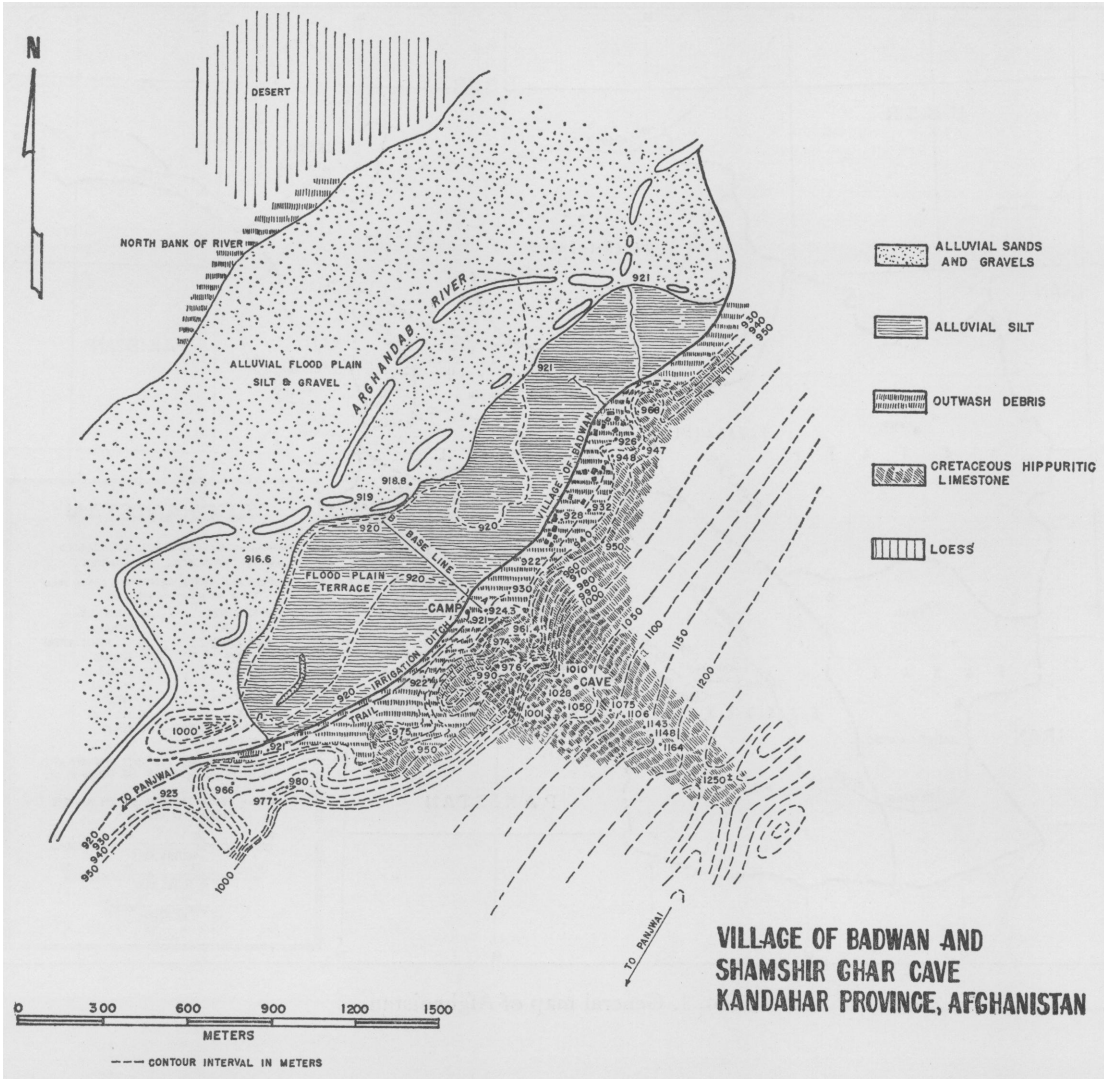


FIG. 2. Village of Badwan and Shamshir Ghar Cave, Kandahar Province, Afghanistan. After Zeigler.

CLIMATE[1]

Winter (December to February) is generally cold in Kandahar Province; freezing temperatures are common at night; day temperatures are usually well above freezing by noon. Maximum day temperatures above 70° F. in December and January and above 80° F. in February have been recorded in Kandahar.[2] Occasional heavy rains mar the usually fine winter climate, but the water quickly dries up.

Spring (March to May) is a variable season, both in temperature and precipitation. Most precipitation comes as snow melt water which rushes down from the high Hindu Kush, filling dry stream beds and gradually increasing the velocity, volume, and depth of the perennial rivers, such as the Arghandab, Helmand, and Dori.

Summer (June to September) is hot and dry, with maximum day temperatures generally exceeding 100° F. In the southwestern deserts temperatures of over 120° F. have been reported. A noticeable decrease in temperature

[1] Mainly from Stenz, 1946, 1948.

[2] Personal communication from Mr. M. A. Holwig, Project Engineer, Morrison-Knudsen Afghanistan Company, Inc., while I was excavating at Shamshir Ghar.

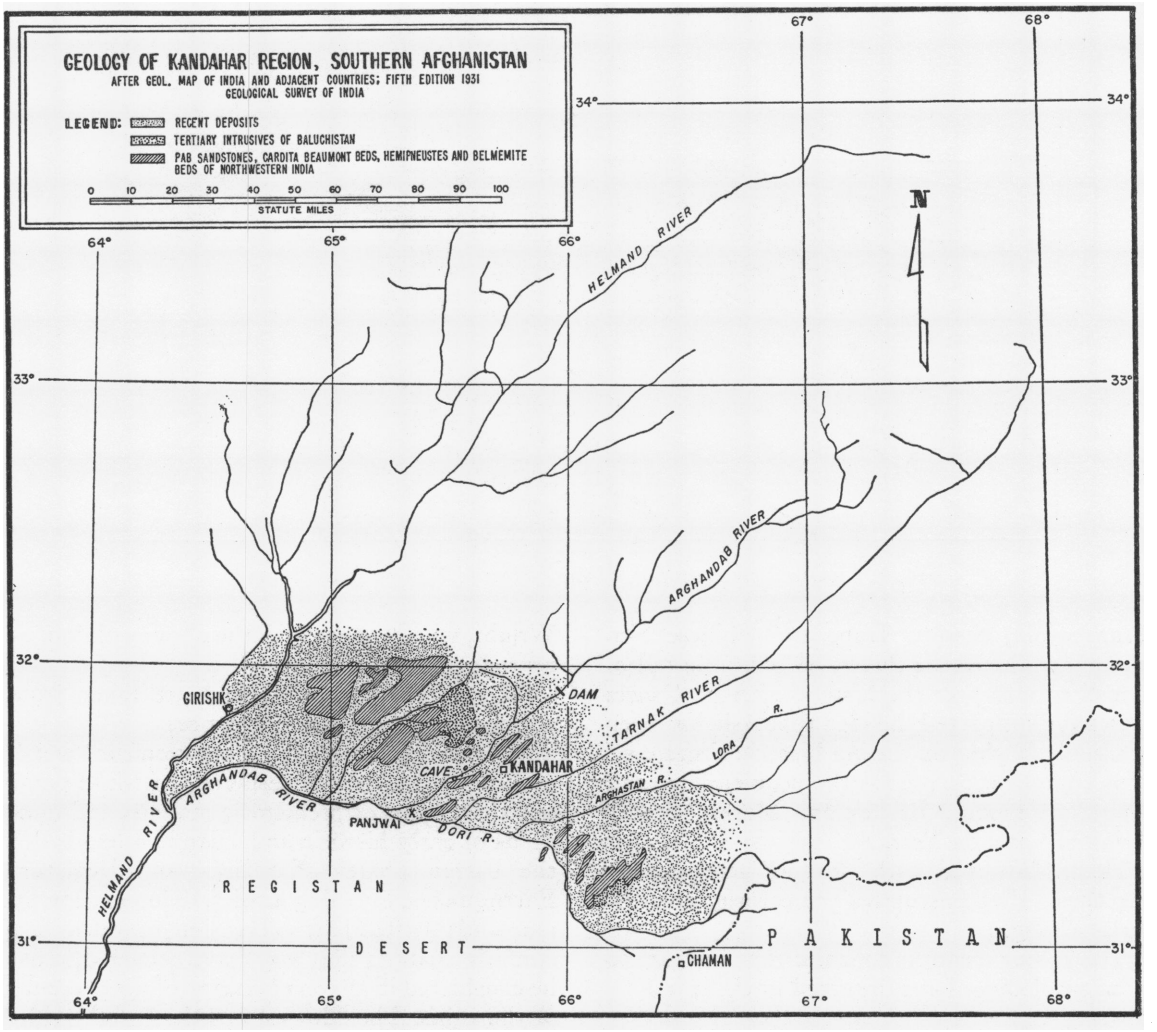


FIG. 3. Geology of Kandahar region, southern Afghanistan.

occurs in September; nights become chilly or even cold, but days remain warm to hot.

Autumn (October and November) is a brief transition period, with hot days and cold nights. Almost no rain falls during this period.

Snow almost never falls in Badwan, and the vicious *bad-i-sad-o-bist ruz* (wind of 120 days) which slices through western Afghanistan during the summer and early fall has little effect on Kandahar Province. Its zone of greatest intensity is in Seistan, where sustained velocities of 40 to 50 miles per hour have been recorded.[1]

RECONSTRUCTION OF FOSSIL CLIMATES: As the intricacies of fossil-climate reconstruction are outside the specific province of this monograph, I here only outline past and current theories on climatic conditions in Central Asia and the Middle East ranging over the past 10,000 years. There seems to be no doubt that violent and sometimes rapid changes occurred during the ice advances and retreats of the Pleistocene.

Much debate has centered around the changes (or lack of them) in the last 10,000 years. Prince Kropotkin[2] was one of the first to present the theory of Asia's progressive desiccation. Huntington,[3] after intensive research in

[1] Tate, 1909, 1910–1912.

[2] Kropotkin, 1904.

[3] Huntington, 1905a, 1905b, 1906, 1907a, 1907b.

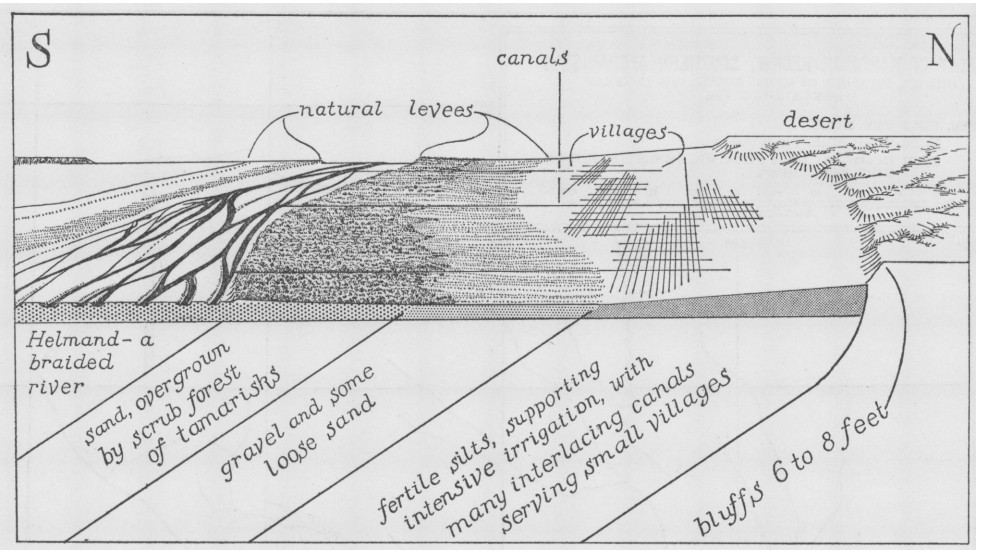


FIG. 4. Idealized cross-section of the Helmand Valley. After Morris.

Transcaspia, eastern Iran, and Chinese Sinkiang introduced the theory of "climatic pulsations" to interpret the history of Asia. Others who have supported the idea that Asia has been gradually drying up during historic times, and thus complicating life for the people, flora, and fauna, are Hedin,[1] Berkey and Morris,[2] Stein,[3] Trinkler,[4] and de Terra.[5]

Hedin, however, with Horner,[6] accepts only the thesis that postulates prehistoric, not historic, changes.

The recent trend[7] is to claim that little or no climatic changes have occurred in the last 3000 dry years.

The latest report available to me is by Wright, who concurs with the above opinion, as reproduced in Table 1.

The correlations in Table 1 are taken from the accepted European sequences.

Whether the controversy between the "wets" and the "drys" is ever resolved, I wish to point out that scores of prehistoric mounds and hundreds of early historic and Islamic mounds dot the barren wastes of Seistan and Registan. Earthquakes, invading armies, deforestation by man and its attendant soil erosion, as well as any climatic changes that *may* have occurred, must be considered in any explanation of the presence of the ruins. The Mongol invaders of the thirteenth to fourteenth centuries A.D. destroyed the extensive canal systems of the Middle East, which for many generations had permitted the steady growth of the Islamic nations. Since then the irrigation systems have never been the same. The pyramids of human skulls, piled high by Tamerlane, were not nearly so gruesome as the long-term effects of the silted, buried canals.

[1] Hedin, 1904–1907, 1910.
[2] Berkey and Morris, 1927.
[3] Stein, 1928.
[4] Trinkler, 1928.
[5] De Terra, 1932.
[6] Horner, 1933.
[7] Penck, 1930; Gregory, 1930; Barger, 1944; and others.

TABLE 1

THE CLIMATIC STRATIGRAPHY OF NORTH IRAQ, FROM WRIGHT (1952)

Stream Activity	Culture and Sample Data	Climate	Correlation
Erosion	Modern	Dry	
Minor deposition	Assyrian, 600–750 B.C.	Minor pluvial	"Sub-Atlantic"
Erosion	Jarmo ("Neolithic"), 4750 B.C.; Karim Shahir ("Mesolithic")	Dry	"Post Glacial Climatic Optimum"

Vegetation[1]

Lack of water is the main factor limiting the growth of natural vegetation in southwestern Afghanistan. The dominant vegetative cover of Kandahar Province consists largely of semi-desert grasses and shrubs, such as thistles of the *Cnicus* and *Cirsium* genera, camel thorn (*Albragi*), wormwood (*Artemesia*), several species of *Astragulus* (from which tragacanth gum is derived), and tamarisk (*Tamarix*) shrubs. Few trees exist other than those planted by man, although scattered wild pistachio (*Pistacia* sp.) and plane (*Platanus* sp.) trees grow in the Hazarajat and the foothills near Kandahar City.

The southwestern deserts (e.g., Registan, Dasht-i-Margo, Dasht-i-Khash) constitute about 20 per cent of the total area of Afghanistan, and they contain little vegetation (Pl. 7c). Almost all this part of Afghanistan is less than 3000 feet above sea level.

Occasional oases spot the deserts, and sparse clumps of tamarisk shrub and camel thorn can be found in many shallow depressions—reminders of once-great seas which covered Central Asia. Along the uncultivated banks and flood plains of the Arghandab-Helmand river systems, tamarisk bushes grow in abundance. Such groves are called *jangal* by the Afghans.

In spring the lowland deserts and the upland meadows of the Hazarajat are covered with a mantle of brightly colored flowers, but within a few weeks these are burned to a crisp.

In spite of the lack of natural vegetation, the thin, riverine, flood-plain soils of Kandahar Province are extremely fertile. On this thin, restricted, outer layer of soil the farmers of southwestern Afghanistan annually raise surpluses, using primitive but effective methods of irrigation: e.g., open canals and *qanats*. I use the word "primitive" as meaning technologically inferior by Western standards.

Fauna[2]

Kandahar Province, to put it mildly, is not overpopulated with wild life. Scarcity of water and an arid climate limit the numbers and types of animals that exist.

The faunal assemblage of Afghanistan, west of the Hindu Kush ranges, is similar to that of the Iranian Plateau, with strong Transcaspian elements.

The most common wild animals are gazelle (*Gazella subgutturosa*), jackal (*Canis aureus*), fox (*Vulpes cana*), the Cape hare (*Lepus capensis*), and such rodents as voles (*Blandfordimys afghanus*), hamsters (*Cricetulus migratorius*), field mice (*Mus musculus bactrianus*), jerboas (*Allactaga elater*), and susliks (*Citellus fulvus*). Also present are boar or wild pig (*Sus scrofa*), hyena (*Hyaena hyaena*), and hedgehog (*Hemiechinus megalotis*).

Birds[3] are more numerous in species and number but are as spottily distributed as terrestrial game.

Desert and semi-desert game birds include various gallinaceous species, such as the rock or chukar partridge (*Alectoris graeca*), sand partridge or *sisi* (*Ammoperdix heyi*), francolin or black partridge (*Francolinus francolinus*), and quail (*Coturnix coturnix*); a number of pigeons (*Columba* sp.) and doves (*Streptopelia* sp.); the houbara bustard (*Chamydotis undulata*), great bustard (*Otis tarda*), little bustard (*Otis tetrax*), and several sand grouses (*Syrrhaptes paradoxus* and *Pterocles* sp.).

The Seistan swamps and marshes are wintering grounds for many northern-breeding waterfowl and waders; ducks (*Anas*, *Casavea*, and other genera), geese (*Anser* sp.), plovers (*Charadrius* sp.), sandpipers (*Tringa* and other genera), and the lapwing (*Vanellus vanellus*) are among the most common types. The demoiselle crane (*Anthropoides virgo*) breeds in the marsh areas. Most of the Seistan assemblage wanders up the Helmand or Arghandab as far as the Hindu Kush foothills northwest and west of Kandahar.

Other birds of Kandahar Province include hawks and eagles (*Falco*, *Buteo*, *Accipiter*, *Aquila*, and other genera), vultures (*Gyps*, *Aegypius*, etc.), owls (*Otus*, *Bubo*, *Strix*), larks (*Alauda* sp., *Calandrella* sp.), swallows (*Hirundo* sp.), hooded crow (*Corvus cornix*), rook (*Corvus frugilegus*), jay (*Garrulus* sp.), magpie (*Pica pica*), thrush (*Turdus monticola*), warblers (*Hyppolais sylvia*, *Phylloscopus*), shrike (*Lanius shach*), starling (*Sturnus vulgaris*), and

[1] Main sources: Vavilov and Bukinich, 1929; Hooper, 1937.

[2] Primary source: Ellerman and Morrison-Scott, 1946.

[3] The birds of Afghanistan have not been studied thoroughly. All the information about them in ornithological literature to date has been summarized by Whistler, 1949.

sparrows (*Passer domesticus*, *P. moabiticus*, *P. montanus*).

Several varieties of fresh-water fish and crabs live in the rivers and lakes of south-central and southern Afghanistan, but they have not been adequately reported. We must wait for the final reports of the Danish expedition to Afghanistan (1947–1948) which collected ichthyological specimens.

ARCHEOLOGICAL WORK IN AFGHANISTAN[1]

ARCHEOLOGICAL WORK in Afghanistan can be divided into three periods: pre-1922, 1922–1940, 1940–1955.

THE EXPLORATORY PERIOD: PRE-1922

The pre-1922 exploratory period was at best haphazard, at worst, butchery. The earliest reasonably accurate accounts of Afghan archeological remains are found in European travelers' reports which usually discuss and illustrate only above-ground ruins. Some travelers, such as Ferrier,[2] were acutely observant transients; others, such as Tate,[3] who worked with the Seistan Boundary Commission, combined archeological observations with other interests. Many short articles appeared in the journals published by the several branches of the Royal Asiatic Society.

Out of the guessing games played with the Russians and the two Afghan wars of the nineteenth century came the excellent collection of Graeco-Buddhist antiquities in the British Museum.

FRENCH MISSION PERIOD I: 1922–1940

In September, 1922, Alfred Foucher, on behalf of the French Government, signed a treaty with the Afghan Government in Kabul. This treaty, which was in force until 1952 when it was renewed, granted the French a virtual monopoly on archeological research in Afghanistan and recognized the diplomatic status of the Délégation Archéologique Française en Afghanistan. André Godard, currently Directeur Général du Service Archéologique de l'Iran was named director of excavations in 1923, and he and Flury first studied the architectural and epigraphic remains of early Islamic Ghazni.[4] Primarily, however, the French were interested in the climax of Buddhist art in Afghanistan, roughly from the first to the fifth centuries A.D. Foucher and his colleagues searched for answers to the following problems: (1) the origin of the so-called Gandhara art style; (2) the relationship of that art style to the Buddhist art in Afghanistan; (3) the spread of Hellenism to the East; and (4) the penetration of the Silk Route through Afghanistan.

Several *sondages* were dug at Balkh, thought to be the old Bactra, but no definite pre-Islamic remains were identified. In 1925 excavations at Balkh were abandoned for more fruitful sites farther south.

BAMIYAN[5]: Bamiyan is about 205 miles northwest of Kabul on the ancient route from Balkh to Taxila, at an elevation of about 7500 feet above sea level. The caravansaries, caves, and two sandstone statues of Buddha (53 and 35 meters high) were well known to Chinese and Korean Buddhist pilgrims, as well as to nineteenth century European travelers. Intensive investigations by the French were begun at Bamiyan in 1922 and continued until 1933.

The giant Buddhas carved into the face of a sandstone cliff, the colorful wall paintings, and the numerous artificial caves that housed the working and worshiping monks were reported in great detail.

The Bamiyan finds are dated as follows: Little Buddha (35 meters high), second half of second century A.D.; Big Buddha (53 meters high), fourth to fifth century A.D.; wall paintings and stucco decorations, first to seventh century A.D., with the bulk in the first to fifth centuries.

Other sites, mainly architectural, studied in the Bamiyan Area were Sar-Khoshak, Shahr-i-Gholgolah, all Muslim forts destroyed by Chingis Khan in 1222, and Kakrak,[6] a Buddhist sanctuary, with a series of wall paintings consisting of a central seated Buddha surrounded by circles of smaller seated Buddhas, done in a local development of the Iranian Sassanian art style.

HADDA[7]: Hadda is located about 5 miles southeast of Jalalabad at an elevation of about 1500 feet above sea level. The site was explored and excavated from 1923 to 1928. Although Hadda had been popular with nineteenth-

[1] This section is condensed from a comprehensive paper being prepared on the history of archeological research in Afghanistan.

[2] Ferrier, 1870.

[3] Tate, 1910–1912.

[4] Flury and Godard, 1925.

[5] Godard, Godard, and Hackin, 1928; Hackin, 1934; Hackin and Carl, 1933. Hackin served from 1929 to 1940 as director of the French Mission, after Foucher.

[6] Hackin and Carl, 1933.

[7] Hackin, 1928; Foucher, 1930; Barthoux, 1930, 1933.

century looters, its stupas and caravansaries still held many art objects, including 23,000 stucco heads of all sizes. These heads included serene Buddhas and Bodhisattvas, horribly grinning demons, helmeted soldiers, ascetics, monks, and members of many ethnic groups. Many bas-reliefs in schist were also found. Hackin dates the finds, primarily on iconographic evidence, from the third to the seventh centuries A.D.

A small third- to fifth-century Buddhist stupa was excavated at Bagh-Gai, northwest of Begram, in 1928.

BEGRAM[1]: Begram is about 50 miles north of Kabul at the confluence of the Panjshir and Ghorband rivers, which is about 5 miles west of the modern town of Charikar, at an elevation of about 5000 feet above sea level. For the first six centuries A.D., Begram was an important commercial and strategic center. It was situated at the junction of two main trade routes: one from Balkh to Bamiyan to Peshawar to Taxila; the other leading down the Panjshir Valley from Badakhshan, Turkestan, and Chinese Sinkiang to Gandhara.

Between 1936 and 1940, Hackin excavated in both "*la nouvelle ville royale*" (Begram proper), and "*la vielle ville royale*" (Bordj-i-Abdallah). In the new royal city were found some of the most spectacular museum pieces of twentieth-century archeology. Scattered pell-mell in two rooms were many profane luxury objects side by side with familiar Buddhist religious objects: carved ivories from India, vases and lacquer ware from Han Dynasty China, classical Graeco-Roman bas-relief medallions sculptured in plates, Graeco-Egyptian bronzes, including a 25-cm.-high statue of Hercules, Phoenician glassware from Tyre and Sidon, and a vase depicting a scene from the Iliad. Hackin dates most of the finds as first to third century A.D. Many are remarkably similar to "The treasure of the Oxus" of the British Museum and finds in the Hermitage at Leningrad.[2] Some specimens can be duplicated at Taxila.[3]

Other sites excavated in the Begram area include: Paitava, about 5 miles south of Begram, a stupa containing a series of decadent "Partho-Bouddhique" stucco heads and bas-relief schists of the third to fourth centuries A.D.[4]; Shotorak, a Buddhist site of seven or eight stupas, about 4.5 miles east of Begram, probably dated as first century A.D.[5]; Fonduqistan, a *sangharma* (monastery) site about 70 miles west of Bamiyan, which exhibits a new technique: clay modeling of heads and torsos replaces stucco and schist bas-reliefs. The art style has many Indian Gupta features, but the hair treatment is still Hellenistic. Hackin and Carl date Fonduqistan as sixth to seventh centuries A.D.[6] Fonduqistan is the last important Buddhist site in Afghanistan.

Other Excavations of the French Mission I Period

DOKHTAR-I-NOSHIRWAN[7]: Located near Haibak in Afghan Turkestan, Dokhtar-i-Noshirwan was explored by Hackin, who reported it as the meeting place of Sassanian and Buddhist art styles. The date is probably seventh century A.D.[8]

MARAJAN HILL AND OTHER BUDDHIST STUPAS NEAR KABUL: In 1930 a group of workmen on Marajan Hill, east of Kabul, dug up a vase containing about 100 silver coins of Greek origin: 30 Athenian *drachmas* (fifth to sixth centuries B.C.); 20 miscellaneous coins of the fourth to fifth centuries B.C.; eight Persian *sigloi;* and a dozen examples of bent-bar punched currency common in Gandhara at the time of Alexander the Great.[9] Some of the fifth- to sixth-century coins bear the figure of an owl; others, Athena. These coins were probably obtained via trade with Achaemenian Iran. Clay modeling, like that at Fonduqistan, was found at two stupas on Marajan Hill, probably dating from the third to the fourth centuries A.D.

Silver and gold Sassanian coins of the third to fourth centuries A.D. were found at other sites near Kabul: Saka, Shivaki, Kamari, and Tepe Khazana.

KHAIR KHANEH[10]: A Brahman temple of the fifth century A.D., located 7½ miles northwest of Kabul, was a meeting place of Sassanian and

[1] Hackin and Hackin, 1939; Hackin, 1951; Hackin, Hackin, *et al.*, 1954.
[2] Dalton, 1926.
[3] Marshall, 1951.
[4] Auboyer, 1950.
[5] Meunié, 1942.
[6] Hackin and Carl, 1933.
[7] Foucher, 1924; Auboyer, 1950.
[8] Godard, Godard, and Hackin, 1928; Rowland, 1953.
[9] Wheeler, 1947.
[10] Hackin, 1935; Hackin and Carl, 1936.

early Hindu art motifs and styles, as well as the source of some Parthian marble finds.

KUNDUZ[1]: Less than 2 miles northeast of the town of Kunduz are the ruins of 10 Buddhist monastaries. The first examples of the classic Graeco-Buddhist art style were found here. As the 217 mould-stucco heads, two circular medallions, and two fragments of statues had no Indian influence, the finds probably date from the second to the third centuries A.D.

SEISTAN SITES[2]: In 1936 Hackin and Ghirshman sunk *sondages* at two Seistan sites: Sar-i-Tar (Zaranj), capital of medieval Sagistan (Seistan) until Timur destroyed it in 1383 A.D., and Nad-i-Ali, an early historic site. Probable remains of a Ghaznavid boat were uncovered at Sar-i-Tar.

NON-FRENCH INTRUSION I: 1938

The surface-collecting expedition of the Englishmen Barger and Wright[3] should be mentioned in passing. Their most important finds were a series of unstratified "Greek and Sassanian" seals found just south of the Amu Darya (the classical Oxus) River.

EVALUATION OF THE FRENCH MISSION I PERIOD

This was a period of art exploration, of attempts to fix precisely the route of the Silk Trade through Afghanistan. Little scientific excavation was undertaken, and that carried out had as its objective art objects rather than stratigraphic information. Iconography, rather than stratigraphy, was the primary dating device. In many cases, such as the above-ground Bamiyan Buddhas and wall paintings, comparative studies were the only feasible means of arriving at an approximate date.

No prehistoric sites had been discovered, indeed, none sought, with the possible exception of Ghirshman's Nad-i-Ali.

The Achaemenian and Graeco-Bactrian periods, as well as Alexander's swift invasion, and the elusive "Scyths" were known only through coins.

The accomplishments of French Mission I, especially under the direction of Hackin, were rich, in theory as well as art objects. Thousands of examples of Graeco-Buddhist or Gandhara art, both portable and non-portable, were discovered and recorded. Many portable *objets d'art* grace the halls of the Musée Guimet in Paris and the Musée de Kabul (Afghanistan).

Schlumberger sums up the achievements of his predecessors as follows: (they) "fixed for Afghanistan the nature of the Buddhist religion as it reflects itself in the so-called art of Gandhara; second for a region of greatest importance, which is precisely the route taken by Buddhism in its expansion toward Central Asia it rounded out the picture which could already be made of that art thanks to the diggings in the regions of Taxila and Peshawar in North-West India."[4]

FRENCH MISSION PERIOD II: 1940–1954

Ghirshman purposely attacked Begram in order to establish a stratigraphic sequence. Although many art objects had been found at this site and dated from the first to the seventh centuries A.D., its history was unknown. It had been assumed that the Kushans, powerful rulers of central Afghanistan from the first to the fourth centuries A.D., had been its main occupants. Knowing this, Ghirshman decided to excavate in 1941–1942[5] and introduced the era of scientific archeology in Afghanistan. He dug in both Bordj-i-Abdallah (the "Old Royal City") and in Begram proper (the "New Royal City"). Bordj-i-Abdallah is 600 meters north of Begram itself. Two *sondages* were made at Bordj-i-Abdallah. These produced no discernible stratigraphy, only a mixture of specimens ranging from Kushan to Islamic times. Ghirshman identified three distinct cultural levels at the New Royal City, all datable by coins found *in situ*.

NIVEAU I: Ghirshman dates this cultural level from the second century B.C. to the middle of the second century A.D., equated in time with the Indo-Parthian levels at Taxila. Two principal wares were found in Niveau I: "*céramique noire et gris-noire*," and "*céramique rouge*." The Black or Gray-Black vessels are almost exclusively bowl types, incised with an encircling straight or undulating line. The Red Ware, more common and rather poorly decorated, was almost always incised, occasionally appliquéd,

[1] Hackin, 1938a, 1938b, 1950.
[2] Ghirshman, 1939.
[3] Barger, 1938–1939, 1944; Barger and Wright, 1941.
[4] Schlumberger, 1947, 15.
[5] Ghirshman, 1946.

but had no painted designs. The commonest motifs were the straight or undulating lines incised around the body of the vessels. Forms included bowls, storage jars, pots, craters (cups with two handles), goblets, *coupes à pied* (cups with feet or "champagne cups"), teapots, and a possible rhyton fragment. One pottery object had a Kharoshthi inscription like those at Taxila.

Bronze was rare; only a large "wine dipper" was recognizable. Iron was much more common; a scythe and several rivets were found.

Several bluish black schist container covers and penis-shaped objects (pegs or pestles?) and white alabaster buttons were found, along with a wide variety of jewelry: bronze rings and pins; ivory pins; beads of amber, multicolored glass, carnelian, ruby, ivory, and rock crystal.

An interesting, unique find was a baked clay human figurine with classical occidental overtones and Indian influences; e.g., a headless Roman (?) legionnaire with an oblong shield.

NIVEAU II: A slight gap occurs between Niveau I and Niveau II, during which Begram was temporarily abandoned. Kanishka, founder of the Second Kushan Dynasty, re-occupied the site. Niveau II dates from mid-second century A.D. to mid-third century A.D.

A few changes occur in the material culture: the Gray-Black Ware has almost disappeared, and a new goblet shape (more globular) appears; bossed decorations (*décor de pastillage*) are no longer in vogue. Most of the new goblets have designs in black paint; a circle was drawn around the middle of the body and topped with a *flamme* motif; bowls, less frequent, are replaced by the chalice-like goblets. Red Ware jars, cooking pots, craters, lamps, "butter jars," teapots, and storage jars are numerous. Handles are higher up on the shoulders than those of Niveau I.

A unique, well-burnished sherd, shaped in a mold like that of the *terra sigillata* ware found at Bhir Mound[1] (Taxila) and Arikamedu[2] (southeast coast of India), was found. Another unique pottery object had a Kharoshthi inscription.

Bronzes were more numerous than in Niveau I: a wine dipper, two small cups, a small metal bell (bridle ornament ?), and several spatula fragments. As in Niveau I, more iron than bronze was found, including laurel-leaf lance heads with square cross-sectioned tangs, three-bladed arrowheads of classic Scythic type, arrowheads with conical cross-sections, spiral-headed pins, and a pair of scissors of Roman type.

Several engraved blue-gray schist bowl covers were found.

The ornamental jewelry of Niveau II told a story of widespread trade. A gold bracelet with places for 46 worked rubies, 20 still intact, was discovered, along with gold earrings with turquoise inlay, and plain bronze earrings. All these specimens are similar to those found in South Sarmatian tombs, of the second century B.C. to the first century A.D.[3] and Merovingian (fifth century A.D.) France.[4] Other jewelry came from India, Rome, Egypt, and Central Asia.

The Greek god Dionysius is represented on seals at both Taxila and Begram II.

NIVEAU III: The Third and Fourth Kushan Dynasties, dating mid-third to late fourth centuries A.D., are represented in this cultural level.

No painted vessels or sherds were found in Begram III, but a new stamped decorative style appears on the Red Ware. Black Ware vessels occur, but rarely. The stamped designs were probably carved in wood and then impressed on vessels before firing, generally on the shoulder. Dominant motifs are geometrics, scarab-like designs, stars, lotus, floral, and animal designs. At Goundeh Pèica, about 4 miles southeast of Begram, a sherd was found with stamped winged horses, facing one another, a common Sassanian motif. Incised decorations were still popular in Niveau III. Shapes in general are the same as those of Begram I and II. A series of baked clay figurines (elephants, men on horseback, badly weathered female) complete the pottery picture.

Bronze finds were more numerous than they were in either Begram I or II. Included are a cup, a small bell, and a cache of six bowls.

Iron arrowheads are the most numerous metal objects. The majority were of the three-bladed type; others were laurel leaf-shaped with flat cross-sections, conical arrowheads with long tangs, and lanceolate-shaped specimens. Other iron implements uncovered were nails,

[1] Marshall, 1951.
[2] Wheeler *et al.*, 1946.
[3] Rostovtzeff, 1922, calls this style "South Iranian."
[4] Ghirshman, 1946.

awls, knife blades, and hooks.

Compared to that of Begram II, the jewelry inventory is very poor. Only a few glass beads, bronze rings, and bronze, lead, and ivory pins were found.

The only specimens of Gandhara art at Begram were found in Niveau III—a weathered statue and a mutilated bas-relief schist which Ghirshman dates around the end of the third or beginning of the fourth century A.D.

BALKH, 1947[1]: Daniel Schlumberger, appointed director of the French Mission after World War II, decided to renew the search for Hellenistic Balkh as his first post-war project. Under his direction, the French Mission sank 61 test pits at Balkh in 1946, but was unsuccessful in finding the "Mother of Cities." However, Schlumberger and Trystam, who studied the ceramics, were able to establish a post-B.C. chronology from Kushan (?) to Early Islamic times. Only preliminary reports have been published thus far.

LASHKARI BAZAAR (LASHKARGAH), 1949–1951[2]: Schlumberger and his colleagues excavated five seasons at the Ghaznavid fortress-city site of Lashkari Bazaar. Three palaces (North, Central, and South) and two mosques were surveyed, measured, and tested, as was the bazaar section which extended for over a mile. The pottery is being studied by J.-C. Gardin, who is also studying the Balkh finds.[3]

MUNDIGAK, 1951[4]: Jean Casal has been excavating this important Bronze Age site for several seasons. The finds tie in nicely with those at Deh Morasi Ghundai[5] and Said Kala Ghundai,[6] both tested in 1951. Bronze Age Afghanistan is obviously related to the North Indian and South Iranian complexes. Carbon 14 dates from the beginning of the Bronze Age at Mundigak (5 meters below virgin soil) are: 4720±270 B.P.; 4439±280 B.P.; 4580±200 B.P.[7]

SURKH KOTAL, 1951–1953[8]: The primary importance of this temple mound, 10 miles north of Pul-i-Khumri, still being excavated, is that for the first time in Afghanistan we have a Graeco-Iranian site without Indian or Buddhist undertones—a *bona fide* Hellenistic site.

NON-FRENCH INTRUSION IIA: POST-WORLD-WAR-II SURVEYS AND SURFACE COLLECTING

A series of post-war surveys has added little to our knowledge of the archeology of Afghanistan.

Members of the British-Indian Cultural Mission[9] were Prof. R. E. Mortimer Wheeler, then Director-General of Archeology in India, Mrs. Wheeler, Justice N. G. A. Edgerley, I.C.S., President of the Royal Asiatic Society of Bengal, oldest learned society in Asia, and Mr. M. A. Shakur, Curator of the Peshawar Museum. The Mission visited Jalalabad, Hadda, Kabul, Begram, Bamiyan, Pul-i-Khumri, Kunduz, Tashkurgan, Mazar-i-Sharif, Balkh, Andkhui, Maimana, Aq Chah, Ghazni, and Kandahar.

Miss Beatrice de Cardi[10] made surface collections in Kandahar and Farah provinces.

The results of the survey by the First Afghan Expedition, the American Museum of Natural History, summer, 1949, are discussed on p. 141, and by Fairservis in three short reports.[11]

Dr. A. D. H. Bivar, of the Ashmolean Museum, Oxford University, copied two Epthalite inscriptions at Oruzgan, 150 miles northeast of Kandahar.[12]

In 1954, Dr. René Ghirshman, Director of the French Archeological Mission in Iran, and Dr. Richard N. Frye, Professor of Middle Eastern History at Harvard, made latex impressions of a badly weathered Parthian Pahlavi inscription near Chist.[13]

NON-FRENCH INTRUSION IIB: EXCAVATIONS SINCE WORLD WAR II

Two American institutions, after signing contracts with the Afghan Government, sent expeditions into the field to excavate.

The Second Afghan Expedition, the American Museum of Natural History, 1950–1951, is discussed above (pp. 142–143). Excavations

[1] Schlumberger, 1948.
[2] Schlumberger, 1949, 1950, 1952a.
[3] As the present monograph goes to press, J.-C. Gardin's "Céramiques de Bactres" (1957) comes to my attention.
[4] Casal, 1952, 1955.
[5] Dupree, 1951.
[6] Fairservis, 1952a, 1952b.
[7] Libby, 1954.
[8] Schlumberger, 1952b, 1953, 1954.
[9] Shakur, 1947; Wheeler, 1947.
[10] De Cardi, 1950, 1951.
[11] Fairservis, 1950a, 1950b, 1951.
[12] Bivar, 1953.
[13] Frye, 1954.

under Fairservis' direction have been published as a separate monograph.[1] A preliminary report of my three excavations has been published in "Afghanistan."[2]

The final report of Deh Morasi Ghundai (a "Chalcolithic" site near Kandahar) and Koh-i-Duzd (a cave dug with negative results) will be the subject of a separate monograph.

Members of the University Museum, University of Pennsylvania, Expedition to Afghanistan, 1953–1954, from July to November, 1953, were Dr. Rodney S. Young, Dr. S. V. Camman, Miss Dorothy Cox. Dr. and Mrs. C. S. Coon journeyed to Afghanistan in 1954 in search of Stone Age cave sites.

It is too soon for this expedition to have published more than a few preliminary notes. Available to me is the report of Young (1954) in "Archaeology" on two months' excavations in a Buddhist monastery at Kunduz. No sculpture was uncovered, for the site had been looted, probably in the seventh century A.D.

A test pit at Balkh in search of Bactra yielded negative results.[3] The pit was sunk in the fortress wall of the lower city. An Islamic wall (about 45 inches high) was found to be superimposed on an older (probably Kushan, second century A.D.) wall. No Hellenistic wall was found. Therefore Young, contrary to Kohzad,[4] thinks that Hellenistic Bactra exists not in the lower city, but in the citadel. Young qualifies his statement with, "if the modern Balkh is indeed the ancient Bactra."[5]

[1] Fairservis, 1956.
[2] Dupree, 1951.
[3] Young, 1955.
[4] Kohzad, 1953, 9.
[5] Young, 1954, 52.

EXCAVATIONS AND STRATIGRAPHY

Structure and History of the Cave

The cave of Shamshir Ghar is situated about 100 meters above the present Arghandab River level (Fig. 5). It is located along the plane-table traverse made by Zeigler (Fig. 2) in a deep, steep-sided gulley. Initial explorations indicated that the cave had three major sets of chambers, which were further subdivided so that a total of five chambers were differentiated (Figs. 6 and 7).

One interesting sidelight of the first inspection of the cave was that we found two rather recent human corpses. One lay outside the "Front Porch" in the gulley, with the bones

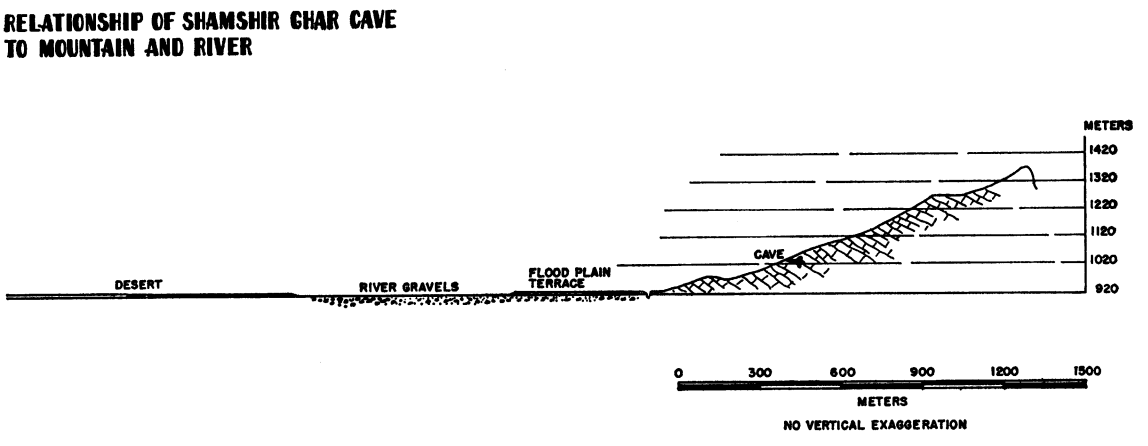


Fig. 5. Relationship of Shamshir Ghar Cave to mountain and river. After Zeigler.

scattered about the area, probably by animals; only the parchment-like skin of the back, a few vertebrae, ribs, and the skull were left.

The second, a naturally mummified body, lay, fully clothed, with turban cap and cloth, in the Fourth Chamber in the bottom of the "pit."

The First Chamber was about 16 meters long, 11 meters wide, and everywhere, except the entrance, about 2.5 meters high. The narrow opening (Pl. 9a; Fig. 7) was almost completely closed by rocks which were removed by our workmen. The Front Porch in the entrance had a calcite travertine floor that dipped into the mouth of the cave. Four small fissures entered the First Chamber, two from the roof and two from the walls (Figs. 6 and 7). The walls were smooth limestone, with few irregularities. Near the floor level (before excavation) thin ledges projecting outward attained a width of 50 cm. "These ledges probably represent less soluble zones in the limestone."[1]

The Second Chamber was separated from the First by a pinched-in tunnel (horizontally) and a low roof (vertically). On Figs. 6 and 7 note the calcite travertine and pit, which limited the sediments available for excavation. The Second Chamber was about 17 meters long, 13 meters wide, and, except at the entrance and the pit, about 6 meters high. A fissure entered the chamber from the roof near the entrance.

Extensive sediments were present only in the First and Second Chambers. A small, thin, and unstratified patch existed in the Fifth Chamber in front of the paintings, but the other chambers contained nothing more than fallen boulders, thin layers of dust, and in places thick layers of bat dung.

To reach the Third Chamber we passed through a narrow tunnel, about 11 meters long by 1.5 meters wide by 1.5 meters high. Ledges protruded from the wall and further restricted its width. These ledges seem to have been formed by running water, but we found no running water in the cave. Shamshir Ghar is essentially a dry cave.

[1] Zeigler, MS.

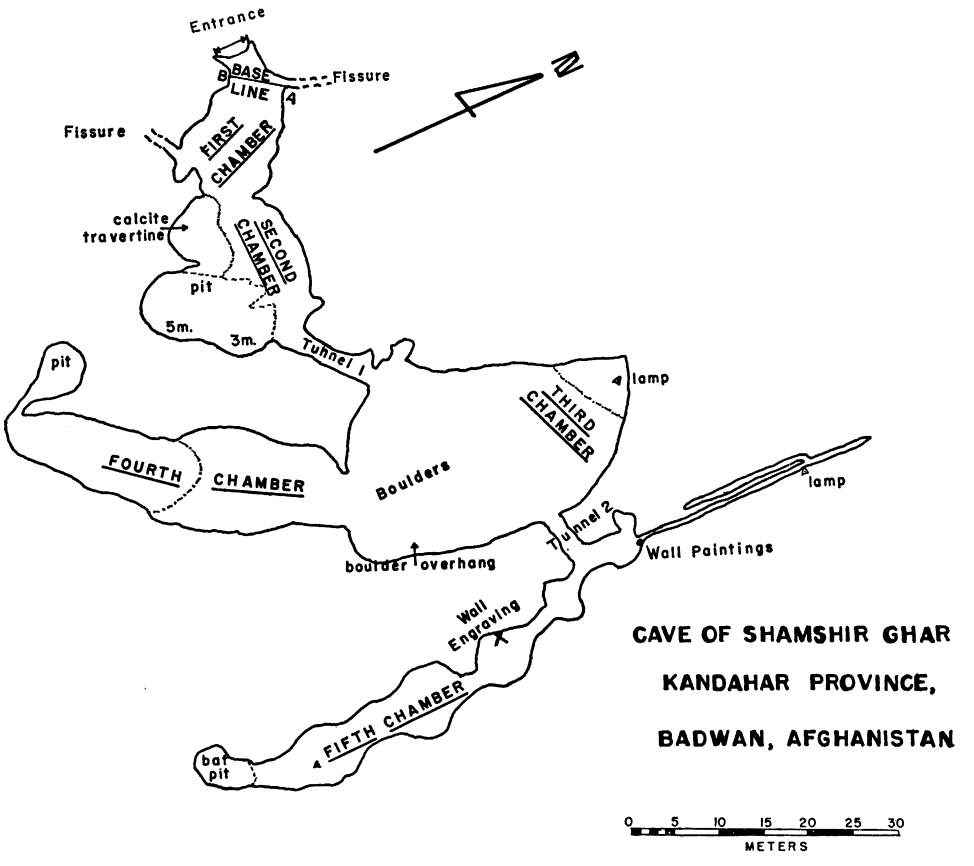


FIG. 6. Cave of Shamshir Ghar. After Zeigler.

It was necessary to use lanterns in exploring the Third, Fourth, and Fifth Chambers because sunlight penetrated only to the first two chambers, and these were poorly lighted.

The Third Chamber, the largest of the five, was about 35 meters long by 25 meters wide by 30 meters high. A jumbled mass of limestone boulders, some 10 meters in diameter, separated the Third from the Fourth Chamber. A few drip stones and a smoked lamp hole (?) were found on the floor in the northern end of the Third Chamber. Several protruding ledges also occurred here.

The Fourth Chamber was very like the Third, except that it sloped in the opposite direction and ended in the pit or sink-hole where the fully clothed corpse was found. Dimensions of the Fourth Chamber were: 40 meters long by 10 meters wide by 12 meters high.

Access to the Fifth Chamber was difficult. It was about 4 meters higher than the Third Chamber, so it was necessary to climb up to it via a pair of human shoulders or a pile of rocks. A short tunnel led to a connected series of sink-holes at right angles to and south of the tunnel. These sink-holes ended in a small, moist chamber, where literally thousands of bats hung not only from the ceiling but from one another. This is the only moist section in the entire cave. "The only possible source for the sediment here was from the residue of the dissolved limestone."[1]

North of and perpendicular to the short tunnel was a narrow, straight, north-south tunnel with a side tunnel running parallel to it. The former was along a fissure. It was large enough for one man to crawl into, in some places only on his belly: the average diameter was about 1 meter.

The position of some wall paintings in red, a possible wall engraving, and another sink-hole lamp (?) may be noted in Fig. 6 (see also pp. 273–275).

[1] Zeigler, MS.

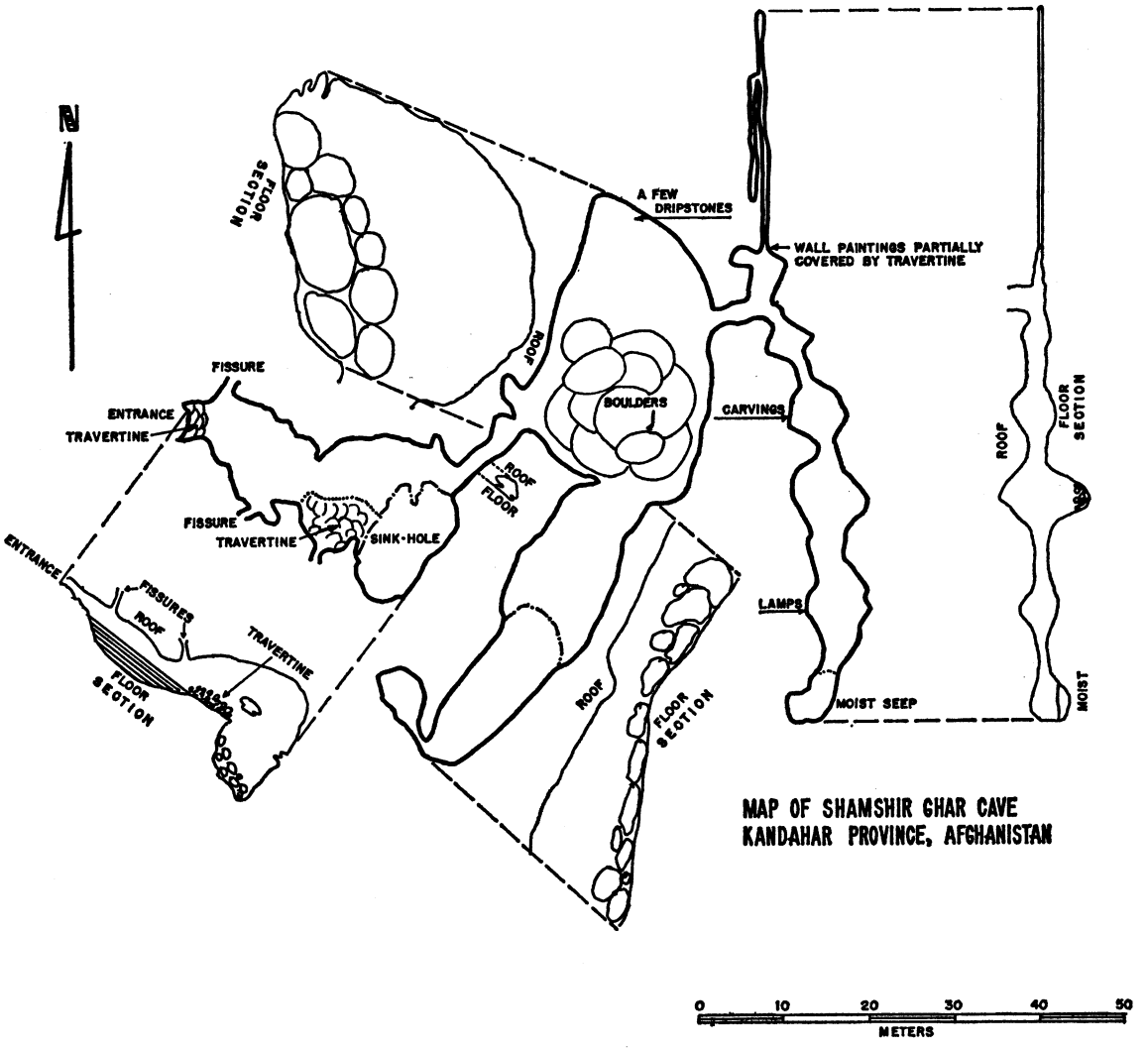


FIG. 7. Floor plan of Shamshir Ghar Cave. After Zeigler.

Zeigler postulates the following sequence in the formation of the cave (Figs. 8 and 9):

1. It was formed during late Miocene and early Pliocene when rainfall was much heavier than at present.

2. Sterile clays were deposited before the channeling-out process had been completed. Finally, seeping water began the deposit of the calcite travertines.

3. Continued erosion and probable repeated freezing and thawing ultimately caved in the roof along weak fissure lines. The moisture remaining in the cave evaporated, and the caliche found in the First and Second Chambers was deposited.

Lack of extensive dripstone deposits in the cave suggests that little moisture has reached the inside of the cave since the chambers were formed. . . . The geological history of Shamshir Ghar made it a poor place in which to excavate for early man. Unfortunately, the history could not be ascertained prior to the digging of the cave itself.[1]

TECHNIQUES OF RECORDING AND EXCAVATION AT SHAMSHIR GHAR

To insure accurate recording of the excavations, a field diary was kept in which general

[1] Zeigler, MS.

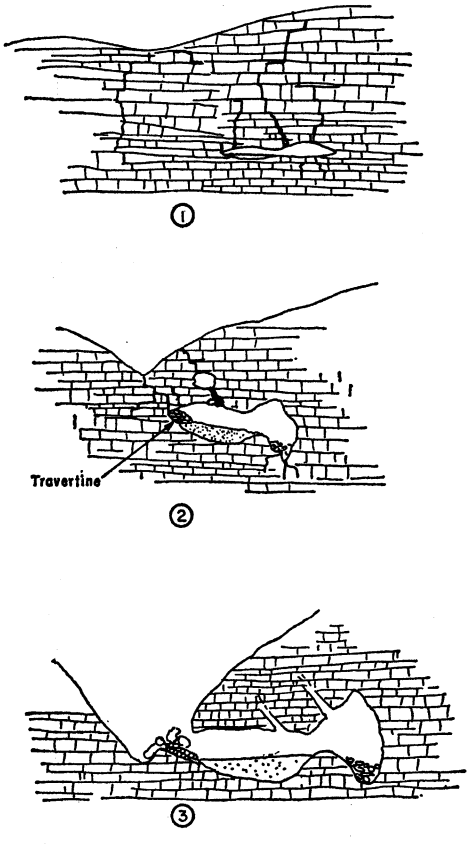


FIG. 8. Diagrammatic history of Shamshir Ghar Cave. See text for explanation. After Zeigler.

impressions and daily progress were noted. On find-data cards, numbered and kept in duplicate, we recorded in complete detail all the pertinent data necessary to the identification of any group of finds. Duplicate numbered tags attached to the find-data cards were placed inside and outside each container of finds, with identifying information as follows: date, site, level number, trench, and cut number, and centimeter-level number. In addition explanatory sketches were made in the diary and on the find-data cards. The photographs taken were generally poor, because my flash attachment had been lost on a trip to the Panjshir area.

EXCAVATIONS

Before the excavations were begun, several things were done: A base point (A), 1023 meters above sea level, was established by Zeigler in the entrance of the cave (Figs. 2, 10). Line A B was established, both points being 1023 meters above sea level. The rock fall and debris were cleared from the floor of the cave, and the floor of the First Chamber was laid out in a 2-meter grid by means of cotton twine and wooden stakes.

TRENCH 1, CUT 1 (FIG. 11): The workmen insisted on using their native tools, which of course was not strange. They were unfamiliar with systematic digging, but in a few days they were performing like veterans. The division of labor was as follows: two men picking and digging in the trench, initially going down 20 cm. and thereafter 10 cm. at a time; two men on wheelbarrows (borrowed from Morrison-Knudsen Afghanistan Company, Inc.); two men on screens (also borrowed from Morrison-Knudsen Afghanistan Company, Inc.), one of these "men" being my wife; and one man shoveling the dump farther down the gulley. Sometimes one or two extra men were hired to handle the increased size of the dump. The government archeologist accompanying us, Mohammed Ibrahim Khan, served as interpreter and also aided in the screen searchings and in the recording of specimens. We eventually became competent in "Cave Pushto," being able to say "dig here," "stop," etc., with comprehensible fluency.

The cave wall and a calcite travertine forced in our excavation so that Trench 1 was completed after a depth of about 1 meter was reached. At this point two men were put to work picking the floor. Working alternately for a week, they could not break through a meter square. While this futile picking was in progress, we excavated in the mixed-up, undifferentiated fill of the Front Porch (Fig. 10) and began excavating Trench 2, Cut 2.

TRENCH 2, CUT 2 (FIGS. 10, 12, 13, 17): This cut, a southward extension, 4 by 2 meters, was

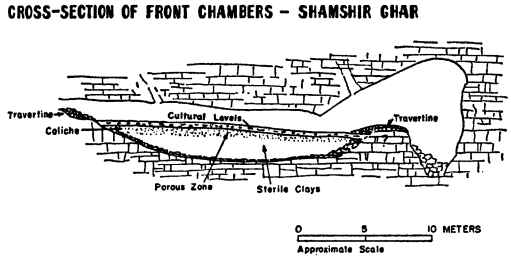


FIG. 9. Cross-section of the front chambers. After Zeigler.

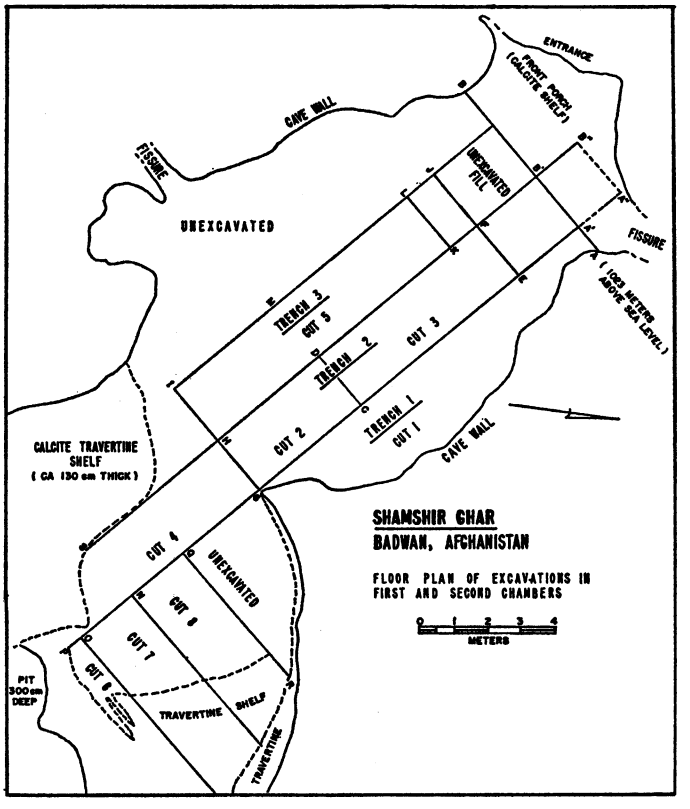


FIG. 10. Floor plan of excavations in the First and Second Chambers.

made in an attempt to locate the true floor of the cave by giving the workmen more room. Again we were halted by limestone deposits; this time at about 2.30 meters. A gasoline drill was used in an effort to break through, but this was not possible. As we now know from Zeigler's report, we had struck the limestone floor, though the possibility of earlier sediments cannot be completely ruled out. The classic example of Fontéchevade continues to haunt me.[1]

TRENCH 2, CUT 3 (FIGS. 10, 14): Beginning with Cut 3 we did not excavate through to bedrock, but merely down 10 cm. into the sterile clays. In Cut 3, we went down to 1.10 meters, although the last sherd had appeared in the 70–80-cm. level. Undifferentiated fill was again encountered near line AB in the mouth of the cave, so we stopped excavating at FJ.

TRENCH 2, CUT 4 (FIGS. 10, 15): This extension of Trench 2 into the Second Chamber revealed much the same stratigraphy as in the First Chamber. We stopped excavating at 50 cm., just where the caliche met the sterile clay. Beginning at Point S, a calcite travertine forced in the cut.

TRENCH 3, CUT 5 (FIGS. 10, 13, 16, 17): Having exposed the stratigraphy illustrated in Fig. 16, I decided to excavate by stratigraphic level and not by 10-cm. levels. Thus I was able to check statistically my controlled 10-cm. levels with the natural stratigraphic levels in order to define distinct cultural levels.

We took down three thin levels and then tackled the Major Hearth Complex. Under the hearth complex was a grayish layer almost completely destroyed by the Major Hearth peoples. The grayish level yielded relatively few cultural remains, however; these were generally similar to those that came out of the Major Hearth Complex.

In this trench, we excavated to bed rock again in Section D M I H and found the limestone floor at about 2.30 meters. The gasoline drill also failed to penetrate the floor in this cut.

[1] Henri-Matin, 1946, 1947.

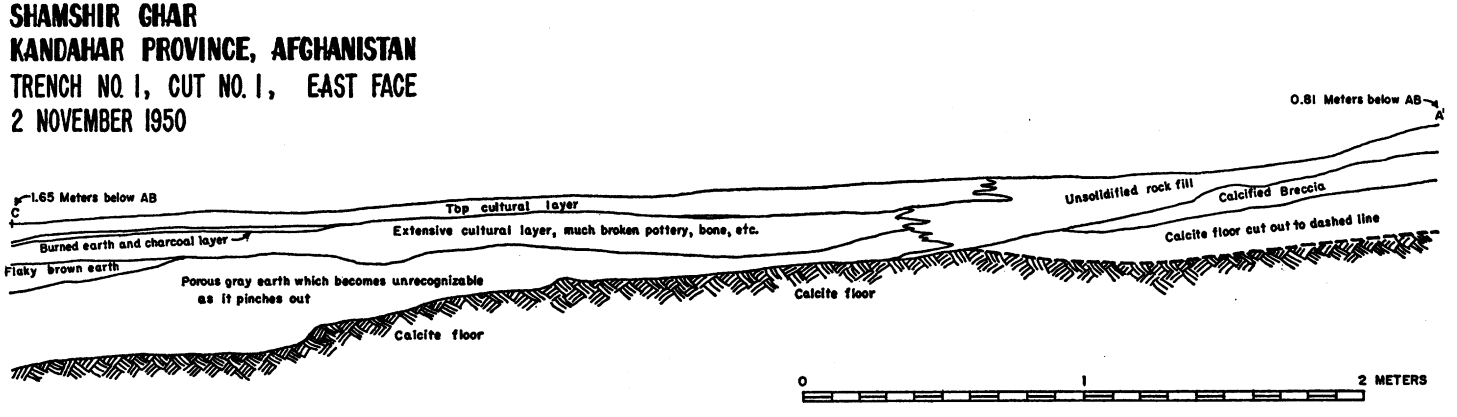


FIG. 11. Cross-section, Trench 1, Cut 1, east face.

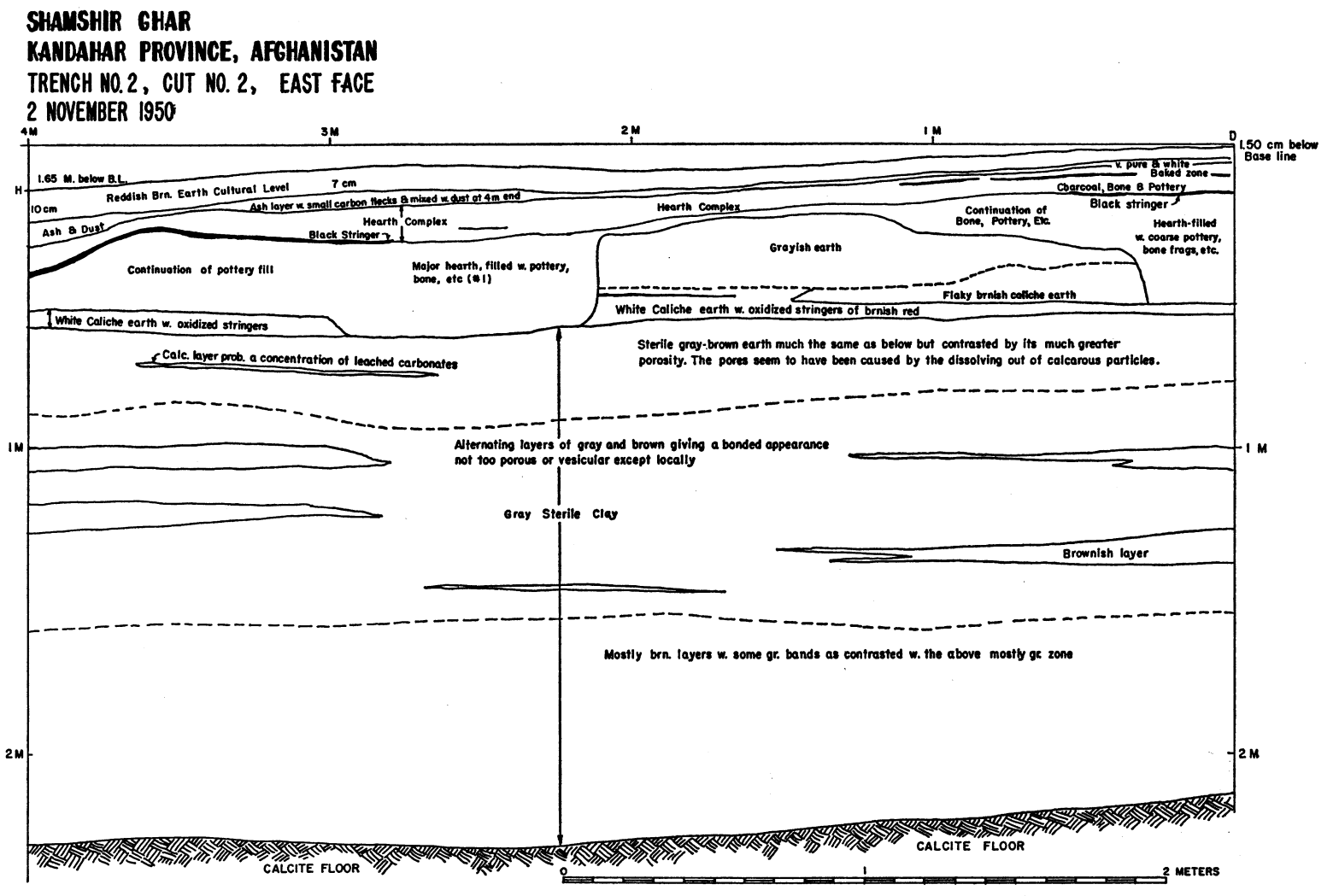


FIG. 12. Cross-section, Trench 2, Cut 2, east face.

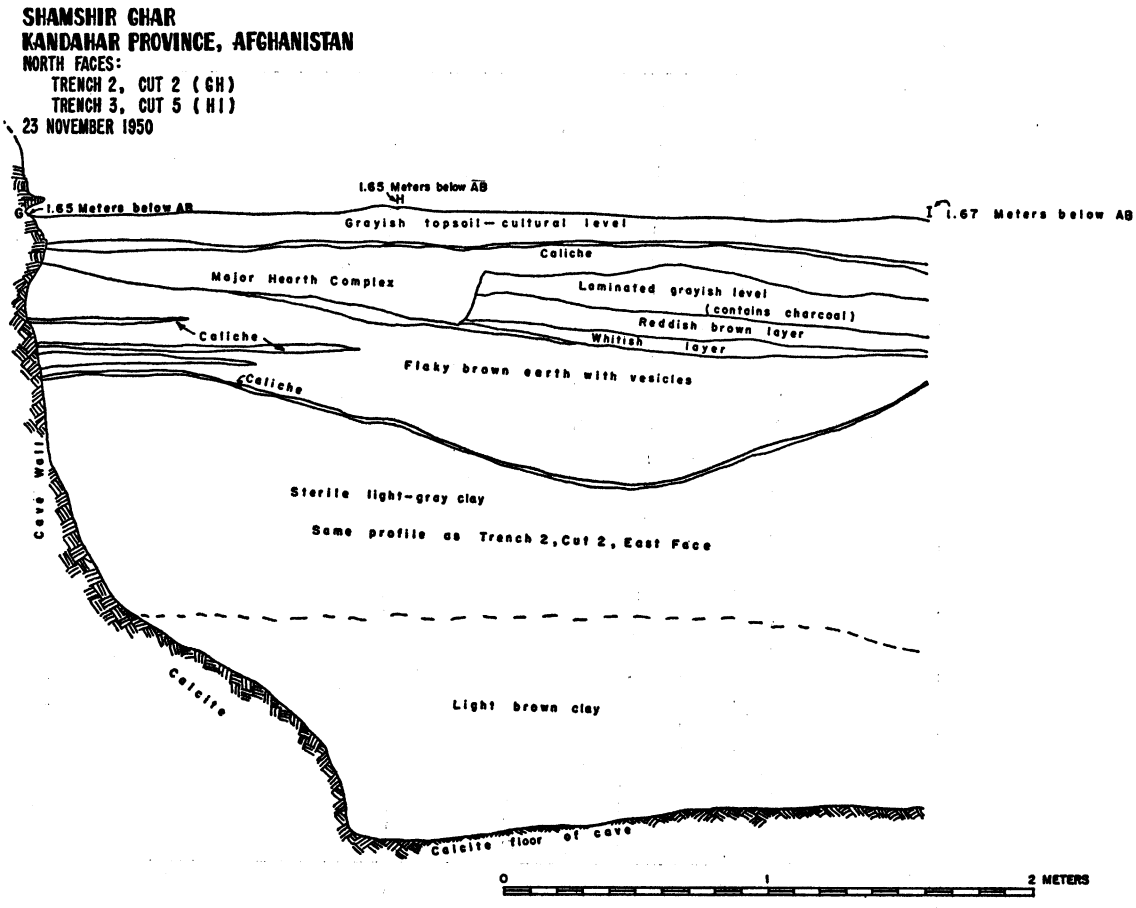


FIG. 13. Cross-section, Trench 2, Cut 2, north face, and Trench 3, Cut 5, north face.

Cut 5 was the last excavated part of the First Chamber. The remainder was left for possible future examination by archeologists and also to facilitate travel between the First Chamber and the rest of the cave.

In the First-Chamber trenches, after a depth of 1 meter was attained, and also in all Second-Chamber excavations, it was necessary to use flashlights and improvised kerosene lanterns.

CUT 6 (FIG. 10): This proved to be narrow, confined, and constricted between the cave wall and calcite deposits. As was the major part of Cut 7, it was apparently a dump area. No cultural material was found below 40 cm., just above the caliche level.

CUT 7 (FIG. 10): Although we excavated Cut 7 by 10-cm. levels, it appeared to be mainly a dump area, especially near NO. We reached sterile caliche at 42 cm.

CUT 8 (FIGS. 10, 18): Only the 10- to 20-cm. level of Cut 8 was culturally fruitful. We stopped digging at about 45 cm. The stratigraphy of Cut 8 seemed to be more regular than that of Cut 6 and of Cut 7 and except for the absence of the Major Hearth Complex resembled that of the First Chamber.

The north corner of the Second Chamber was not excavated.

FIFTH CHAMBER: The only other place in the entire cave that warranted excavation was in front of the wall paintings (Fig. 20) found in the Fifth Chamber. An undifferentiated sedimentary (cave dust) mass lay 3.10 meters in front of the paintings, 1.70 meters long, 1.30 meters wide, and 3 cm. at maximum depth.

STRATIGRAPHY

The floor surfaces of all chambers were covered with rock debris, cave dust, and bat dung. In the Third, Fourth, and Fifth Chambers

SHAMSHIR GHAR
KANDAHAR PROVINCE, AFGHANISTAN
TRENCH NO. 2, CUT NO. 3, EAST FACE
15 NOVEMBER 1950

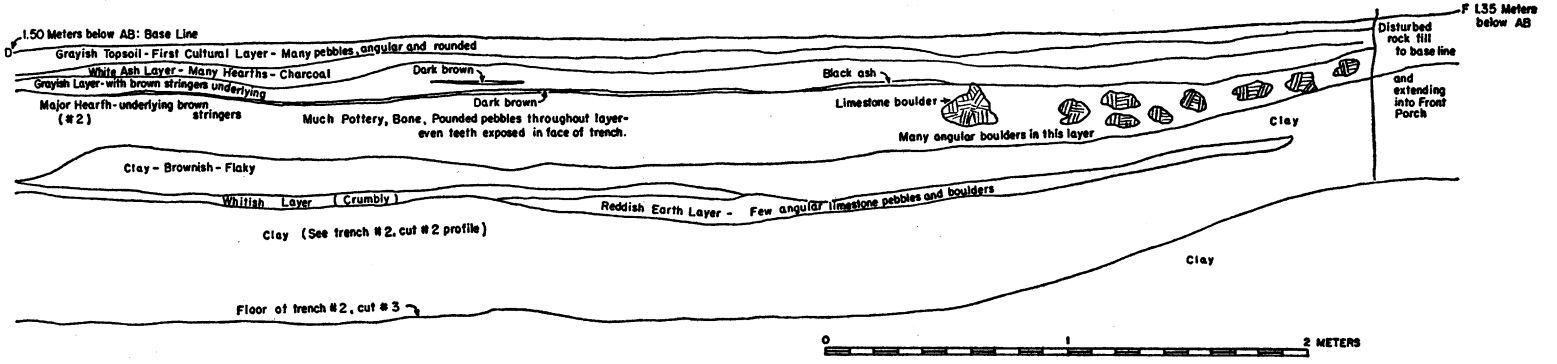


FIG. 14. Cross-section, Trench 2, Cut 3, east face.

SHAMSHIR GHAR
KANDAHAR PROVINCE, AFGHANISTAN
TRENCH NO. 2, CUT NO. 4, EAST FACE
16 NOVEMBER 1950

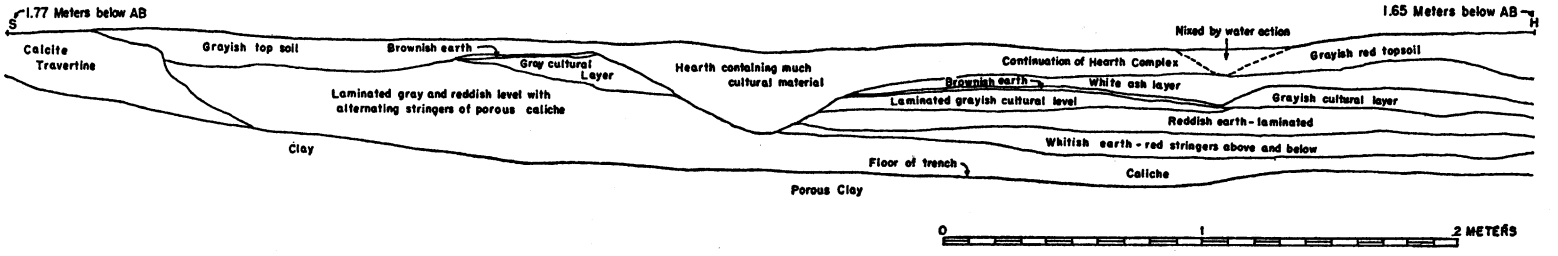


FIG. 15. Cross-section, Trench 2, Cut 4, east face.

TABLE 2

CLASSIFICATION OF SOIL SAMPLES BY GESSNER'S TRIANGULAR SYSTEM

Sample	Soil	Depth in Cm.	Trench	Cut
251[a]	Sandy grit	0–20	1	1
238	Sandy silt, plus 2 per cent grit (low in clay; *ca.* ½ sand, ½ silt)	10–20	2	4
214	Loamy silt (loam equals clay-silt)	20	3	5
215	Silt	35	3	5
216	Loamy silt	39	3	5
237	Sandy silt, plus 4 per cent grit	40–50	2	3
217	Sandy silt, plus 6 per cent angular pebble	45	3	5
248[a]	Earthy breccia	50–60	2	4

[a] Interpolation of Woodford.

TABLE 3

CLASSIFICATION IN PERCENTAGES OF SOIL SAMPLES[a] BY WENTWORTH SYSTEM

Soil Types	Sample Numbers 251	238	214	215	216	237	217	248
Clay (approximate)	7%	0%	16%	4%	16%	4%	10%	4%
<0.0625 mm.	3	62	84	80	70	64	64	46
Per cent of silt	3	62	68	76	54	60	54	42
<2.00 mm.	70	98	100	100	100	96	94	80
Per cent of sand	67	36	16	20	30	32	30	34
<4.00 mm.	90	100	0	0	0	100	97	90
Per cent of grit[b]	20	2	0	0	0	4	3	10
Gravel, per cent of rubble[c]	10	0	0	0	0	0	3	10

[a] Wentworth, 1922; Woodford, 1925; Gessner, 1931.
[b] Grit is granular.
[c] Rubble is angular pebbles.

(with the one exception stated above), these three items were the only signs of sedimentation.

FIRST AND SECOND CHAMBERS: The key charts (Figs. 12, 13) refer to Trench 2, Cut 2, east face and north face. The other stratigraphic charts tie in with Fig. 12.

A thick layer of sterile clays rested on the limestone floors. These homogeneous clays were light gray and brown, and have a varved appearance on freshly cut surfaces. The lower bands were more brown than gray; above 1.50 meters the reverse was true. The clays blended into an almost sterile gray-brown earth which had greater porosity than the underlying strata and did not have a banded appearance. The pores seem to have been caused by the dissolving out of calcareous particles. The gray-brown earth was a fine-grained stratum, however, and must have been deposited in standing water, otherwise the fine sediments would have been washed away.[1] Sherds occur in this stratum because of the deep pits dug by the Major Hearth peoples.

The caliche consisted of thin layers of calcium carbonate, powdery in some places and well-cemented in others. Zeigler says of the caliche:

> Deposited on top of the sterile clay from waters which rose through the clay, evaporated and left a residue of calcium carbonate on the surface. The porous zone directly beneath the caliche indicates that the caliche was leached from this zone and deposited on the surface. The presence of caliche cannot be used to postulate the humidity or aridity of the climate outside, although its presence does suggest that sufficient air circulated in the cave to

[1] Zeigler, MS.

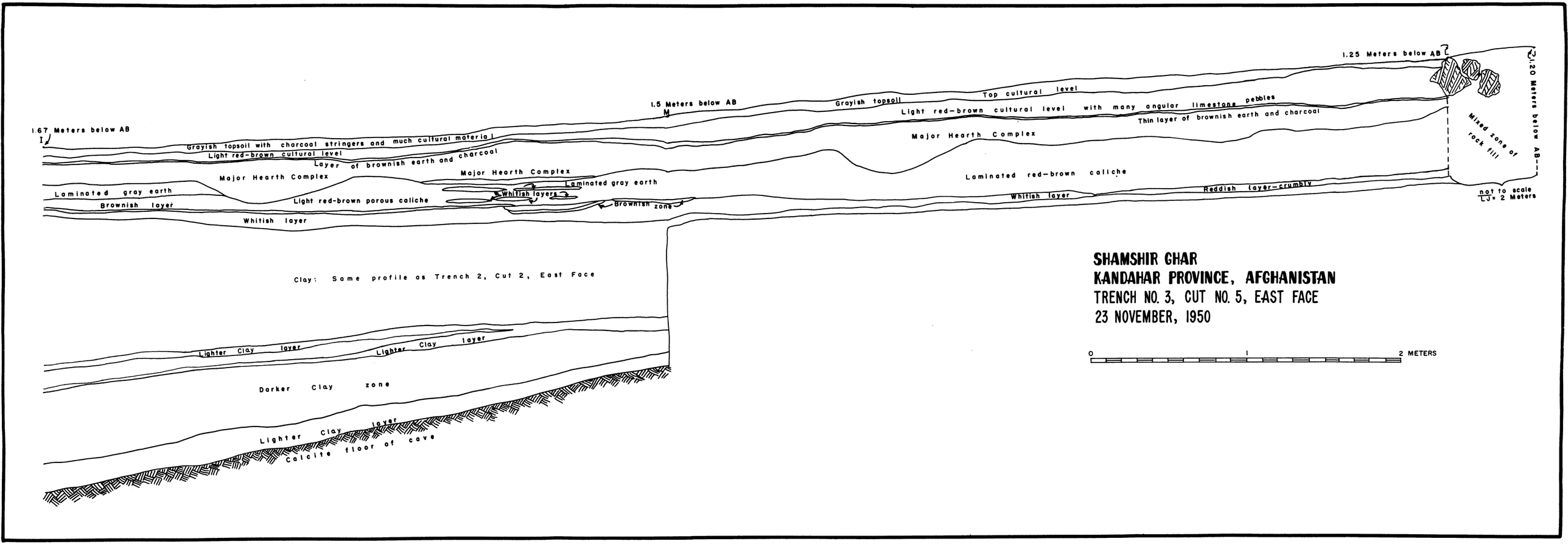


FIG. 16. Cross-section, Trench 3, Cut 5, east face.

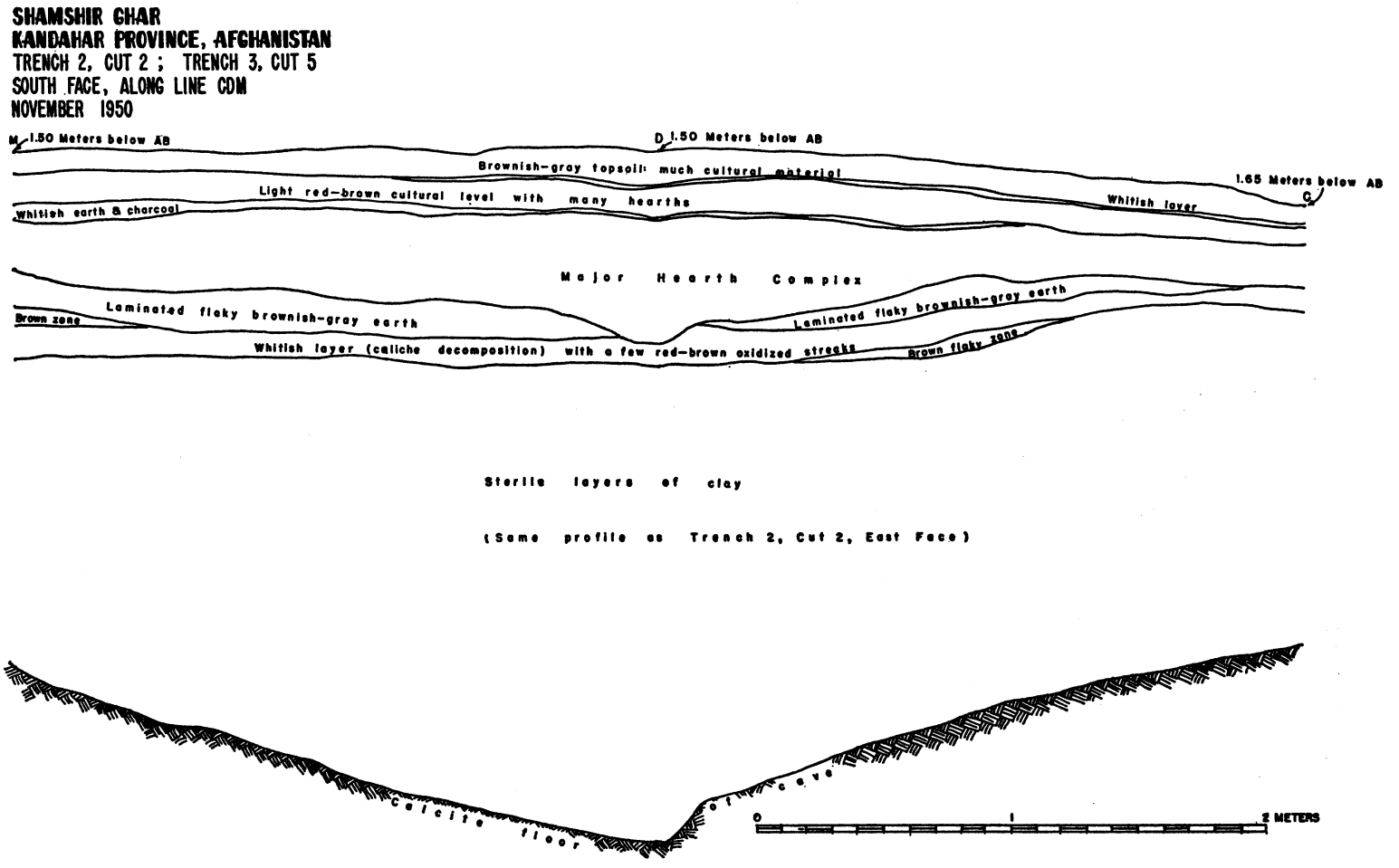


FIG. 17. Cross-section, Trench 2, Cut 2, and Trench 3, Cut 5, south face.

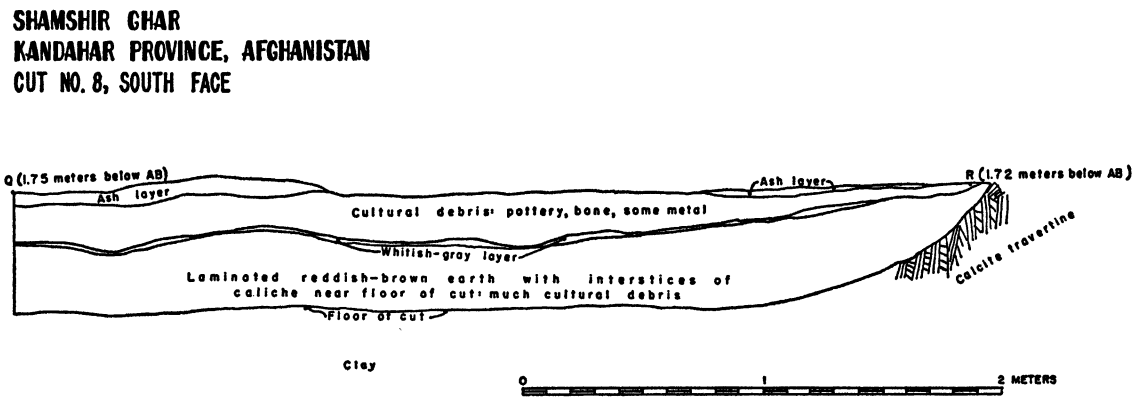


FIG. 18. Cross-section, Cut 8, south face.

evaporate the water which carried the calcium carbonate in solution.[1]

The caliche was broken in many places by the pits of the Major Hearth peoples (Figs. 12–16; Pl. 11a). The major cultural levels were found above the caliche. The Major Hearth Complex was almost a solid mass of sherds and bone, with little sedimentation. A layer of thin, white, ash dust lay between this level and the overlying Islamic levels. Hearths in all these upper levels complicated the picture. Thin

[1] Zeigler, MS.

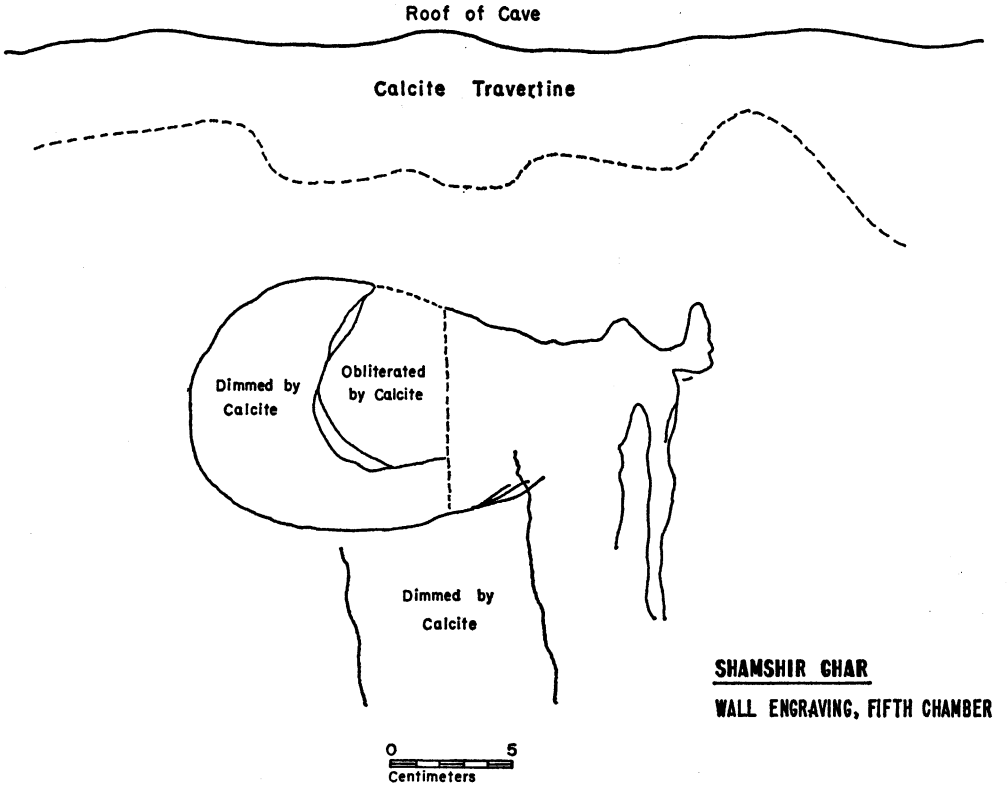


FIG. 19. Wall engraving, Fifth Chamber.

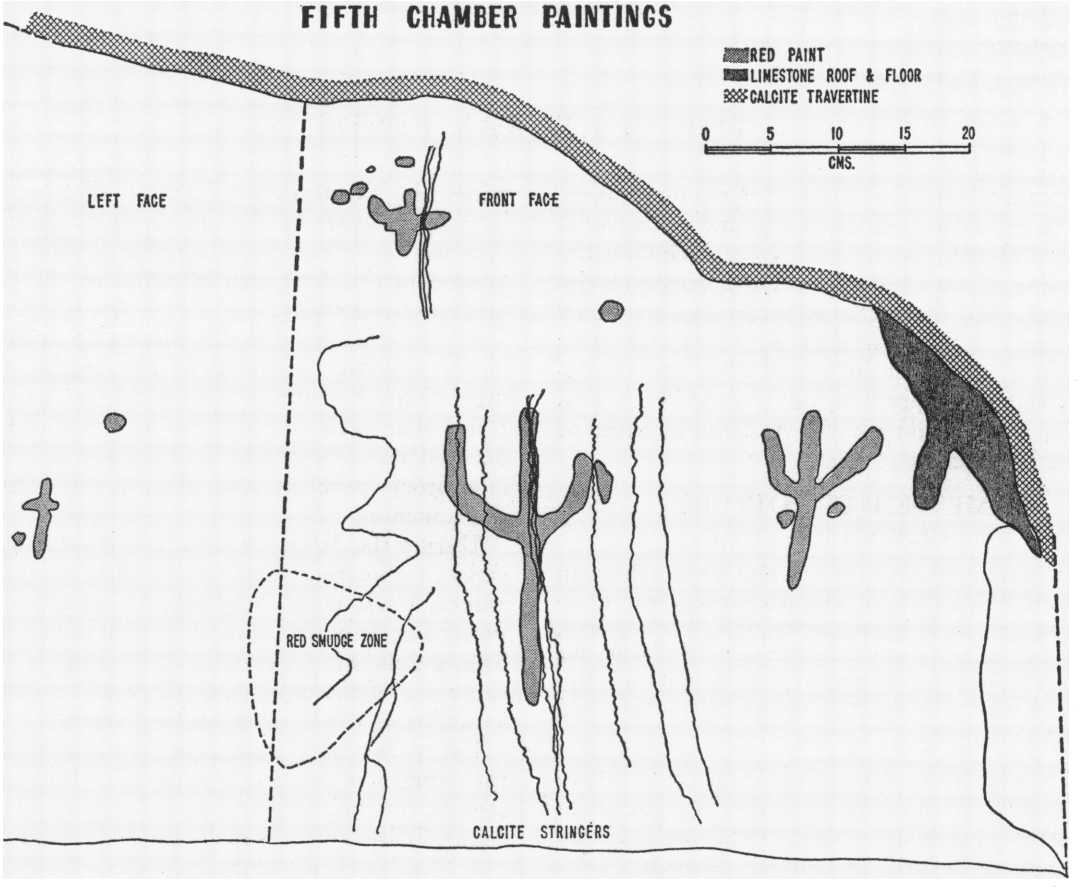


FIG. 20. Wall paintings, Fifth Chamber.

layers of caliche near the cave wall (Fig. 10) also helped to differentiate between Islamic and pre-Islamic levels, which roughly correspond with the glaze and non-glaze pottery divisions.

The stratigraphy is illustrated in Pls. 9b, 10, 11a).

Near the mouth of the cave (Figs. 10–11, 14–16), where the levels were mixed probably by the torrential spring rains, there was no stratification.

INTERPRETATION OF THE SOIL SAMPLES

The hydrometer and screen analyses of the soil samples were made in the Kandahar, Afghanistan, engineering laboratories of Morrison-Knudsen Afghanistan Company, Inc., directed by Mr. Jack Ralston.[1] The position of each sample, with its assigned laboratory number, is indicated by trench and cut number (Table 2). The significance of these soil analyses in relation to the cultural finds is elaborated below (pp. 283–287).

The results of the analyses seem to underline rather than amplify or elucidate Zeigler's studies.

As the analyses diagrams conform to the standards of the United States Bureau of Soils Classification, Dr. G. William Holmes converted the analyses to the Wentworth system, preferred by most geologists for sedimentary interpretation. He then converted the mechanical breakdown to the nomenclature of Gessner's triangle, with the exception of two samples, 248 and 251, which are not included in Gessner's classification. Woodford's terms are used to describe these two.

[1] The original charts on the soil analysis are available for examination.

THE CULTURAL FINDS

CULTURAL FINDS in the present monograph refer to all man-made artifacts and man-transported objects found in the cave, including the remains of man himself and the beasts he devoured. The list includes pottery and pottery objects, metal artifacts, glass, stones and stone artifacts, wall paintings, and such miscellaneous, though important, items as coins, beads, seals, and spindle whorls. And the greatest of these is pottery.

METHOD OF POTTERY CLASSIFICATION

Archaeology has not reached that stage of development in which there is only one correct way to do things, and, it is hoped, never will. What follows, therefore, is in no way intended as a treatise on the proper way to classify pottery, but merely a description of what was done by us and why—especially why.[1]

The present monograph is no place in which to engage in the current dialectical fad as to whether or not a pottery "type" exists. Discussions of "types" are already plentiful. I intend to describe how I studied the pottery. In describing the pottery, especially from a relatively unknown area, the archeologist is confronted with several basic problems[2]:

1. To determine, whenever it exists, a cultural sequence. The stratigraphy of a carefully excavated site will be invaluable in this pursuit.

2. To determine not only a cultural sequence, but also the typological and stylistic changes within that sequence and the geographic distribution of the various wares as reported from other excavations.

The problems boil down to isolation and distribution, first, to isolate the pottery into meaningful types so that it can be described; and, second, to follow the distribution of each type through time and space.

Have I been consistent in my methods and logical in the steps involved? In order to determine this, it is necessary for me to discuss, step by step, the life of the sherds from the time they were uncovered until they were finally deposited in the American Museum at the completion of this study.

My justification for this discussion is found in the opening statement of this section (the quotation). Because I believe this to be true, I feel that each site and the study of the excavated remains should be discussed first as a laboratory problem and then as a cultural phenomenon.

During the digging at the cave it was impossible to give the sherds more than a cursory glance. I was constantly supervising the excavations and my wife was overseeing the screens. The sherds were bagged and tagged as they came out of the ground, as there was no water available at the site for washing them.

Every *Jumma* (Friday, the Muslim Sunday) the workmen washed sherds (Pl. 11b) in a stream, or *jui*, while I made a preliminary count. This count was made for several reasons:

1. To give me my first good look at the sherds.

2. To permit me to spot any major typological changes.

3. To give me a record of the total number of sherds collected, to be compared with the total number of sherds that arrived in the United States so that I would have a check on the percentage of total sherds released to the American Museum by the Afghan Government and also a check on the *increase* in the number of sherds received because of breakage in transit.

4. And, though four years after the expedition it sounds over-dramatic even to me, if the international situation forced us to flee the country without potsherds, to have transportable information, which would have been better than none.

I divided the sherds into four simple categories, using surface decoration as the single isolating factor. The types were: glazed sherds; painted sherds; incised, bossed, appliquéd, and channeled sherds; and plain, undecorated sherds.

The results of the count are given in Table 4.

[1] Phillips, Ford, and Griffin, 1951, 61.

[2] For an example of how these problems were first approached in the Southwestern United States, see Kidder, 1924.

The most obvious conclusion to be drawn from the preliminary count is that the finds can be divided into two major levels: the upper levels with glazed wares; the lower with no glaze. Glazed wares, with few exceptions, disappear everywhere in the 20–30-cm. levels, specifically at about 25 cm. A few intrusive sherds were found lower. Also, generally speaking, fewer incised sherds existed in the non-glaze levels below 25 cm.

After having been washed, counted, and catalogued with level designation, the painted sherds were given a preliminary examination, and the resultant data on firing, paste, temper, thickness, and method of manufacture were recorded on the natural-sized sketches of the painted designs made by my wife. The sherds were then bagged for transportation to Kabul, where they were divided, according to the contract with the Afghan Government, and the portion allocated to the American Museum was shipped to New York.

Because I was completing my graduate residence at Harvard University, the sherds were then shipped to me there for final classification and study. Before I could begin final classification, it was necessary, first, to wash the pottery again. Many sherds had been broken in transit; as most fresh breaks were easy to spot, they were repaired immediately. On reëxamining the pottery, I decided that surface treatment was still a major factor to be considered in organizing the sherds into types. Of course, no single factor will be consistent throughout a type, but I found that surface treatment was the most constant source of difference or similarity between the sherds. Further breakdowns of the major divisions were necessary because of the great diversity in the temper employed, both plastic and non-plastic, as will be seen in the discussions of the individual types.

No sooner had I begun to progress with my classifications and final sherd count than it became necessary for me to move to Montgomery, Alabama, where I had signed a contract to work for the Arctic, Desert, Tropic Information Center, Research Studies Institute, Air University, Maxwell Air Force Base.

The 1000 pounds of potsherds followed by rail. Facilities for carrying on the sherd classification were provided at the Houghton Memorial Library of Huntington College in Montgomery.

DEFINITIONS

Before launching into a technical discussion of the pottery types, I list first a few basic ceramic definitions used in this monograph:

AMPHORA: A more or less egg-shaped pottery vessel, with greatest diameter at or near the shoulder. Two opposing vertical handles are separated by a slender neck. The base is generally pointed or rounded. Amphorae were used to store and transport wines and oils.

CELADON WARE: A distinctive type of Chinese pottery which first appears in quantity in the Middle East during the Abbasid Dynasty (ninth century A.D.) and reached its peak in the thirteenth century A.D. The ware is easily identified by its gray-green,[1] or sea-green,[2] paste. Early Islamic potters imitated this ware, but such imitations are easily recognized if the paste is examined.

CRATER: A pottery vessel resembling an amphora, but with horizontal rather than vertical handles. It has a foot, seldom has a neck; at times the handles are nearer the foot than the rim.

BARBOTINE: Designs in liquid clay squeezed onto the surface of a vessel, resulting in a finer type of decoration than can be produced by appliquéd strips of clay.

BURNISHED: A surface treatment; the outside of a fired vessel is polished by being rubbed with a stone, fragment of bone, or other polishing medium. Either a whole vessel, or any part of it, can be burnished, giving the rubbed area an almost vitreous gloss.

CHAMPLEVÉ: A method of decoration; portions of slip and underlying paste are scraped away, thus exposing the paste underneath, to produce varied patterns.

CRAZING OR CRACKLE-GLAZE: Technically an imperfection, but exploited by potters to produce esthetically pleasing designs. Caused by differences in the thermal expansion of the glaze and the body of the vessel.

EARTHENWARE: Fired, unglazed pottery, with varying degrees of porosity. It may be slipped or unslipped. Unless otherwise identified all unglazed ware discussed in this report is earthenware.

ENGOBE: A slip.

FLUTED: A series of wide grooves or indenta-

[1] Lane, 1948, 11.
[2] Hobson, 1932, 61.

TABLE 4

PRELIMINARY COUNT OF TOTAL NUMBER OF SHERDS COLLECTED IN AFGHANISTAN, 1950
(Levels are in centimeters.)

	Glaze	Painted	Incised, Bossed, Appliquéd, or Channeled	Plain
Trench 1, Cut 1				
Surface	14	5	30	79
0–20	76	33	40	2253
20–30	40	41	15	840
30–40	?1	7	6	436
40–50	—	2	1	107
50–60	—	—	—	7
60–70	—	1	—	7
70–90	—	—	—	?2
90–100	—	—	—	6
Total	131	89	92	3737
Trench 2, Cut 2				
0–10	78	3	61	362
10–20	16	4	25	271
20–30	?2	25	28	1304
30–40	?1	18	15	686
40–50	—	11	25	647
50–60	—	12	11	1119
60–70	—	2	3	329
70–80	—	1	1	8
80–90	—	—	—	10
130–140	—	—	?1	?10
Total	97	76	170	4746
Trench 2, Cut 3				
Front Porch	6	2	5	52
0–20	265	61	160	362
20–30	69[a]	88	137	1430
30–40	?6	238	62	2408
40–50	—	104	37	1145
50–60	—	2	—	65
60–70	—	—	—	21
70–80	—	—	1	7
Total	356	495	402	5490
Trench 2, Cut 4				
0–10	114	101	101	739
10–20	31	40	47	633
20–30	13	72	61	1033
30–40	?2	—	—	311
Total	160	213	209	2716
Trench 3, Cut 5				
Surface	10	1	14	43
0–10	33	43	142	943
10–25	117	91	61	1466
Major Hearth Complex	?4	413	148	6047
Gray Earth	—	29	8	507
Total	164	577	373	9006

TABLE 4—*continued*

	Glaze	Painted	Incised, Bossed, Appliquéd, or Channeled	Plain
Cut 6	22	113	64	2075
Dump	—	31	6	520
Cut 7				
0–10	7	11	19	342
10–20	—	20	13	496
20–30	?1	16	4	404
30–40	—	16	5	273
Cut 8				
0–10	35	29	55	814
10–20	5	13	4	438
30–40	—	2	2	44
Fifth Chamber	?3	—	5	102
Total of Cut 6, Dump, Cut 7, Cut 8, and Fifth Chamber	73	251	177	5508

[a] All glaze near mouth of cave in undifferentiated fill.

tions on the body of a pot; sometimes visible inside the pot.

FRIT: An unidentified or partially fused substance "produced by melting water-soluble chemicals, such as sodium carbonate, with silica and clay in order to obtain low-melting silicates not soluble in water."[1]

GLAZE: A glassy or vitreous slip on pottery objects.[2] Glass, however, has a higher melting point than glaze. Several types of glazes are important: alkali and lead glazes are transparent; tin glazes are opaque.

GRAFFITO: Also spelled "graffiato" and "'sgraffiato"; a decoration technique whereby a slipped ware is incised with designs before the final glaze is applied so that the underlying paste shows through.

LUSTER (LUSTRE) WARE: A thin film of metallic salts (copper, silver, and perhaps others) is brushed on the surface of a glazed vessel after it has been fired. Then the vessel is refired in a special reducing kiln at a low temperature, thus reducing the salts or oxides to a metallic state.[3]

ON-GLAZE DECORATION: Glaze designs painted on the surface after a pot has been initially fired and glazed. The painted vessel is then fired again.

OXIDIZING CONDITIONS: Such conditions occur in a kiln when "surplus air makes a complete combustion of the gasses, carbon particles and heavy oils possible."[4]

REDUCING CONDITIONS: Such conditions occur when insufficient air is present to consume completely the carbon particles and compounds in the paste.

SLIP: A paste of fine, diluted clay that is sometimes added to a vessel before it is fired.

WASH: A thin coat of color, containing no paste, applied to the surface of a vessel.

The form below, used to describe the various wares, was devised after a careful study of a number of sources[5]:

NAME OF WARE

List of the plates that illustrate the ware.

General discussion of the ware, followed by a discussion of the subdivisions of the major ware.

NAME OF SUB-WARE

THICKNESS: Maximum, minimum, and average, in centimeters.

[1] Rosenthal, 1949, 296.
[2] Rosenthal, 1949, 296.
[3] Hobson, 1932, 3–4; Day, MS; Lane, 1948, 14–16.
[4] Rosenthal, 1949, 298.
[5] March, 1934; Day, MS; Wheeler, Ghosh, and Deva, 1946; Rosenthal, 1949; Phillips, Ford, and Griffin, 1951; Braidwood *et al.*, 1952; and the lecture notes from Lauristan Ward's course in "Primitive Technology" at Harvard, 1948.

HARDNESS: Recorded on Moh's Scale or appropriate substitutes as shown in parentheses.

PASTE AND TEMPER: Discussion of color or paste and its uniformity. After examining Munsell and Maerz and Paul,[1] I decided to use the latter as a color guide. Thus, the numbers refer to the Maerz and Paul plate number, horizontal letter, and vertical number. Color names are also taken from this source. The initials of the names in the Maerz and Paul color classification are always capitalized. Other colors mentioned are subjective approximations and not given specific names by Maerz and Paul. Thus 56-E-10, for example, means Plate 56, horizontal line E, vertical line 10, a color between "Burgundy" and "Old Burgundy." In matching colors I followed the procedure suggested by Maerz and Paul[2]: First, the plate with the color generally nearest that to be compared was located. To obtain a finer differentiation, a hole 1⅛ inches by ¾ inch was cut in a piece of black paper 6 inches square. Sherds were placed over this mask so that half of the opening was occupied, and the colors were matched with those of the dictionary plate.

A constant source of illumination is necessary for accuracy. Maerz and Paul recommend working, whenever possible "under the clear light of a north sky, except in those infrequent cases where the colors will be observed only and always under an artificial light."[3] As it was impossible to obtain a constant source of "clear light of a north sky," I used artificial lighting at all times. Sherds and dictionary were observed under a 150-watt, 120-volt bulb, which shone directly down from a height of 30 inches from the point of examination.

Paste colors are given as post-firing results.

SURFACE: Description of surface treatment, including slip or wash (if present), color of both, and any manipulation of the surface, such as burnishing.

Both the plastic (clay) and non-plastic (sand, mica, etc.) characteristics of the temper are described after a careful examination of the sherds with a 5×, 12×, and 25× hand lens. Any feature not identifiable by name is described in detail.

METHOD OF MANUFACTURE: Most Shamshir Ghar wares are wheelmade; exceptions are carefully noted.

FORM AND FUNCTION: Unfortunately, less than half a dozen complete vessels were excavated, but whenever possible pots were reconstructed. Lips, rims, necks, shoulders, bodies, handles, lids, and bases or feet are described when present if no forms are available.

DECORATION: Glaze or painted designs, appliqué, barbotine, incision, channeling, bossing, stamped decoration are among the categories described.

GEOGRAPHIC DISTRIBUTION: Bibliographic references to the ware are made to determine its spread through time and space outside Shamshir Ghar, and to aid in drawing conclusions for the cultural sequence.

POTTERY SUBDIVISIONS

Table 5 presents a bulk sherd and artifact count by level. The pottery was classified into nine major wares and further subdivided into 59 easily recognizable sub-wares.

GLAZE[4]

A few introductory remarks about Early Islamic glaze ware are in order at this point. The best discussion of Early Islamic pottery, with emphasis on the Mesopotamian wares, is the unpublished doctoral thesis of Day.[5] The Arabs did not, as the Greeks had done, bring a new art style into Afghanistan, but they injected a new vigor so intense that new schools of art replaced the Coptic in Egypt, the Sassanian in Iran, and the Hellenistic-Roman in Syria.[6] A combination of Oriental and Greek forms and motifs lasted until after the Mongol invasions in the thirteenth century (1220–1257 A.D.). The Arabs had a long tradition of oral and written poetry, and the Prophet Mohammad began the development of sophisticated theological and scientific schools. Thus though forms and motifs did not change, they were given a new fluid, nomadic spirit under Arab influence.

The imperial Sassanian rulers and their provincial princes and satraps in Iran and Afghanistan preferred gold and silver dishes, bowls, and cups to pottery. Such manifestations of luxury were scorned by the first and most virile Arab conquerors. Pope says: "the Muslim religion prohibited the use of the precious metals which in the Sassanian period had been employed exclusively for luxury table service."[7]

The potters of pre-Islamic Middle Eastern

[1] Munsell, 1919, 1929; Maerz and Paul, 1950.
[2] Maerz and Paul, 1950, 11–12.
[3] Maerz and Paul, 1950, 11–12.

[4] The most important studies of the Early Islamic ceramics in Afghanistan are those of Dr. J.-C. Gardin (1957). He was kind enough to examine a series of my photographs. Independently we both reached the same conclusion as to the dates of the glazed wares. His book is an invaluable addition to our knowledge.

[5] Day, MS. Other important works are Pezard, 1920; Sarre, 1925; Butler, 1926; Contenau, 1927–1947; Koechlin, 1928; Dimand, 1930; Hobson, 1932; Pope, 1938–1939; Pope and others, 1945; Toll, 1943; Lane, 1948; Waage and others, 1948.

[6] Day, MS; Waage and others, 1948.

[7] Pope and others, 1945, 69.

TABLE 5

Artifact Counts

	Trench 1 Cut 1	Trench 2 Cut 2										Trench 2 Cut 3							Trench 3 Cut 4				Trench 3 Cut 5					Cut 7					Cut 8					
	Front Porch	0–20	20–30	30–40	40–50	0–10	10–20	20–30	30–40	40–50	50–60	60–70	0–20	20–30	30–40	40–50	50–60	60–70	70–80	0–10	10–20	20–30	30–40	0–10	10–20	20–25	Major Hearth	Grayish Earth	Cut #6—Dump	0–10	10–20	20–30	30–40	Dump	0–10	10–20	20–30	30–40	5th Chamber	Totals
Glaze Ware																																							
Graffito I	11	54	5	—	—	33	—	1	—	—	—	—	180	18	—	1	—	—	—	32	—	4	—	17	86	—	—	—	—	—	—	—	—	—	11	2	—	—	5	460
Graffito II	—	1	3	—	—	9	—	—	—	—	—	—	8	2	1	—	—	—	—	4	—	—	—	6	—	—	—	—	1	—	—	—	—	—	4	1	—	—	—	40
Graffito III	—	10	1	—	—	8	—	—	—	—	—	—	17	—	—	—	—	—	—	20	—	—	—	2	1	—	—	—	—	—	—	—	—	—	9	—	—	—	—	68
Graffito IV	—	2	—	—	—	1	—	—	—	—	—	—	1	9	1	—	—	—	—	—	—	1	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18
Mottled and Plain Green	11	17	1	—	—	2	—	—	—	—	—	—	24	14	—	—	—	—	—	12	—	1	1	7	2	—	—	—	2	—	—	—	—	—	3	—	—	—	—	97
Champlevé Yellow	—	—	—	—	—	1	—	—	—	—	—	—	12	2	—	—	—	—	—	—	—	—	—	2	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25
Champlevé Green	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Bole Red Slip	—	—	—	—	—	—	—	—	—	—	—	—	12	1	—	—	—	—	—	3	—	—	—	4	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	21
Blue and Blue-Green	1	1	—	2	—	1	—	—	—	—	—	—	13	1	1	—	—	—	—	4	—	—	—	1	—	—	—	—	1	—	—	—	—	—	4	1	1	—	—	32
Imitation Celadon	—	1	—	1	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	2	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
Imitation T'ang Splash	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11
Samarkand bowl	—	—	—	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	4	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16
Samarkand Kufic	—	1	4	—	—	—	—	—	—	—	—	—	20	—	—	—	—	—	—	—	—	—	—	5	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	31
Nishapur 1	—	5	—	—	—	1	—	—	—	—	—	—	28	1	—	—	—	—	—	7	—	—	—	10	10	—	—	—	2	—	—	—	—	—	8	1	—	—	1	74
Nishapur 2	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15
Nishapur 3	2	10	2	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	9	—	—	—	6	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	42
Nishapur 4	—	5	2	—	—	3	—	—	—	—	—	—	9	3	—	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	28
Brown-Green	—	—	3	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	1	—	—	—	3	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
Unique sherds	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Unclassified fire-burned	—	6	1	—	—	5	—	2	—	—	—	—	33	13	1	—	—	—	—	49	1	—	1	13	—	—	—	—	—	—	1	—	—	—	2	1	1	—	—	130
	25	120	22	3	—	69	—	3	—	—	—	—	379	64	4	1	—	—	—	146	1	6	3	92	138	—	—	—	7	—	1	—	—	—	41	6	2	—	6	1139
Grit Ware																																							
Sherd Temper	18	420	222	—	39	67	—	144	147	374	—	48	174	425	539	78	—	1	2	59	68	91	75	34	130	4	1183	89	748	—	210	36	155	338	67	84	6	178	104	6357
Quartz-Sand Temper	1	10	18	—	—	—	—	17	2	22	—	47	2	48	103	27	—	—	—	20	11	14	20	6	12	—	530	19	120	—	30	—	18	13	23	24	5	—	22	1184
Fiber Temper	—	10	1	—	4	—	—	15	4	23	—	8	2	12	42	16	—	1	—	13	10	—	37	5	28	—	338	3	14	—	9	—	5	2	17	28	—	—	—	647
Lime Temper	16	7	—	—	—	5	—	4	9	5	—	4	9	19	7	—	—	—	—	8	—	—	—	—	14	—	71	2	28	—	9	—	—	—	21	—	—	—	2	240
Mica-Sand Temper	—	14	—	—	—	—	—	—	—	—	—	—	—	—	—	11	—	—	—	54	—	—	—	—	4	—	296	7	82	—	14	—	14	11	38	16	—	10	1	574
Hand-made	—	6	—	—	—	—	—	—	—	—	—	—	7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
	35	467	241	—	43	72	—	180	162	424	—	107	194	504	691	132	—	2	2	154	89	105	132	45	188	4	2418	120	992	—	272	36	192	364	166	152	11	188	129	9013
Red Ware																																							
Undecorated, red slip	4	159	17	—	4	82	—	109	97	106	—	71	54	132	173	64	—	—	—	96	89	68	154	81	107	—	401	52	335	—	139	26	51	15	117	163	13	5	17	3001
Black slip	—	15	—	—	—	—	—	—	—	5	—	10	7	40	20	2	—	—	—	—	—	11	—	—	—	—	34	—	4	—	—	—	—	—	—	—	—	—	—	148
Black inside, red outside	—	—	—	—	6	—	—	—	—	—	—	—	—	2	1	1	—	—	—	1	—	2	4	—	—	—	5	—	—	—	—	—	—	2	—	—	—	—	—	24
Black center	—	20	—	—	1	2	—	—	—	8	—	5	—	3	—	1	—	—	—	1	—	—	2	—	—	—	7	—	38	—	—	—	—	5	—	—	—	—	—	93
Incised, channeled, etc.	—	11	6	—	—	7	—	21	5	1	—	24	37	12	6	8	—	—	—	35	—	2	2	2	—	—	—	—	1	—	3	—	—	—	—	6	1	1	2	193
Painted sherds	—	2	4	14	—	4	4	15	11	—	—	—	22	27	44	32	3	—	—	16	12	28	12	12	25	—	123	23	44	—	12	11	21	17	16	9	5	—	—	568
Distinctive bowl	—	—	3	—	—	—	—	11	—	—	—	—	1	7	—	—	—	—	—	—	—	—	2	1	6	—	2	—	64	—	—	6	—	—	2	18	9	—	6	138
Red Streak																																							
Burnished	3	13	16	—	—	1	—	39	20	9	—	2	11	42	2	—	—	1	—	15	9	11	8	5	11	—	2	—	5	—	2	1	1	2	25	3	1	—	5	265
Metallic Black																																							
Type I	—	—	—	—	—	—	—	7	—	—	—	—	—	3	—	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
Type II	—	—	—	—	—	—	—	16	—	—	—	—	—	13	—	2	—	—	—	10	—	—	6	1	—	—	—	—	6	—	—	—	—	—	—	19	2	—	—	75
	7	220	46	14	11	96	4	218	133	129	—	112	132	281	246	113	3	1	—	174	110	122	190	102	149	—	574	75	497	—	156	44	73	41	160	218	31	6	30	4518
Red Ware, Cream Slip																																							
No Inside Ridges	16	31	47	—	14	45	—	125	97	56	—	34	9	321	260	162	—	—	4	130	85	110	56	69	51	128	740	65	294	—	78	10	42	41	146	179	18	6	48	3517
Inside Ridges 1	1	6	1	—	1	5	—	32	26	12	—	8	4	46	62	6	—	—	—	18	11	21	7	9	17	6	46	10	15	—	7	2	10	—	21	15	8	4	4	441
Inside Ridges 2	—	6	20	—	1	2	—	33	24	15	—	8	9	28	77	30	—	—	2	11	3	11	12	6	13	14	303	9	18	—	6	2	8	—	15	20	7	5	5	723
	17	43	68	—	16	52		190	147	83	—	50	22	395	399	198	—	—	6	159	99	142	75	84	81	148	1089	84	327	—	91	14	60	41	182	214	33	15	57	4681

TABLE 5—*continued*

	Trench 1 Cut 1					Trench 2 Cut 2							Trench 2 Cut 3							Trench 3 Cut 4				Trench 3 Cut 5					Cut 7					Cut 8					
	Front Porch	0–20	20–30	30–40	40–50	0–10	10–20	20–30	30–40	40–50	50–60	60–70	0–20	20–30	30–40	40–50	50–60	60–70	70–80	0–10	10–20	20–30	30–40	0–10	10–20	20–25	Major Hearth	Grayish Earth	Cut #6—Dump	0–10	10–20	20–30	30–40	Dump	0–10	10–20	20–30	30–40	5th Chamber	Totals
Bisque Paste Ware																																							
Undecorated	55	188	41	—	4	96	—	21	18	—	—	11	89	154	41	34	—	—	1	108	—	50	40	78	91	—	252	25	196	—	45	6	28	53	50	61	11	4	16	1867
Thinnest sherds (4 mm.)	—	11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	5	—	—	—	—	—	—	—	2	—	2	—	—	—	21
Bossed, punctate, incised	13	16	—	—	—	9	—	—	—	—	—	—	66	30	2	—	—	—	—	3	—	—	—	10	16	—	—	—	4	—	1	1	—	—	4	—	—	—	3	178
Comb marked, straight	2	17	—	—	—	5	—	1	3	—	—	—	74	8	—	—	—	—	—	26	—	—	—	6	6	—	1	—	7	—	—	1	—	—	2	—	—	—	2	161
Comb marked, wavy	2	18	—	—	—	3	—	—	—	—	—	—	17	7	—	1	—	—	—	2	—	—	—	8	6	—	—	—	—	—	—	—	—	—	57	—	—	—	—	121
Appliqué	—	11	—	—	—	1	—	—	1	—	—	—	1	2	—	1	—	—	—	1	—	—	—	1	—	—	—	—	1	—	—	—	—	—	2	—	—	—	—	22
Horizontal channeled	—	10	4	—	—	8	—	—	—	—	—	—	10	11	—	—	—	—	1	—	—	—	—	17	8	—	—	—	1	—	—	—	—	—	3	1	—	—	—	74
Vertical channeled	—	3	2	—	—	—	—	—	—	—	—	—	8	6	—	—	—	—	—	—	—	—	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	21
Red wash, outside	—	—	—	—	—	—	—	—	4	7	—	9	—	27	1	30	—	—	—	11	—	—	—	—	—	—	—	4	5	—	4	—	19	11	—	3	—	—	1	136
Red wash, inside and outside	—	7	6	—	—	11	—	—	—	—	—	—	24	19	24	—	—	—	—	24	—	4	—	—	—	—	122	2	76	—	2	8	2	16	—	48	—	—	—	395
	72	281	53	—	4	133	—	22	26	7	—	20	289	264	68	66	—	—	2	175	—	54	41	121	132	—	375	31	291	—	52	16	49	82	118	115	11	4	22	2996
Greenish Paste Ware																																							
Undecorated	5	27	—	2	—	22	—	—	7	—	—	1	77	7	24	14	—	—	—	30	—	—	4	19	6	—	26	2	39	—	10	12	2	10	—	27	—	—	3	376
Bossed, punctate, incised	2	10	3	—	—	1	—	—	—	—	—	—	46	—	—	—	—	—	—	1	—	—	—	18	28	—	—	—	—	—	—	—	—	—	—	—	—	—	109
Horizontal channeled	—	—	4	—	—	—	—	—	1	—	—	—	7	4	—	—	—	—	—	—	—	—	—	2	7	—	—	—	—	—	—	—	—	—	—	—	—	—	25
Vertical channeled	—	1	—	—	—	6	—	—	—	—	—	—	2	5	—	—	—	—	—	—	—	—	—	10	20	—	—	—	—	—	—	—	—	—	—	—	—	—	44
Comb marked, straight	—	—	1	—	—	6	—	—	—	—	—	—	6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13
Comb marked, wavy	—	—	—	—	—	5	—	—	—	—	—	—	4	4	—	—	—	—	—	—	—	—	—	2	4	—	—	—	—	—	—	—	—	—	—	—	—	—	19
Appliqué	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	7	38	8	2	—	40	—	—	8	—	—	1	142	20	24	15	—	—	—	31	—	—	4	51	65	—	26	2	39	—	10	12	2	10	—	27	—	—	3	587
Stamped Ware																																							
Cream paste	3	24	—	—	—	5	1	—	—	—	—	—	39	4	1	—	—	—	—	10	—	—	—	1	—	—	—	—	9	—	2	—	1	1	3	—	—	—	—	104
Greenish paste	—	—	1	—	—	—	—	—	—	—	—	—	—	6	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11
Light red paste	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16
	3	24	1	—	—	5	1	—	—	—	—	—	39	10	1	—	—	—	—	14	—	—	—	9	8	—	—	—	9	—	2	—	1	1	3	—	—	—	—	131
																																							23065
Iron																																							
Scissors	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Horseshoe	—	1	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Buckles	—	1	—	—	—	—	—	—	—	—	—	—	—	1?	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Circular bridle trappings	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Pins or "wire"	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
Fork projectile points	—	—	—	—	—	—	—	—	—	—	—	—	1	2	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Three-bladed point	—	4	—	—	—	—	—	2	—	—	—	—	—	4	1	—	—	—	—	2	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	16
Triangular or diamond-shaped cross-section	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Elliptical cross-section	—	—	—	—	—	—	1	—	—	—	—	—	3	—	—	—	—	—	—	2	—	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	9
Lance or spearpoints	—	1	—	—	—	1	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	9
Knife blades	—	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	5
Rings	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Nails or spikes	—	3	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	—	1	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
Unidentified	—	—	—	—	—	3	1	—	—	—	—	—	4	2	2	—	—	—	—	—	2	—	—	—	1	—	2	—	—	—	—	—	—	—	—	1	—	—	—	18
	—	15	—	1	—	6	4	4	—	—	—	—	13	9	4	1	—	—	—	9	4	7	—	—	8	—	4	—	—	—	—	—	—	—	—	3	—	—	—	92
Bronze																																							
Projectile points	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Cup handle?	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
Pins or "wire"	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	1	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
Rings and earrings	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Bell for bridle	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1
Circular bridle trappings	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Animal figurine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1
Unusual object (bridle piece)	—	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Unidentified	—	—	1	—	—	1	—	—	—	1	—	—	6	—	—	—	—	—	—	1	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	—	—	—	12
	—	2	1	—	1	1	—	1	—	—	1	2	7	3	—	—	—	—	—	2	1	4	—	—	2	—	5	—	1	—	1	—	—	—	—	1	—	—	—	36

TABLE 5—*continued*

	Trench 1 Cut 1				Trench 2 Cut 2							Trench 2 Cut 3						
	Front Porch	0–20	20–30	30–40	40–50	0–10	10–20	20–30	30–40	40–50	50–60	60–70	0–20	20–30	30–40	40–50	50–60	60–70	70–80
Beads																			
Glass	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glaze—green	—	1	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Glaze—blue	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—
Clay—unglazed	—	4	2	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Clay—painted and incised	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Mother-of-pearl	—	1	—	—	—	—	—	2	1	—	—	—	—	—	—	—	—	—	—
Talc	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steatite/schist	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lapis lazuli	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—
Ruby	—	1	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Serpentine	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—
Carnelian	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	2	—	—	—
Agate	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
Quartzite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	13	4	—	—	1	—	5	2	—	2	—	3	—	1	2	—	—	—
Glass fragments																			
Vessel	—	42	25	13	—	15	7	—	—	—	—	—	30	5	1	—	—	—	—
Bangle	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	42	25	13	—	15	7	—	—	—	—	—	31	5	1	—	—	—	—
Coins																			
Silver	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Copper and bronze	—	1	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	1	—	—	—	1	—	—	—	—	—	—	—	1	—	—	—	—	—
Spindle whorl																			
Pottery	—	1	3	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—
Stone	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—
Wood	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Bone	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	2	4	—	—	—	—	—	—	—	—	—	1	—	2	1	—	—	—
Pendants																			
Bone	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
Stone	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	1	—	—	—
Shell	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	1	—	—	—
Seals																			
Agate	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—
Copper and bronze	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Steatite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Talc and gypsum	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—
Limestone	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	2	—	—	—
Stone artifacts																			
Flintlock pieces (?)	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
Polished stone	—	—	—	1	—	—	—	3	1	—	1	1	—	—	—	—	—	—	—
Lamp	—	—	—	—	—	—	—	—	1	—	—	—	—	—	2	2	—	—	—
Schist bowl fragments	—	—	—	—	—	—	—	—	—	—	—	—	8	—	—	—	—	—	—
Choppers	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—	—	—	—	—
Querns	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	1	—	—	—	3	3	—	1	1	11	—	2	2	—	—	—
Bone																			
Point	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—

	Trench 3 Cut 4				Trench 3 Cut 5						Cut 7					Cut 8					
	0–10	10–20	20–30	30–40	0–10	10–20	20–25	Major Hearth	Grayish Earth	Cut #6—Dump	0–10	10–20	20–30	30–40	Dump	0–10	10–20	20–30	30–40	5th Chamber	Totals
Beads																					
Glass	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Glaze—green	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Glaze—blue	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Clay—unglazed	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10
Clay—painted and incised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Mother-of-pearl	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Talc	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Steatite/schist	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Lapis lazuli	2	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6
Ruby	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Serpentine	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Carnelian	—	—	—	—	—	—	—	2	—	—	—	—	—	1	—	—	—	—	—	—	7
Agate	4	—	2	—	—	4	—	—	—	—	—	—	—	—	—	—	1	—	—	—	12
Quartzite	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Bone	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	13	—	5	—	—	5	—	2	—	—	—	—	—	1	—	—	1	—	—	—	60
Glass fragments																					
Vessel	45	10	6	—	—	10	—	1	—	—	—	—	1	—	—	—	3	—	—	—	214
Bangle	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	—	—	—	5
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	47	10	6	—	—	10	—	1	—	—	—	—	1	—	—	—	5	—	—	—	219
Coins																					
Silver	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Copper and bronze	6	2	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	6	2	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15
Spindle whorl																					
Pottery	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	6
Stone	1	—	2	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
Wood	2	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Bone	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4	—	4	—	—	2	—	—	1	—	—	—	—	—	—	—	—	—	—	—	21
Pendants																					
Bone	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Stone	2	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	7
Shell	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	10
Seals																					
Agate	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Copper and bronze	—	—	1?	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Steatite	1	1	1	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	5
Talc and gypsum	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
Limestone	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2	1	2	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—	12
Stone artifacts																					
Flintlock pieces (?)	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Polished stone	3	—	—	—	—	—	—	1	1	—	—	—	—	—	1	—	—	—	—	—	13
Lamp	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Schist bowl fragments	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8
Choppers	—	—	—	—	—	—	—	3	—	1	—	—	—	—	—	—	—	—	—	—	6
Querns	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	2
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	3	1	—	—	—	—	—	5	1	1	—	—	—	—	1	—	—	—	—	—	36
Bone																					
Point	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

countries had been forced to produce utilitarian wares almost exclusively; consequently, metallurgy had advanced artistically and technologically and pottery-making had declined. Only a few glazes were used, mainly a blue-green derived from copper.

The Islamic conquests made new demands on the potters' talents. They were called upon to create a pottery substitute for the preceding precious metal finery of the Sassanids. So successful were the Islamic potters that by the ninth century A.D. they were producing some of the finest pottery ever known. The most successful was decorated, glazed pottery, but, unfortunately,

> extraordinarily little is known of the decorated and glazed pottery of Iran in the seventh, eighth, and ninth centuries. . . . Lacking real archaeological evidence, practically all dating of the first few centuries of Islam has been done by comparative methods.[1]

Samarra in Iraq, the key site for all Early Islamic pottery, was built and deserted in the ninth century A.D., having been occupied from 838 to 883 A.D.[2] As Day[3] points out, the styles, *not* the wares themselves, probably traveled across the Islamic world. Thus we find Early Islamic pottery has a stylistic, if not a technological, continuum. Wherever found, Samarra wares are accompanied by Samarra-like local wares. Important Early Islamic sites in Iraq are Samarra, Baghdad and vicinity, Hira, and Kish; in Syria, Antioch; in Iran, Susa, Nishapur, Shapur, Saveh, Sultanabad, and Rayy; in Central Asia, Chotscho, Samarkand, Bokhara, and Afrasiab; in West Pakistan, Brahminabad and Bhambhor (Debul, or Daibal?).[4]

Before discussing the Shamshir Ghar wares, I must mention the famous "Samarran Luster Ware," which seems to have been manufactured exclusively for the royal family and high administration officials of the Abbasid Caliphate. Luster Ware was made by covering a vessel with a white tin glaze (also developed by the Early Islamic potters) before firing it. Then designs were painted *over* the fired glaze, which produced their differently colored thin metallic oxides, either singly or in polychrome combinations: greenish gold, copper gold, dark brown, or ruby red. The vessel was then refired at a lower temperature; the designs were fused into a pure metal onto the glaze, which resulted in a brilliantly iridescent variety of colors, each changing with the changing light.

Few Luster Ware vessels penetrated the eastern part of the Caliphate. Imitations are found, e.g., Nishapur, but Luster Ware was manufactured east of Iran only after the Mongol invasion.[5]

The "Samarran" luster painted ware on a white tin glaze is geographically widespread: Spain (Medina-az-Zazhra), North Africa (Kairawan), Egypt (Fustat or Fostat), Syria (Antioch, Tal-Mina), Cilicia (Tarsus), Iraq (Samarra, Ctesiphon, Baghdad, Hira, Tell Asmar), Iran (Susa, Rayy, Nishapur, Jiruft, Tump-i-Kharg), West Pakistan (Brahminabad), and Central Asia (Samarkand).

Day[6] defines the true "Samarran Luster Ware" as being made exclusively of "Samarra Clay," a very fine, well-levigated clay, which ranges in color from "pale yellow to buff pink," and a "terra cotta red." She[7] postulates Iraq as the home of this ware: "Historical evidence from Arabic sources points clearly to Mesopotamia as the home of the Samarran Wares with lustre painting on the white tin glaze."

Another type of "Samarran" luster ware is molded, usually in the form of small bowls, and is also widely distributed: Samarra, Baghdad, Hira, Ctesiphon, Susa, Rayy, Fustat, Al-Mina, Antioch, Tarsus, and Brahminabad.

Although no Luster Wares were found at Shamshir Ghar, their absence should not be interpreted as indicating that the Early Islamic inhabitants of the cave were unacquainted with this luxury pottery, for almost all other well-known pre-eleventh-century Islamic pottery was present.

Another common ware current after the ninth century in eastern Iran is the "Samarran" white-tin glazed ware.[8] Vessels of this ware are made of "pale yellow 'Samarra' clay," covered with an opaque white tin glaze, with designs usually painted *over* the glaze in "turquoise

[1] Dimand *et al.*, 1937, 15.
[2] Sarre, 1925; Hazard, 1951, gives 836 to 892 as dates of residence.
[3] Day, MS.
[4] Shamsid din Ahmad, Director of Archeology, Pakistan, personal communication, 1953.
[5] Dimand *et al.*, 1937, 18.
[6] Day, MS.
[7] Day, MS.
[8] Day, MS.

blue, cobalt blue, manganese brown, lustre."[1] Day has refuted statements by previous investigators to the effect that this ware was decorated by under-glaze painting. At times the glaze itself was tinted with one of the colors mentioned.

Important finds of this white-tin glazed ware have been reported from Samarra, Susa, Dura Europas, Kish, and Ctesiphon in Iraq; from Hama, Antioch, Tarsus, in Syria; and from

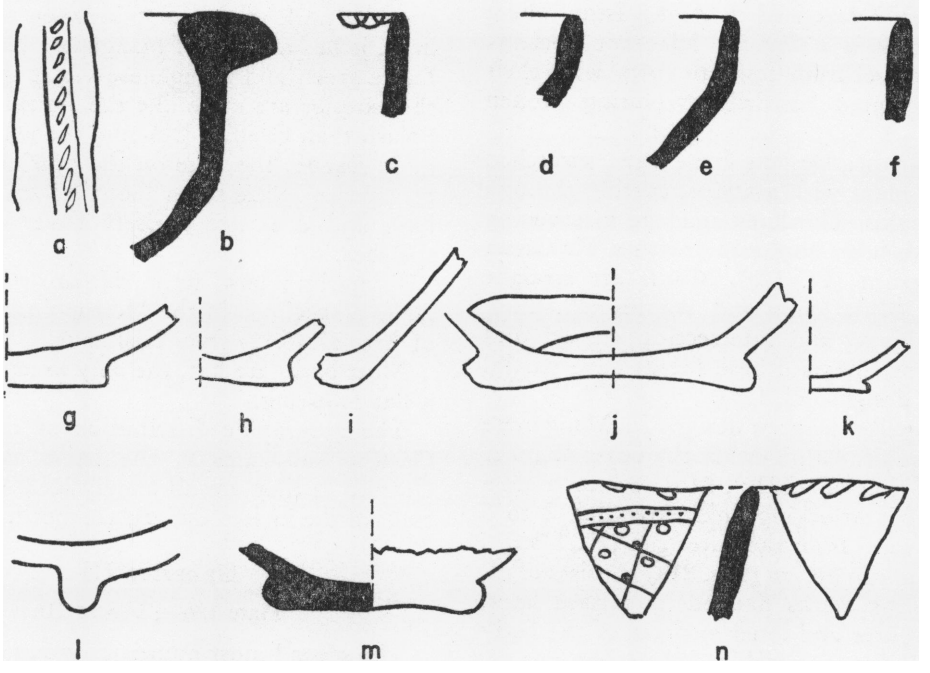


FIG. 21. Rim profiles and bases. a–l. Graffito I. m. Graffito II. n. Graffito III. *Ca.* ⅓ natural size.

Rayy, Saveh, Qum, as well as Kerman and Makran provinces, in Iran. Hobson[2] reports a a white monochrome bowl from Brahminabad.

No sherds of this imported ware were found at Shamshir Ghar. This does not mean that the Shamshir Ghar glaze levels are earlier than the ninth century A.D. The significance of this negative evidence is discussed below.

GRAFFITO I

Plate 12a–l; Figure 21a–l

This is the dominant type of glaze at Shamshir Ghar, distinguished from the other graffito types in that only the line decorations are in patterns; dots are usually splashed on.

THICKNESS: Rims average about 0.5 cm.; body, 0.7 cm.; near base, 0.8 to 0.9 cm.

HARDNESS: Fired clay, 4–5; glaze, up to 7–8.

PASTE AND TEMPER: Temper, fine sand and mica; paste color usually varies around Muskmelon: 11-C-8, 11-C-9, 11-C-10.

SURFACE: A cream or white slip applied before glazing; always visible on the outer surface below limit of glaze. Greenish under-glaze paint varies around Opaline Green (17-D-3 and 17-D-6); splash dots are Manganese Violet (42-J-8) or even Amethyst (45-J-8). Streaks of the same color occur on the outer surface of the sherds, somewhat similar to the Imitation T'ang Splash ware (cf. p. 195).

The glaze, in March's[3] classification, has an *open* crackle, noticeable only after careful inspection.

METHOD OF MANUFACTURE: Wheelmade, probably on a fast wheel.

FORM AND FUNCTION: Base and rim profiles

[1] Day, MS.
[2] Hobson, 1932, 8.
[3] March, 1934, 38.

indicate a majority of shallow bowls: the only evidence of a thick-rimmed, deep bowl is shown in Fig. 21a–b. Some rim sherds (e. g., Fig. 21d) have thick deposits of glaze, resulting from upside-down firing of some vessels. Such rims are usually darker in color than the body.

Figure 21g–h, j–k, illustrates a series of bases with feet; Fig. 21i is a flat base; Fig. 21 l, a foot-ring, unique at Shamshir Ghar.

Several glazed sherds had been perforated, probably in the repairing of broken bowls, which is still practised in Afghanistan where good pottery is a luxury. Itinerant pottery-menders travel from town to town with their diamond-pointed bowdrills, repairing broken pots.

DECORATION: Designs have been scratched under the glaze with a stylus, cutting through the white slip. The lines and the intervening spaces have been emphasized with a Fir Green (24-E-7) paint (Pl. 12e). Motifs are straight lines (Pl. 12h), loops and volutes (Pl. 12c), cross-hatchings, and intersecting curved and straight lines. Several base sherds have partial quatrefoil designs (Pl. 12a).

Occasionally drapery designs in Manganese Violet were drawn on either the outer or inner surface of rims (Fig. 21c). More common are a number of interlocking links extending 2 to 3 cm. downward from the outer rim (Pl. 12k).

A unique rim design (Fig. 21a) consists of diagonal stylus marks flanked by incised lines. Both the outer and inner surfaces of the body are glazed, but, as usual, the glaze does not extend to the foot.

GEOGRAPHIC DISTRIBUTION: Graffito I is common all over the Early Islamic area. It usually has a red paste, a white slip, is stylus incised, painted in green and/or manganese, then covered with a transparent glaze.

Among the more important sites where Graffito I has been reported are: Samarra[1]; Antioch[2]; Shah Tepe, Iranian Turkestan[3]; and Nishapur.[4]

Stein[5] reports Graffito I from Qalat-i-Jamshid, Hormuz, Shahr-i-Daqianus (Jiruft), and Tiz in southeastern Iran. Stein[6] also records Graffito I from sites in Iranian Seistan, e.g., Site A east of Sarbishah. Stein also illustrates the ware from Kuddan in the Persian Makran.[7]

Gardin[8] dates the various Shamshir Ghar graffito wares as Ghorid, or 1150 to 1220 A.D., on the basis of datable finds at Lashkari Bazaar.

GRAFFITO II

Plate 12m–n; Figure 21m

This ware is very similar to Graffito I. Instead of dark green paint between the incised lines, it has a series of manganese brown dots. Large green and manganese violet splashes on the exterior are more like the Imitation T'ang Splash than Graffito I. Again, the white slip almost reaches the base on the outside, but the transparent glaze stops about 1.5 cm. from the base and does not entirely cover all of the splashes.

Primarily a bowl form, this sub-ware is similar to a specimen in the Metropolitan Museum of Art (37.40.12) from Nishapur.

Most bases are flat, the only exception being a flat foot-ring.

The geographic distribution of the various Graffito sub-wares is the same as that for Graffito I; they are all merely local manifestations of the incised underglaze motif.

GRAFFITO III

Plate 12o–s; Figure 21n

The second most numerous group of Graffito sherds, Graffito III, combines patterned green and brown dots within tick-tack-toe incised lines; some are segmented by more curved lines. Occasional Bole Red (5-F-11) dots, enclosed by parallel incised lines, occur inside the rim. As in Graffito I or II, the cream slip underlies the transparent glaze and again extends below it on the outer surface. Yellow splashes are rare. Diagonal manganese lines often lie across the rim (Fig. 21n).

The key motif is the line of green dots; the best examples are shown in Pl. 12o, q–s.

As are the other Graffito sub-wares this is primarily a bowl type.

A disc, purposely shaped (1.5 cm. by 1 cm.

[1] Sarre, 1925, Pl. 36, Fig. 1.
[2] Waage *et al.*, 1948, Figs. 60, 64, 68–73.
[3] Arne, 1945, Pl. 85, Fig. 701a–e.
[4] Dimand *et al.*, 1937, Figs. 7, 25; also Metropolitan Museum of Art specimen 38.40.137.
[5] Stein, 1937, Pls. 4, 21, 26.
[6] Stein, 1928, Pl. 117 A.022, A.01.
[7] Stein, 1931, Pl. 4, Kud. 7.
[8] Gardin, personal communication, 1957.

by 0.7 cm.), probably either a gaming piece or a weight, was found.

Graffito IV

Plate 13a–e

According to Florence Day,[1] the monochrome gray-green (22-D-1) color of this sub-ware may be due to firing. The designs are outlined in a dark, almost Holly, green (23-L-1). On some bases (Pl. 13b) manganese brown dots are enclosed by two incised lines that meet at the center of the base. This sub-ware has a simple, flat foot.

A specimen in the Metropolitan Museum of Art (38.40.213) from Nishapur is quite similar to Graffito IV.

The open crackle is more visible than in the other Graffito sub-types, probably because of the firing.

These Graffito wares are local variants of the ninth-century Samarra ware and Nishapur ware of the ninth and tenth centuries. Logically, they are closer to the Nishapur than to the Samarra types. By the thirteenth century, the green Graffito ware had disappeared.[2] As examples of almost all the Graffito wares were present in the uppermost stratified level at Shamshir Ghar, it is possible to establish an important terminal date for this level. None of the other glazed wares are so numerous or so important as the green Graffito types, I through IV.

Mottled and Plain Green

Plate 13f–n; Figure 22a–o

A local ware (?), probably of north Iranian origin, the Mottled Green and Plain Green ware comprises the second largest group of glazed sherds at Shamshir Ghar.

Thickness: Average, about 0.5 to 0.6 cm.

Hardness: Paste, about 4; glaze, up to 7.

Surface: Although color and shape vary, the glaze always has the same mottled appearance. Greens vary from almost Elm (23-H-5) to Peacock Green (20-C-9). At times, glaze on the outer surface covers a Cream slip from inside the lip to the shoulder, or lower (Fig. 22g). In another variant the glaze covers the entire body of the vessel—a crude and bumpy job; e.g., Pl. 13g and Fig. 22k. On these bases the green glaze is applied directly to the body. The glossiness of the glaze is probably caused by its high lead content. One handle (Pl. 13h) and a rim (Fig. 22i) are iridescent, probably because the lead has been appreciably destroyed.

Method of Manufacture: Wheelmade.

Form and Function: The Mottled Green Ware consists primarily of small jars (Fig. 22j, o). Two probable plate base-rings (Fig. 22k, n) are among the finds. Most handles (Pl. 13h; Fig. 22b–c, f) would fit on small jugs; a broken handle on the shoulder of one vessel seems to substantiate this.

Three unique sherds appear to be parts of pottery stands (Pl. 13j, m–n; Fig. 22a, d–e). An unglazed object similar to Pl. 13j and Fig. 22e is illustrated by Stein[3] from Periano Ghundai, but not described.

The "leaf green" vessels reported by Schmidt from Rayy[4] are "amphora-like," with characteristically Islamic flat bases and disproportionately wide necks.

Decoration: Mottled black streaks, possibly caused in firing, occur throughout the glaze, whether it is green or transparent over a white slip and green paint. The green glaze invariably covers the entire vessel, even the bottom of the base. This is unusual for Early Islamic pottery and is probably a local variant.

The necks of some jugs are grooved, a common practice as far west as Tarsus, which was destroyed by the Byzantines about 960 A.D.[5]

Fewer than one-third of the sherds in this category are a relatively pure Peacock Green; the rest are mottled.

Geographic Distribution: Apparently a north-central and northeastern Iranian variant occurs primarily at Rayy[6] and Nishapur.[7] Schmidt dates the Early Islamic Period at Rayy during Abbasid time (ninth to tenth centuries A.D.).

According to Day,[8] this "speckly" green glaze is ninth to tenth century.

Champlevé: Yellow and Green

Plate 13o–q; Figure 23a–b

Thickness: Average, 0.4 cm.

[1] Personal communication, 1953.
[2] Day, MS.
[3] Stein, 1929, Pl. 8, P. W. 8.
[4] Schmidt, 1935–1936.
[5] Day, personal communication, 1953.
[6] Schmidt, 1935–1936, 47–48.
[7] Day, MS.
[8] Day, personal communication, 1953.

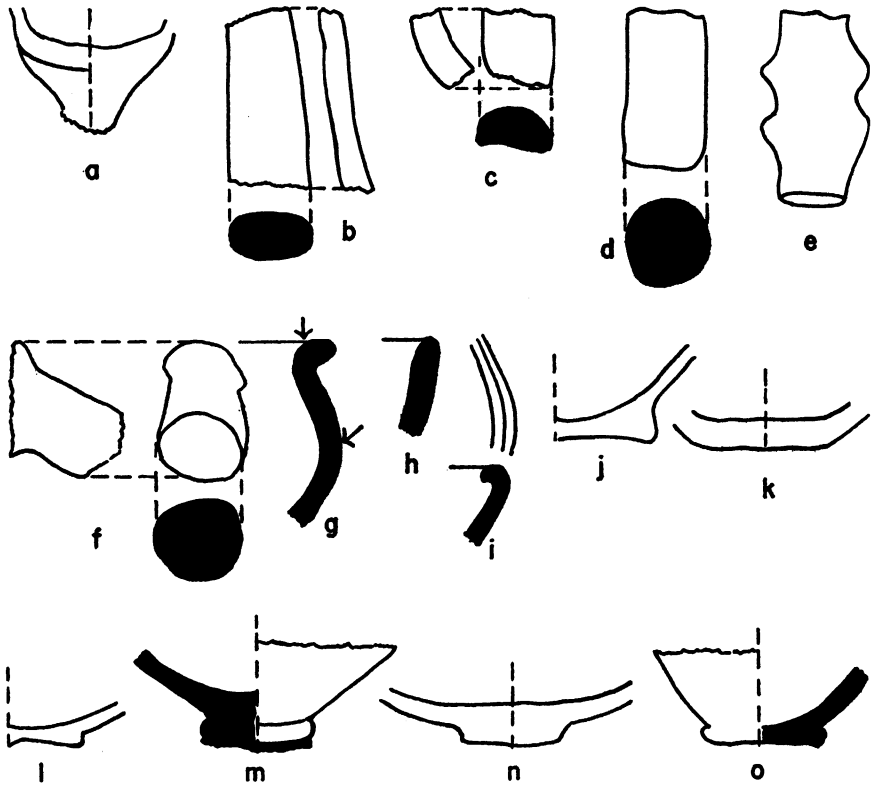


FIG. 22. Rim profiles and bases, Mottled and Plain Green. *Ca.* ⅔ natural size.

HARDNESS: Average, about 4.

PASTE AND TEMPER: Same as Graffito I.

SURFACE: The red clay is covered with a cream slip, cut away to form designs in bas-relief. The raised designs are painted yellow (almost Chalcedony Yellow, 18-H-1, 18-I-1). Sometimes the exposed red clay is painted, and the result is Bole Red (5-F-11). The yellow portions were usually painted last, and occasionally they slop over onto the red background. Several of the sherds exhibit green dots, but in no describable pattern (Pl. 13o).

The outer surface is usually unslipped. Dark Manganese Violet, parallel, diagonal lines also occur on the outer side of the rim.

A unique sherd has light green, raised designs and a Fir Green (17-F-7) background (Pl. 13q).

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: Only two rims were found. Both are externally indented and slightly flaring (Fig. 23b). The glaze on both rims is thicker than on the rest of the vessel, indicating upside-down firing. The single base (Fig. 23a) has a simple foot. Shamshir Ghar Champlevé vessels were probably shallow bowls.

DECORATION: The Champlevé technique is described on page 181.

GEOGRAPHIC DISTRIBUTION: Samarra[1]; Antioch.[2]

Glazes and colors at other sites vary much more than those at Shamshir Ghar. Probably the Shamshir Ghar finds (only 26 sherds) were exported from southeastern Iran, for Stein found similar dominant yellow Champlevé wares at Qalat-i-Jamshid.[3] Other finds were in the Punjab (Brahminabad)[4] and from Samarkand.[5]

Stein[6] also illustrates Champlevé from Kuddan in the Dasht Valley (Makran) of West Pakistan.

[1] Sarre, 1925, Pl. 7.
[2] Waage *et al.*, 1948, Fig. 50: 6a, 6b, 84, 86.
[3] Stein, 1937, Pl. 4, Jam. surf., 13, 30.
[4] Hobson, 1932, Fig. 18.
[5] Hobson, 1932, 21; Lane, 1948, 17–20.
[6] Stein, 1931, Pl. 4.

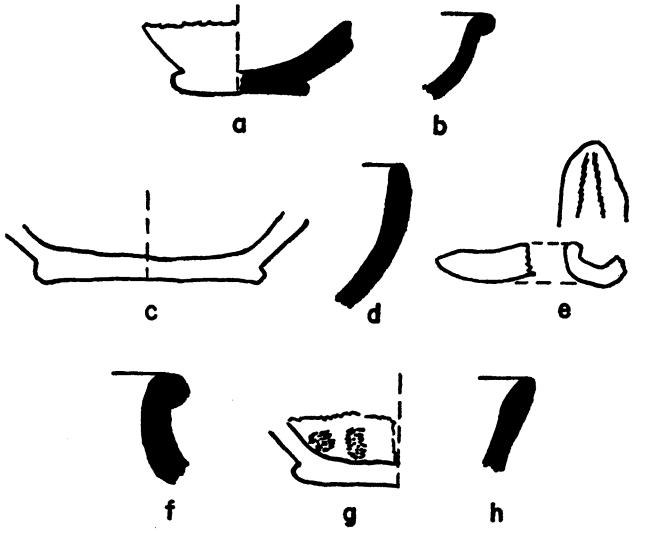


FIG. 23. Rim profiles and bases. a–b. Champlevé Yellow. c–e. Bole Red Slip. f. Blue and Blue-Green Glaze. g. Imitation T'ang Splash. h. Samarkand-Brahminabad bowl sherd. *Ca.* ⅔ natural size.

BOLE RED SLIP

Plate 14a–c; Figure 23c–e

THICKNESS: Average, about 0.45 cm.

HARDNESS: Average, 4.

PASTE AND TEMPER: Same as those of Graffito I.

SURFACE: The body is red-slipped rather than cream. Color of slip varies around Bole Red (5-F-11); also called Armenian Red. Differential firing causes the slip to vary between Bole Red, Tomato Red (3-I-12), or near Mauve-Taupe (6-E-8, 7-E-8) under the transparent overglaze. The glaze does not extend to the base on the outer surface; generally, the red slip extends below the glaze.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: The only rim and base sherds available suggest a shallow, flat-footed, bowl shape. One pinched-in spout (Fig. 23e) was probably part of a pitcher, oinochoe, or a lamp.

DECORATION: The Bole Red is dominant. Florence Day thinks that the Bole Red is derived from an earth pigment (probably ocher). On a few rims, however, a cream band is painted just below the inside of the rim, with Manganese Brown "teardrops" painted on the band (Pl. 14a, c).

The inner surface of the sherd shown in Pl. 14b and Fig. 23c has yellowish green (18-H-1) splashes in a rough quatrefoil design under the glaze, but over the Bole Red slip.

GEOGRAPHIC DISTRIBUTION: Similar Bole Red slips are found at Nishapur (Metropolitan Museum of Art specimen 36.20.27).

BLUE AND BLUE-GREEN

Plate 14d–i; Figure 23f

This glazed ware is the most widely distributed in both time and space. Argument still rages about the various shades of blue or blue-green. We, however, adhere to our comparisons with the color charts of Maerz and Paul.

THICKNESS: Range, 0.3 to 0.6 cm.; average, 0.45 cm.

HARDNESS: Bisque paste and frit, 4–5; red paste, same as that of Graffito I; glaze, up to 8.

PASTE AND TEMPER: Three different types of paste occur: two sherds have the familiar Mushroom-colored paste with a fine sand temper, almost as fine as "Samarra clay"; a few sherds are of a frit (not paste) material; the bulk have a Bisque (11-A-3) paste with fine sand and mica temper.

SURFACE: Most sherds in this category are covered with an alkaline Turquoise Blue (25-J-2) glaze. Eleven of the 32 sherds are badly weathered and diffuse a rainbow iridescence.

The glaze, up to 0.1 cm. thick, is applied directly to the body of the vessels.

The Bisque sherds have a Feldspar Green (27-I-9) glaze of a blue-green color.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: Shallow bowls, plates, and straight-walled bowls were the common Early Islamic forms. Like many other Early Islamic vessels, these are more or less copies of Sassanian metal work.

DECORATION: The Turquoise Blue sherds have black underglaze painted design: simple diagonal lines or curving rectangular and triangular lines circle a series of black dots.

One of the Feldspar Green sherds has an underglaze design in red, but is too badly weathered for motif identification.

GEOGRAPHIC DISTRIBUTION: Blue and Blue-Green alkaline glazes were made at Nuzi as early as 1500 B.C.[1] and continued through the Assyrian, Neo-Babylonian, Achaemenian, Hellenistic, Parthian, and Sassanian periods. These wares are found at many Early Islamic sites in Iraq and Iran (Ctesiphon, Baghdad, Nineveh, Susa, Shapur, and Samarra).[2] Stein's collections from the Makran and Kerman provinces (Siraf, Jiruft, Daiyir, Kashkuk, Asir, Tump-i-Podu, Boroqla, Darra-Shor Hissar, Buluk, Tump-i-Kharg, Kumb, and Geh) suggest the exportation of Blue and Blue-Green wares to West Pakistan and India via the Persian Gulf-Indian Ocean trade route.[3]

The Blue and Blue-Green glazed wares have not been found in northern or western Iran. Day concludes:

> blue-green glazed ribbed ware has not been reported, as far as I know, from western, northern, or eastern Persia, for instance, Rayy and Nishapur. Its presence here along the (Persian Gulf-Gulf of Oman) seacoast as well as inland seems to be the by-product of two trade routes: the sea route to India and China, on which Siraf and Tiz were noted ports in the ninth century, and the overland route through Kerman and Makran to Muslim towns in India.[4]

Kandahar and Shamshir Ghar are not far from the latter.

The two sherds with the sand-white frit body probably date in the late eleventh or early twelfth century.[5]

[1] Starr, 1937–1939.
[2] Day, MS.
[3] Stein, 1937.
[4] Day, MS.
[5] Day, personal communication, 1953.

IMITATION CELADON

Plate 14j–l

THICKNESS: Average, about 0.5 cm.

HARDNESS: Paste, 4; glaze, 7.

PASTE AND TEMPER: Two sherds are Muskmelon, fine, sand-mica-tempered ware, same as Graffito I; the rest have a fine Bisque (Yellowish-Buff: 11-A-3) paste.

SURFACE: A greenish gray glaze is applied directly to the Bisque body. The green is not precisely Celadon Green (21-B-4), but darker, almost Gray Drab (21-D-1 and 21-I-1). The glaze has an open crackle.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: No rims or bases were found. One disc-shaped sherd was probably a gaming piece or weight.

The Celadon-ware types exported from China were generally bowl and dish shapes with footrings.

GEOGRAPHIC DISTRIBUTION: Authenticated Celadon imports from China have been found at many sites. Among them are Samarra,[6] Antioch,[7] Fustat or Fostat, which is Old Cairo,[8] Rayy or Rhages, also called Chasmeh Ali,[9] and Arikamedu on the southeast coast of India.[10] Wheeler also reports Celadon Ware was found "at Kaytal on the banks of the Tamraparni in the Tinnevelly District." Stein reports "Celadon Blue" from Shami-Damb in the Central Makran Range region of West Pakistan and in southeastern Iran.[11]

Celadon Ware was manufactured in the districts of Lung-chüan, Yüeh-chou, and Ch'i-chou.[12]

True Chinese Celadon Ware is celadon in color, grayish green from the outside glaze to the center of the paste. Most Far Eastern ceramic experts believe the Chinese potters were trying to imitate jade. The Early Islamic potters in turn attempted to imitate the Celadon, but failed miserably, especially where the paste is concerned. Porcelain-like clays simply do not exist in the Middle East.

The paste of true Celadon is grayish white and porcelaneous. The surface is a light brown

[6] Sarre, 1925, 95–96, Pl. 23.
[7] Waage *et al.*, 1948, 104–106, Figs. 93, 94.
[8] Raphael, 1923–1924; Hobson, 1928–1930, 21.
[9] Schmidt, 1936.
[10] Wheeler *et al.*, 1946, 91–93, Fig. 39.
[11] Stein, 1931, 51; 1937, 245, in Hobson's Appendix A.
[12] Hobson, 1924.

or pink where touched by fire or exposed directly to kiln heat. The glaze is "thick" and "grass-green to gray," usually "cool sea-green."[1] Earlier exports were undecorated, but later, especially in Yuan times, the body of the vessel was carved, etched, molded, or appliquéd in low relief. Bowls were sometimes fluted or dimpled.[2]

The export of Celadon Ware began in the T'ang Dynasty (618–906 A.D.) and reached its peak in the Sung (960–1279 A.D.) and Yuan dynasties (1280–1368 A.D.). The ware was popular for its supposed medicinal properties, as well as its aesthetic beauty. Celadon also made the best opium pipe bowls of the period.[3]

Imitation T'ang Splash Wares

Plate 14m–o; Figure 23g

This is another rare ware at Shamshir Ghar.

Thickness: Average, about 0.5 cm.

Hardness: Paste, 4; glaze, 6–7.

Paste and Temper: All a fine Bisque, like those of Imitation Celadon.

Surface: A cream slip covers the inner and part of the outer surface, not reaching the foot.

Method of Manufacture: Wheelmade.

Form and Function: No rims and only two bases were found (Pl. 14m–n; Fig. 23g), but the vessels were probably shallow, with slanting walls and simple feet.

Decoration: Splashes of Manganese Violet and various greens under a colorless glaze on both inner and outer walls are dominant. A streaked effect, present on six of the sherds, was possibly produced by the application of a fluid lead glaze over the painted designs, causing the designs to "run." The Samarkand-Brahminabad bowl types have underglaze painted designs which do not run because the potters of the Eastern Caliphate learned that colors remained fixed when mixed with a fine clay slip before application. Lane[4] attributes the invention of this underglaze painting technique to the Samarkand potters.

Geographic Distribution: This ware appears to be a local imitation of T'ang Dynasty imports. Both Chinese imports and local imitations are found at Samarra.[5] The authentic T'ang Splash Ware is also found at Saveh. Nishapur has only imitation sherds and vessels; several resemble the Shamshir Ghar specimens.[6] Imitations also occur at Shah Tepe.[7]

Samarkand-Brahminabad Bowl Sherds[8]

Plate 14p–q; Figure 23h

Thickness: Average, about 0.5 cm.

Hardness: 4–5; glaze too weathered to test.

Paste and Temper: A fine Bisque-colored paste with sand-mica temper.

Surface: The surface is covered with a cream slip which, as usual, does not reach the base on the outside.

Mode of Manufacture: Wheelmade.

Form and Function: This Eastern Caliphate ware, which usually presents a tapering profile, probably was in the form of a deep-sided bowl or plate. The rim shape is illustrated in Fig. 23h.

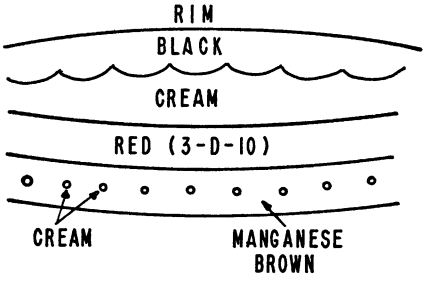


Fig. 24. Decoration on inside of rim of Samarkand-Brahminabad bowls.

Decoration: Rims (11) are decorated with semicircular brush strokes in Manganese Brown (15-C-12) or Black, depending on the firing. Inside the rim the pattern in Fig. 24 is invariably followed.

One rim has broad, rectangular, Manganese Brown strokes on its inner and outer surfaces; the glaze is a yellowish green, almost Chalcedony Yellow (18-J-1).

Geographic Distribution: Exclusively in the Eastern Caliphate, i.e., Samarkand, Afghan Turkestan, Brahminabad, Nishapur,[9] Seistan.[10]

[1] Hobson, 1924.

[2] Examples, *ca.* tenth to twelfth centuries, at Arikamedu, Wheeler *et al.*, 1946, 92, Fig. 39.

[3] Hobson, 1924.

[4] Lane, 1948, 17.

[5] Sarre, 1925, Pls. 19, 29–30.

[6] Dimand *et al.*, 1937; report on the Nishapur dig illustrates the similarities, Figs. 8–9, 12, 16.

[7] Arne, 1945, Pl. 35.

[8] Hobson, 1928–1930.

[9] Dimand *et al.*, 1937, 9–10, Fig. 6.

[10] Stein, 1928, Pl. 107.

The Nishapur finds are made of a fine reddish clay.

Samarkand Kufic Ware

Plate 14r–u

A type of Champlevé popular in the ninth and tenth centuries throughout the Islamic world. The name Samarkand Kufic is derived from the close resemblance of this variant to Kufic-inscribed glazed pottery.

Thickness: Average, about 4 cm.

Hardness: 4–5.

Paste and Temper: Mostly a fine reddish paste with fine sand-mica temper; some Bisque-colored paste.

Surface: A cream slip covers the body.

Method of Manufacture: Wheelmade.

Form and Function: The rim sherds are slightly turned in, indicating a slightly flaring bowl shape. No bases were recovered.

Decoration: Broad Kufic letters up to 0.2 cm. across are always carved in low relief on the interior of the body and painted in Manganese Brown or Black. Inside rims (Pl. 14r) are painted brown and then incised with smaller letters.

Geographic Distribution: The Kufic script, says Day,[1] is "one of the most beautiful ever known to the world, and a fundamental element in all Islamic design." Day says the script style was spread largely by coins and appears as friezes in mosques, on wood carvings, in textiles, on metal, glass, and, of course, pottery. The design in Kufic script frequently has no significance, but consists of letters placed to obtain artistic balance.[2]

A specimen in the Metropolitan Museum of Art (37.40.22) illustrates this type from Nishapur and, according to Day, dates no later than the tenth century.

Nishapur 1 Ware

Plate 15a–g; Figure 25a–e

The Nishapur wares of Shamshir Ghar closely resemble the various finds at Nishapur, which, in turn, seem to have their ultimate origin at Samarra. These are local wares; it is doubtful whether any were imported, for, though all are similar to Nishapur wares, none are identical.

Thickness: Average, about 0.5 cm.

Hardness: Paste, 4–5; glaze, up to 8.

Paste and Temper: Bisque (11-A-3) or Champagne (11-B-3), with fine sand-mica temper.

Surface: The surface is covered with the ubiquitous cream slip, which does not reach the base foot on the outside.

Method of Manufacture: Wheelmade.

Form and Function: All base sherds (Fig. 25a–d) have simple feet, and indicate the presence of the familiar shallow bowls, with walls flaring up to 50 degrees. One base stand was found (Pl. 15a). What is probably a decorated lid is illustrated in Pl. 15e and Fig. 25e.

Decoration: The designs are typical of those found at Nishapur. Manganese Violet and Brown Kufic script (Pl. 15b) with Chalcedony Yellow lines below the script, Bole Red rectangular sections outlined in brown (Pl. 15d), quatrefoils in brown on the bases (Pl. 15c), and red on the lid ? (Pl. 15e) are among the motifs represented. On one sherd the alkali glaze itself has a bluish green tinge (26-A-2).

Geographic Distribution: A good example of the Nishapur curvilinear painted style may be seen in specimen 36.20.37, Metropolitan Museum of Art.

The same flowing styles appear at Bhambhor in West Pakistan.

Nishapur 2 Ware

Plate 15h–i; Figure 25f

Thickness and Hardness: Same as for Nishapur 1.

Paste and Temper: A fine reddish Woodland Rose (4-A-10) paste, with fine sand-mica temper.

Surface: A Bole Red slip covers the surface.

Method of Manufacture: Wheelmade.

Form and Function: Same as for Nishapur 1.

Decoration: The red slip is painted with white bands, on which volutes (Kufic?) are painted in black (Pl. 15i). One sherd has cream-colored dots painted on brown stripes (Pl. 15h). Two illustrations in the Nishapur report are somewhat similar to these sherds, although Wilkinson calls the slip "dark manganese brown."[3] A few Shamshir Ghar sherds of this type also appear brownish red, probably be-

[1] Day, MS.

[2] Day, MS.

[3] Dimand *et al.*, 1937, 12, Figs. 10, 11.

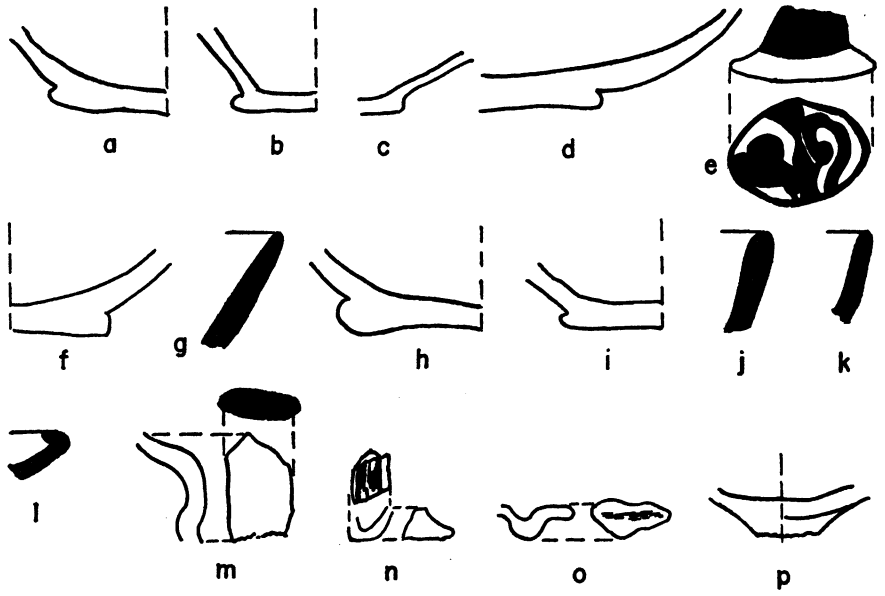


FIG. 25. Rim profiles and bases. a–e. Nishapur 1. f. Nishapur 2. g–i. Nishapur 3. j–k. Nishapur 4. l–p. Brown-Green Ware. *Ca.* ⅔ natural size.

cause of firing. The slip, however, is Bole Red (5-F-11).

GEOGRAPHIC DISTRIBUTION: As previously mentioned, this is a local variant of a Nishapur Ware which has its ultimate origin in Samarra. Some Bhambhor sherds with dots resemble this sub-ware.

NISHAPUR 3 WARE

Plate 15j–o; Figure 25g–i

This ware has a red paste and cream slip like those of Nishapur 1, but in contrast to Nishapur 1 decoration, based on the comparatively straight line and painted Kufic script, Nishapur 3 is characterized by polychrome painted dots and curving lines that end in quatrefoil and trifoliate designs. Some decorated sherds are almost identical with those illustrated in the Nishapur report[1] and with a Metropolitan Museum specimen (38.40.286). Several Samarkand bowls resemble this sub-ware.

Designs are many and varied: cream dots on brown dots (Pl. 15j); green dots on white dots (Pl. 15k); reddish brown circle on white slip, surrounded with brown lines (Pl. 15o); sweeping brown and yellowish green (Chalcedony Yellow) lines with intervening areas filled with brown dots (Pl. 15 l).

[1] Dimand *et al.*, 1937, 18, Fig. 8.

Yellow Beige (13-H-7) and Leather Brown (14-A-10) paints are also used to segment the decorated surface of some of the sherds (Pl. 15m).

Stein illustrates several sherds similar to Nishapur 3 from Iranian Seistan[2] and Iranian Makran and Baluchistan.[3] Shah Tepe[4] yielded similar sherds.

NISHAPUR 4 WARE

Plate 15p–v; Figure 25j–k

This ware has a red paste like that of the Nishapur 2; the body has a cream slip. Broad brown diagonals or horizontal parallel lines are painted under a green-tinted glaze.

BROWN-GREEN WARE

Plate 15w–y; Figure 25 l–p

Similar to the Imitation T'ang Splash Ware, except that the designs are streaked rather than splashed, probably because lead was added to the glaze.

THICKNESS: Average, about 0.45 cm.

HARDNESS: Paste, 4; glaze, up to 8.

PASTE AND TEMPER: A reddish, Woodland

[2] Stein, 1928, Pl. 97.
[3] Stein, 1937, Pls. 4, 21.
[4] Arne, 1945, Pl. 85.

Rose; fine sand-mica temper.

SURFACE: A Cream slip covers the surface.

METHOD AND MANUFACTURE: Wheelmade.

FORM AND FUNCTION: The sherds indicate that this color-mixed ware was made in the form of some sort of pitcher, jar, or handled bowl (Fig. 25m), with an in-turned, beaked rim (Fig. 25 l), and a pinched-in spout (Fig. 25n), possibly on a stand (Fig. 25p).

DECORATION: The inside surfaces have a streaked mixture of Manganese Brown and Chalcedony Yellow, probably because a transparent lead glaze was employed. The paint is applied on the Cream slip. The outer surface is covered with a Chalcedony Yellow-tinted glaze; probably, therefore, the inside brown is paint, and the yellow represents part of the glaze.

GEOGRAPHIC DISTRIBUTION: This Brown-Green Ware has not been reported elsewhere, to my knowledge, and is probably a local variant of the common T'ang Splash Ware.

UNIQUE SHERDS

One sherd has a row of bright Peacock Green (20-L-9) dots painted on a Falcon Gray (12-B-5) paint, which covers a white slip.

Two sherds with transparent glaze have a Bisque-colored paste covered with a Falcon Gray slip and painted with indistinguishable Haematite Red (7-H-3) designs.

GRIT WARE: SHERD TEMPER

Plate 16

The paste used in the manufacture of this ware is at least 50 per cent non-plastic, mainly broken sherds, coarse sand, mica, crushed limestone, and chaff. It was a heavy, crude, utilitarian ware, probably made near the site. Rim sherds indicate that some storage jars must have had a minimum mouth diameter of 25 cm. This ware breaks too easily to have been transportable. The Red Wares with Cream slips and the Grit Ware produced more sherds in bulk than any other ware. Few whole pots or shapes could be reconstructed, because the sherds were very crumbly and badly preserved.

THICKNESS: Maximum, 2.0 cm.; minimum, 0.6 cm.; average, *ca.* 1.2 cm.

HARDNESS: Between 3 and 4.

PASTE AND TEMPER: Color is not uniform, varying from 4-C-10 (Muscade) to 6-C-11 (Pencilwood Modoré). Many sherds are blackened through with carbon, resulting either from firing techniques or their use as cooking vessels.

Sherd fragments ranged from less than 0.1 cm. to 0.5 cm. Many sherds had uncombusted black centers.

SURFACE: Surfaces are very rough, not only because much of the red and reddish brown slip has worn away, but because many temper fragments have fallen out, producing a pitted surface (Pl. 16b). Differential firing has given various shades to the inside and outside slips: 3-C-10, 4-D-10, 4-G-7, 5-A-11, 5-C-9 (Rose Blush), 7-C-10 (Brown Stone). Some sherds had a Cream (9-D-2) slip. Many sherds were too fire-marked to justify color designations.

METHOD OF MANUFACTURE: Unknown, but a few sherds have broken along coil lines.

FORM AND FUNCTION: No complete vessels were found. The life expectancy of these crude pots could not have been very long. It is unlikely that this ware was anything but a local utilitarian ware used in cooking and storing.

DECORATION: The most common non-painted decoration is a pressed band of clay, high on the shoulder, with fingermarks or broad stylus marks (e.g., Pl. 16e). Rarely, an oblique punctation occurs directly on the surface (Pl. 16j).

Because of bad preservation, it is difficult to determine the number of sherds with painted designs. Many rim sherds have an exterior reddish wash or paint that sometimes sloughs over onto the interior. Broad, parallel, red (from 7-H-3, Haematite Red, to 7-J-5, Tapestry Red), vertical or horizontal lines also occur, always on the outer surface. A few sherds have alternate undulating and straight lines beginning at a band high on the shoulder.

GEOGRAPHIC DISTRIBUTION: In multitudinous local varieties, this ware is common in many prehistoric and historic sites.

GRIT WARE: QUARTZ-SAND TEMPER

Plate 17a–f

THICKNESS: Range, 0.7 to 1.2 cm.; average, about 1. cm.

HARDNESS: 2, even more crumbly than the sherd-tempered ware.

PASTE AND TEMPER: Color far from uniform, ranging from 4-C-10 (almost a Woodland Rose) to 7-A-10 (New Cocoa). Temper, sand-gravel,

with some quartz grains up to 0.3 cm. in diameter.

SURFACE: Not so pock-marked as the sherd-tempered ware, but almost all slip has disappeared. Small quartz crystals glitter when the surface is held to the light. The reddish brown slips found on the few specimens of this type are too badly eroded for color comparisons.

METHOD OF MANUFACTURE: Unknown; possibly coiled.

FORM AND FUNCTION: All these grit wares seem to have been made in the same manner and for utilitarian purposes.

DECORATION: Same as the Sherd-Tempered Ware.

GEOGRAPHIC DISTRIBUTION: Common in many prehistoric and historic sites.

GRIT WARE: FIBER TEMPER

Plate 17g, k–m

THICKNESS: 1 to 2.4 cm.; average, *ca.* 1.2 cm.

HARDNESS: 2.

PASTE AND TEMPER: Paste is always a brownish, buffish, or whitish color; most common is 11-E-7, an almost Golden Wheat. This is quite appropriate, as chaff is the main temper ingredient.

SURFACE: Many impressions of chaff. Slip is usually lighter (11-B-2, Cartridge Buff) than the paste. The surface is not so pock-marked as on the preceding grit wares.

METHOD OF MANUFACTURE: Possibly coiled.

FORM AND FUNCTION: Same as for preceding sub-wares.

DECORATION: Few decorations as such; however, several mat-marked or cord-marked or basket-impressed sherds occur in this category (Pl. 17k–m); impressions always on the interior.

GEOGRAPHIC DISTRIBUTION: Common in many prehistoric and historic sites, represented by many local variants.

GRIT WARE: LIME TEMPER

Plate 17h–i

THICKNESS: Minimum, 0.6 cm.; maximum, 1.1 cm.; average, about 0.7 cm.

HARDNESS: *Circa* 3.5.

PASTE AND TEMPER: Nearly always imperfectly fired, the paste color varying from a gray (47-A-2, Charcoal Gray) to a red (4-C-10). Crushed limestone occurs throughout the paste; some nodules are 0.6 cm. in diameter.

SURFACE: Limestone nodules show through the thin slip (11-D-4, Golden Wheat, or 11-C-3, almost a Bisque). In many sherds, of course, the lime fragments have been weathered out, giving them a pock-marked appearance.

METHOD OF MANUFACTURE: Probably coiled.

FORM AND FUNCTION: The sherds were numerically inadequate for any sort of reconstruction to be attempted, but this ware, like the rest of the Grit sub-wares, was obviously utilitarian.

DECORATION: Only four sherds are decorated. One has a wide pressed band near the shoulder; the others, probably from the same vessel, have parallel channeled lines, with an undulating incised line above them.

GEOGRAPHIC DISTRIBUTION: Numerous local varieties common in many prehistoric and historic sites.

Lime Temper sub-ware is common at Balkh and Bust and neatly coincides with the first Kushan settlement. The ware is typical of the pre-Christian steppe cultures of Central Asia, according to Gardin.[1] At Balkh and Bust, the sub-ware disappears in the Kushano-Sassanian levels and is absent in all Islamic layers. The few sherds in the Early Islamic levels at Shamshir Ghar are probably intrusive.

GRIT WARE: MICA-SAND TEMPER

Plate 17j

This ware is a variant of the Quartz-Sand Temper sub-ware.

THICKNESS: Minimum, 0.6 cm.; maximum, 1 cm.; average, *ca.* 0.7 cm.

HARDNESS: 3.

PASTE AND TEMPER: Paste brownish (12-B-8); mica flakes sparkle in the sand which contains little quartz. Crushed limestone is also used in this temper.

SURFACE: Some sherds are unslipped, and the mica is visible; limestone nodules dot the surface. Unslipped, the fired surface is reddish (4-B-10), almost a Woodland Rose. Slips are usually Blush (7-A-1) and, unless eroded, effectively conceal the shiny mica-sand temper and white limestone nodules.

METHOD OF MANUFACTURE: The sherds are crude and uneven; it is possible that this ware was hand-made.

FORM AND FUNCTION: Rolled rims with nar-

[1] Gardin, personal communication, 1957.

row diameters indicate that small jars, as well as storage jars and bowls, were common shapes.

DECORATION: Painted designs in Peach Bisque (5-D-4) and London Smoke Brown (8-C-9) on a Buffish (11-F-7) slip are most popular. Broad red parallel bands, wash rather than paint, are common. Occasional sherds have incised or painted undulating lines. Other painted designs include cross-hatchings, triangles, and single horizontal lines.

GEOGRAPHIC DISTRIBUTION: Same as for the other Grit sub-wares.

HAND-MADE GRIT WARE

Plate 18a, b

A very crude, uneven ware.

THICKNESS: Only a few sherds were found; all are *ca.* 0.6 cm. thick.

HARDNESS: 3.

PASTE AND TEMPER: Usually the paste is 15-C-6 (Gray 31), but on one under-fired sherd it is 47-A-2 (Charcoal Gray). Small quantities of chaff appear to have been used as temper.

SURFACE: Slips of three shades are used on the uneven surface of these sherds: 11-C-6 (Honey Beige), 11-B-9 (a red ocherous shade), and 12-C-3 (Old Ivory).

METHOD OF MANUFACTURE: Too crude to have been wheelmade; fingerprints are visible on one sherd.

FORM AND FUNCTION: The shapes were apparently much smaller than those of the other Grit subwares; also utilitarian (?) shapes.

DECORATION: Two rim sherds have a pressed band (appliquéd strip) high on the shoulder with repeated finger or stylus marks. A series of slanted parallel lines is painted in a weak red (4-B-10) on the interior of one of these rim sherds and on another sherd. The second rim sherd has very free designs, including dots and slops of paint, in the same weak red paint on the outside. Inside the rim are three parallel red lines.

GEOGRAPHIC DISTRIBUTION: Another local sub-ware, too crude and crumbly to be transported any distance.

RED WARE UNDECORATED

Plate 20

Primarily an undecorated ware; over 3400 of the more than 4700 red wares listed on the artifact table (Table 5) are undecorated, save for rare red or black slips. Of the decorated wares, 568 sherds are painted and 193 incised, channeled, or imbricated. Red Ware, including undecorated, black-slipped, incised, and painted, are discussed below in detail by cultural level.

THICKNESS: Range, 0.35 to 2.3 cm.; almost all of the sherds under 0.6 cm. have painted designs.

HARDNESS: 4–6.

PASTE AND TEMPER: The paste is almost universally a fine-grained clay. Because of firing, paste color of plain, undecorated sherds varies from Pheasant Testaceous (4-B-11) to Terra Cotta (4-D-12). Many sherds are fire-blackened, probably from their use as cooking vessels rather than from initial firing. The large sherds (over 1.5 cm. thick) have variable core colors; some are an unoxidized black; most vary from Pheasant Testaceous to Brick Red (6-B-11) and Fawn Sandalwood (14-A-7). Painted sherds generally have the same colors as mentioned above, plus Persian Melon (3-B-10) and Burmese Gold (3-B-11). Temper is usually fine-grained quartz sand or a mica-sand, occasionally limestone.

SURFACE: The sherds are slipped with a red mixture slightly darker than the paste color: usually a Rose Dust (6-I-2) or Livid Brown (6-H-3). Woodland Rose (4-A-10) is also a popular slip color. Rarely, painted sherds have an Ivory (10-B-2) or Caen Stone (10-B-3) slip under a red paint. Another uncommon slip is a solid black. Many unslipped sherds, probably fragments of water jugs, occur. Such unslipped vessels are common in the Middle East at the present time, and serve to cool water by a process of porosity and evaporation.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: The majority are jars, both large and small; there are also a few bowls. Profiles are discussed in detail below by cultural level.

DECORATION: Most common paints are Fez Red (5-L-4), Mineral Red (6-J-3), Manganese Violet (47-J-8), and black, the last-mentioned probably a charcoal derivative. Other decorated Red Wares are mainly incised, with straight or undulating lines, ribbed, striated with comb marks, or imbricated. Very few sherds have Ivory slips. Small finger or stylus marks with diameters or lengths up to 0.6 cm. also occur,

though rarely. Even the "rocked band"[1] motif as defined by Day is present, especially in the Transition Cultural level, 20–30 cm.

GEOGRAPHIC DISTRIBUTION: This type of ware is seldom, if ever, reported from Early Islamic sites. Stein has illustrated somewhat similarly decorated red wares from Chinese Sinkiang,[2] Iranian Seistan,[3] Waziristan and Baluchistan,[4] Swat,[5] Kharan,[6] Pakistan Makran,[7] the Punjab,[8] and southeastern Iran.[9] Many of Stein's so-called "prehistoric" and "chalcolithic" painted sherds are almost identical to the Islamic and Kushano-Sassanian, painted, Red Ware sherds from Shamshir Ghar.

Fortunately, at Shamshir Ghar the Red Ware sherds were found in stratigraphic context and can definitely be related to specific cultural levels. It is hoped that the mundane, unglazed, utilitarian wares will at least be briefly described in future reports on the excavation of Early Islamic sites in the Middle East.

BLACK INSIDE, RED OUTSIDE WARE

Plate 21c, d

A sub-ware probably produced by differential firing, whether intentional or accidental is not known.

THICKNESS: Average, *ca.* 0.65 cm.

HARDNESS: 5.

PASTE AND TEMPER: Temper is a fine gravel-sand. The paste is in two colors: the outer half of the core in cross-section is Flesh Blond (4-A-9); the inner half, Cobweb (5-B-7).

SURFACE: The inner black surface was probably caused by upside-down firing in a reducing kiln. The outer surface has been purposely roughened. Traces of a manganese slip or wash are present near the exterior of the rims.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: Same as the other Red wares.

GEOGRAPHIC DISTRIBUTION: Probably a local ware with a limited distribution, although similar wares were surface-collected by Stein in the Punjab.[10]

BLACK-CENTERED RED WARE

Plates 21e, 22g

THICKNESS: Between 0.4 and 0.5 cm.

HARDNESS: 5–6; very hard when compared to other Red sub-wares.

PASTE AND TEMPER: A fine-grained clay was used; no temper is visible under a 25-power hand lens. From 0.2 to 0.25 cm. of the center core varies from an almost Flint (56-C-1) color to black. Paste color near the inner and outer surface is Muskmelon (11-C-8) or approximately Woodland Rose (4-A-10 and 3-B-10).

SURFACE: Inside and outside red surfaces are slipped with the same color as the paste. Outer slips are lighter than the inner; some are even whitish (Pâté Shell, 11-B-5).

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: Apparently low shallow plates and narrow-mouthed jars.

DECORATION: Only three sherds retain signs of red paint; parallel diagonal lines extend downward from rims on the outer surfaces.

GEOGRAPHIC DISTRIBUTION: Probably a local variant of the Red Ware.

DISTINCTIVE BOWL

Plate 22i–k

A Red sub-ware with distinctive rim and base sherds—an easily recognizable bowl type.

THICKNESS: Almost universally 0.5 cm.

HARDNESS: 4–5.

PASTE AND TEMPER: A fine-grained clay and a few quartz-sand particles were used in the manufacture of this sub-ware. The fired paste varies from Woodland Rose (4-A-10) to a lighter red (2-B-11).

SURFACE: The surface is always covered with a red (4-F-10) slip darker than the paste. Occasionally the inner surface, where the slip had been removed, shows alternating bands of slip and exposed body, producing a pleasing light and dark red pattern.

[1] Day, MS: "A continuous curved zigzag, pressed into leather-hard clay. Rectangular edge of the tool held vertical at right angles to surface of pot; then worked back and forth from left to right. Leather-hard, incidentally, refers to that state of drying while it is still possible to cut the fabric with a knife."

[2] Stein, 1928, Pl. 48.

[3] Stein, 1928, Pl. 95.

[4] Stein, 1929, e.g., Surkh Dherai, Pl. 1; Periano Ghundai, Pl. 6.

[5] Stein, 1930, Pl. 1.

[6] Stein, 1931, Pl. 1.

[7] Stein, 1931, e.g., Pls. 2, 11, 32.

[8] Stein, 1937, Pls. 1, 2.

[9] Stein, 1937, Pls. 19, 20, 25.

[10] Stein, 1937, 247.

METHOD AND MANUFACTURE: Wheelmade.

FORM AND FUNCTION: Sherd profiles suggest tall bowls with sharply incurved rims and narrow flat bases.

DECORATION: The only decorations found on this ware are the alternating slip and exposed clay motif inside the bowls.

GEOGRAPHIC DISTRIBUTION: This bowl shape in a red paste is one of the principal types found by Wheeler at Arikamedu,[1] which has a terminal date of about 200 A.D.

RED STREAK PATTERN-BURNISHED WARE

Plate 24a–k

This ware is decorated with burnished geometric patterns, almost Classical in flavor. A few sherds have haphazard burnished streaks.

THICKNESS: Never over 0.5 cm.; average, 0.35 cm.

HARDNESS: 5.

PASTE AND TEMPER: Paste is almost universally Woodland Rose (4-A-10); occasionally the center of the cores is black. With a 25-power hand lens, no temper is visible.

SURFACE: Firing varies the surface color. The rare haphazard burnished sherds are Manon (6-A-9), an ash-red. The geometric Pattern-Burnished sherds can be divided into two approximately equal groups: one has designs on the inner surface, the other on the outer. The surface color of both is Terra Cotta (4-D-12).

Slips are rare, but when applied they are lighter than the paste. The burnished lines are cut through the slip and are brighter and darker than the slip, at times almost black.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: The rim and base profiles indicate that shallow plates and bowls or cups are the most common forms.

DECORATION: Variations of straight and undulating parallel lines cover either the entire interior or exterior of the vessels. Straight lines are either horizontal or vertical. The burnished lines were apparently formed with a blunt stylus, probably wooden. At times a black pigment seems to have been applied to the working end of the stylus. Vertical lines are more common on the outer surfaces; horizontals are numerous both on the inside and the outside.

[1] Wheeler *et al.*, 1946, 58–59.

GEOGRAPHIC DISTRIBUTION: An obviously imported ware; burnishing, though rare in Iraq, was common in Iran during Sassanian times.

A bowl rim sherd of this type, from the Panjgur Oasis of the Rakshan Valley, is in Stein's report on his archeological tour of Pakistan Makran. It has horizontal burnished lines inside the rim. Stein assigns the sherd to "Muhammedan times."[2]

More than half of the Red Streak Pattern-Burnished sherds at Shamshir Ghar were found in the Kushano-Sassanian levels.

Dr. J.-C. Gardin says of this ware:

> At Balkh (publication under print), exactly the same thin Red Streak Pattern-Burnished Ware appears in the pre-Kushan level, remains common all through the Kushan and Kushano-Sassanian level, and disappears in the Early Islamic layers. Similarly, this ware has been found in the late Kushano-Sassanian and Early Islamic levels of a dig made at Bust in 1951. . . . Its extinction can therefore be put somewhere around the eighth or ninth century.[3]

METALLIC BLACK WARE

Plate 24 l–q

Except in the somewhat mixed Cut 4 of the Second Chamber, all the Metallic Black types occur in pre-Islamic levels.

TYPE I

THICKNESS: Average, 0.9 cm.

HARDNESS: 8–9; sparks fly when sherds of this ware are struck with an ordinary pair of pliers. Struck with any tempered metallic object, a metallic ring results.

PASTE, TEMPER, AND SURFACE: A really hard-fired, fine-grained paste, with fine quartz-sand temper. Color is like Asphalt Black (16-A-1 or 16-A-2).

A cross-section of this ware is shown in Fig. 26 and Pl. 24p. Note the thin Brick Red (6-C-10 to 6-C-11) line between the two black layers. In a few sherds the outer black layer is missing and the red is exposed.

METHOD OF MANUFACTURE: Wheelmade (?).

FORM AND FUNCTION: This hard black ware has not, to my knowledge, been previously reported; we can therefore merely suggest that it

[2] Stein, 1931, 43, Pl. 2, P.K. 4.

[3] Gardin, personal communication, 1957.

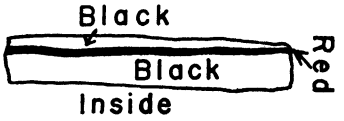


FIG. 26. Cross-section of Metallic Black.

is either a local ware or imported from an unknown source.

The number of sherds recovered did not justify any attempt at profile reconstructions. A very durable ware such as this may have been used for cooking.

GEOGRAPHIC DISTRIBUTION: This ware has been reported only from Shamshir Ghar. The closest similarities are to the heavy, thick, burnished gray-black sherds from Tarsus (Syria) and Rayy (Iran) discussed by Day,[1] but the latter more closely resembles the Metallic Black II ware at Shamshir Ghar.

TYPE II

Plate 24q

THICKNESS: Average, 0.4 cm.

HARDNESS: 8–9.

PASTE AND TEMPER: Both seem to be the same as those of Type I, but Type II vessels were thinner and smaller.

SURFACE: Most sherds are unslipped, dull asphalt in color, but a few of the thinnest (0.25 to 0.3 cm.) are highly burnished on the outer surface.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: As with Type I, Type II was probably used mainly as a cooking ware, with the smaller, well-burnished jars used for storage or transporting valuable items, e.g., pure spices. These are pure speculations because not enough sherds were found to justify a profile reconstruction.

GEOGRAPHIC DISTRIBUTION: Thin, highly burnished black wares have been found in prehistoric China,[2] at Rayy (or Chasmeh Ali as it is also called),[3] in Sialk,[4] and at Hotu Cave, Mazanderen, Iran, excavated by Carleton Coon in 1951. I assisted in the excavations at Hotu. Thus this easily identifiable ware has a long history. At Shamshir Ghar it continues into Kushano-Sassanian and possibly Early Islamic times. Obviously, the tradition is old. It is not strange that the ware occurs in the early centuries of the Christian era, for many of the Red Ware painted motifs also represent a tradition as old as prehistoric times in the Middle East and elsewhere.

[1] Day, MS.
[2] Wu, 1938.
[3] Schmidt, 1936.
[4] Ghirshman, 1938–1939.

RED WARE WITH CREAM SLIP

Plates 25–26

This, too, is a utilitarian, probably local ware and in terms of the number of sherds excavated the second most numerous ware at Shamshir Ghar. The three sub-wares listed on the Artifact Table (Table 5) are basically similar as far as paste, temper, and slip are concerned. They differ only in inner surface treatment. This mass of pottery was first divided into 13 separate sub-wares, each based on the distance in centimeters between the inner striations. In the final classification the sherds fell into three groups: sherds with No Inside Ridges or striations, with crests less than 1 cm. apart; Inside Ridges I, with interior ridges 1 to 1.5 cm. apart; Inside Ridges II, sherds with interior ridge crests 2 to 4 cm. apart. Rough sketch examples are shown in Fig. 27.

The categories, I admit, are very artificial, but at least they are consistent.

The three sub-wares are discussed below as a unit.

THICKNESS: Maximum, 2 cm.; minimum, 0.5 cm.; average, 1.2 cm.

HARDNESS: 4–5.

PASTE AND TEMPER: The paste generally clusters around a reddish color, Pheasant Testaceous (4-B-11). Firing at times made the color uneven, but usually it is uniform.

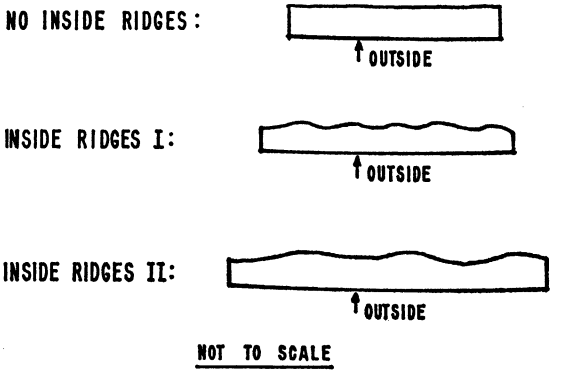


FIG. 27. Diagrammatic representation of ridge variations on Red with Cream Slip.

Temper is fine sand-mica flakes that glitter when light is played on the paste cross-sections. Chaff is sometimes used as temper in the largest sherds; this temper has weathered away so badly that the body occasionally has a very rough surface.

SURFACE: The outer surface is always covered with a Cream (9-C-2) or Polar Bear (9-B-2) slip. About one-seventh of the total number of sherds have thin, horizontal brush (?) strokes, as though the slip had been applied with a brush while the vessel was turned on a wheel (Pl. 26k–m). The slip easily peels off and is less than 0.1 cm. thick. On many sherds the red paste shows through the thin Cream slip.

The interior is seldom slipped, but the Cream slip often slops over the rim. Occasionally, a red Woodland Rose (4-A-10) slip is applied to the inside.

Occasional sherds have haphazard exterior surface burnish, but the whole body is never burnished.

METHOD OF MANUFACTURE: Fast wheel, probably.

FORM AND FUNCTION: Discussed below by cultural level in some detail

DECORATION: Almost non-existent, but several channeled sherds with an undulating line on a rim appear in the Major Hearth Complex. Rare, indeed, are painted Red Ware, White-Slipped sherds; designs on these are usually in black.

GEOGRAPHIC DISTRIBUTION: Although this ware is probably common, it has not been reported at many Early Islamic and earlier historic sites. Surface collectors and even excavating art-archeologists tend to disregard this and other utilitarian wares, although these are always numerically more important than, and scientifically equally important as, fine glaze.

BISQUE PASTE WARES

Plates 27–29

These wares are commonly called "buff," "buffish white," "grayish white," "pinkish buff," or other variations of similar terminology. We prefer to follow Maerz and Paul, so this is a Bisque (11-A-3) colored paste. Occasional Cream (9-D-2) or Buff (11-K-7) slipped sherds may deceive the ceramic taxonomist, but scratch the surface and they will probably all be Bisque.

With surface treatment and decoration as criteria, Bisque Wares can be divided into sub-wares. Included in this general discussion are all the sub-wares listed in the Artifact Table (Table 5), except the two Red Wash sub-wares.

THICKNESS: 0.3 to 1 cm.

HARDNESS: 4-5.

PASTE AND TEMPER: Dominant paste color is Bisque (11-A-3) with a rare Buffish (11-B-2) and Cream (9-B-1), probably caused by differential firing. An almost Drab (14-A-5) color also occurs with over-fired sherds. The fine sand temper is accompanied by shiny mica and rust-colored flakes.

SURFACE: Slips, commonly present, are almost always lighter than the paste, varying from Cream to Bisque. Weathering and soil discoloration are important factors in the present surface condition of this relatively soft ware.

METHOD OF MANUFACTURE: Wheelmade.

FORM AND FUNCTION: Profile shapes are more varied than those of the preceding wares. Bottles with tall, narrow necks and water-jug shapes are present.

Another important feature is the fact that 45 out of the total of 66 handles (almost 70%) found at the site were of this ware. Most (nine) of the remaining handles[1] are Greenish Paste Ware, discussed below.

DECORATION: Some undecorated Bisque Ware sherds are possibly the plain segments of the Stamped Ware discussed below (p. 205). The plasticity of the paste permits the production of varied shapes and decorations.

Decorative motifs are primarily incisions or appliqué. Incisions include horizontal or vertical straight lines, undulating lines, and vertical, diagonal, horizontal, or wavy comb marks. Appliqués include bossed discs, curved bands, and the famous "ring" or "circle of pearls" which was taken over from Sassanian art.[2] This pearl band consists of a circle or rectangle of bossed dots that outlines a central figure, or, as occurs frequently in ceramics, encircles the body or neck of a vessel. Wide grooved channels are almost as popular as incisions. Motifs are discussed below in greater detail by cultural level.

GEOGRAPHIC DISTRIBUTION: Bisque wares decorated like those at Shamshir Ghar were widespread throughout the Early Islamic

[1] Other handles for Shamshir Ghar wares: Glaze, 8; Grit, 2; Red Ware, Cream Slip, 2.

[2] Day, MS.

world. They were especially common during the eighth and ninth centuries.[1] Sites with such wares are: Samarra,[2] Takrit,[3] Ctesiphon,[4] Hira in Iraq,[5] Tarsus in Syria,[6] Rayy,[7] Susa,[8] Nishapur,[9] and Saveh[10] in Iran. The last dates in the tenth century, later than its Iraqi prototypes.

RED WASH, OUTSIDE, AND RED WASH, INSIDE AND OUTSIDE

Plate 30

The paste of these sub-wares is similar to that of the Bisque Paste Ware, but the profiles and decorations are distinctive. The Red Wash varies from Henna (6-J-12) to Tomato Red (3-I-12), and is badly decayed. Many areas on the body of the sherds are weathered, so that the underlying Bisque Paste is exposed. Undulating lines are channeled on the inside of most rims.

Two major forms exist: a shallow, flat-based bowl or plate with a flaring rim (Pl. 30k), and a deeper bowl with a sharp-angled profile and a thickened rim almost perpendicular to the body, with a simple foot (Pl. 30j). One jar of "pale clay" with a red wash was found at Ctesiphon.[11] A similar ware was found at Kasr-i-Abu Nasr near Shiraz (Metropolitan Museum of Art specimen 34.107.42).

GREENISH PASTE WARE

Plates 27–29

Except in paste color, this ware is identical to the Bisque Paste Ware; the variation is probably caused by differential firing. A sufficient number of Greenish Paste sherds occurred, however, to justify their being classified as a separate ware.

THICKNESS: The Greenish Ware is thinner than the Bisque; it averages *ca.* 0.4 cm.

HARDNESS: 4–5.

PASTE AND TEMPER: The color of the fired paste varies from 18-A-3 and 18-B-3 to 19-A-3; all are a weak blue-green or gray-green, at times darkened either by firing or discoloration by soil.

SURFACE: Usually a slightly darker green slip is applied to the surface.

METHOD OF MANUFACTUER: Wheelmade.

FORM AND FUNCTION: Same as for Bisque Ware.

DECORATION: Same as for Bisque Ware.

GEOGRAPHIC DISTRIBUTION: Unreported, as far as I know.

STAMPED WARE

Plate 31

An exclusively Early Islamic ware at Shamshir Ghar, with no direct relationship to the Kushan pottery "*estampé*" at Begram.

THICKNESS: A uniformly thin ware; it averages 0.5 to 0.6 cm.

HARDNESS: Soft and crumbly, 2–3.

PASTE AND TEMPER: Three paste colors predominate: Cream (9-D-2), the most popular; a pale green-gray (18-B-3); and a few light Apricot Red (18-E-7). Several Cream sherds are buffish white (11-K-8), apparently because of longer firing. Fine sand, occasional mica, and ferruginous flakes appear in the paste.

SURFACE: Exterior slips are almost always Oyster White (10-B-1) or Ivory (10-B-2); the rare interior slips are Cream or Ivory.

Finger and palm prints, visible to the naked eye on almost all the inner surfaces, are the result of supporting the inner wall of the vessel while repeatedly applying a stamp on the leather-hard paste, or on barbotine.

METHOD OF MANUFACTURE: Whether all the sherds in this category at Shamshir Ghar are stamped instead of molded is still undetermined. However, no molds were found at Shamshir Ghar.

Both types of unglazed, light-paste ware, stamped and molded, are found at ninth-century Samarra, but molded pottery is absent from both Iraq and Iran during the Parthian and Sassanian periods. Molded pottery techniques, however, survived from late Roman times in Syria,[12] whence the Islamic potters of molded ware received their inspiration.

Molded pottery became very popular in Early Islamic times; at Samarra much of the

[1] Day, personal communication, 1953.
[2] Sarre, 1925.
[3] Sarre and Herzfeld, 1911–1920.
[4] Reuter, 1930.
[5] Rice, 1934.
[6] Day, MS.
[7] Schmidt, 1936.
[8] Koechlin, 1928.
[9] Day, MS.
[10] Day, MS.
[11] Day, personal communication, 1953.
[12] Day, MS.

fabulous Luster Ware was molded; in Iran, most pots with molded designs were unglazed. The artistic and technical peak of these unglazed molded wares was at Nishapur, where mold fragments were discovered in a kiln.[1] Some of the finer Shamshir Ghar pieces may have been baked in Nishapur kilns.

Stamped or molded, the Shamshir Ghar sherds are finely executed and are almost all from the Early Islamic levels.

FORM AND FUNCTION: Whole or reconstructed vessels of this stamped and molded ware at other sites (e.g., Samarra, Hira, Ctesiphon, Rayy, and Nishapur) indicate that the major shapes were jugs and jars with handles, cups or bowls with low carinated profiles, and bottles. The jugs or jars had relatively low bodies with tall, wide, flaring necks. Generally the jugs have three handles and flat bases.

Although I have attributed no handles to this ware, some of the handles discussed under Bisque Ware may possibly belong in this category.

DECORATION: The full range of stamped and molded (?) decoration at Shamshir Ghar is illustrated in Pl. 31. All ultimately reach back to Nishapur and Samarran origins, both of which owe a great debt to Sassanian metal motifs. The use of naturalistic motifs was, however, a break with the Sassanian art style.

Plate 31a–b, aa, are modest arabesque designs and *palmettes*. The propensity for space-filling which became dominant in the twelfth century (from China?) had not yet appeared. The designs are similar to those of the Champlevé Glazed wares. The repeated heart-shaped designs (Pl. 31h) are almost identical to an illustration in the Samarra report.[2]

Stylized branching, leaf sprays, and trees are represented (Pl. 31r–s). A pot, dated Early Islamic, with similar motifs is in the University Museum, University of Pennsylvania (R.G. 8088, 1936).

Variations of the trefoil (Pl. 31k, w–x) and the quatrefoil (Pl. 31j) are also popular Early Islamic designs.

Some are repeated cross-like designs (Pl. 31n) and lozenge shapes (Pl. 31m) as at Samarra.[3]

Another Samarran motif is the pearl border separating raised circles,[4] which is identical to Pl. 31u.

Concentric circles (Pl. 31 l) are widespread.[5] Plate 31 l also illustrates how the soil can discolor these light paste sherds; the lower half was found lying horizontally a few meters from the upper.

Repeated rosettes (Pl. 31v) are very common.[6]

The designs of Pl. 31c are called "cypress trees."[7]

Blades of wheat are shown on a rim sherd (Pl. 31i).

"Teardrop" motifs (Pl. 31f–g) taken from fluted designs of Sassanian metalwork were also produced by Early Islamic potters.[8]

The circular "string of pearls" which surround the medallions on Pl. 31p–q is found also at Samarra.[9]

Tiny circles composed of ovals that fill the backgrounds of Pl. 31o, q, t, are stamped on many Early Islamic sherds in imitation of Sassanian metal motifs.[10] Vertical lug handles, like the one on Pl. 31o, have metal prototypes in the Middle East from the Bronze Age onward.[11]

The most interesting, imaginative, and best-executed stamped sherds are the animals (Pl. 31d–e) representing a leaping rabbit looking over its shoulder. These rabbit-motif sherds are discussed in detail in their appropriate cultural level.

The designs illustrated in Pl. 31y–z are an interesting problem: they are a little too ornate and too white in paste for the tenth century and probably fit into the twelfth to thirteenth centuries when the space-filling craze dominated Islamic unglazed pottery. Stein[12] illustrates a good series of these particularly ornate white sherds from southeastern Iran.

Finally, one sherd had an early Arabic (Kufic) inscription on the exterior, probably molded (Pl. 31bb) as were those from Samarra.[13]

[1] Upton and Wilkinson, 1936, 180.
[2] Sarre, 1925, 13, Pl. 9, Pl. A.
[3] Sarre, 1925, 13.
[4] Sarre, 1925, Pl. 9.
[5] Sarre, 1925, Samarra, 13, Pl. 9; Sarre and Herzfeld, 1911–1920, Baghdad and vicinity.
[6] Sarre, 1925, 14.
[7] Sarre, 1925, 21, Pl. 9.
[8] Sarre, 1925, 14.
[9] Sarre, 1925, 11.
[10] Day, MS.
[11] Day, MS.
[12] Stein, 1937.
[13] Sarre, 1925, 81–85. The inscription on the sherd appears to be "*Sobhan Allah . . .*" (? Glory to God).

All the above designs and techniques, with the possible exception of those in Pl. 31y–z, permit us with some confidence to assign a date of the ninth to tenth centuries to the stamped pottery of Shamshir Ghar.

The designs discussed carried over into Islamic architecture and wood carving.[1]

GEOGRAPHIC DISTRIBUTION: Dating from the eighth century, stamped and molded decorated Islamic pottery on a light paste is found from Central Asia and Chinese Sinkiang[2] to Syria.[3] The ware decreases in popularity in the thirteenth century. Veimar reports a pre-Mongol stamped Islamic ware near Samarkand.[4]

Although no molded wares are found in Sassanian Iran, stamped vessels are common. The latter are decorated with discs shaped in a stamp-mold and then fastened to the vessel. The "ring of pearls" encircled many of these medallions, a common Sassanian motif which was adopted by Early Islamic potters.

At Bhambhor in West Pakistan, several stamped-ware sherds resemble the finds at Shamshir Ghar.

Gardin[5] dates the stamped ware in the few decades prior to the Mongol invasion on the basis of finds at Shahr-i-Gholgholga near Bamiyan.

[1] Day, MS.
[2] LeCoq, 1913, 1929; Stein, 1928.
[3] Day, MS.
[4] Veimar, 1940.
[5] Gardin, personal communication, 1957.

THE CULTURAL PERIODS

I PROPOSE TO DIVIDE Shamshir Ghar into four cultural periods on the basis of the stratigraphic changes and the specimens excavated. These levels, from earliest to latest occupation, are: Early Kushan, Late Kushan, Kushano-Sassanian (Transition), and Early Islamic Afghanistan (Saffarid, Samanid, Ghaznavid, Ghurid, and Khwarizm Shah dynasties).

According to historical evidence (pp. 276–282), the probable dates for the cultural periods are:

Early Kushan or Late Saka (the Kushans spread political control over Afghanistan; a period of independence): *Circa* 100 B.C. to 100 A.D.

Late Kushan (rise and fall of the great Kushan Empire): *Circa* 100 to 300 A.D.

Kushano-Sassanian (including Epthalite Hun Period from about 400 to 565 A.D.; influence was mainly Sassanian): *Circa* 300 to 700 A.D.

Early Islamic Afghanistan: Transition period of Arab raids, *ca.* 700 to 867 A.D.; Saffarid, 867 to *ca.* 900 A.D.; Samanid, *ca.* 900 to 962 A.D.; Ghaznavid, 962 to 1186 A.D.; Ghurid, 1186 to 1215 A.D.; Khwarizm Shahs, 1215 to 1222 A.D.

The First-Chamber cuts are the only ones discussed in detail, because the Second-Chamber cuts revealed mainly dump areas. Even Cut 4 (Second Chamber) is essentially a mixed area, as can be noted from the Artifact Table (Table 5). Important finds, e.g., metal and unusual pottery, from Cuts 6, 7, and 8 are also presented in their proper typological context.

The discussion of artifacts follows the order given in Table 5. Note that certain levels in several cuts have almost blank columns; these indicate that the specimens were retained in Kabul by the Afghan authorities. Only a few specimens from these levels were included in the final shipment to the American Museum:

Trench 1, Cut 1, 30–40-cm. level
Trench 2, Cut 2, 10–20-cm. level
Trench 2, Cut 2, 50–60-cm. level
Trench 2, Cut 3, 50–60-cm. level
Trench 2, Cut 3, 60–70-cm. level
Trench 2, Cut 3, 70–80-cm. level (most in Kabul)
Trench 2, Cut 4, 10–20-cm. level (most in Kabul)
Trench 3, Cut 5, 20–25-cm. level (part in Kabul)
Cut 7, 10–20-cm. level

EARLY KUSHAN PERIOD AT SHAMSHIR GHAR: *CIRCA* 100 B.C. TO 100 A.D.

Stratigraphic levels in this cultural period lie below the Major Hearth Complex and above the sterile clays and caliche, generally in grayish or flaky brown earth. All the stratigraphic levels are graphically portrayed in Figs. 11–17.

Except where intruded by the Major Hearth Complex, the following cuts and levels are included in the Early Kushan Period: Cut 1, below 40 cm.; Cut 2, below 50 cm.; Cut 3, below 50 cm.; Cut 5, below the Major Hearth Complex. Only the grayish earth level of Cut 5 was removed as a cultural and not a 10-cm. level. Some overlapping of levels occurred in other cuts, especially Cut 2 (Fig. 12) where some Late Kushan hearths penetrated to a depth of over 60 cm.; the deepest was 75 cm. This intrusive hearth and pit digging destroyed or disturbed most of the underlying Early Kushan Period material.

POTTERY

GLAZE WARE: Only three glaze fragments, all in Cut 1, were found in the Early Kushan levels. The Imitation Celadon sherd is obviously intrusive and probably not earlier than the ninth century. The two Blue-Green glaze sherds may be from the kilns of contemporary Parthian Iran. No glaze ware was found in the grayish earth of Cut 5, the only cut excavated as a cultural entity. Therefore, all three glaze sherds from the 30–40-cm. level of Cut 1 are probably intrusive.

The evidence at Shamshir Ghar indicates that little or no glaze was used in south-central Afghanistan as late as the first century B.C. Ghirshman's excavations at Begram add weight to this conclusion.

GRIT WARE: Almost all the Grit Ware from the Early Kushan levels was retained in Kabul by the Afghan authorities. The small collection from the grayish earth of Cut 5 shows the same relative frequencies as the overlying levels, so this local utilitarian ware obviously had its origin in or before, probably much before, Early Kushan time.

Red slips or washes and Cream slips are com-

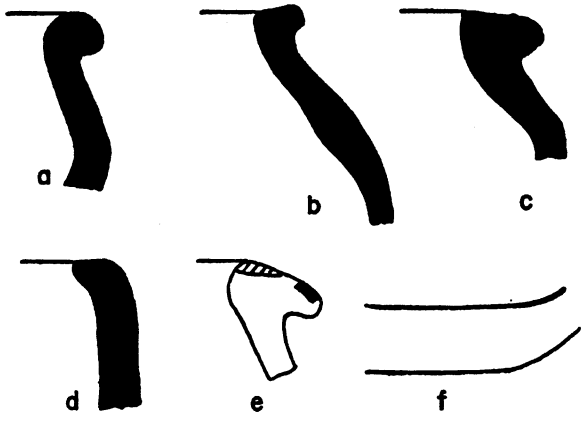


FIG. 28. Rim profiles and bases, Sherd-Tempered Grit Ware, Early Kushan. *Ca.* ½ natural size.

mon. Maintenon Red (3-D-10) was popular as a slip.

Ten rim sherds of Sherd-Tempered Grit Ware were found in Early Kushan levels. Six were like Fig. 28a; one was like Fig. 28b; another, like Fig. 28c.

Rim sherds with sherd temper unique to the Early Kushan period are: Fig. 28d, with an inturned lip and a perpendicular wall; Fig. 28e, with a beaded rim, somewhat streamlined and thinner externally than internally. The diagonal lines on Fig. 28e represent brownish red paint; the black represents dark red.

The only sherd-tempered base sherd is flat and widely flaring, like Fig. 28f.

Mica-Tempered Grit Ware profiles are fewer; profiles of other sub-wares are absent. One mica-tempered sherd (Fig. 29a) is like the flanged, flat rim of a frying pan (?); another straight like Fig. 29b. A rim sherd with a sharp-breaking shoulder and incised rocked-band motif between two channeled lines was found (Fig. 29c). Most mica-sand tempered sherds have exterior Oak Buff (13-D-7) slips, and interior, almost Woodland Rose, slips (4-B-9).

Several rims also occur among the painted sherds. A few are polychrome, such as Fig. 29d, with alternating thick dark red (5-D-4) and Cream vertical lines on a Maintenon Red slip.

Most commonly, the sherd-tempered painted

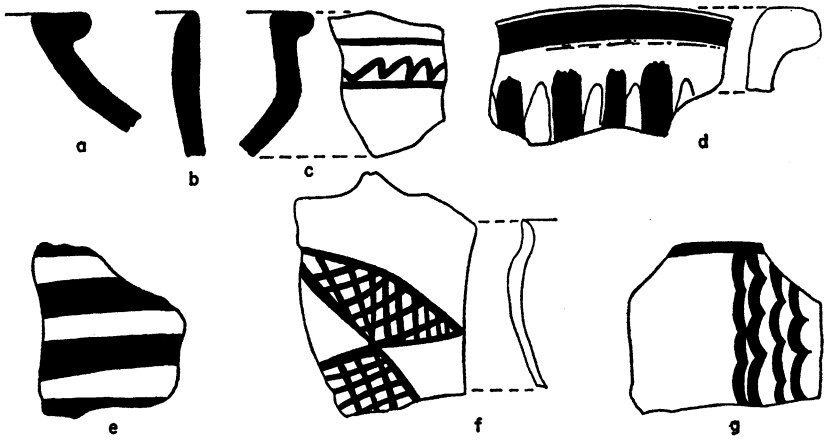


FIG. 29. Rim profiles and designs. a–c. Mica-Tempered Grit Ware. d. Painted Grit Ware, polychrome. e–g. Painted Grit Ware, Sherd-Tempered, Early Kushan. *Ca.* ½ natural size.

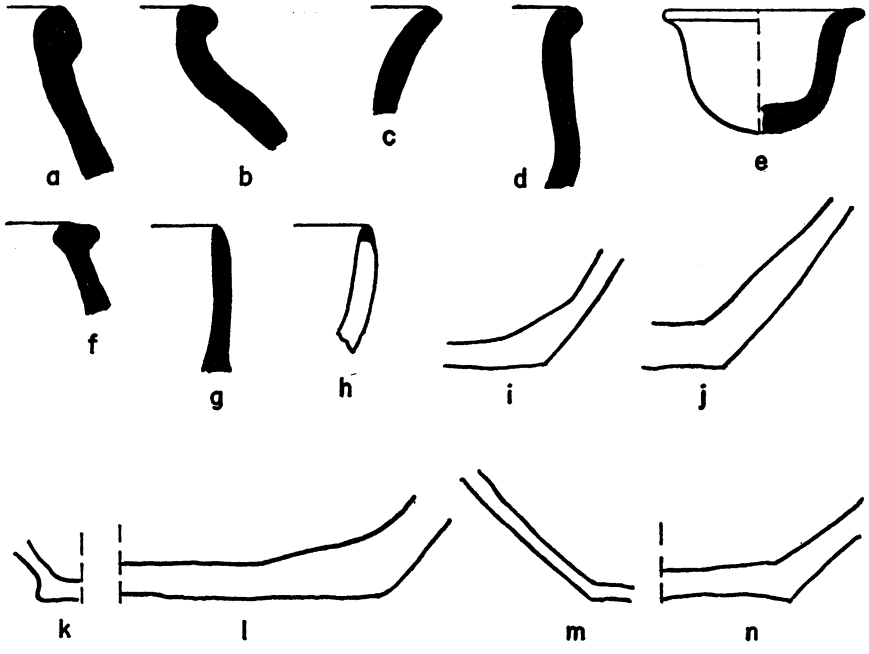


FIG. 30. Rim profiles and bases. Red Ware, Early Kushan. *Ca.* ⅛ natural size.

sherds have dark red, parallel, horizontal lines as in Fig. 29e.

Red triangle motifs filled with cross-hatchings occur on a sherd-tempered sherd; in black, on a mica-tempered sherd (Fig. 29f).

Two unique greenish (13-G-3) rim sherds with dark red vertical step designs on the interior and rim were also found (Fig. 29g). The profile of this weak-green type suggests a rim perpendicular to a somewhat globular body.

RED WARE: Most Red Ware sherds in the Early Kushan levels are undecorated (Pl. 20m), red slipped, or painted. However, a few Black Inside, Red Outside sherds and Incised sherds do occur.

Profiles indicate a variety of shapes: externally thickened rim (Fig. 30a); a beaded jar rim (Fig. 30b); a flaring bowl rim, similar to many later Red Wash, Bisque Paste sherds (Fig. 30c); a small-jar rim sherd with slightly outcurving lip and linear profile (Fig. 30d); a small bowl or cup with a thickened rim and a slightly rounded base (Fig. 30e); an externally sharp-beaked rim, thin jar body (Fig. 30f); Black-Centered Red Ware profile (Fig. 30g); rounded rim with convex profile and red paint on rim (Fig. 30h).

Base profiles are: almost convex (Fig. 30i); slightly concave (Fig. 30j); a small jar base, probable globular profile (Fig. 30k); the flat base of a large jar (Fig. 30 l); a Black-Centered Red Ware base (Fig. 30m); slightly concave base with flaring walls (Fig. 30n) which possibly goes with the rim shown in Fig. 30c.

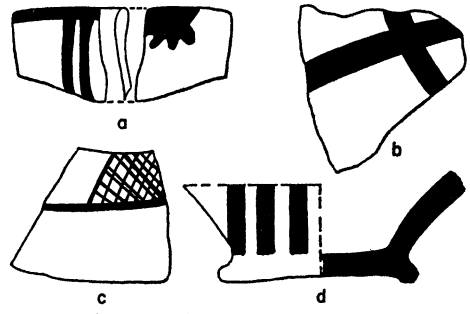


FIG. 31. Painted designs, Early Kushan. a–c. Red Ware. d. Red Streak Pattern-Burnished Ware. *Ca.* ⅛ natural size.

One pottery disc (2.3 cm. by 2.1 cm. by 0.5 cm.), probably a gaming piece or weight, was found.

Painted designs include: horizontal or vertical straight or wavy lines on a red slip (Fig. 31a); dark red vertical or diagonal parallel lines on a red slip (Fig. 31b); dark red intersecting lines in a triangle (Fig. 31c).

RED STREAK PATTERN-BURNISHED WARE: Only three sherds were found in Early Kushan levels, probably intrusive. A single, slightly concave base sherd (Fig. 31d), with broad vertical lines on the outer surface, is unique among the burnished sherds. It is probably a burnished Red Ware sherd rather than an antecedent of the later distinctive Red Streak tradition.

METALLIC BLACK WARE: None of this ware was found in the Early Kushan levels.

RED WARE, CREAM SLIP: In this cultural period, Red Ware, Cream Slip sherds were surpassed numerically only by Grit Ware sherds. The largest, crudest base sherds of this ware were found here; they are slightly concave with flaring bowl (?) walls (Fig. 32a). A concave base with inside step (Fig. 32b) has a jug profile. Two other wide concave base sherds (Fig. 32c) probably belong to bowls.

Several bases of the Inside Ridges I sub-ware were found (Fig. 32d, e).

Rim sherds were few, but varied: thick, almost perpendicular to body, with thin, externally flaring rim, probably a narrow, bottleneck sherd (Fig. 32f); three small jar rim sherds with rolled rims (Fig. 32g); pronounced rim sherd with external thickening, probably a narrow-necked jar (Fig. 32h); two externally thickened beaded rims (Fig. 32i); a narrow-mouthed, globular jar with no neck, a small rim, and flat base (Fig. 32j).

A few thin (0.3 to 0.5 cm.) sherds with comb-marked striations were found (Pl. 26c).

A unique red (3-B-11), almost Woodland Rose, interior slip occurred in this level.

BISQUE PASTE WARE: Only two decorated (other than painted) sherds were found: one has parallel horizontal channels, the other an incised drapery motif.

Two base types predominated: a small cup or bowl with flat base and slightly flaring walls (Fig. 33a); jar types (?) with a wide, flat base and probable globular shape (Fig. 33b–d).

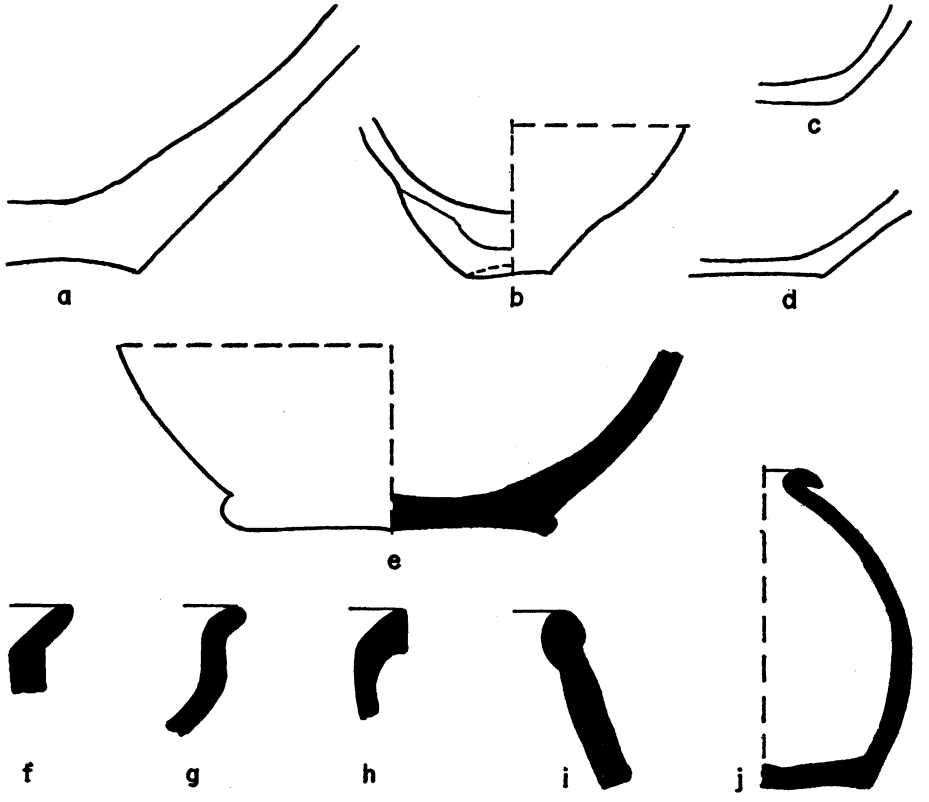


FIG. 32. Bases and rim profiles, Red Ware, Cream Slip, Early Kushan. a–c. Concave bases. d–e. Bases, Inside Ridges I, sub-ware. f–i. Variations on thickened rims. j. Small jar. *Ca.* ⅛ natural size.

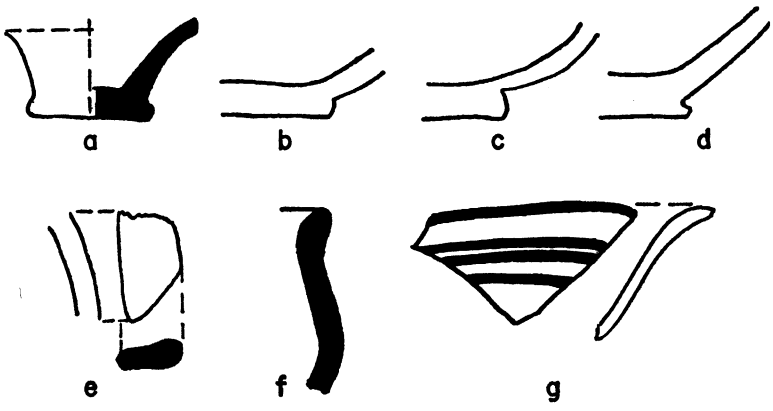


FIG. 33. Bases, rim profiles, and handle, Bisque Paste Ware, Early Kushan. *Ca.* ½ natural size.

One handle sherd (Fig. 33e) with a flattish cross-section was found.

Two sherds were made of a unique Rosée (3-E-2) colored paste.

Two Red Wash, Inside and Outside rims (Fig. 33f), outcurved slightly and beaded, were found in the Early Kushan levels.

Two Bisque rim sherds (Fig. 33g) were uncovered, possibly from shallow bowls or cups, both painted black on the inner surface.

GREENISH PASTE WARE: The few undecorated sherds found in this cultural period are probably intrusive.

STAMPED WARE: This ware is entirely absent.

METAL OBJECTS

Only three metal objects were found. Two are straight copper or bronze pins or wire fragments. The third resembles a "bob jack" and is probably a bridle ornament (Fig. 34).

Stein[1] illustrates a similar find from Kara Khoja, Chinese Sinkiang. His find is described as an "iron ornament, forming part of an attachment, probably from harness."

[1] Stein, 1928, 608, Pl. 71, Kao.111.0194.

FIG. 34. An iron object, probably a bridle ornament, Early Kushan.

SPINDLE WHORLS

One pottery spindle whorl (or large bead?) was found; diameter, 2 cm.

POLISHED STONE

One polished stone (flint pebble) chisel was found, 4 cm. long by 1.5 cm. wide, 1.3 cm. in diameter.

ROUNDED PEBBLES

A most interesting group of portable objects, consisting of many rounded pebbles, was found in all cultural levels (see pp. 235–236). Eight such pebbles were found in the Early Kushan levels: two, basaltic; four, plutonic-granitic; two, quartz porphyritic. All were fire-burned.

HEARTHS

Three small, shallow hearths were found in Cut 1, ranging from 2 to 3 meters from its eastern end. Diameters of these hearths were 20 cm., 32 cm., and 25 cm.

ANIMAL BONES

Sheep, goat, cattle, and horse bones are dominant throughout the occupation levels. A tabular presentation of the faunal remains will be found in Appendix 1.

LATE KUSHAN: *CIRCA* 100 TO 300 A.D.

This cultural period was dominated by the Major Hearth Complex, which occurred everywhere in the First Chamber below 30 cm. Except where intruded by later pits and hearths, a thin layer of caliche or brownish black earth lay over most of the Major Hearth Complex. In terms of bulk this was the most important cultural period at Shamshir Ghar. The following cuts and stratigraphic levels are included in the Late Kushan Period:

Cuts	Levels (in Cm.)
1	30–40
2	30–40
	40–50
	50–60 (in part)
	60–70 (in part)
3	20–30
	30–40
	40–50
5	Major Hearth Complex

Pottery

The wares of the Early Kushan Period continued into Late Kushan and increased in number. There was one important innovation. A unique glaze sherd found in Cut 1, 30–40-cm. level, duplicates the Parthian Blue-Green Glaze Ware of Dura Europas,[1] which extended throughout Sassanian times and into the Early Islamic Period of Iran and Iraq. This, probably the only glaze sherd belonging in the Late Kushan Period, is 1.1 cm. thick, has a Bisque paste, and no slip. The Blue-Green (25-H-5) glaze is 0.1 cm. thick.

Glaze Ware: No glaze sherds were found in the Major Hearth Complex of Cut 5. Except for the Blue-Green sherd described above, the glaze sherds found in the upper part of the Late Kushan levels appear to be intrusive and date about the ninth century A.D.

Grit Ware: Almost all Grit Ware sherds are covered, at least on the outside, with a red or reddish brown (Pl. 16f, k) or Cream (Pl. 16b, e, j) slip. Red bands are painted on most rim lips (Pl. 16f).

Fifteen rim sherds were too badly weathered to be used in profile reconstruction.

Sherd-tempered rim sherds are listed below and illustrated in Fig. 35a–i. The number of sherds of each rim type found in excess of a single sherd is indicated in parentheses:

Flaring rim (3), slightly flaring wall (Fig. 35a)
Thick grooved rim, with external thickening (Fig. 35b)
Thick grooved rim with less external thickening (Fig. 35c)
Heavy rolled rim (2), with thin body wall (Fig. 35d)
Almost straight rim, with a "hockey stick" profile (Fig. 35e)
Flaring rim (Fig. 35f)
Large, clubbed rim from storage jar (Fig. 35g)
Slightly rolled jar rim (4), with profile indicating attenuated body (Fig. 35h)
Flaring rim (4), probable globular jar (Fig. 35i)

[1] Rostovtzeff, 1943–1949.

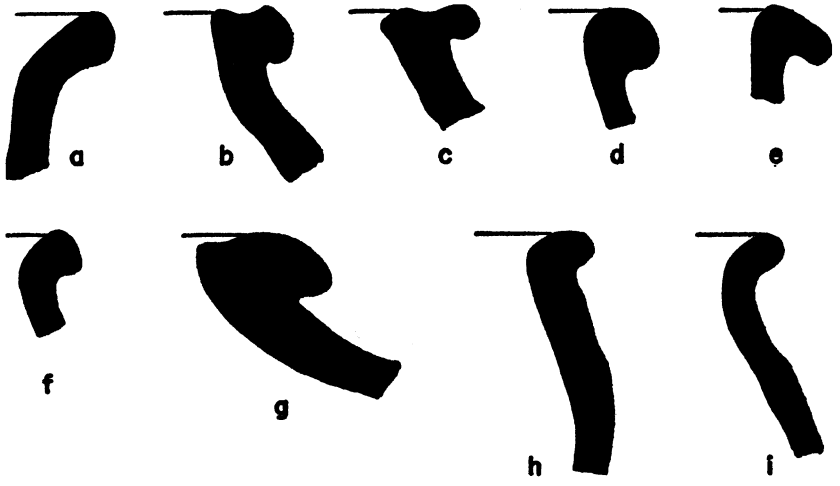


Fig. 35. Rim profiles, Sherd-Tempered Grit Ware, Late Kushan. *Ca.* ⅛ natural size.

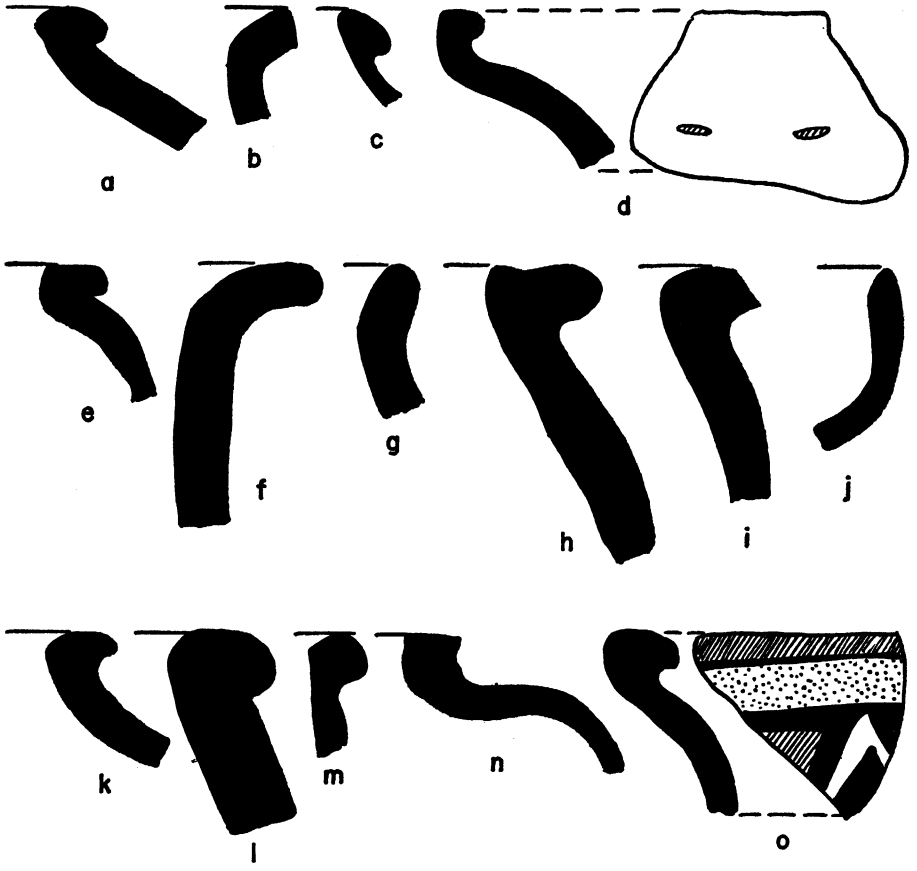


FIG. 36. Rim profiles, body form and design, Sherd-Tempered Grit Ware, Late Kushan. *Ca.* ⅛ natural size.

More numerous (6) and smaller than Fig. 35h, but similar to Fig. 28a
Flat rim (5) from globular jar (cf. Fig. 28b)
Clubbed rim with hardly any neck, probably a wide-mouthed storage jar (Fig. 36a)
Flaring rim (2, Fig. 36b)
Rolled rim, externally thickened, no neck, thin body wall (Fig. 36c)
Flat rim (3), globular body with elliptical punctations (Fig. 36d)
Thickened flat rim, spheroid or ovoid body (Fig. 36e)
Turned-out rim (4), straight neck, large water jug? (Fig. 36f)
Slightly flaring rim (Fig. 36g)
Externally beaked, grooved (for lid?) rim, ovoid, or globular body profile (Fig. 36h)
Turned-out rim (4), probably ovoid or globular body profile (Fig. 36i)
Turned-out beaded rim (12), spheroid? body (Fig. 36j)
Massive, flat, bluntly beaked rim (4), probably a wide-mouthed, pear-shaped storage jar (Fig. 36k)
Beaded rim (Fig. 36 l)
A popular shape (13), thickened neck and flat, thickened rim, probably a globular-shaped, narrow-mouthed jar, Manganese Violet slip and dark red (7-H-9) line on lip are characteristic (Fig. 36m)
Internally thickened turned-in rim, probable round base (Fig. 36n)
Clubbed and thickened flat rim, ovoid or globular profile, color scheme Manganese Brown (dotted), dark red (diagonal lines), Manganese Violet (solid black), Ivory (white) chevron (Fig. 36o and Pl. 18e)

Bases for Sherd-Tempered Grit Ware vessels are flat and suggest variations in walls and treatment (Fig. 37a–c): a crude, flat base, deep ?dish (Fig. 37a), possibly hand-made; four with flat base, globular body, thin wall (Fig. 37b); two with flat base, ?shallow, flaring bowl body, partial outside burnish (Fig. 37c).

Three major shapes can be inferred from the

rim and base profiles: large globular storage jars, cooking bowls with flaring walls, and wide-mouthed cooking jars. Many sherds are fire-burned, so substantiate the suggestion that they are cooking pots.

Four additional Sherd-Tempered items deserve mention: a spout suggests that some of the globular vessels may have been water or wine jugs (Fig. 37d); a unique handle (Pl. 19e), Rose Bisque (3-C-9), with elliptical punctations on its lateral edges; a smaller handle fragment lacking punctations; and a broken spindle whorl, or large bead, 0.25 cm. diameter.

Good examples of the crumbly Quartz-Sand Tempered Ware are illustrated on Pl. 17a–c. Several types of rims were classified in this sub-ware: straight rim with internal thickening (Fig. 37e); rolled-out rim with external thickening (two, Fig. 37f); slightly flaring rim with no lip (Fig. 37g); an enormous flat storage jar rim with no neck (three, Pl. 17a; Fig. 37h).

Other rims have counterparts in overlying levels: straight, externally thickened, somewhat trapezoidal-shaped rim, straight wall, probably an elliptical profile (Fig. 37i); flat, externally thickened rim, probable ovoid profile (Fig. 37j); flaring rim, probably a small pot, with a wall that seems to flare out to form a globular profile (Fig. 37k).

Some Quartz-Sand rim profiles are the same as Sherd-Tempered rim profiles illustrated in Fig. 36c (two), f (two) j, l, n.

A typical Cream-slipped, Fiber-Tempered sherd is shown in Pl. 17g. Profiles include: slightly turned-in rim (Fig. 38a); the following already illustrated, Fig. 25b (five), 35a (five), 36b, f, g.

Rim profiles of Lime-Tempered sherds include: a thin, flaring rim (Fig. 38b); a beaded rim with tall neck, possibly a bottle-neck (Fig. 38c); internally beaked rim (Fig. 38d); flat storage jar rim, no neck, globular body (Fig. 38e). Other rim sherds were like Figs. 36m, 37k, and 38a.

Two Lime-Tempered base sherds have flat bottoms and thick (1.5 cm.) walls.

The Mica-Sand Tempered (Pl. 17j) sherd profiles generally have thinner walls than the other Grit sub-wares. The range of variation in the rims and vessel forms is considerable. They have been classified as follows: incurved rim with internal thickening (Fig. 38f); flaring rim

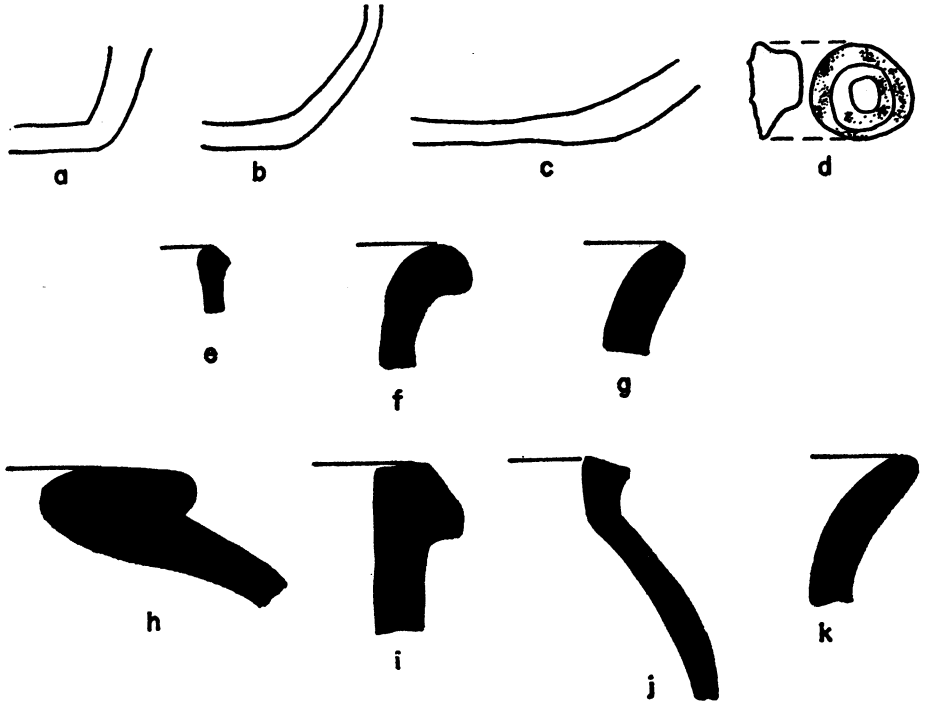


FIG. 37. Bases, spouts, and rim profiles, Sherd-Tempered Grit Ware, Late Kushan. *Ca.* ½ natural size.

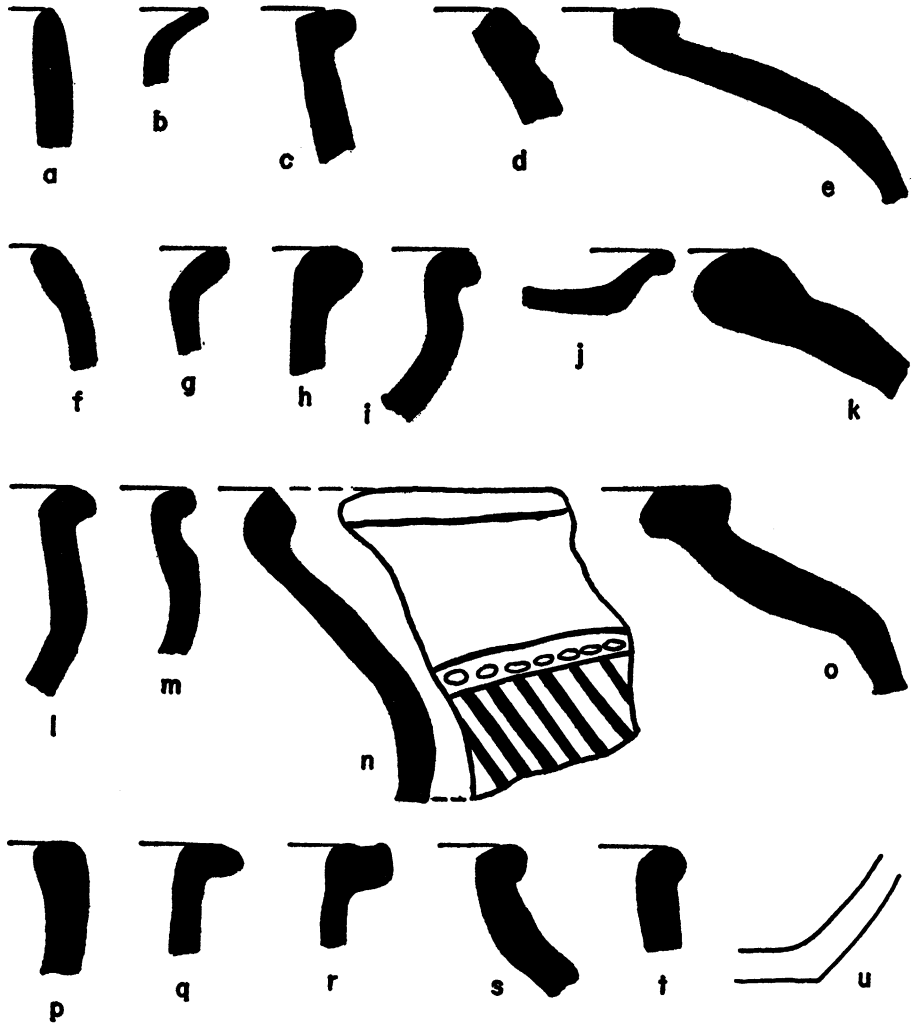


FIG. 38. Rim profiles and base, Grit Ware, Late Kushan. a. Cream-slipped, Fiber-Tempered. b–e. Lime Tempered. f–u. Mica-Sand Tempered. *Ca* ⅛ natural size.

(Fig. 38g); flat rim with external thickening (Fig. 38h); rolled rim with shallow groove on lip, ?small jar (Fig. 38i); shallow plate (Fig. 38j); large storage jar rim (Fig. 38k); popular, small jar sherd (six), with slightly flaring rim and egg-shaped body (Fig. 38 l); a variant of Fig. 38 l (five), with sharp-angled shoulder (Fig. 38m); flaring rim (six), globular-shaped jar with elliptical punctates between parallel dark red lines, and diagonal red-painted lines below the punctations (Fig. 38n); flat rim with internal thickening (two), large storage jar (Fig. 38o); slightly incurving rim, no lip, ?bowl (Fig. 38p); flat beaked rim, long neck, two small grooves just below the rim (Fig. 38q); thickened flat rim with grooved lip (Fig. 38r); slightly flaring rim (two, Fig. 38s); slightly turned-out rim (Fig. 38t). Other Sand-Mica sherd profiles resemble Figs. 28a (two), b (five), 29b, 36d (eight), 36g (three), j (four), n (four).

Base profiles of Mica-Sand sherds vary as follows: Fig. 38u (three), flat base, globular-shaped jar; others are like Fig. 37b–c. A unique base sherd has a thin flat base with a flaring wall.

Grit Ware cooking pots are fire-burned and smoked and generally have turned-out flanges that facilitate picking up the vessel (e.g., Figs. 35e, 36e, and 38r).

About 6 per cent of the Grit Ware sherds in

TABLE 6

COLOR CHART FOR PAINTED GRIT WARE TYPES: LATE KUSHAN[a]

Sherd Temper	Text Figures
Red (4-B-10) on Light Red (11-B-7) slip; some darker red (7-C-6, 7-H-9) paint	39a, f, h; 40j; 41b, f, m
Bright Red (7-H-3 to 7-J-5) on Buff (11-K-7, 11-E-6, 11-F-7) slip	39b–e, g; 40a–b, e, h; 41a, h, j; 42d–f
Black on same Buff	40k
Black on dark red (Liver Brown, 7-H-9)	40i; 41c, i, k; 42g, i–m
Black on Brown (London Smoke, 8-C-9)	41 l
Polychrome: Liver Brown and Cream (9-D-2) on Light Red slip	36o
Red (7-H-3, 7-J-5) on dark red (7-H-7) or Liver Brown	40c, f, l, m; 41d
Red (7-H-3, 7-J-5) on Brown (London Smoke, 8-C-9)	41n
Red (as above) on Buff (11-F-7)	40n; 41e; 42a–c
Black on Buff (as above)	40g
Black on dark red (7-H-9)	40o
Quartz-Sand Temper	
Black on dark red (7-H-9)	41g
Lime Temper	
Red (7-H-3) on Greenish-Yellow (17-D-2)	40d
Black on Brown (8-C-9)	42h

[a] Color notations from Maerz and Paul, 1950.

Late Kushan levels are painted (see Table 6). The elements of the painted decoration consist largely of light or heavy lines drawn horizontally, vertically, or diagonally, or in combination. Occasionally undulating lines, zigzags, and cross-hatching are used.

The designs on painted Grit Ware have been classified as follows: single or multiple horizontal dark red or Manganese Violet lines varying in thickness; undulating single or multiple horizontal lines, some combining straight and undulating lines (Fig. 39a–d); vertical single or multiple lines in the same pigments as above (Fig. 39e); multiple vertical lines running from a horizontal line (Fig. 39f); a variation with vertical wavy lines running from a horizontal

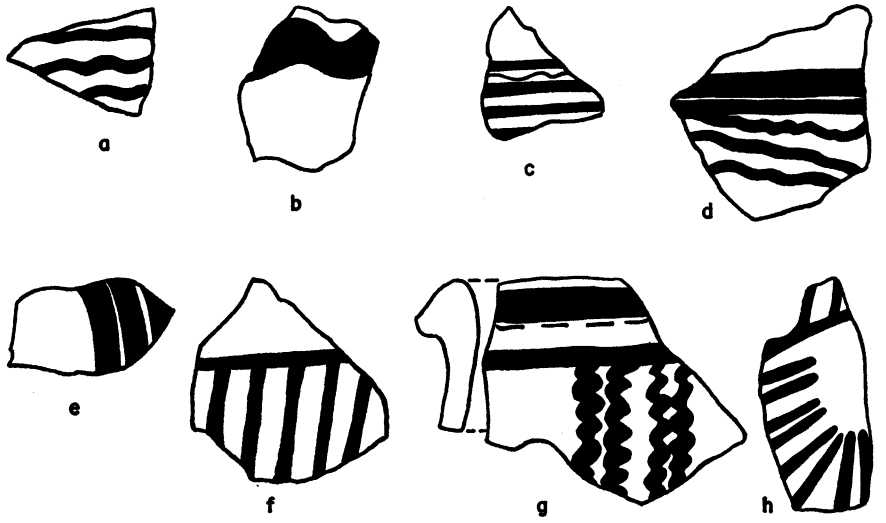


FIG. 39. Painted Grit Ware, Late Kushan. *Ca.* ⅔ natural size.

FIG. 40. Painted Grit Ware, Late Kushan. *Ca.* ⅔ natural size.

line (Fig. 39g, also Pl. 18c); a base sherd with the lines stopping at the break of the base (Fig. 39h).

Additional painted Grit Ware sherds are illustrated in Fig. 40a–o and Pl. 18j, w. These and subsequent illustrations present a good sample of the variations in the utilization of diagonal lines, zigzags, and diagonal cross-hatching. Diagonal single or multiple lines are usually parallel, sometimes undulating (Fig. 40d). A variant with alternating undulating and straight diagonal lines, usually in groups of three, may be seen in Fig. 40f, h, and Pl. 18f, j. A horizontal, sharp-angled zigzag is shown in Fig. 40i. Variations in diagonal cross-hatching are illustrated in Fig. 40j–o and Pl. 18n, r.

Triangles are blank or filled with parallel or diagonal lines as in Fig. 41a–g, Pl. 18m, p. A unique painted triangle has short horizontal lines projecting from two sides (Fig. 41h). Short vertical or diagonal lines between two horizontal parallel or diagonal lines form a ladder-like motif (Fig. 41i–n and Pl. 18v).

Several small jar (Mica-Sand Temper) sherds have delicate brush line drawings, fine diagonal parallel lines inside repeated lozenges (Fig. 42a), a horizontal zigzag band (Fig. 42b; Pl. 18o), and a horizontal hourglass between two heavy parallel horizontal lines surmounted by a horizontal zigzag (Fig. 42c; Pl. 18q). Volute or drapery motifs also occur on Mica-Sand Temper sherds with their inner surfaces lightly pebble-burnished (Fig. 42d–g). Some chevron designs are painted black (Fig. 42h). Some rims of this ware have chevrons painted in Cream or Ivory.

A number of crude unclassifiable designs are reproduced: a crude Manganese Violet circle

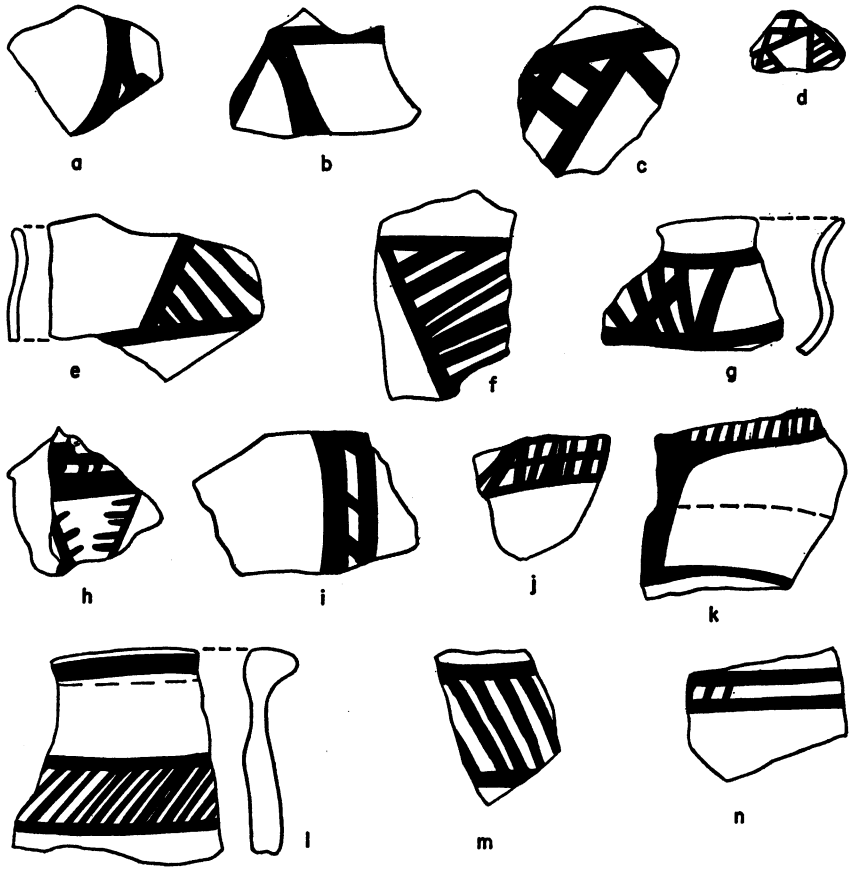


FIG. 41. Painted Grit Ware, Late Kushan. *Ca.* ⅓ natural size.

(Fig. 42i) and a series of Manganese Violet dots (Fig. 42j). Other sherds have red smudges and dark red lines.

Many rims, as are those shown in Fig. 42k–m, are painted with Manganese Violet; the painted areas sometimes extend almost 1 cm. into the interior of the vessel.

Occasionally, two slips are used on the Sherd-Tempered, Quartz-Tempered, and Fiber-Tempered, painted, Grit Ware sherds, probably to provide a smooth surface to facilitate painting. The under slip is always white, a Sheepskin (11-D-3), and up to 0.1 cm. thick. The top slip is either dark red or Manganese Violet.

Fewer than 4 per cent of the Grit Ware sherds of the Late Kushan Period have surface decorations other than paint. Most common are fingertip or stylus marks on an appliquéd band of clay near the shoulder (Pl. 16). Occasionally, finger-marked pressed bands appear above horizontal (or other) painted designs (Pl. 19a). One sherd has an appliquéd disc and a fragment of another (Pl. 16k).

Though not common, mat-marked sherds are present. Mat or cord marks appear mainly on Fiber-Tempered sherds (Pl. 17k).

Thirty-odd Grit Ware discs, probably gaming pieces or weights, were found in this cultural period. Except for four Quartz-Sand and one Mica-Sand discs, they were all Sherd-Tempered. The latter Grit Ware discs range from 3 by 2.2 by 1 cm. to 6 by 5 by 0.7 cm.; the Quartz-Sand, from 3 by 2.6 by 1 cm. to 5.4 by 3.9 by 0.9 cm.; the Mica-Sand disc measured 2.2 by 2 by 0.7 cm.

RED WARE: Usually, on both interior and exterior, the Red Ware is slipped with a Woodland Rose (4-A-10) or Livid Brown (6-H-3), but several water-jug shapes are unslipped (Fig. 43a). Occasionally, the exterior of a sherd has a Woodland Rose slip, and the interior a Livid Brown slip, or vice versa.

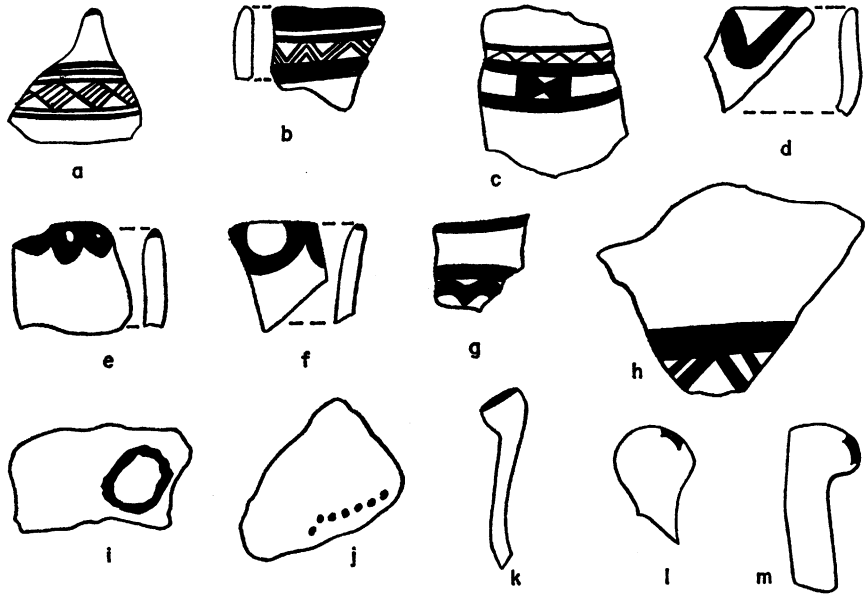


FIG. 42. Painted Grit Ware, Late Kushan. *Ca.* ⅔ natural size.

Examples of undecorated Red Ware with red slips may be seen on Pl. 20b–g, i.

About 25 per cent of the total of this well-made local ware in this cultural level is decorated. Incised decorations appear for the first time—none was found in Early Kushan cultural levels.

As above, in the discussions of rims, bases, and handles the number in parentheses is the number of sherds found. Absence of a number means that only a single sherd of the type under discussion was found.

The rims, profiles, and bases of the utilitarian Red Ware each present a wide range of varia-

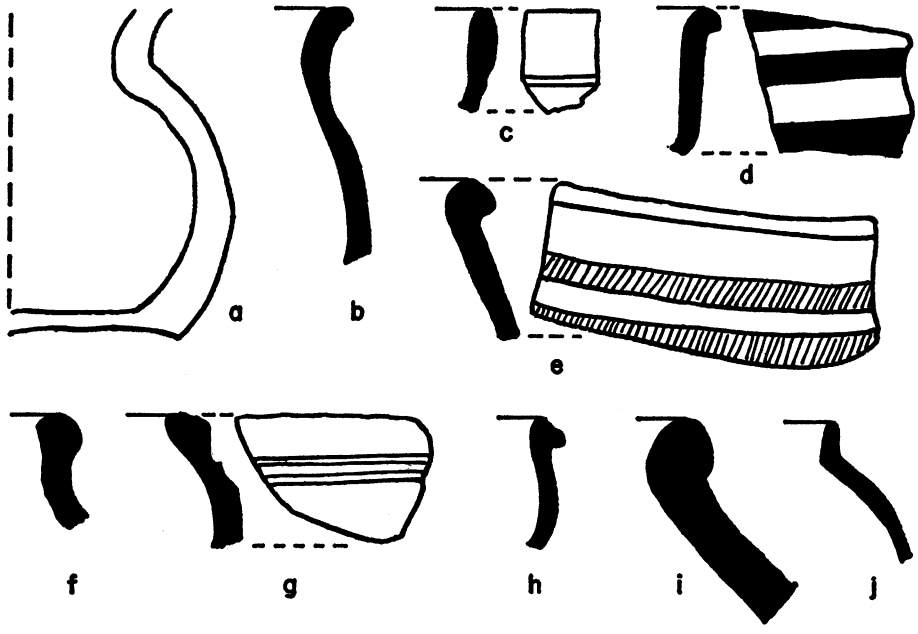


FIG. 43. Rim profiles and designs, Red Ware, Late Kushan. *Ca.* ⅔ natural size.

tion (Fig. 43): a flat rim, flaring neck, slim jar profile (two, Fig. 43b); an externally thickened, slightly incurved rim with two incised grooves on the outside (Fig. 43c); a rolled rim, straight neck, abrupt shift in profile, with parallel, horizontal Fez Red (5-L-4) lines on the exterior (Fig. 43d); a slightly rolled rim, leading into globular jar profile, with narrow horizontal bands diagonally lined in black paint on the exterior (two, Fig. 43e); an internally thickened, slightly rolled rim (Fig. 43f); a thickened flat rim, small jar profile, with two sets of parallel, horizontal, incised lines on the outside (Fig. 43g); a small grooved or flanged jar rim (two, Fig. 43h); a bluntly beaked rim, pear-shaped (?) body (Fig. 43i); and a vertical rim with no lip, probably with narrow neck and globular body (Fig. 43j).

Further variations in Red Ware profiles are illustrated in Fig. 44a–s: an externally thickened rim, with no neck, and thick walls (three, Fig. 44a); a beaded rim, internally thickened, and long neck (two, Fig. 44b); a flaring jar (?) rim (three, Fig. 44c); an outcurved thin rim from a small pear-shaped (?) jar (Fig. 44d); an extremely flared rim (two, Fig. 44e); a rim like Fig. 44e but thinner (two, Fig. 44f); a slightly out-turned rim, thinner than the wall (two,

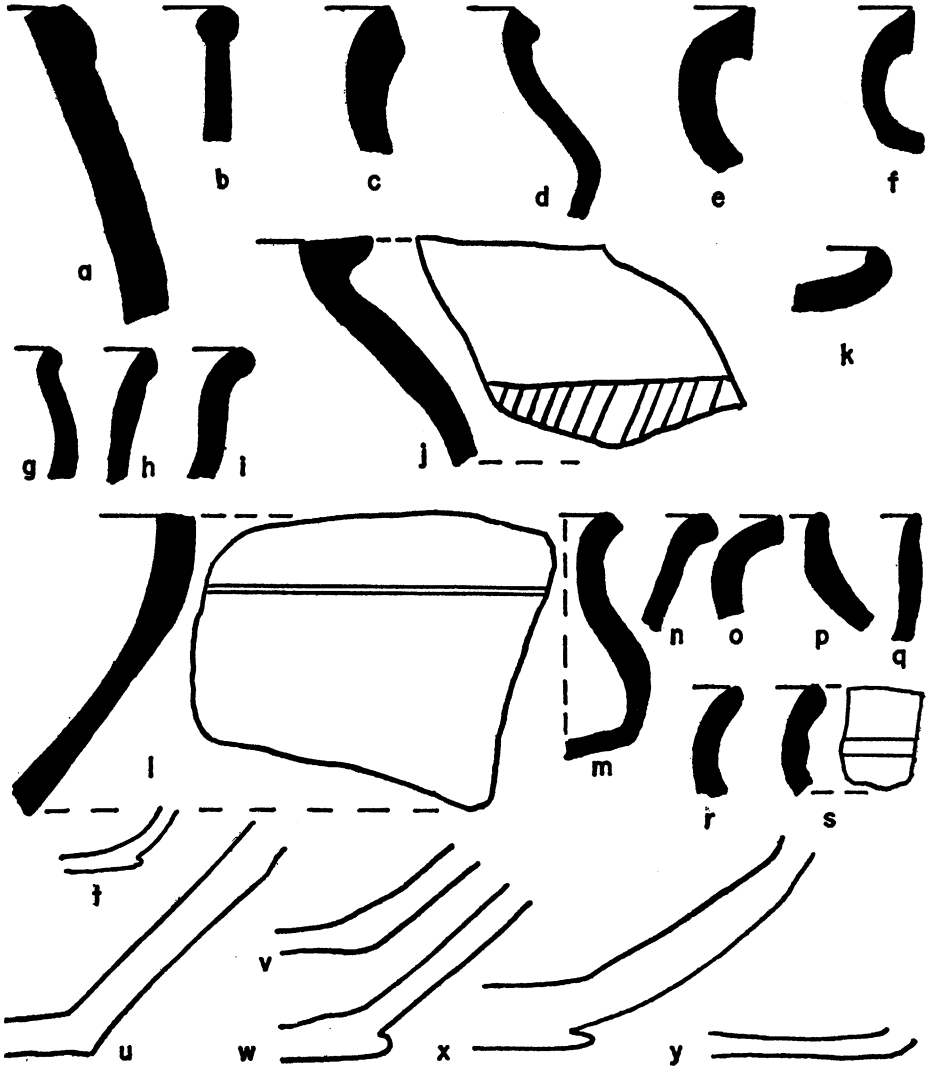


FIG. 44. Rim profiles and bases, Red Ware, Late Kushan. *Ca.* ⅔ natural size.

Fig. 44g); an externally thickened rim, slightly flaring wall, small bowl (?) profile (three, Fig. 44h); a small rolled rim from a shallow bowl (?) (Fig. 44i); a flat rim, externally thickened, from a cooking jar (?), with thin diagonal black lines painted on the exterior (four, Fig. 44j); a small, shallow, carinated bowl with slightly outcurving rim and flat base (two, Fig. 44k); a flat, thickened, in-turned rim with small pressed band and deep basin profile (Fig. 44 l); a small jar, with flat base and long, slightly flaring neck and rim (three, Fig. 44m); a clubbed rim with slightly flaring bowl (?) wall (Fig. 44n); a cooking pot (?) with flaring rim for easy handling (three, Fig. 44o); a perpendicular rim with no lip, short thickened neck, and pronounced shoulder (Fig. 44p). Additional Red Ware profiles are also illustrated in Fig. 44: thin, externally grooved rim with black slip (Fig. 44q); flaring rim with black slip (Fig. 44r); and another black-slipped flaring rim, with externally pressed band (Fig. 44s). Other rim sherds are like Figs. 30a, c (two), d, 44a.

Some variations in Late Kushan Red Ware base sherds are: a flat base (four, Fig. 44t), probably goes with jars like Fig. 43h; a slightly concave base (three, Fig. 44u), thick tapering wall, probably belongs with a rim like Fig. 44 l; another thin, slightly concave base (three, Fig. 44v); a slightly concave base with tapering wall (three, Fig. 44w); a flat base, globular profile (Fig. 44x), probably belongs with rim like that shown in Fig. 44a; a thin, flat rim, thin wall, has black central core (four, Fig. 44y). Other base types are like Fig. 30i–j, n.

The sub-ware classified as Black Inside Slip, Red (Woodland Rose, 4-A-10) Outside Slip appears first in Late Kushan. The inside slip peels easily. As only three of the total of 24 sherds were found above the 20–30-cm. levels, this sub-ware should probably be considered unique to Late Kushan.

Several Black-Centered sherds are between 1 and 1.5 cm. in thickness.

More than three-fifths of the Red Ware painted sherds in the stratified levels at Shamshir Ghar are in the Late Kushan levels. For the colors used in painting the sherds, see Table 7.

TABLE 7

COLOR CHART FOR PAINTED RED WARE TYPES: LATE KUSHAN[a]

Sherd Temper	Text Figures
Red (5-L-4, 6-H-3, 6-J-3) on Beige (11-E-6, 11-F-7) slip	45d; 46g–i, k–p; 47i, k–l
Black or Manganese Brown (15-A-12) on Beige slip	45f; 46d, r–s, 47c, h
Black or Manganese Brown on red (6-H-3, 6-I-2)	45b, g; 46a; 47a–b, e
Red (5-L-4, 6-J-3) on red (4-A-10, 6-H-3, 6-I-2) slip	45a, c, e; 46b–c, o; 47d, f–g
Red (3-I-4, 6-H-3, 6-J-3) on Black	46q; 47j
Red (as above) on Ivory (10-B-2)	46j
Black on Deep Yellow-Green (17-D-2)	46e
Ivory lines on red (7-H-3)	46f

[a] Color notations from Maerz and Paul, 1950.

The commonest designs consist of either single or multiple parallel horizontal lines (Fig. 45a–c). Variations of these motifs are horizontal undulating or wavy lines or combinations of straight and wavy lines (Fig. 45d–g; Pl. 23k, n).

Another common motif consists of a number of straight or wavy vertical lines, usually parallel, and hanging from a straight horizontal line (Fig. 46a–d).

Sherds with diagonal, straight or wavy lines, usually parallel, are numerous (Fig. 46e–j).

Several sherds with variations of cross and diagonal hatching were found (Fig. 46k–q).

Ladder motifs enclosed by triangles also occur (Fig. 46r–s).

Horizontal zigzag lines were noted on one sherd.

A double-lined repeated chevron is another popular design (Fig. 47a–b; Pl. 23i).

Though rare, drapery motifs occur, mainly on the inside of rim or base sherds (Fig. 47c–f).

A number of sherds decorated with unique motifs are shown in Fig. 47g–l. Among these are some with paint smudges (Fig. 47 l).

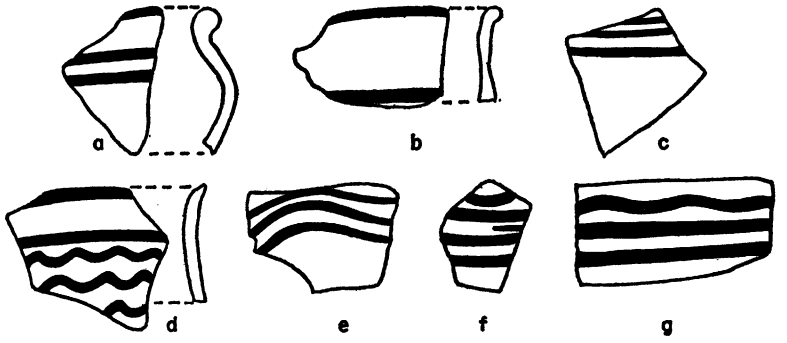


FIG. 45. Common designs on painted Red Ware, Late Kushan. *Ca.* ⅔ natural size.

An interesting series of Red Ware sherds appear to have been worked into tool forms, probably for use as scrapers and fleshers. Most working edges are scalloped.

Two pottery discs (2.7 by 2.4 by 1 cm. and 3.2 by 2.7 by 0.9 cm.) were found.

Some Red Ware sherds have purposely roughened surfaces (Pl. 20i).

Incised Red Ware sherds make their first appearance in Late Kushan. Undulating lines (Pl. 22f) resemble those on painted sherds. "Drapery" comb-marked motifs (Pl. 22a), imbrica-

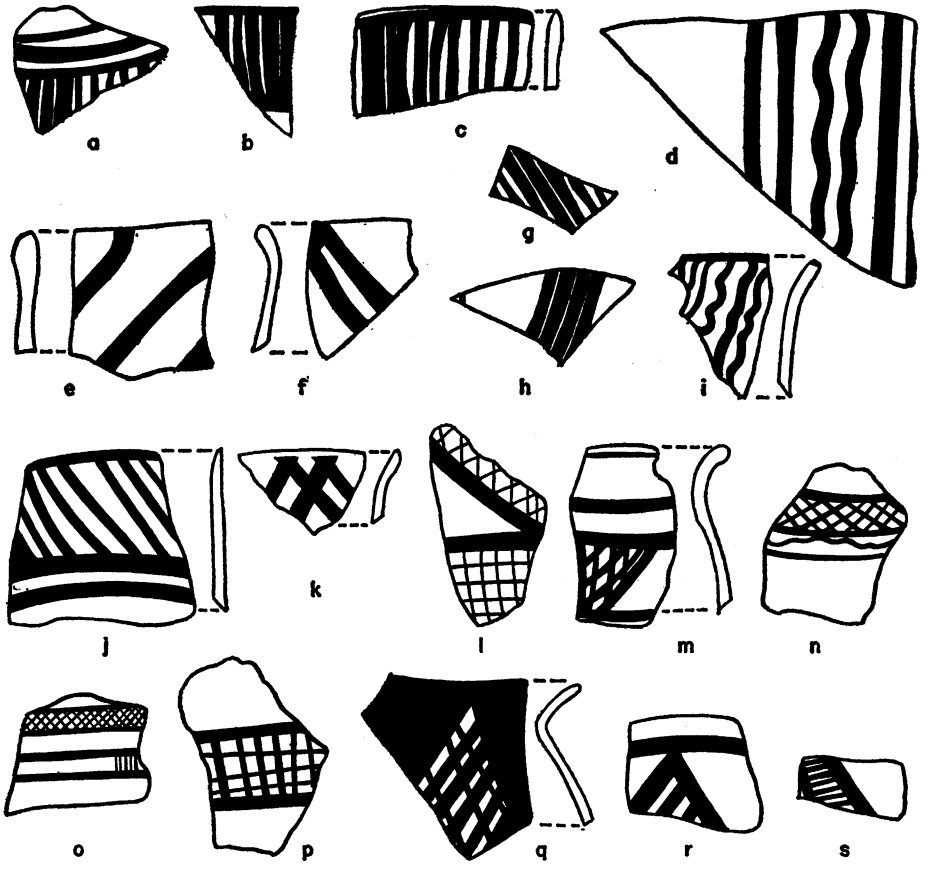


FIG. 46. Design motives on painted Red Ware, Late Kushan. *Ca.* ⅔ natural size.

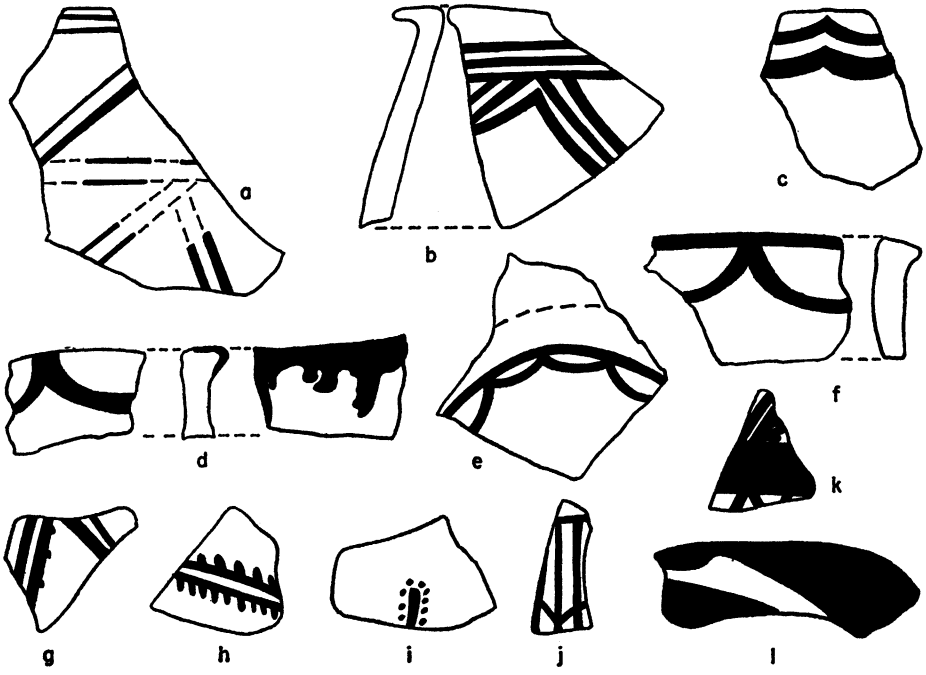


FIG. 47. Design motives on painted Red Ware, Late Kushan. *Ca.* ⅔ natural size.

tions (Pl. 22c), and zigzag incisions also occur. All the above are common in Stein's collection.[1] They are also present at Begram.[2]

RED STREAK PATTERN-BURNISHED WARE: Only two sherds of this ware occurred in the Major Hearth Complex, but 34 were recovered from other Late Kushan levels. Rim sherds include: a shallow dish with inside streak-burnishing (Fig. 48a); an externally grooved rim with haphazard internal burnishing (Fig. 48b); a thin rolled rim with interior streak and pattern burnishing (Fig. 48c); a thin, externally grooved rim (Fig. 49a); a slightly incurved rim (Fig. 49b); a slightly incurved rim (Fig 49c) with a thinner wall than the sherd in Fig. 49b; a sherd with a straight profile and externally thickened rim (Fig. 49d). The burnished lines on all these sherds are black, suggesting that the burnishing tool, probably a stick or bone, had been dipped in black pigment.

Very few sherds have exterior burnishing;

[1] Stein, 1928, Pls. 48, 95; 1929, Pls. 1, 3, 6, 8; 1930, Pl. 1; 1931, Pls. 2, 22; 1937, Pls. 1, 26.

[2] Ghirshman, 1946, Pls. 25, 29, 33, 43, 44, 50–52.

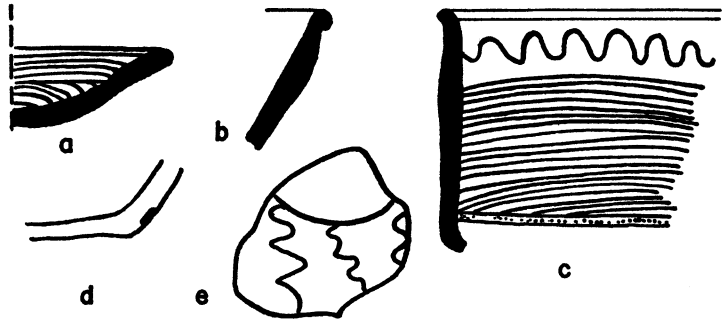


FIG. 48. Designs, rim profile, and base, Red Streak Pattern-Burnished Ware, Late Kushan. *Ca.* ⅔ natural size.

FIG. 49. Designs and rim profiles, Red Streak Pattern-Burnished Ware, Late Kushan. *Ca.* ⅛ natural size.

one example may be seen in Pl. 24a. The prevalence of interior black burnished lines on the Red Streak Pattern-Burnished Ware is diagnostic in Late Kushan. In the overlying levels burnishing occurs primarily on the exterior of sherds.

A unique concave base sherd (Fig. 48d) has a single exterior burnished line. Rarely do sherds of this ware have vertical undulating lines (Fig. 48e).

Three fluted sherds (Pl. 24g), with profiles suggesting plates or shallow dishes, closely resemble many repoussé silver bowls of Parthian and Sassanid Iran and may well be pottery imitations of these forms. Pope, who calls such vessels "wine bowls," illustrates a similar Sassanian bowl in silver.[1] An Indo-Parthian (?) silver fluted bowl from Taxila is illustrated by Marshall.[2]

METALLIC BLACK WARE: No Metallic Black Ware occurs in the Major Hearth Complex. Only two sherds of Type II (Fig. 50a–b) and three of Type I (Fig. 50c–e) were found in other Late Kushan levels. This ware is mainly found in Kushano-Sassanian. The bases in the Late Kushan levels are flat. The walls are flaring. The single rim sherd is thin and slightly rolled.

RED WARE, CREAM SLIP: This is a common ware throughout all levels at Shamshir Ghar (Pl. 25 for type illustrations). Some interior slips are almost Mineral Red (6-H-3) or Nugget Bronze Yellow (11-C-9). On many sherds the exterior Cream slip has partially peeled off; a few have shallow channels. Many sherds have ?brush striations or narrow parallel incisions on their exterior surfaces.

In the succeeding discussion of profiles, as heretofore, the number in parentheses refers to the number of rim or base sherds found. Except when otherwise specified, the rim and base sherds described below are all No Inside Ridges sub-ware, as follows: a cooking bowl (?), profile with thin everted rim (Fig. 51a); a thick clubbed rim, probably from a globular jar (Fig. 51b); a flat, externally thickened rim with external pressed band just below lip, bottle neck (?) (Fig. 51c); a straight rim, no lip, and probably narrow and globular body (Fig. 51d); a great flaring jar rim (Fig. 51e); a slightly flaring rim (Fig. 51f); a rolled jar rim, probably from a globular body (Fig. 51g); a flaring, externally thickened rim (four, Fig. 51h); a slightly outturned clubbed rim (five, Fig. 51i); a flanged rim, easily gripped, cooking pot (?) (Fig. 51j); a pronounced flat rim, angular shoulder, carinated basin shape (?) (Fig. 51k); a flaring, beaked rim, thin wall, probably a jar with relatively narrow neck (21, Fig. 51 l); a rolled beaded rim, possibly globular body (three, Fig. 51m); a clubbed rim, no neck, probably ellipitical body profile (two, Fig. 51n); a turned-out rim with rectangular cross-section, ovoid (?) body shape, an Inside Ridges I sub-ware sherd (seven, Fig. 51o); a rolled rim, with long tapering neck and somewhat pear-shaped profile (one sherd is Inside Ridges I, another Inside

[1] Pope and others, 1945, Pl. 32, 48.
[2] Marshall, 1951, Pl. 189, nos. 14a, 14b.

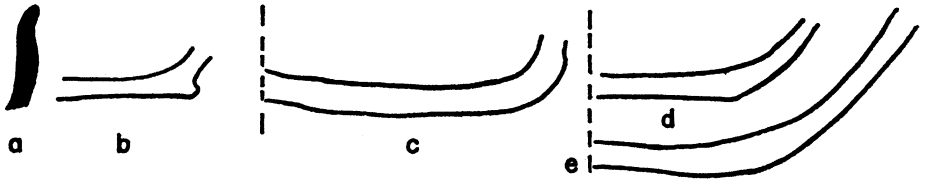


FIG. 50. Rim profile and bases, Metallic Black Ware, Late Kushan. *Ca.* ⅛ natural size.

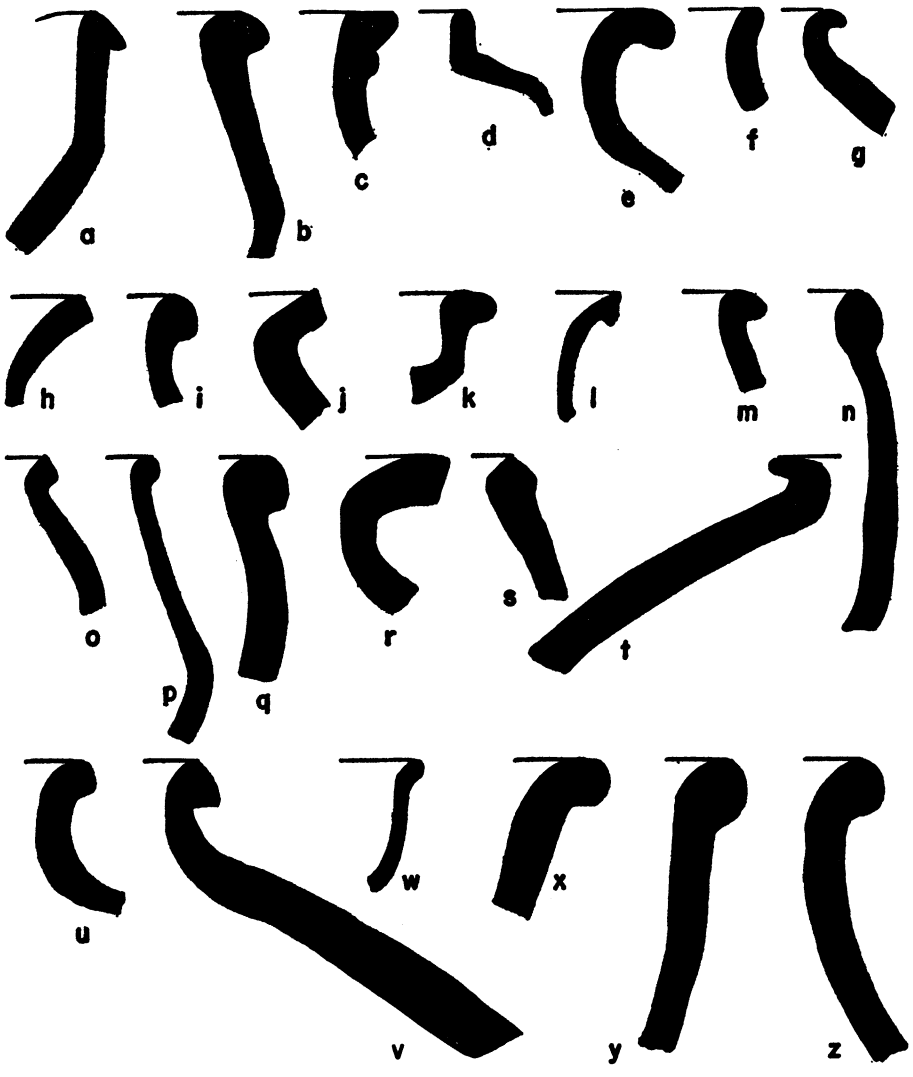


FIG. 51. Rim profiles, Red Ware, Cream Slip, Late Kushan. *Ca.* ⅛ natural size.

Ridges II; five, Fig. 51p); one, Inside Ridges I, with heavily rolled rim and thick wall (four, Fig. 51q); a flaring jar rim (Fig. 51r); an externally thickened flanged rim (Fig. 51s); a thin out-turned rim from a large globular (?) jar (three, Fig. 51t); a flaring rim from a jar (six, Fig. 51u); one each for Inside Ridges I and II, large, externally beaded rim (three, Fig. 51v); a thin, slightly flaring rim from a small bowl (?) (two, Fig. 51w); a flat, externally thickened rim (Fig. 51x); a slightly flaring rim, thick walls, from a deep bowl (?) (two, Fig. 51y); one Inside Ridges II, thick, voluted rim, flaring wall, jar profile (?) (four, Fig. 51z); a flaring jar rim, beaded (three, Fig. 52a); a thickened or rolled bowl rim (seven, Fig. 52b); a flaring, externally thickened rim, thin wall, jar (?) (six, Fig. 52c); a rolled rim (two, Fig. 52d); a popular form with straight neck and sharp-breaking shoulder from a small jar (?) (eight, Fig. 52e). One rim, unillustrated, is flaring and beaded and has a tapering wall; another is incurved, probably with a carinated profile.

Two small bases with flaring walls are represented in Fig. 52f, k.

Three base sherds, generally similar in profile, flat with flaring walls, are probably from a globular shape (Fig. 52g–i).

Additional bases may be described as follows: a flat base, probable globular shape (two, Fig.

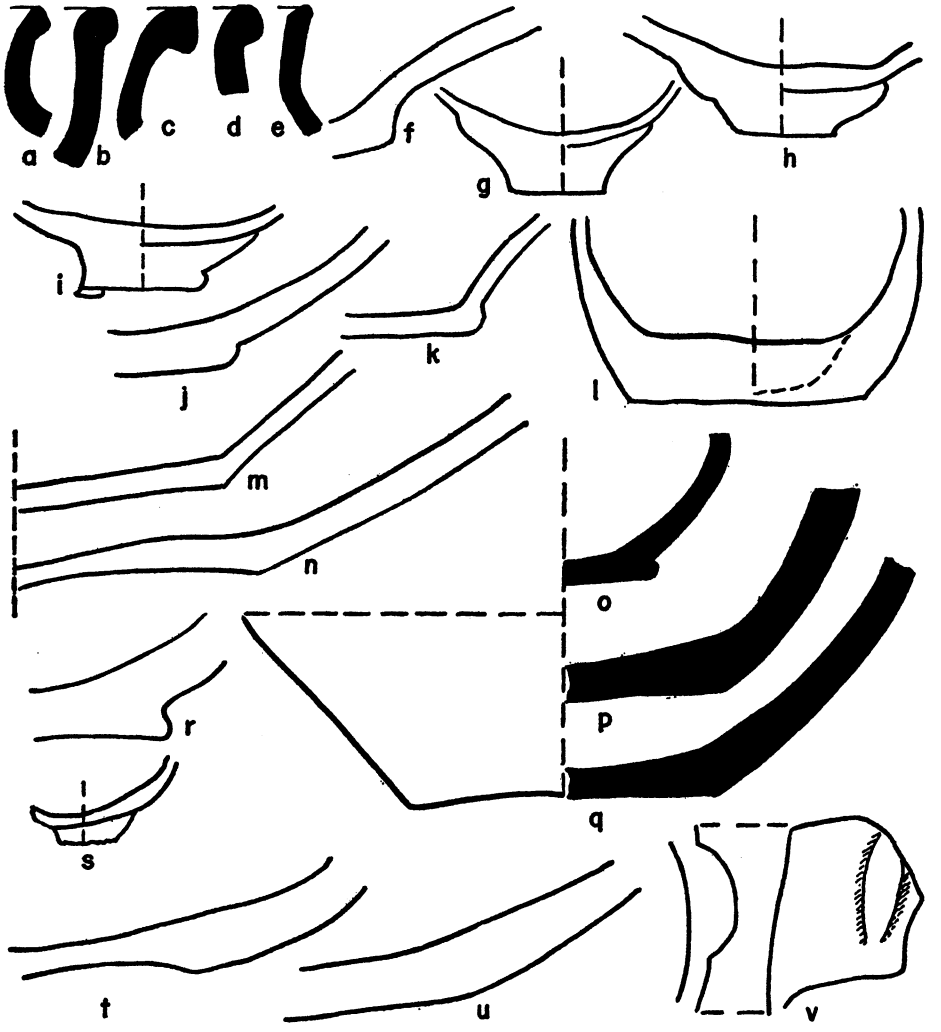


FIG. 52. Rim profiles and bases, Red Ware, Cream Slip, Late Kushan. *Ca.* ⅔ natural size.

52j); one, probably pear-shaped profile, stepped interior (Fig. 52 l); four are Inside Ridges I, one is Inside Ridges II, flat with flaring wall (19, Fig. 52m), possibly belongs to the rim shown in Fig. 51a; six are Inside Ridges I, five are Inside Ridges II, concave, flaring base (26, Fig. 52n).

Other Red Ware, Cream Slip base profiles meriting descriptions are: an Inside Ridges I, small, flat base, globular profile (eight, Fig. 52o); one is Inside Ridges II, slightly concave base, globular (?) profile (nine, Fig. 52p); four are Inside Ridges I, five are Inside Ridges II, concave base, probably globular profile, with rims (27, Fig. 52q), like Fig. 51q; a flat base, probably globular profile (two, Fig. 52r); a vessel, probably rested on a stand (two, Fig. 52s); a unique thin concave base with thick wall Inside Ridges II (Fig. 52t); flat base, flaring wall, Inside Ridges I (Fig. 52u).

Other rims are like those shown in Fig. 32a, c (two), d (four), e (14): one, Inside Ridges I, one, Inside Ridges II.

One vertical lug (Fig. 52v), but no handles were found.

Seven incised sherds had comb-marked, channeled (Pl. 26a), or imbricated motifs. Others (Pl. 26f–h, j) are painted with black or dark red motifs.

Several pottery "scrapers" (Pl. 26 l–m) were also found.

Six pottery discs ranged from 5.3 cm. by 4.8

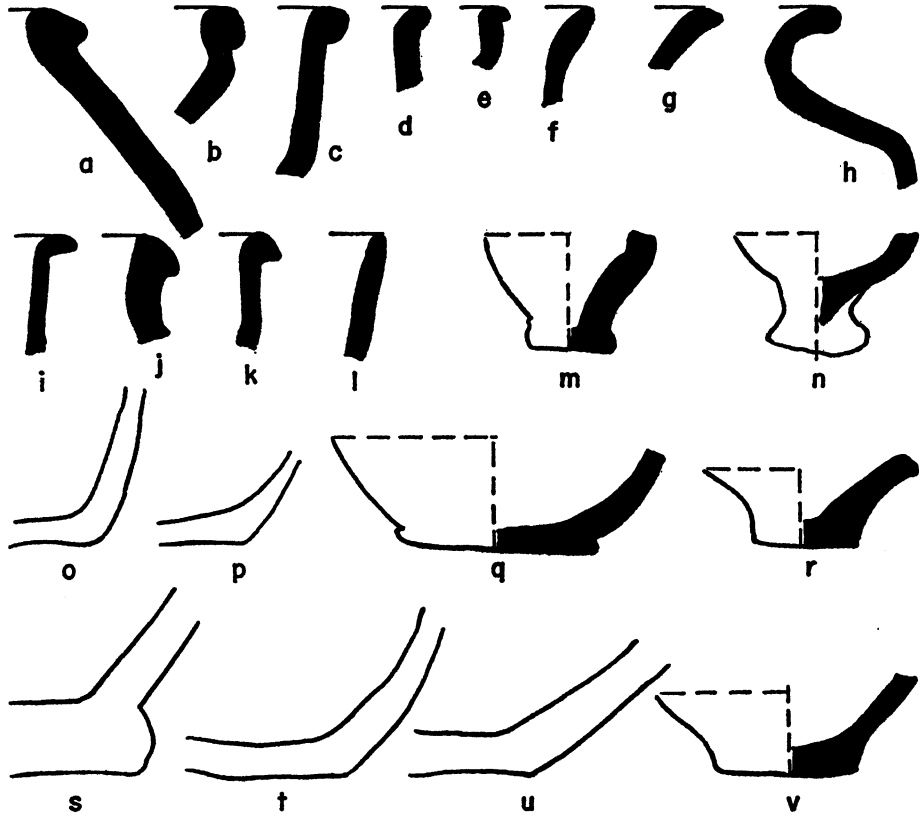


FIG. 53. Rim profiles and bases, Bisque Paste Ware, Late Kushan. *Ca.* ⅔ natural size.

cm. by 1.3 cm. to 2.9 cm. by 2.7 cm. by 0.7 cm.

BISQUE PASTE WARE: Bisque Paste handles, numerous above 30 cm., are non-existent in Late Kushan levels. As will be seen from the profiles, the common shapes are wide-mouthed bowls and jars, of which many are fire-burned, and goblets with delicately made stands. Only nine incised sherds were found in this cultural level. None approaches the elaboration of the incised, appliquéd, bossed, punctated sub-ware in the Early Islamic levels.

Cream slips (Pl. 27b, e) occur on fewer Bisque sherds than in the levels above 30 cm.

A handful of painted sherds was found. Two have horizontal, parallel black lines on a buffish slip; one has a single black diagonal line.

The Bisque Paste profiles may be described as follows: a rolled jar rim (10, Fig. 53a); a thickened straight rim from a bowl with carinated profile (Fig. 53b); a straight, externally thickened rim, slightly flaring bowl (five, Fig. 53c); a slightly flaring rim, possibly from a goblet (three, Fig. 53d); a possible goblet rim (Fig. 53e); a flaring, internally thickened rim (three, Fig. 53f); a flaring rim (Fig. 53g); a flaring neck, rim, and shoulder of a water jug (Fig. 53h); a thin, out-turned, beaded bottle rim, with an almost vertical neck (Fig. 53i); a slightly flaring, externally thickened rim (Fig. 53j); a straight, slightly rolled rim (Fig. 53k); a slightly tapering rim (Fig. 53 l).

Two goblet bases with a pinkish bisque (Polignac, 4-D-9) were found (Fig. 53m–n; see also Pl. 30a–b). Ghirshman reports Red Ware goblets from Begram: Bordj-i-Abdallah[1]; Begram I[2]; Begram II.[3] Goblets were also found at Bhir Mound, Taxila.[4] Other goblets occurred at Susa, Tepe Hissar, and other Iranian prehistoric sites, as well as in many of Stein's collections.[5]

[1] Ghirshman, 1946, Pl. 24.
[2] Ghirshman, 1946, Pl. 29.
[3] Ghirshman, 1946, Pls. 40, 44.
[4] Marshall, 1951, Pl. 124.
[5] Stein, 1928, Pl. 64; 1929, Pl. 7; 1930, Pl. 1; 1931, Pls. 6, 7, 13, 19; 1937, Pls. 17, 19.

The variety of forms in Bisque Paste bases is shown in Fig. 53o–v: a slightly concave base narrow jug (?) (four, Fig. 53o); a small, flat base with flaring walls of a small bowl (?) (two, Fig. 53r); a large flat base from a globular jar (Fig. 53s); a flat base, with an ovoid body profile (Fig. 53t); a slightly concave base, with tapering wall (Fig. 53u); an almost convex base, ovoid (?) shape (Fig. 53v). Another base, small and flat, had a globular shape like that in Fig. 33d.

One Bisque disc was found: 3 cm. by 2.8 cm. by 0.6 cm.

The Red Wash sub-wares, abundant in Late Kushan, were almost totally absent in Early Kushan levels; in fact, over three-fifths of all stratified Red Wash Inside and Outside sub-ware sherds were found in Lake Kushan levels. The wash on the majority of Late Kushan Red Wash sherds occurs on both the interior and exterior surfaces. The color of the Red Wash varies from Woodland Rose (4-A-10) to 4-C-10; sometimes the interior is a dark Pomegranate Red (6-L-3). A rare sherd has a Woodland Rose interior wash and an exterior whitish (17-B-1) slip. Usually the exterior wash does not reach the base (Pl. 30k), but occasional smudges occur on base bottoms (Pl. 30d).

Many sherds, even rim sherds, have been fire-burned, and the exterior wash has changed to a grayish black (7-C-1).

All the profiles in this ware suggest shallow plates, or small bowls with sharp-angled shoulders. Unless otherwise specified, the rims shown in Fig. 54a–m are Red, Inside and Outside sub-ware: a shallow, carinated frying pan, charred outside, with a prominent flanged rim to facilitate gripping (Fig. 54a; also see Pl. 30j); a rolled, externally thickened rim (three, Fig. 54b); a slightly flaring rim, tapering body, with two black horizontal, parallel lines drawn on the exterior in positions indicated by the arrows (Fig. 54c); a straight rimmed, carinated pan or plate, three thin, black, horizontal lines on rim indicated by arrows (three, Fig. 54d); a shallow plate or frying pan, fire-burned, with sharply breaking shoulder, a probable carinated profile (five, Fig. 54e; see also Pl. 30i); a form similar to Fig. 54e has black horizontal lines painted on the inside (Fig. 54f); a fire-burned, slightly flaring rim (seven, Fig. 54g); a flaring rim with inside, black-painted, horizontal lines and carinated profile (five, Fig. 54h); a slightly flaring beaded rim, and almost straight wall (six, Fig. 54i); a small, flat, out-turned rim, probably a carinated pan (three, Fig. 54j); a fire-burned

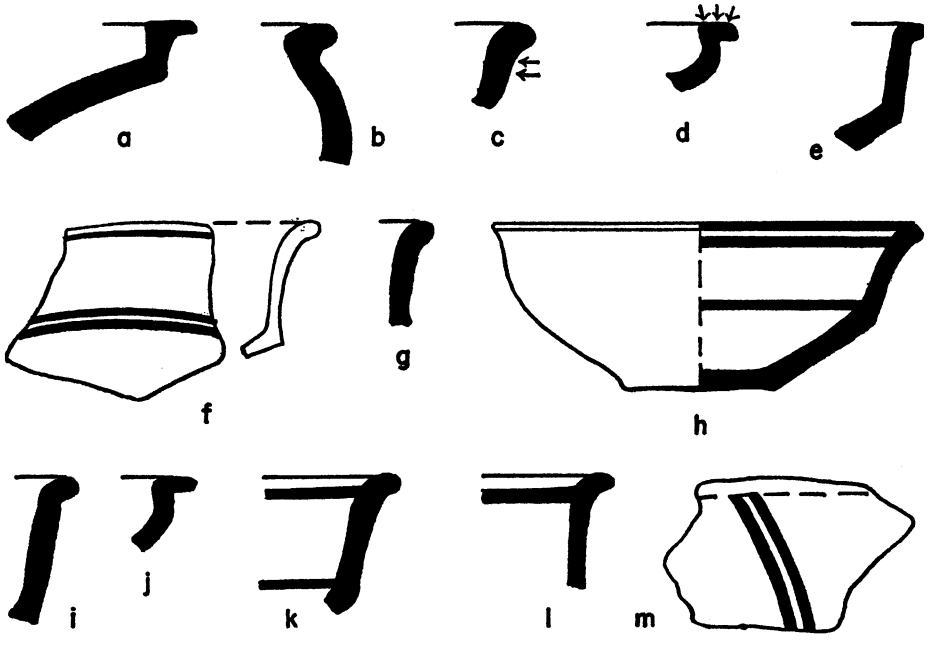


FIG. 54. Rim profiles, bases, and designs, Red Inside and Outside sub-ware, Late Kushan. *Ca.* ⅓ natural size.

pot with straighter profile than that in Fig. 54h has two inside, black, horizontal lines (two, Fig. 54k); an out-turned flat rim from a fire-burned pot has an inside, black-painted, horizontal line (10, Fig. 54 l). Additional rims in this category are like Fig. 53c (four, three with only Inside Red Wash), and Fig. 53e (four).

Four Red Wash, Inside and Outside, sherds have inside painted black lines as in Fig. 54m; three others have lines in Pomegranate Red. One sherd has outside black lines. Plate 30c is a base sherd painted on the inside with black volutes in a black circle.

A selection of bases in this ware is shown in Fig. 55a–l: a flat base, with wide flaring walls, shallow pan or plate (?) (Fig. 55a); a flat base, with thin flaring wall, pan (?) profile (Fig. 55b); a flat base, on which the Red Wash does not reach the base but stops at arrow (Fig. 55c); a concave base, wide-flaring wall (three, Fig. 55d); a flat, heeled, stepped base, thin wall (Fig. 55e); a flat base, with a wall perpendicular to the base, probably a narrow jug or jar (10, Fig. 55f); a thick concave base (Fig. 55g) with the same profile as that in Fig. 55f; a slightly concave base and slightly flaring wall (two, Fig. 55h); a slightly concave base and flaring wall, probably belongs with a rim like that in Fig. 54e (two, Fig. 55i); a small, slight concave base of a shallow bowl (?) (Fig. 55j); a thin, flat base, thin wall, and globular or ovoid jar profile (five, Fig. 55k); and a flat base with flaring wall (three, Fig. 55 l).

Greenish Paste Ware: Greenish Paste Ware sherds are rare in Late Kushan; almost all are undecorated. The multi-varied types of incision, punctation, and appliqué belong almost exclusively to the Early Islamic levels. Of the Greenish Paste sherds found below 30 cm., the most interesting is an appar-

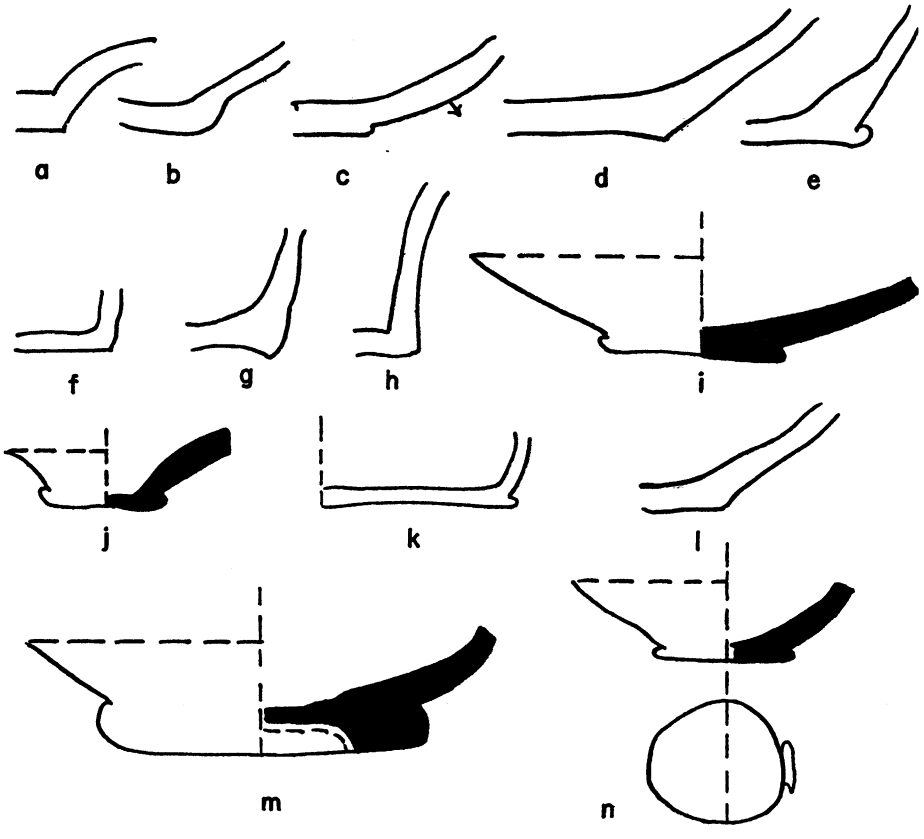


Fig. 55. Bases, Bisque Paste Ware, Late Kushan. a–l. Red Wash Inside and Outside. m–n. Greenish Paste Ware. *Ca.* ⅔ natural size.

ently hand-made base with a foot ring, a rare occurrence at Shamshir Ghar (Fig. 55m; Pl. 27f).

Other Greenish Paste base sherds resemble those in Fig. 53u (two) and Fig. 55n (three), a small flat base with a probable ovoid or globular profile. Note especially the clay lump on the side of the base.

STAMPED WARE: A single sherd of this ware, probably intrusive, was found in the Late Kushan levels.

METAL OBJECTS[1]

Only those metal objects found in cuts with recognizable stratigraphy are discussed. Only those objects now in the American Museum collection are measured.

IRON: All iron specimens are heavily corroded.

A broken chisel, similar to one found in Begram III,[2] with a flat cross-section (4.3 by 1.3 by 0.2 cm.) is illustrated in Pl. 32c. A thin (3 by 2 by 0.15 cm.) object may be a bridle decoration (Pl. 32r).

A hollow-sided, three-bladed projectile point, the cross-section of which is shown in Fig. 56, is an example of the classic "Scythic arrowhead"[3]

FIG. 56. Cross-section of hollow-sided, three-bladed, iron projectile point, Late Kushan.

found in South Russia and Turkestan. Projectile points of this type are reported from the following sites in our general area: Moghul Ghundai, West Pakistan[4]; Chinese Sinkiang[5]; Afghan Turkestan[6]; Begram II[7]; Begram III[8]; and Taxila.[9] According to Andrews,[10] who studied and catalogued most of Stein's collections, this is the most common type collected by Stein in Central Asia.

A projectile point or short lance head, rectangular in cross-section, was found; its tang is square in cross-section (Fig. 57a). Similar finds are reported from Taxila[11] and Begram III.[12] An identical copper point was found at Jurjurai in Swat.[13]

Another iron point differs from that shown in Fig. 57a in being elliptical in cross-section.

Additional identifiable iron finds are: two circular (diameter, *ca.* 3 cm.) objects, probably bridle decorations, like those common in Iron Age Europe, and an iron ring (diameter, *ca.* 2.5 cm.).

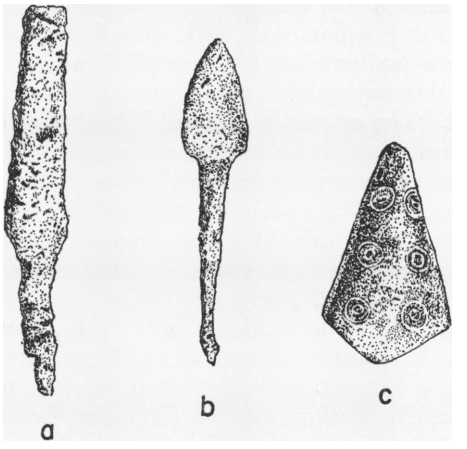


FIG. 57. Metal and stone objects, Late Kushan. a. Iron projectile point. b. Bronze projectile point. c. Black stone pendant. *Ca.* ½ natural size.

BRONZE AND COPPER: A heavily corroded fragment of bronze (Pl. 32x) may be a small chisel, a pin, or a piece of "wire." Low on its side is a small knob; in cross-section it forms a parallelogram. It is 5.5 by 0.4 by 0.4 cm.

A bronze cup (?) handle (Pl. 32z), slightly corroded and 0.6 cm. thick, is semicircular in cross-section.

Several fragments of bronze wire, or pins, round in cross-section, were found. The curved specimens may have been bangles.

A unique bronze projectile point, elliptical in

[1] See Appendix 3.
[2] Ghirshman, 1946, Pl. 48, B. G. 463b.
[3] Minns, 1913, 190, Fig. 82.
[4] Stein, 1929, Pl. 12.
[5] Stein, 1928, Pls. 23, 47, 70.
[6] Barger and Wright, 1941.
[7] Ghirshman, 1946, Pl. 36.
[8] Ghirshman, 1946, Pl. 48.
[9] Marshall, 1951, Pls. 165, 206.
[10] Andrews, 1935.
[11] Marshall, 1951, Pl. 165.
[12] Ghirshman, 1946, Pl. 48.
[13] Stein, 1930, Pl. 1.

cross-section, with a tang round in cross-section, was found (Fig. 57b).

Three other interesting metal objects occurred in Late Kushan: a thin copper (?) button (diameter, 2.1 cm.; thickness, 0.1 cm.) with a short (0.5 cm.) tang for fastening; a circular bridle decoration (diameter, *ca.* 3 cm.), similar to those of iron; and a bronze stud, probably a decoration from a bronze vessel (diameter, 1.5 cm., thickness, 0.3 cm.).

Iron and bronze fragments occur in approximately equal quantities in the Late Kushan levels.

Beads

In describing beads, I have followed Wheeler's system[1] which was, in turn, adapted from Beck.[2] The system is: A bead is held parallel to the eye, with its hole in the horizontal position. The elevation thus obtained gives its primary shape. The cross-section through its center, cutting the hole at right angles, gives the secondary shape; for example, short-oblate circular, truncated bicone circular.

Late Kushan beads include: clay, covered with blue-green glaze, short-oblate circular, from a hearth, probably intrusive (1 cm. by 0.5 cm.); mother-of-pearl fragment, bead material; agate, long-barrel hexagonal (2 cm. by 1 cm.), and carnelian, long-barrel circular (0.9 cm. by 0.5 cm.), and long-barrel hexagonal (2 cm. by 1 cm.). Six long-barrel circular carnelian beads were found in Late Kushan levels; similar beads were found at Begram III.[3]

Many beads dating before the sixth century A.D. were found at Arikamedu[4] and Taxila.[5] Wheeler dates the abandonment of Arikamedu as pre-third century A.D. Marshall dates the destruction and abandonment of Sirsukh at about 460 A.D.[6] Almost none of the Kushan city of Sirkap has been excavated.

Wheeler discusses the sources of carnelian and other semi-precious stones on the Indian subcontinent.[7] The nearest widespread deposits to Shamshir Ghar are in Kashmir and the Kathiawar Peninsula.

Glass Fragments[8]

Fifteen broken fragments of green, transparent, mostly fire-burned, glass were found. Thirteen of these were in the 30- to 40-cm. level of Trench 1, Cut 1, and may have been intrusive.

Spindle Whorls (or Large Beads)

The conventional "spindle whorls" of many archeological reports may be large beads. I think this is true at Shamshir Ghar. Three such beads (or spindle whorls) were found: one of pottery, the others of limestone. They are described according to the system defined for beads. The pottery bead is a truncated bicone circular (2.1 cm. by 2 cm.); the limestone specimens are spherical and have undulating lines incised around their hole openings (2 cm. in diameter).

Pendants

Each of two black stone (basaltic?) pendants is a top-heavy lozenge form; one has two rows of concentric circles incised on each side (Fig. 57c).

Seals

The designs on a circular seal of gypsum (or steatite whitened by fire), finely executed in intaglio, are illustrated in Fig. 58a, b. The winged camel (Fig. 58b) is a common Parthian and Sassanian motif. Pope[9] illustrates a repoussé, encircled, winged camel on a silver ewer. Mythical winged creatures are very old in Middle Eastern art.[10] Camel motifs were also popular in Parthian Dura Europas. Day[11] suggests the camel-god Arsu as the ultimate origin of this motif.

Another common winged creature in Middle Eastern art is the griffin: for example, a Sassanian griffin surrounded by an aedicula or frame of segmented circles appears on a fragment of two-toned green Sassanian silk twill.[12] In later Sassanian times the aedicula becomes a simple circle: for example, the winged horses illustrated by Pope.[13] The circle of rounded segments is called *Perlenring* (ring of pearls) by German

[1] Wheeler *et al.*, 1946, 17–124.
[2] Beck, 1928.
[3] Ghirshman, 1946, Pl. 83, Fig. 1; 5–6, 20, 37–38.
[4] Wheeler *et al.*, 1946.
[5] Marshall, 1951.
[6] Marshall, 1951, 76.
[7] Wheeler *et al.*, 1946, 121–124.
[8] See Appendix 2.
[9] Pope, 1938–1939, Pl. 223A.
[10] Pope, 1938–1939, Pl. 29A.
[11] Day, MS.
[12] Pope, 1938–1939, Pl. 223A; Herzfeld, 1941, 229, Fig. 393.
[13] Pope, 1938–1939, Pl. 255, and the camel on Pl. 223A.

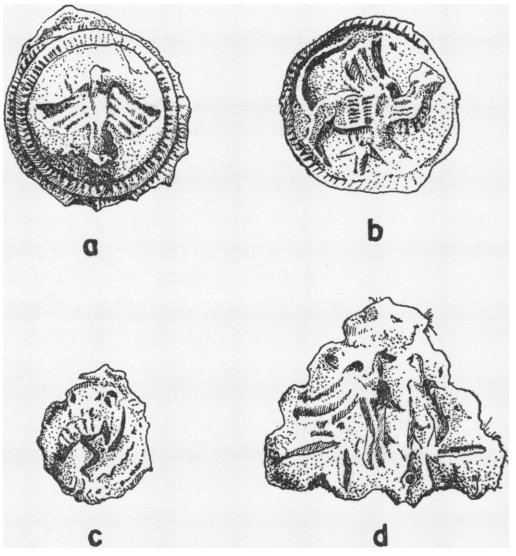


FIG. 58. Design on seals, Late Kushan. *Ca.* ⅔ natural size.

Orientalists. The winged horse is also a classic Sassanian motif.[1] Near Begram, Ghirshman found winged horses, *affrontés*, on a sherd circled by a *Perlenring*.[2] A wooden-stamped sherd with a *Perlenring* surrounding a prehensile member was uncovered in Begram II.[3] Similar decorations were found by Grigorieff[4] in Tali Barzou V, in Russia, which dates in the fifth to sixth centuries A.D. Stein[5] collected sherds with similar motifs in the Sarasrati River Valley.

On the opposite side of the winged camel is a bird with extended wings (Fig. 58a). The bird, like the camel, is encircled. A similar seal was found at Harappa, probably Gupta (fourth to sixth centuries A.D.) in date.[6] A peculiar bird and cross motif found at Kottayam on the Malabar Coast, India, is illustrated by V. Smith.[7] The simple Greek-cross motif was common in the Sassanian and Early Islamic Mesopotamian stamped pottery.[8] The bird and the cross are both early Christian motifs. It is known that St. Thomas preached and was martyred in south India in the early years of the Christian era, probably during the reign of Gondophares, the Indo-Parthian ruler of Kandahar, Kabul, and Taxila (*ca.* 20 to 48 A.D.).[9]

Sarre and Herzfeld have this to say about the mixture of Christian and Sassanian-Zoroastrian motifs in lower Mesopotamia:

> Wir müssen schliessen, dass es die Christliche, Aramäische, Bevölkerung des Landes war, von deren Hand das Töpferei-Handwerk betrieben wurde. Sie hatte keinen Grund, diese Motive zu vermeiden, und obendrein darf man wohl annehmen, dass sie ihren Sinn nur teilweise verstand. Wenn einmal noch reicheres Material als das von uns schnell zusammen getragene vorliegen wird, wird das vergleichende Studium dieser Symbolik manche Resultate ergeben.[10]

The motif on the other side of the cross seal (Fig. 58c) is a lizard, like that of the Sassanian seal illustrated by Pope.[11] Two snakes, one above, one below the lizard, are also on this seal.

The engraved figures on the triangular, blackish green steatite seal (Fig. 58d) appear to represent an attenuated man kneeling before an attenuated winged creature. Only one side is engraved; the edges of the seal are scalloped. A hole had been drilled through the apex of the triangle above the heads of the figures. Attenuated figures on Middle Eastern seals are common, even in prehistoric times.[12]

The attenuated winged figure may represent a phoenix, which the Nestorians used to symbolize Christ rising out of the tomb. If this be true, then the kneeling figure is obviously a suppliant, and the seal itself is an amulet. Incidentally, the phoenix in Chinese iconography is equated with the Empress.[13]

The second steatite "seal" is actually a circular seal blank with scalloped edges.

After the publication of my article in "Archaeology,"[14] I received a very interesting and thoughtful letter from Mr. Briggs Buchanan of Yale University. He questioned the dating of the seals as Kushano-Sassanian I (which I now call Late Kushan) and rightfully compared

[1] Herzfeld, 1941, 300, Fig. 394.
[2] Herzfeld, 1946, Pl. 50, G.P. 1.
[3] Ghirshman, 1946, Pl. 46, B.G. 537.
[4] Grigorieff, 1940.
[5] Stein, 1942.
[6] Vats, 1940, Pl. 91, 255.
[7] V. Smith, 1919, 127.
[8] For example, Hira, see Rice, 1934, 68, Fig. 22.
[9] See pages 273–275 for a discussion of the widespread melange of philosophical and theological thought during the Kushano-Sassanian periods.
[10] Sarre and Herzfeld, 1920, 226.
[11] Pope, 1938–1939, Pl. 255, HH.
[12] Pope, 1938–1939, Pl. 75, A.
[13] Hobson, 1924.
[14] Dupree, 1957.

them with the Jhukar seals from Chanhu Daro. I had already examined the MacKay,[1] Vats,[2] and Majumdar[3] reports which discuss the alleged Jhukar culture, but Mr. Buchanan's letter prompted me to reëxamine these sources and to consult several of my colleagues who are acquainted with the periods involved. Replies to my queries from J. C. Gardin, René Ghirshman, Frederick R. Matson, and Walter Fairservis, Jr., support my position, and, after reëxamining the pertinent reports, I find that the exact stratigraphic position of several of the "Jhukar" seals is in doubt.

MacKay[4] illustrates a "Jhukar," circular steatite seal from Chanhu Daro with a composite humped bull and rhinoceros motif, remarkably like the Shamshir Ghar winged camel (Fig. 58b). The exact level of the find is, however, less than certain.

Vats[5] illustrates a "Jhukar," steatite rhomboid seal from Harappa with a cross on one side and an "eagle" on the other. Two serpents surmount the eagle's outstretched wings. The eagle probably represents a variant of the Garuda (vehicle of Vishnu) motif. Garuda is sometimes depicted with a snake in his beak. The Harappa seal comes from a mixed level of Mound AB, 2 feet below the surface, in a predominantly Gupta level. Gupta bricks occur as deep as 9 feet below the surface of the mound. A unique steatite button with an incised cross on one side occurs in Stratum V (*ca.* 3500–3050 B.C.) in Mound F.[6]

Nine small steatite seals in the shape of hares, some running, some standing still, were found in Mound F, Harappa, at depths varying from 6 inches to 15 feet below the surface. All were similar in style, but their stratigraphic distribution encompasses about two thousand years. A tiny (0.6 inch in diameter), broken, bossed, hare impression was found at 9 feet 6 inches in Mound D, which had been largely disturbed by repeated floodings.[7]

A yellow faience seal from Mound F, Harappa,[8] shows a man kneeling before an acacia tree (?) and is somewhat similar to the Shamshir seal shown in Fig. 58d. The Harappa seal is from a level dated *circa* 3050 to 2750 B.C.

The above seal data are inconclusive, and I cannot, with the total available evidence, date the Late Kushan much earlier than I have. I suspect that the Jhukar, if it exists as a separate culture, is much later than has been previously thought.

The Jhukar ceramic types of Harappa, Chanhu Daro, and Jhukar are very different from those of the Late Kushan pottery of Shamshir Ghar. The archeological assemblages, viewed as a whole, have totally different cultural flavors. Actually the Kushano-Sassanian pottery of Shamshir Ghar bears a superficial similarity to the Indo-Sassanian pottery of Jhukar, and the winged-camel seal (Fig. 58a, b) resembles the Indo-Sassanian limestone plaques engraved with winged horses which are found at both Jhukar and Taxila.

My terms "Kushan," "Sassanian," "Islamic" refer to *total archeological complexes* and are not limited to art styles. They represent the sum total of the stratigraphic and cultural evidence. No doubt Jhukar elements are found in Kushan and in other South Asian and Middle Eastern art. After all, the fluid animal art styles of the Scythians lasted at least a thousand years after Scythian political power had been destroyed.[9]

One explanation for the "Jhukar" seals in the Kushan and Sassanian levels of Shamshir Ghar is given by Mr. Buchanan[10]:

> I have seen other examples of "Sassanian" seals that were similarly confusing. This arises because the later artists drew so heavily on the earlier; in fact the Sassanians were the first large scale fakers of the ancient seals of the Near East.

Stone Artifacts

A celt (Pl. 33a) 16 cm. long was found in a Cut 2 hearth at a depth of 52 cm. Both ends show evidences of repeated utilization. Another celt (Pl. 33c), 14 cm. long, was found in the Major Hearth Complex of Cut 5. One end is broken and worked, but the opposite end shows only pounding scars. A similar celt was found in a Cut 3, 40–50-cm. level hearth.

Large quartzite pebbles with utilization

[1] MacKay, 1943.
[2] Vats, 1940.
[3] Majumdar, 1934.
[4] MacKay, 1943, Pl. 50, Fig. 4a.
[5] Vats, 1940, Pl. 91:255.
[6] Vats, 1940, Pl. 132, Fig. 4c.
[7] Vats, 1940, Pl. 97:54.
[8] Vats, 1940, Pl, 93:313.
[9] Rice, 1957, 18.
[10] Buchanan, personal communication, 1957.

scars or signs of intentional working are illustrated on Pl. 33. Plate 33d illustrates a reddish pebble (15.7 cm. long, 11.4 cm. wide at the worked end, 4.4 cm. thick) either intentionally or accidently broken in half; its unworked end bears signs of intensive pounding. The pebbles shown in Pl. 33g (9.5 by 8.3 by 4.7 cm.) and Pl. 33h (11.2 by 11.6 by 4.4 cm.) show signs of possible utilization as choppers and pounders. A large (12 cm. long by 11.5 cm. at bottom by 7 cm. at the top), rounded, brownish, quartzite pebble, broken at the saddle, is probably an anvil (Pl. 33f). It has an irregular trapezoid cross-section.

A small, rounded, broken chisel (?), two pebble polishers or pestles, all flint, were found in the Late Kushan levels.

Four carbon-flaked pebble lamps were uncovered (Fig. 59a).

A broken, doughnut-shaped limestone "mace head" or digging stone weight was found (Fig. 59b). I am inclined to call it a mace head weapon in this case, for I suspect the inhabitants of Shamshir Ghar had little time or inclination for agricultural pursuits.

Rounded Pebbles

Unworked, river-worn pebbles are numerous throughout all stratigraphic levels at Shamshir Ghar (Pl. 34). In the Late Kushan levels alone, 161 were found. The following rocks have been identified: basalt, propylite, biotite granite, hornblende granite, muscovite granite, diorite, diabase, quartz porphyrite, quartzite, limestone, flint, chert, and serpentine. They are not all round, as can be seen on the illustration, but they are almost all river-worn and were collected by the occupants of the cave from the Arghandab flood plain and transported to the cave. A number of reasons for gathering these pebbles, and their possible use, may be suggested:

1. For stone boiling: A primitive (using the word loosely) practice, not likely to be found in Parthian Iran or Kushan Afghanistan.

2. As lucky pieces: These smooth pebbles were too numerous to have been considered talismans.

3. As blanks for manufacturing seals and pendants: Although seals and pendants of these rock types were found, the occupants of the cave probably had neither the equipment nor the inclination to make them.

4. As slingstones: A good possibility, especially for some of the more rounded pebbles. Before gunpowder was known, the sling was a potent weapon, and the same type of sling that David used to slay Goliath is still used by the shepherds of the Middle East.

5. As burnishers: As no pottery was made at the site, as far as can be determined, this is not a valid suggestion.

6. As artificial heating and cooking stones: Such a use is the most probable. Stones retain heat for long periods of time, and in winter heated stones can make a cave much more com-

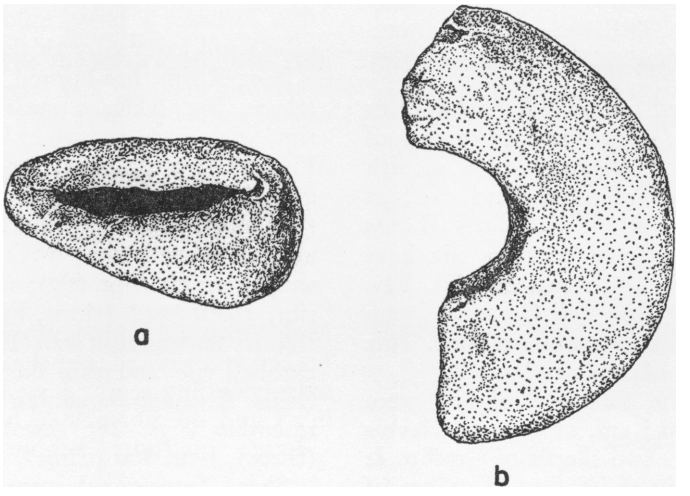


Fig. 59. Stone artifacts, Late Kushan. a. Pebble lamp. b. Fragment of doughnut-shaped mace head. *Ca.* ½ natural size.

fortable. Most of these pebbles were found in hearths and were fire-blackened. Many were fire-cracked or broken. It was practical to reheat pots of food on such stones. Even with good ventilation in a cave, a smoky, open fire is not comfortable for cooking or heating.

The very small, well-polished pebbles were probably brought to the cave for the same reason that we collect pebbles at beaches because they are pretty and feel nice, so we carry them home.

Hearths

Although this is called Major Hearth level, it contained fewer hearths than the name implies. Their importance stems from the pits dug into the hearths and from the broken pots and other garbage dumped into the pits, illustrating once again that archeology is "digging into the garbage heaps of antiquity."

Mollusks

One broken mollusk shell was found in the Major Hearth Complex of Cut 5. Dr. Joseph C. Bequaert, Museum of Comparative Zoölogy at Harvard College, identified the snail as *Melanoides tuberculata* (Müller), "one of the most common freshwater snails throughout Africa, the Near East, and India."[1]

[1] Personal communication, 1954.

KUSHANO-SASSANIAN: *CIRCA* 300 TO 700 A.D.

No radical changes in material culture occurred in this transition period, but outside the cave of Shamshir Ghar violent political upheavals did occur that still affect present-day Afghanistan. First the Epthalite Huns and then Islam marched through Afghanistan.

The Kushano-Sassanian cuts and levels are:

Cuts	Levels (in Cm.)
1	20–30
2	20–30
3	20–30
5	20–25

Except for a few Grit Ware and Red Ware, Cream Slip sherds, most of the 20–25-cm. level finds in Cut 5 were deposited in Kabul.

Pottery

As may be observed from Table 5, the wares have changed little in spite of the appearance of Glaze and decorated Bisque and Greenish Paste wares. The bulk of these sherds is from Cut 3, at the 20–30-cm. level. Many sherds from this level were collected near the base line, AB, a zone of undifferentiated fill. Few Glaze or decorated Bisque and Greenish Paste wares were found outside the mixed zone. This is substantiated by finds in Cuts 1 and 2.

Glaze Ware: The following sherds were found in the upper 0.5 cm. of stratified levels and probably *in situ:* two sherds of Graffito I; one of Graffito II; six of Graffito IV; three of Mottled and Plain Green; one of Blue and Blue-Green; two of Imitation Celadon; one of Nishapur 1 (Fig. 60a); two of Nishapur 3. The single rim sherd (Fig. 60b) is a Samarkand Kufic bowl rim.

Grit Ware: A general increase in Mica-Sand Temper sub-ware occurs in the Kushano-Sassanian levels. Other than that, the Grit Ware sherds are very similar to those of the underlying levels, but not so numerous. A new beige-like slip appears, Sweetmeat (11-D-5), used mainly on Fiber-Tempered mat-marked sub-ware.

Here, as above, the numbers in parentheses indicate the number of rims or bases found.

Kushano-Sassanian Sherd-Temper rim profiles include: a large, slightly flaring, heavily rolled and externally thickened rim (Fig. 60c); a flanged rim, fire-burned, from a cooking pot (three, Fig. 60d); a massive, bluntly beaked rim, with dark red (7-H-9) on the lip (four, Fig. 60e); a peculiar, large, square-sectioned grooved rim from a thin-walled cooking pot (Fig. 60f), probably a lid fitted in the groove; an out-turned rim, with a probably pear-shaped profile (Fig. 60g); a slightly everted thin rim, thick wall (three, Fig. 60h); a beaded, slightly flaring, thin wall (Fig. 60i); a thickened, clubbed rim and thin flaring wall (Fig. 60j). Other Kushano-Sassanian Sherd-Temper rims resemble Figs. 28c (two), 29a (three), 36d (three), j–m, 36o (three), 43i–j, 44s (three).

Sherd-Temper sub-ware sherds are illustrated in Pl. 16c–d.

Quartz-Sand Temper rim sherds, illustrated

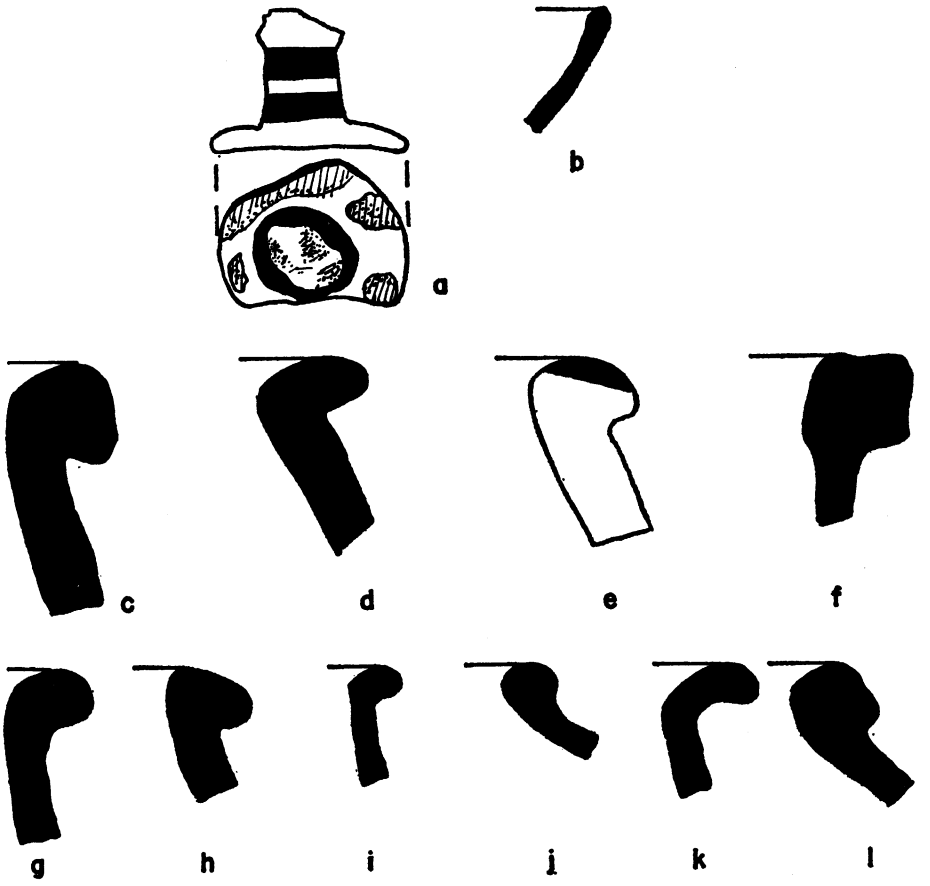


FIG. 60. Rim profiles, a–b. Glaze Ware, Kushano-Sassanian. c–j. Grit Ware, Sherd-Temper, Kushano-Sassanian. k. Grit Ware, Quartz-Sand Temper, Kushano-Sassanian. l. Grit Ware, Lime-Temper, Kushano-Sassanian. *Ca.* ⅔ natural size.

in Fig. 60k, are a flaring neck and flaring, almost everted, rim [cf. Fig. 36g (two), n].

Fiber-Temper rim sherds (Figs. 36f, 37k) are represented by flaring rims, probably from a small vessel, with a wall that seems to flare out to form a globular profile.

A few Lime Temper sub-ware rims were found: rolled, thickened rims with thin walls (Figs. 60 l, 37j–k). Another rim sherd, charcoal flaked, with small in-line horizontal punctations, was too badly burned for its profile to be determined.

Mica-Sand Temper rims seem to belong primarily to storage jars. In this category of rims are: a very thick flat rim, probably from a large, ovoid storage jar with a relatively small mouth (Fig. 61a); a narrow, high-necked, sharp-angled rim, slightly tilted to hold a lid, with a grooved shoulder (Fig. 61b); an externally thickened rim turned in to receive a lid (?), so curved as to suggest an almost spherical body (Fig. 61c). Other Mica-Sand Temper rims are like those illustrated in Figs. 36d (six), j–l, 37j, 38s.

Few bases were found. Sherd-Temper bases are like Fig. 61d, flat with flaring walls; others are like Fig. 25f and Fig. 38u. Four bases of Lime Temper were found: three are like Fig. 61d; one is like Fig. 61e, flat with almost perpendicular walls. A flat Mica-Sand Temper base is like Fig. 37a.

A clay pressed band or appliquéd strip, either plain or impressed with fingertips or a wood (?) stylus, appears near the shoulder of several sherds.

Fourteen of the total of 30 painted sherds have simple, horizontal, bright red (7-H-3 to 7-J-5) bands, about 0.8 cm. wide, painted around the bodies of the vessels. Four sherds,

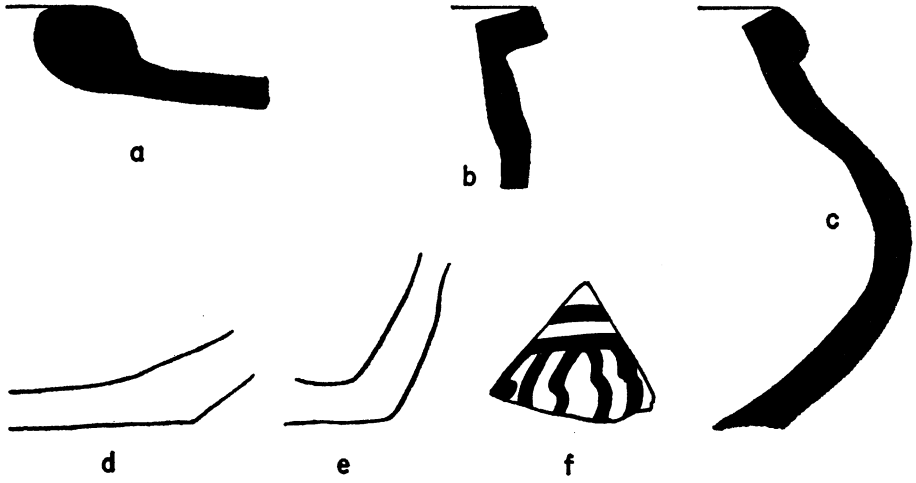


FIG. 61. Rim profiles and bases, Grit Ware, Mica-Sand Temper, Kushano-Sassanian. *Ca.* ⅔ natural size.

like Fig. 61f, have vertical lines. Five sherds have various cross-hatched designs. Sweeping lines and drapery (?) motifs are on four sherds. The only painted Mica-Sand sherd has a ladder motif like that on Fig. 41i. Three sherds have unidentifiable red smudges. All other painted sherds discussed are Sherd-Tempered. (See Table 8.)

A perforated Lime-Tempered sherd was also found.

RED WARE: The mixed zone near AB again complicates the picture, but not completely. As can be seen on the Artifact Table (Table 5), no Black Slip, Black Inside, Red Outside (Pl. 21c), or Black-Centered (Pl. 21e) sub-wares appear in any 20- to 30-cm. stratified cut but Cut 3. Therefore, we can safely assume that these three sub-wares had lost the popularity they held in Late Kushan times. Similar sub-wares, however, appear in the Early Islamic levels, though not in any great numbers.

The profiles indicate an overwhelming majority of small jar forms. Among these are: a popular small jar with a flaring outside thickened rim, long neck, relatively narrow mouth, a globular body, and a flat base (five, Fig. 62a); an upturned rim with no neck, probably a wide-mouthed storage jar (four, Fig. 62b); a slightly incurved thin rim, with a narrow neck and thin globular body (Fig. 62c); a slightly thicker and more ovoid thin-walled vessel than that shown in Fig. 62c, with a roughened (see arrows) shoulder (Fig. 62d); a small, rolled rim (Fig. 62e); a spherical cross-sectioned rim, with dark red paint on top, probably from a narrow-mouthed jar (Fig. 62f); an externally thickened rim, tilted inward to receive lid (?) (three, Fig. 62g); a shallow, round-based (?) bowl or cup, with a flat rectangular rim (three, Fig. 62h); a flaring, thickened jug rim with narrow mouth

TABLE 8

COLOR CHART FOR PAINTED GRIT WARE TYPES: KUSHANO-SASSANIAN[a]

Sherd Temper	Illustration
Bright Red (7-H-3 to 7-J-5) on Buff (11-K-7, 11-F-7) slip	Fig. 61f
Black on dark red (Liver Brown, 7-H-9)	Fig. 45g
Polychrome: Manganese Brown (15-A-12), Manganese Violet (42-J-8), and Ivory (10-B-2) on dark red (7-H-9)	Pl. 18e
Polychrome: Pomegranate Red (6-L-3) and Chalcedony Yellow (18-J-1) on Woodland Rose (4-A-10); a unique sherd	Pl. 18 l

[a] Color notations from Maerz and Paul, 1950.

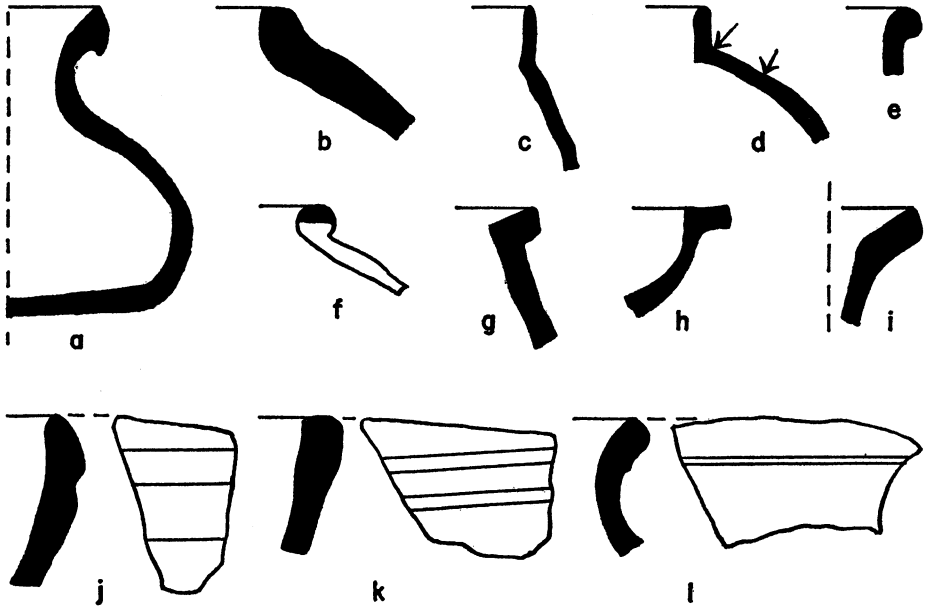


FIG. 62. Rim profiles, Red Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

(two, Fig. 62i); an incurved rim, with three external grooved lines (Fig. 62j); a slightly incurved, internally thickened rim, with four outside grooves (Fig. 62k); a sharply flaring, externally thickened rim, with two thin outside grooves (two, Fig. 62 l).

Five small jar fragments were found. In reconstruction these formed a small jar (Fig. 63a) with a flaring rim, an almost spherical body, and a flat base. Two sets of three parallel horizontal lines are painted on the outside: one set on the neck, the other just above the base (see also Pl. 23f).

Other rims found in this level are like Fig. 44a, d.

A series of base sherds were also found: a flat base with globular (?) wall in cross-section (five, Fig. 63b); a slightly concave base with flaring wall (Fig. 63c); a flat base with the beginning of a small globular or spherical jar (Fig. 63d); another base (three, Fig. 63e), thinner and more flaring than Fig. 63d; a thin, concave base, with spheroid or ovoid body profile (two, Fig. 63f). The largest base (three, Fig. 63g) has a slightly concave, flaring wall. Finally, an almost convex base, with its wall at right angles to the base, was probably an elliptical jug profile (Fig. 63h). Other base types were like those shown in Fig. 30i, n: four of each type.

Two bottle or jug necks were found (Pl. 20k, same as Fig. 63i).

Six Black Slip rim sherds appeared in the mixed zone near AB: one, a flaring, clubbed rim (Fig. 63j); another, a flat, externally thickened rim (Fig. 63k). Four of these rim sherds were thin and pointed and with an incurving body.

One Black-Centered concave base with wide flaring wall (Fig. 63 l) was found in the same vicinity.

Two almost completely reconstructed Red Ware vessels are on Pl. 35c–d. The smaller vessel is a bowl or cup with a flat rim and rounded base; the larger is a water jug or storage jar with a globular body profile, flat base, grooved at the neck and shoulder, rim demolished.

Two Red Ware pottery discs were also recovered: 2.8 by 2.3 by 0.5 cm.; 2.2 by 2.4 by 0.5 cm.

The painted motifs are almost identical to those of Late Kushan, but the variants are fewer. Straight-line motifs are dominant.

Single or multiple horizontal, parallel line decoration is illustrated in Fig. 64a–d (see also Pl. 23o). Examples of the use of single or multiple vertical straight or undulating line can be seen in Fig. 64e–f. For the most part cross-hatching resembles that in Fig. 64g. Chevron motifs were popular (Fig. 64h, same as Pl.

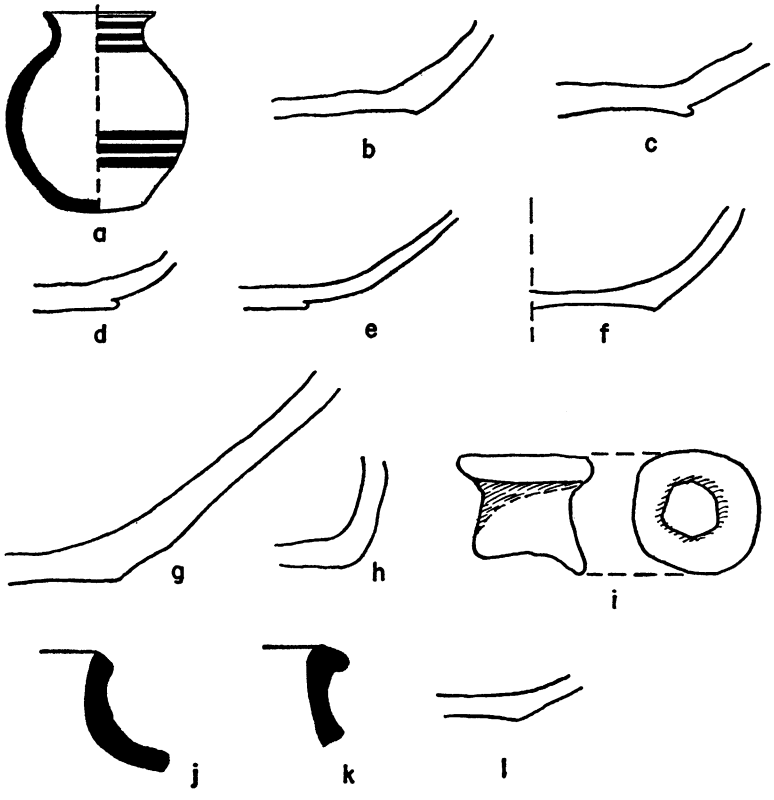


FIG. 63. Rim profiles and bases. a–i. Red Ware, Kushano-Sassanian. j–k. Red Ware, Black Slip, Kushano-Sassanian. l. Black-centered Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

23m; Fig. 64i, same as Pl. 23j). A few sherds were decorated with simple intersecting lines.

Incised and channeled single undulating lines on the shoulders of vessels are popular. Other sherds have grooves over and under stylus punctations (Pl. 22h). Channeled rocked bands between horizontal grooves are illustrated in Pl. 22e. Other sherds are imbricated.

The Distinctive Bowl sub-ware, probably used either as storage jars or bowls, is found mainly in the Kushano-Sassanian period. The full sweep of the wide mouth, turned-in rim, and tapering body are illustrated in Fig. 64j–k. A flat base from a smaller example of this type is shown in Fig. 64 l.

RED STREAK PATTERN-BURNISHED WARE: Red Streak Pattern-Burnished sherds are more numerous in Kushano-Sassanian levels than in the overlying Islamic levels. Stein illustrates a sherd, which he calls Muslim, from Pakistan Makran, with inside, horizontal, parallel, burnished lines.[1] Hobson, in an appendix to

[1] Stein, 1931, Pl. 2, P.K. 4.

TABLE 9

COLOR CHART FOR PAINTED RED WARE SHERDS: KUSHANO-SASSANIAN[a]

Sherd Temper	Illustration
Red (5-L-4, 6-H-3, 6-J-3) on Beige (11-E-6) slip	Fig. 64b–c, e–i
Black or Manganese Brown (15-A-12) on red (6-H-3)	Fig. 64a, d
Dark red on Black (7-C-6), Metallic Black (?), or badly fire-burned	Pl. 23a

[a] Color notations from Maerz and Paul, 1950.

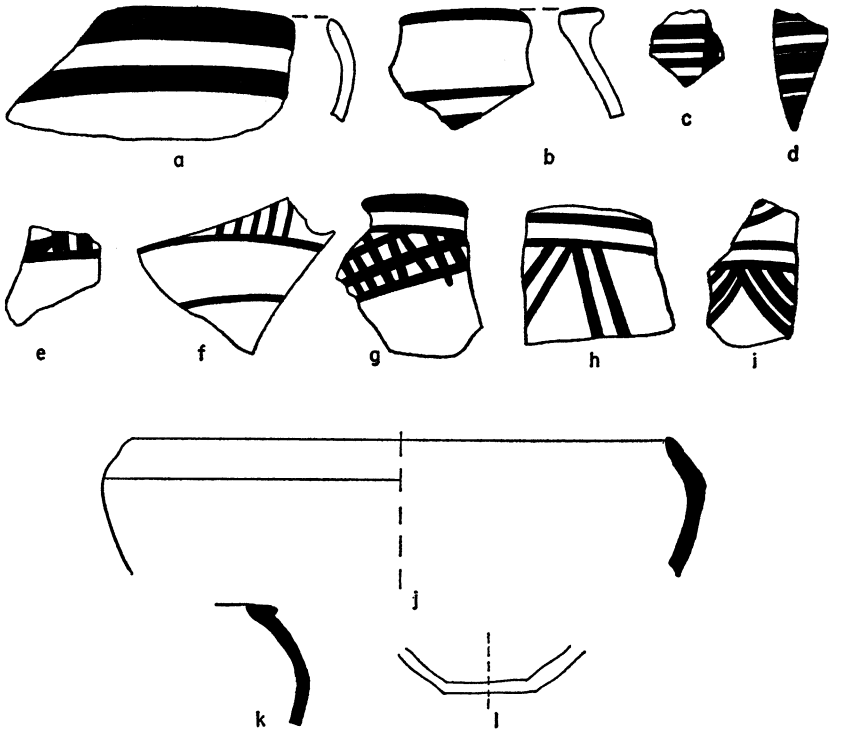


FIG. 64. Painted designs, Kushano-Sassanian. a–i. Red Ware. j–l. Distinctive bowl sub-ware. a–i. *Ca.* ⅔ natural size. j–l. *Ca.* ½ natural size.

Stein,[1] dates some "polished" sherds from Fanuch, southern Iran, as ninth or tenth century A.D. At Shah Tepe, Arne found several "stroke polished ceramics" in his Muslim level, dated by coins eighth century A.D.[2] The Kushano-Sassanian levels at Shamshir Ghar are all pre-eighth century A.D.

Ghirshman reports a few sherds of a highly fired, red-slipped Red Ware from Begram III, which he says resemble the Hellenistic red wares of Iran.[3] However, neither the Begram nor the Iranian wares are illustrated. Begram III is dated from the second century B.C. to mid-second century A.D.

Day considers the over-all burnished wares of Kish and Seleucia (Parthian levels) to be Iranian imports. Vertical pattern-burnished lines instead of over-all burnish are reported from the Sassanian site of Qasr-i-Abu Nasr near Shiraz. Day dates these finds as seventh century A.D.[4] Arne suggests, and I agree, that a wooden stylus was used to create the pattern-burnished effect.

About one-half of the Red Streak Pattern-Burnished sherds still have black pigmented lines (Fig. 65a; also Pl. 24k). Other sherds have simple burnished lines (Fig. 65b–c). The majority of the burnished decorations are on the outside of the sherds; the reverse was true in the Late Kushan levels.

All the profiles indicate a thin, well-modeled ware in the form of small bowls or cups. Among these are: a small dish or bowl, with internally beaked rim and body with almost carinated profile (five, Fig. 66a); a cup with externally beaked rim, groove underneath, rounded base (two, Fig. 66b); a small bowl, with internally grooved (for lid?) rim, a tapering wall, and two broad burnished lines on the outer surface (three, Fig. 66c); a beaded, grooved, external rim, with almost straight wall (five, Fig. 66d); a slightly flaring rim (Fig. 66e) and an inside flanged rim (for lid?) (Fig. 66f).

The bases are generally flat, as may be seen in the examples illustrated: a flat and tapering wall (Fig. 66g); a flat base, probable tapering

[1] Stein, 1937, 246.
[2] Arne, 1945, 337–338, Pls. 86, 87.
[3] Ghirshman, 1946, 431.
[4] Day, MS.

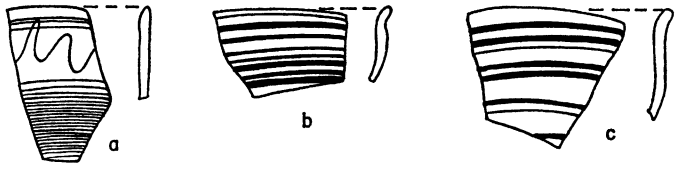


FIG. 65. Burnished designs and rim profiles, Red Streak Pattern-Burnished Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

profile and haphazard outside burnish (Fig. 66h); another flat base like Fig. 66h, but with pattern burnishing (Fig. 66i); and a tapering bowl profile with a flat base and with broad horizontal bands on the outside (Fig. 66j).

METALLIC BLACK WARE: Kushano-Sassanian is the climax period for both Metallic Black sub-wares. Ghirshman reports, but does not illustrate, a gray-black or black ware, from Begram I[1] and III,[2] and I do not know whether or not it is similar to the Shamshir Ghar ware.

Type I is illustrated on Pl. 24 l–p; Pl. 24p is a wall cross-section (also see Fig. 26). Type II is illustrated on Pl. 24q.

No rim sherds were found in this period, but one Type II sherd had a grooved shoulder. Several Type II base sherds were recovered: one, a concave base, with a probably spherical body (Fig. 67a); another, a slightly concave base and flaring wall (Fig. 67b). Other Type II base sherds were flat, with thin, tapering walls.

RED WARE, CREAM SLIP: This is the second most popular ware in all periods at Shamshir Ghar.

All the rim sherds can be classified as belonging with the No Inside Ridges sub-ware. Among these are: a clubbed, externally grooved rim, probably from a bowl (Fig. 67c); a tilted, externally thickened, beaded rim (two, Fig. 67d); a flat, internally thickened rim, from a probably globular or ovoid vessel (two, Fig. 67e). Other rim shapes are like those illustrated in Figs. 51m, o–q, s, u, and 52b–d.

Among the No Inside Ridges bases are: a flat base (Fig. 67f), with globular profile (?) which may go with the rim type shown in Fig.

[1] Ghirshman, 1946, 43.
[2] Ghirshman, 1946, 21.

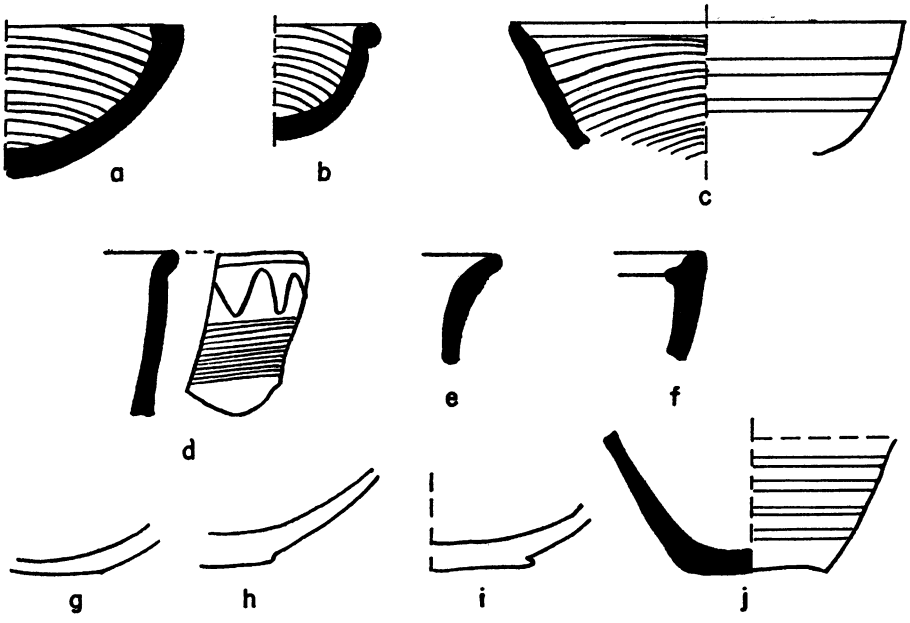


FIG. 66. Burnished designs, rim profiles, and bases, Red Streak Pattern-Burnished Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

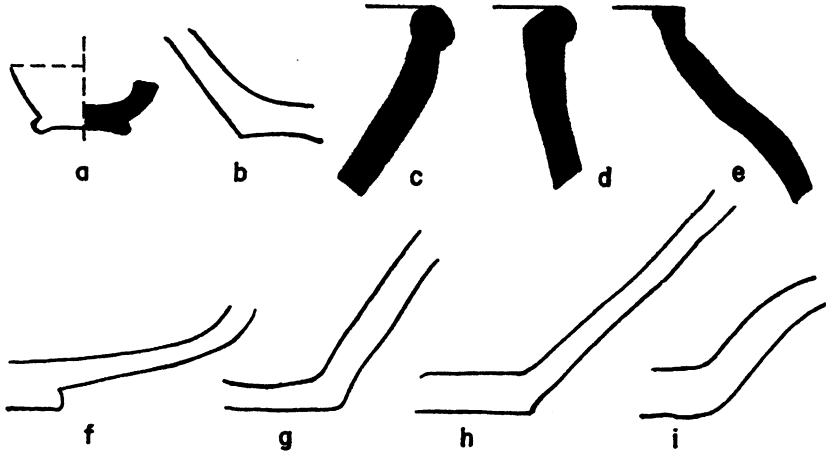


FIG. 67. Rim profiles and bases, Kushano-Sassanian. a–b. Metallic Black Ware. c–i. Red Ware, Cream Slip, No Inside Ridges sub-ware. *Ca.* ⅔ natural size.

51m; a flat base, with tapering body (three, Fig. 67g); a flat base (Fig. 67h), with the wall tapering more than in the preceding. One flat base has an almost perpendicular wall. Other base types with No Inside Ridges are like Figs. 32e and 52m–n, q.

Inside Ridges I sub-ware bases are like Figs. 52m and 52u. Another base in this category is flaring (two, Fig. 67i).

One Inside Ridges II base sherd was discovered (Fig. 52t).

Several painted and incised sherds were found in this cultural period. The most common types are illustrated (Pl. 26b, i).

BISQUE PASTE WARE: Decorated Bisque Ware sherds, a principally Early Islamic manifestation, are rarely found outside Cut 3. Such sherds as occur in the 20- to 30-cm. levels were usually in the mixed zone near AB. Among the decorated sherds found *in situ* are a channeled bottle neck (Pl. 27i) and a sherd with fine line incisions and punctations (Pl. 28b). Other decorated sherds resemble that on Pl. 29i, with intersecting straight-line comb-marks; a fine line quatrefoil (Pl. 28h); one with fine-line quatrefoil incisions, punctations, and bossed discs (Pl. 28d); and, finally, a sherd with a "river and bank" motif, an undulating line between straight lines (Pl. 28i). Wavy comb-marks were found on a few rim sherds (Fig. 69c). Other sherds had channeled lines and incised drapery volutes. A unique sherd had minute pebbles uniformly sprinkled on the inner wall.

Painted sherds are rare, and most of them came from the mixed zone near AB. Of these, one sherd (Fig. 68a) had a horizontally grooved neck with vertically channeled shoulder, with a light red (Toltec Pink, 11-B-7) dot on the shoulder. Several sherds had black horizontal lines painted on the inside (Fig. 68b); others had Pomegranate Red lines on either the outer or inner sherd surfaces.

The profiles suggest mainly bowl types. Among these are a flat, flanged rim for easy lifting, with exterior black lines painted on a Woodland Rose (4-A-10) slip, and an inside buffish (11-E-6) slip (Fig. 69a); an incurving rim with inside black painted design, on a pinkish (11-B-7) paste resulting from firing (Fig. 69b); a flanged rim with rim comb-marks (Fig. 69c); an in-turned rim from a small bowl or cup (Fig. 69d); a slightly flaring rim (Fig. 69e); a straight rim, with pressed bands above wavy comb-marks (Fig. 69f); a flaring, grooved rim (Fig. 69g, h); an externally thickened, flat rim, externally grooved (Fig. 69i); and a thick, voluted rim (Fig. 69j). Another rim is like that shown in Fig. 53k.

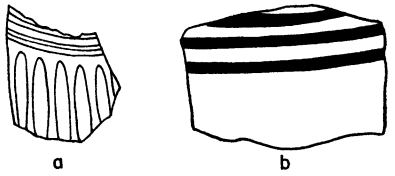


FIG. 68. Painted designs, Bisque Paste Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

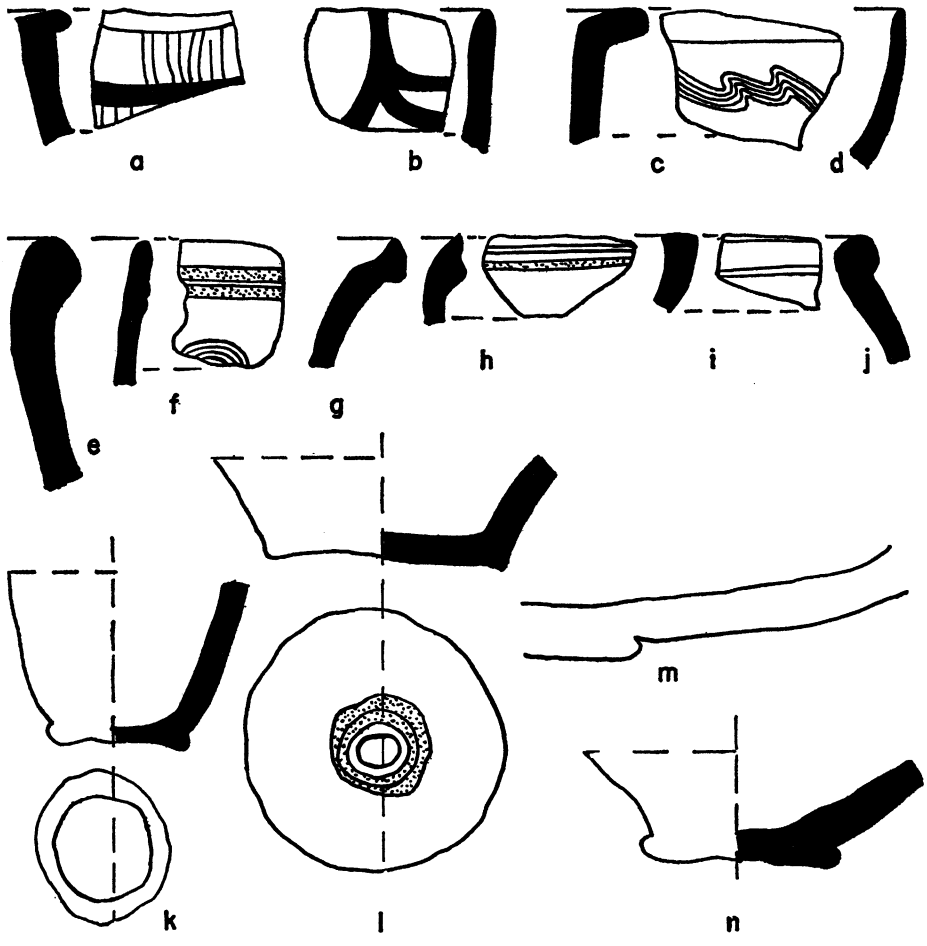


FIG. 69. Painted designs, rim profiles, and bases, Bisque Paste Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

Base sherds are generally flat or concave. One, a concave base (Fig. 69k) with ring foot and wide elliptical body, probably goes with the rim illustrated in Fig. 69k; a concave base with slightly flaring walls, and double circle seal impression on bottom (Fig. 69l; Pl. 27w). As mentioned above, enclosed circles were common Sassanian motifs. The largest base sherd (Fig. 69m) is flat, with a flaring wall. A base sherd in this series is like that in Fig. 55n.

The Bisque Ware base sherd (Pl. 34b) was one of the most spectacular *in situ* (Cut 2) pottery finds of the Kushano-Sassanian levels.[1] The design was discovered as the sherds were given their final bath at Peabody Museum at Harvard. The entire sherd, covered as it was with carbon, was very crumbly and had to be cleaned very carefully with a dental pick. It was then soaked in an alvar solution for permanent preservation. Its profile is shown in Fig. 69n. Its dimensions are: base diameter, 4.8 cm.; diameter of the seal impression, 3 cm.; diameter of the inner circle enclosing the hare, 1.2 cm.; depth of the impression, 0.3 cm. The concentric circles are similar to those of Fig. 69 l (see also Pl. 27w). The "ring of pearls" or jeweled border is *the* Sassanian motif found everywhere in Sassanian art.[2]

The central motif is a running hare, looking over its shoulder. The hare's body is dotted with punctations. An almost identical motif was found painted under glaze on a bowl at Sultanabad, Iran, but in this example the ears

[1] Not Late Kushan as on legend to Pl. 34b.

[2] Day, MS; Piggott, 1949, discusses the *Perlenring* on Sassanian painted pottery in northwest Pakistan.

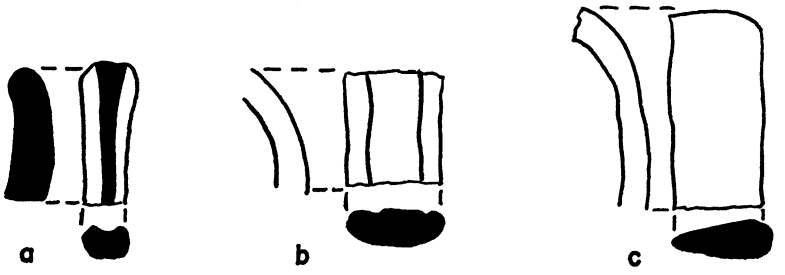


FIG. 70. Handle profiles, Bisque Paste Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

pointed up instead of downward.[1] The diameter of the Sultanabad bowl is about 11.5 cm. The design is more fluid and dynamic than that of the Shamshir Ghar find, as is true of Early Islamic pottery in general when compared with Sassanian pottery traditions. Lane gives "thirteenth century" as the stylistic date of the Sultanabad bowl, but I suspect an earlier, pre-eighth century, date.

The hare, or rabbit, has always been a popular Asiatic art motif. A few examples will suffice. Pope[2] illustrates a gold repoussé plaque, about 10.8 cm. high, showing Raptores striking a hare. Pope calls the hare a deer, but a close examination of the photograph seems to indicate that it is more correctly identified as a hare. The plaque is Achaemenian.

A Sassanian seal with an intaglio hare is illustrated by Pope.[3] Illustrations of a hare on a Sassanian bronze ornament are shown by Sarre,[4] and one on a Sassanid fresco at Dura Europas appears in Rostovtzeff.[5]

Hobson[6] shows a "tray in the form of a dove, of fine reddish pottery with opaque creamy white glaze painted in olive brown lustre. Inside the bowl is a hare, the spaces filled with a dotted pattern." The Brahminabad ware dates from the ninth to tenth centuries A.D.

A wall tile with a hare, again with dotted body, dated twelfth century A.D., in the Metropolitan Museum, is illustrated in Fitch.[7]

In modern American society the hare represents quickness in sexual intercourse and unbelievable fertility, but in China it was the symbol of long life and popular as a potter's mark,[8] and was a popular motif in Buddhist art.[9] Even in modern times, the hare is represented on many examples of Far Eastern art. Morse[10] illustrates a hare on a Japanese pottery vessel in the Boston Museum of Fine Arts, and a running hare adorns the cover of "Kôkogaku Zasshi."[11]

Another specimen was reported from the eighth to ninth centuries A.D. from the Islamic site of Hira, Iraq.[12]

It is possible to cite many other examples of the hare as a motif in Islamic, Kushano-Sassanian, and pre-Sassanian times. A sufficient number have been mentioned, however, to point out that stratigraphically and stylistically, the seal impression on the base of Pl. 34b fits nicely into the Kushano-Sassanian material culture pattern at Shamshir Ghar. The *Perlenring* also extends into Early Islamic stamped pottery at Samarra.[13]

The only other Bisque Ware base is like Fig. 69n, but lacks the seal impression.

Handles are one of the key features of the Early Islamic levels, but they are almost nonexistent in Kushano-Sassanian. Three handle profiles are illustrated: a grooved handle (Fig. 70a); one with two thin grooves (Fig. 70b), and an ungrooved handle (Fig. 70c). One handle fragment like the last-mentioned (Fig. 70c) was found attached to a shoulder sherd.

Two unique Bisque Ware sherds in the Kabul Museum have what appears to be badly weathered Kharosthi inscriptions. Other sherds with

[1] Lane, 1948, Pl. 96, A.
[2] Pope, 1938–1939, Pl. 116, D.
[3] Pope, 1938–1939, Pl. 256, NN.
[4] Sarre, 1923, Pl. 146.
[5] Rostovtzeff, 1931–1932, Fig. 4.
[6] Hobson, 1932, 14, Pl. 4, Fig. 14.
[7] Fitch, 1950, 97.
[8] Hobson, 1924, 163.
[9] Camman, 1953, 206.
[10] Morse, 1901, Pl. 21, 3453.
[11] Kôkogaku Zasshi (Journal of the Archaeological Society of Nippon), vol. 37, no. 2.
[12] Rice, 1934, 69, Fig. 22.
[13] Sarre, 1925, 11.

Kharosthi painted script are reported by Stein from Tor-dherai in Pakistani Baluchistan, found in association with Brahmi-inscribed painted pottery.[1] In an appendix to Stein's report, Dr. Sten Konow writes that finds such as these indicate that the Kushans probably controlled Baluchistan just prior to the rise of the Guptas (who wrote in Brahmi) in the fifth century A.D. On the basis of epigraphical comparisons, Dr. Konow dates the Tor-dherai collection as "roughly the middle of the third century A.D."[2]

STAMPED WARE: Only one Stamped Ware sherd occurred in the Kushano-Sassanian stratigraphic levels (Pl. 31g). It is decorated with the "teardrop" motif derived from Sassanian fluted metal ware. This motif was also popular on Early Islamic Stamped Ware.

METAL OBJECTS

IRON: All the iron specimens were heavily corroded.

Four hollow-sided projectile points (Pl. 32k–l), like those of Late Kushan, were found

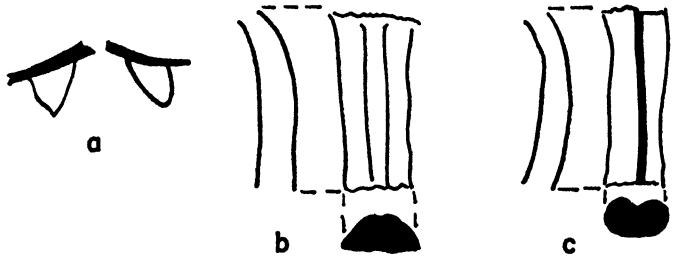


FIG. 71. Leg and grooved handles, Greenish Paste Ware, Kushano-Sassanian. *Ca.* ⅔ natural size.

Ghirshman reports sherds with ?Kharosthi inscriptions from Begram I,[3] Begram II,[4] and Begram III.[5]

Red Wash Outside sub-ware sherds are almost totally absent from the stratified, unmixed, 20- to 30-cm. levels. A few Red Wash Inside and Outside sub-ware rim sherds have channeled undulating lines on the inner wall (Pl. 30f–g). One base sherd of this sub-ware is similar to Fig. 55 l.

A unique Bisque Ware find, a perfectly round, well-fired pellet, with a diameter of 1 cm., could be either a sling pellet or a blank bead.

GREENISH PASTE WARE: Though rare, Greenish Paste sherds are interesting. Figure 71a illustrates a small pottery leg, possibly from a pot (see also Pl. 27t). Grooved handles are shown in Fig. 71b (same as Pl. 27o) and Fig. 71c (same as Pl. 27n). Another handle is like Fig. 70a. Two others are round (2 cm. in diameter) in cross-section. A jug spout fragment was also found.

[1] Stein, 1929, 68–69, Pls. 17–19.
[2] Stein, 1929, 93.
[3] Ghirshman, 1946, Pl. 29, B.G. 444.
[4] Ghirshman, 1946, Pl. 38, B.G. 169.
[5] Ghirshman, 1946, Pl. 46, B.G. 132, Pl. 52, 8.

in situ; all were broken. The body cross-sections resemble that shown in Fig. 56. The 0.25-cm. diameter tang was round in cross-section. One projectile (Pl. 32k) is 5.8 cm. long, including tang, and the blades are 0.6 cm. wide at the base of the body, tapering to a point. Another specimen is an untanged, hollow-sided, three-bladed, projectile piont.

Two flat iron lance (?) blades, with rectangular cross-sections, were found (Fig. 72a). A similar find, unstratified, was reported from Arikamedu.[6] A point from Taxila[7] also resembles the Shamshir Ghar finds. Another almost similar point was found in Begram III.[8]

Two forked projectile points found in the mixed zone of Cut 3 probably belong to the overlying Early Islamic level, because two such points were found *in situ* in the Early Islamic levels of Cuts 3 and 5. These points are discussed with the Early Islamic specimens.

Three other iron fragments were found in the Kushano-Sassanian levels: two (including Pl. 32g and Fig. 72d) are not identifiable, but could conceivably be bit or rein rings. The

[6] Wheeler *et al.*, 1946, 103–104, Fig. 43:1.
[7] Marshall, 1951, Pl. 165, no. 77, and Pl. 206:48.
[8] Ghirshman, 1946, Pl. 48, B.G. 559a.

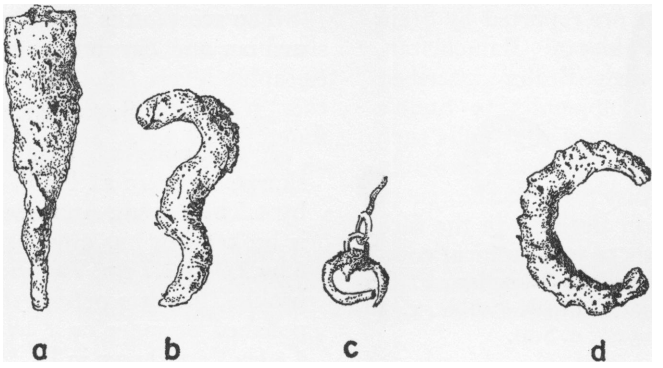


FIG. 72. Metal objects, Kushano-Sassanian. a. Triangular lance blade, iron. b. Buckle or handle, iron. c. Earring, bronze or copper. d. Bit or rein ring (?), iron. *Ca.* ½ natural size.

third fragment is probably part of either a buckle or a handle (Fig. 72b).

COPPER AND BRONZE: Illustrated copper and bronze objects include two earrings (Fig. 72c). Both are constructed of coiled copper wire, with a diameter of about 0.15 cm. Pieces resembling them were found at Taxila.[1]

A unique polished stone finger ring (?) set in copper or bronze was found. Similar finds were made at Taxila.[2]

A copper "pin" (6 cm. long) with a round head was found in the mixed zone of Cut 3. A broken bronze point was too badly corroded for identification. Two circular discs, probably bridle decorations, are now in the Kabul Museum.

BEADS

Several mother-of-pearl blanks were found. Among the beads found in the Kushano-Sassanian levels are: two truncated bicone-circular beads (2.5 by 1 cm.), green (20-C-9) glaze; a truncated bicone-circular bead, blue-green (25-J-2) glaze; two spherical beads (1 cm. in diameter), clay; a long-cylindrical, circular, green serpentine bead (3.5 by 1 cm.); and a long-cylindrical, circular bead (4.5 by 1 cm.), clay.

GLASS

The glass fragments recovered were all too small for reconstruction. The greater number of these were greens; some were blues, and still fewer reds. The glass in Late Kushan and Kushano-Sassanian bears no resemblance to the Syrian (?) glass vessels from Begram that date around the second century A.D. Possibly the famed Samarkand-Bokhara glass blowers were already operating; their best work dates from the eleventh to twelfth centuries A.D. A single green base (4 cm. in diameter), very concave, is probably part of a small bottle.

COINS

A copper coin was discovered in the mixed zone near AB in Cut 3. The coins from the excavations at Shamshir Ghar were deposited in the Museum in Kabul. They were all corroded, and chemical treatment will be necessary before identification can be made. Until such time as Prof. Ahmad Ali Kohzad, Director of the Kabul Museum, identifies and dates these important finds, they will remain a mystery.

SPINDLE WHORLS OR LARGE BEADS

Three pottery spindle whorls, or possibly large beads, were found in these cultural levels, with diameters of 1.5 cm., 1.7 cm., and 2.1 cm., respectively. A wooden, spherical spindle whorl (diameter, 1.5 cm.), with the design shown in Fig. 73 repeatedly engraved around the holes, was found. These are in the Kabul Museum.

PENDANTS

Pendants of stone, shell, and bone were found. Of the two stone pendants, one was a

FIG. 73. Design on wooden bead or spindle whorl, Kushano-Sassanian.

[1] Marshall, 1951, Pl. 191:b, c.
[2] Marshall, 1951, Pl. 197, nos. 5, 6, 9.

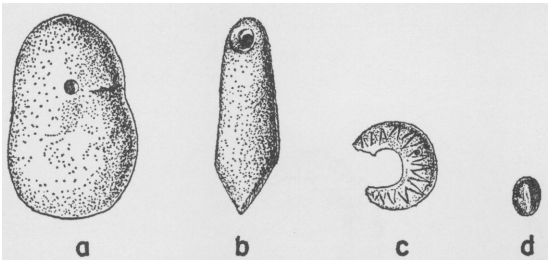


FIG. 74. Pendants, Kushano-Sassanian. a. Perforated stone. b. Perforated basalt pebble. c. Incised shell circle, fragmentary. d. Seal.

pinkish, rounded pebble with a hole drilled through the upper one-third (Fig. 74a); the second was a polished, elongated, basaltic pebble, artificially pointed at one end and the opposite end perforated (Fig. 74b). The hole in an incised, broken shell pendant (Fig. 74c), is drilled halfway through from each side.

A single, elongated, polished bone pendant (5 cm. long; diameter 0.5 cm.) is now in the Kabul Museum.

SEALS

A partially polished agate blank was found. A complete agate seal, semicircular in cross-section, with an intaglio design of a scorpion on the curved surface, was also found. Utilization of the curved surface for the carving of the design, with the flat surface left blank, was a common Sassanian technique.[1] Barger and Wright[2] illustrate casts of similarly carved seals collected on the surface in Afghan Turkestan. They call them "Greek and Sassanian."

The scorpion is often represented on Achaemenian and Sassanian seals (Fig. 74d).[3]

STONE ARTIFACTS

A well-polished, basaltic pebble, possibly a sharpener or an ax blank (Pl. 33i), measures 8 by 4.5 by 2.1 cm. Another pebble, also basaltic, is broken but has obviously been utilized. It is 5 by 2.7 by 1.7 cm. Two views of a well-polished, broken, basaltic pebble that may have been a polished pounder or a celt blank (8 by 5.7 by 4.8 cm.) are shown in Pl. 35a–b. This *in situ* find was carbon covered.

ROUNDED PEBBLES

The ubiquitous rounded river pebbles were numerous in the various 20- to 30-cm. levels; 101 pebbles of varied sizes, usually rounded, some squarish or rectangular, were collected. They ranged in size from 13.7 by 6.5 by 3.5 cm. to 1.6 by 1.1 by 1 cm. The average was approximately 5 by 4 by 3 cm.

HEARTHS

Many small hearths were uncovered in Cut 1. Their average diameter is from 60 to 70 cm. and the thickness about 3 cm. Usually they were situated against the wall of the cave. Many small hearths were uncovered in Cuts 2 and 3. These were smaller than those found in Cut. 1. In Cut 5, the Major Hearths began at a depth of about 25 cm. Pits dug into the hearths were in some places almost a meter deep.

EARLY ISLAMIC AFGHANISTAN CULTURAL LEVELS: 700 TO 1222 A.D.

An influx of new pottery wares marks the advent of the Islamic Period in Afghanistan; Glaze Ware, Stamped Ware, and ornately decorated Bisque and Greenish Paste Wares are the most important innovations. Grit Ware, Red Ware, and Red Streak Pattern-Burnished Ware continue, but Metallic Black Ware is absent.

New iron objects (scissors, projectile points triangular in cross-section, knife blades, nails) are introduced at Shamshir Ghar, although they are probably earlier in Afghanistan as a whole.

Glass beads and fragments of glass bangles appear, as do lapis lazuli and ruby beads.

This period of Muslim establishment in Afghanistan is represented by numerous surprises, but also by many old, easily recognizable types.

The stratified Early Islamic levels are:

CUTS	LEVELS (IN CM.)
1	0–20
2	0–10, 10–20
3	0–20
4	0–20
5	0–10, 10–20

[1] Day, personal communication, 1953.

[2] Barger and Wright, 1941, Fig. 2.

[3] Pope, 1938–1939, Pl. 255, FF, Pl. 256, S, W; Sarre and Herzfeld, 1911–1920, 225, bis 116

It should be noted that two of the cuts were excavated in 10-cm. increments, but no appreciable differences could be ascertained in the first 20 cm. As the 0- to 20-cm. level of the Second Chamber, Cut 4, uniformly yielded Early Islamic specimens, this cut is included in the analysis here for the first time.

Pottery

In sheer numbers, the Bisque and Greenish Wares are dominant in all the cuts. Glazed sherds are, however, numerous, and in Cuts 3 and 5 they outnumber both the Grit Ware and Red Ware, Cream Slip.

Glaze Ware: The profiles and designs of this ware are discussed in detail above (pp. 189–198).

All the sherds illustrated on Pls. 12–15 are Early Islamic except a few found in the upper 10 centimeters of the Kushano-Sassanian levels (Pls. 13k–l, 14d, j–k, r, u, 15a).

Grit Ware: A relative decrease in the importance of Grit Ware is obvious in the Early Islamic levels.

Sherd-Temper rim profiles are generally externally thickened and turned-out or flaring. (Again the number in parentheses indicates the number of rim sherds found of the type described.) The variants are shown in Fig. 75a–u: a knobbed, internally thickened rim and high flaring (?) neck (Fig. 75a); a thickened rim, square in cross-section with a spheroid body shape (six, Fig. 75b); an externally thickened, slightly out-turned rim, thin, with a tapering wall (Fig. 75c); a flaring rim, with Pomegranate Red paint on the inside lip (two, Fig. 75d); a large sherd from a large, wide-mouthed storage jar (?), externally thickened (Fig. 75e); a thin, turned-out rim (Fig. 75f); an externally beaked rim (four, Fig. 75g); a rolled rim (Fig. 75h); a straight, slightly thickened rim (Fig. 75i); a slightly in-turned rim with Pomegranate Red paint on the rim (Fig. 75j); an externally thickened flat rim, with Pomegranate Red on the external lip (Fig. 75k); a knobbed, slightly grooved rim (Fig. 75 l); a slightly rolled rim and flaring neck (Fig. 75m); a clubbed rim, from a large storage jar (?) (Fig. 75n). Other rims are like those illustrated in Figs. 28c, 36e, h–j, 38s–t, 60g–h, j–k.

Few Sherd-Temper bases were found in the Early Islamic levels, but Fig. 75o and Pl. 16h illustrate a rim sherd with an empty handle socket; the rim is knobbed and the wall is thick.

A unique Sherd-Tempered lid is shown in Pl. 19b (cf. Fig. 75u); a Sherd-Tempered pointed base (amphora?) may be seen in 19c; Pl. 19f illustrates a Sherd-Tempered spout.

Two variant Fiber-Tempered rim profiles are illustrated: an internally thickened, clubbed rim, with straight wall (Fig. 75p), and a thin, turned-out rim from a tapering bowl (?) wall (Fig. 75q). Other Fiber-Tempered rim profiles resemble Figs. 36f–g, 38a, and 75a.

Numerous Fiber-Tempered bases were found. These were usually mat-marked. One is thick, flat based, with a thick flaring wall (two, Fig. 75t). Other bases are like those in Figs. 28f, 38u, and 61d–e.

Among the Mica-Sand Tempered rim sherds are: a slightly flaring, thickened rim (Fig. 75r) and a carinated dish, with slightly concave base and slightly flaring wall and rim (Fig. 75s). Another rim is like that illustrated in Fig. 29b. The one Mica-Sand base fragment is like Fig. 61d.

Painted sherds from this culture level display the same general designs as those from the underlying levels, but with a narrower range of variation in colors and motifs.

The most common designs fall into the following categories: straight, single, or multiple horizontal lines, including broad bands up to 4.5 cm. wide (Fig. 76a–c); straight, single, or multiple vertical lines (Fig. 76d–e); diagonal, parallel, straight or slightly curving lines (Fig. 76f); and simple volutes or "drapery" motifs (Fig. 76g–j). Two unique designs are illustrated: a polychrome chevron design (Fig. 76k), and a design consisting of short lines leading vertically from a single horizontal line on the rim. Hand-made Grit Ware sherds show signs of hasty or careless painting (Fig. 76 l, m). A sherd of this type, found in the Front Porch mixed zone, is shown in Fig. 76m.

In Cut 4 a few sherds, probably all from the same vessel, of a unique, polychrome, Mica-Sand Tempered sub-ware were found. The pot could not be reconstructed, because the broken edges were too badly weathered. Black designs had been painted on part Woodland Rose (4-A-10), part brownish (8-C-9) slips (Fig. 76n–u; also see Pl. 18i). The vessel appears to have been slipped half with one color and half with another. The darker slip is the brownish London Smoke (8-C-9).

Other design motifs illustrated for this cultural period consist of alternating wavy and

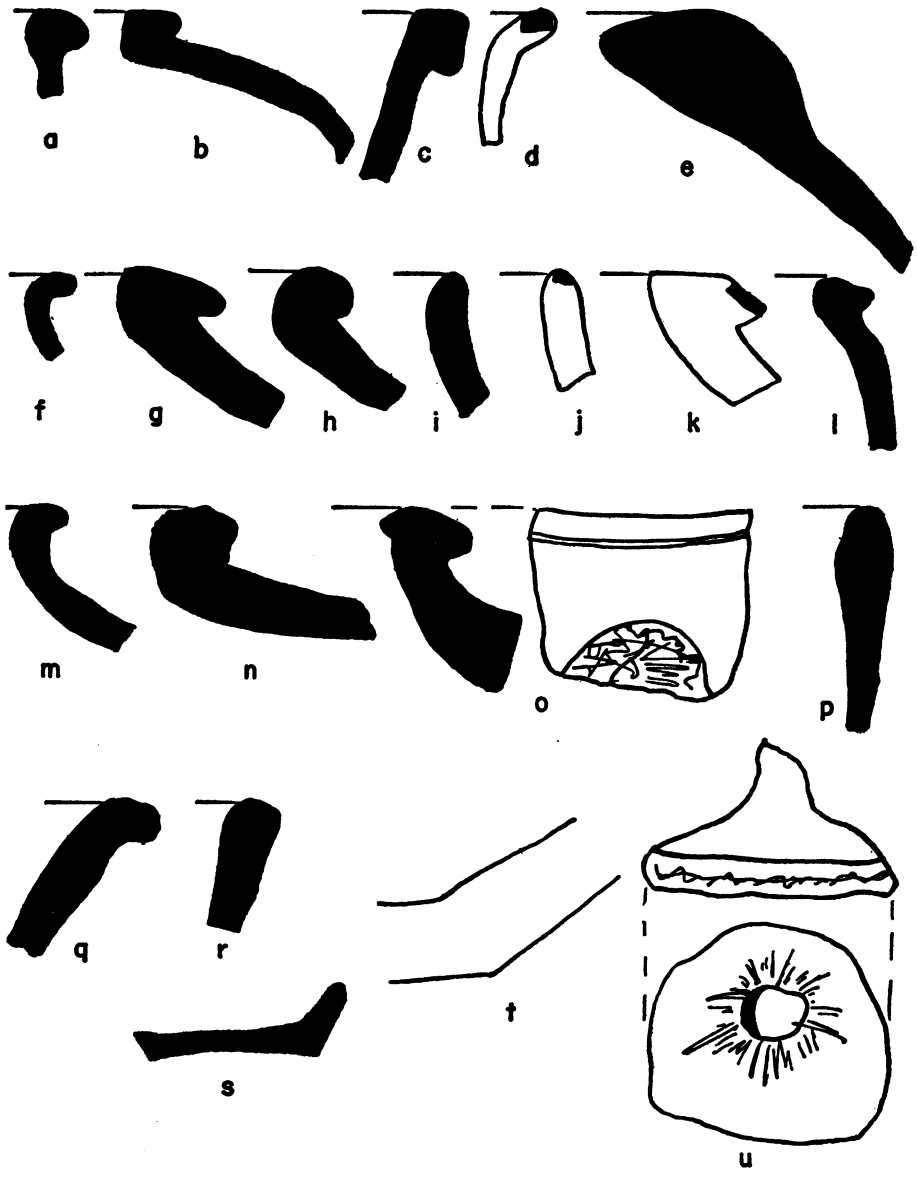


FIG. 75. Rim profiles, bases, and lid, Grit Ware, Early Islamic. a–o, u. Grit Ware, Sherd Temper. p–q, t. Grit Ware, Fiber Temper. r–s. Grit Ware, Mica-Sand Temper. *Ca.* ⅛ natural size.

straight lines and cross-hatchings (see Pl. 18n). One sherd has repeated triangles; several have red smudges. The familiar pressed (appliquéd) band, either plain or finger- (Pl. 16i) or stylus-marked (Pl. 17 l) still occurs. A Cream (9-D-2) slipped sherd (Pl. 18t) has an undulating incised line between lightly channeled lines.

A badly fire-burned sherd (Pl. 18b) has a "rope coil" design. Many other Grit Ware sherds, especially those larger bowl sherds with the thickest walls, are fire-burned. In all probability, most of the Grit Ware vessels were used for either cooking or storage.

One large fire-burned disc was found (Pl. 17d): 6 by 5 by 1.4 cm.

RED WARE: A relative increase in Red Ware occurs. Again, many of the larger sherds are fire-burned. Probably the Red Ware vessels

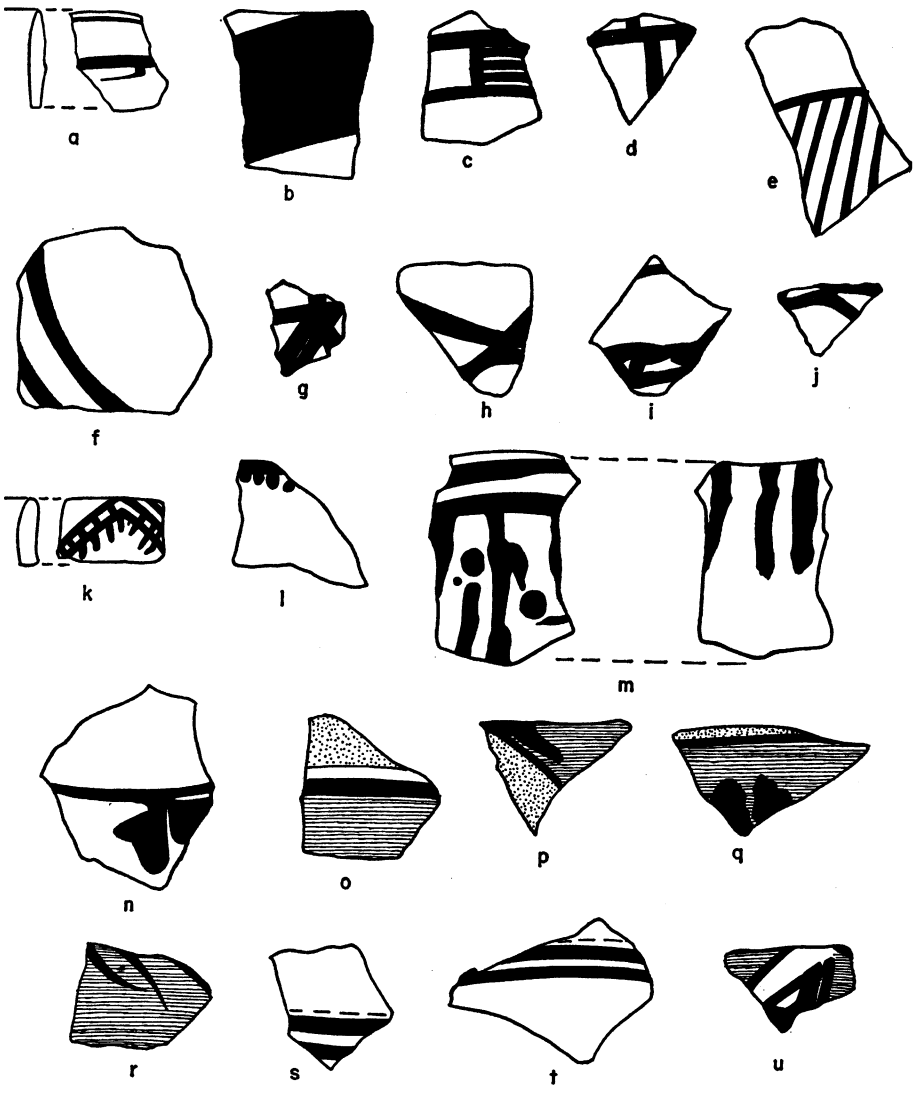


FIG. 76. Painted designs on Grit Ware, Early Islamic. *Ca.* $\frac{2}{3}$ natural size.

were used as frequently for cooking as were those of the Grit Ware.

The variation in Red Ware rim profiles is illustrated by the following: a flat, externally thickened rim (two, Fig. 77a); a rolled, almost everted rim of a small cup or bowl (Fig. 77b); a rim similar to Fig. 78b, but not so angular in profile (Fig. 77c); a rolled rim with a thin pressed band on the outer surface (Fig. 77d); a flaring, externally thickened rim and neck, with an exterior groove on neck (10, Fig. 77e); a flat, externally thickened rim, thin, and ovoid in cross-section (two, Fig. 77f); an externally grooved (for lid?) rim and carinated (?) body profile (four, Fig. 77g); a heavy, thick, grooved rim, probably ovoid in cross-section (three, Fig. 77h). Other rim profiles resemble Figs. 30e, h, 44a, d, 62b, f–g.

Red Ware bases are flat or concave, or slightly so. Foot-ring bases also occur: a flat base, thin, with thicker tapering wall (two, Fig. 77i); a flat base with slightly flaring wall, probably goes with rim type shown in Fig. 77b or c (Fig. 77j); a slightly concave base and slightly flaring wall (four, Fig. 77k); a flat base, ovoid cross-section (three Fig. 77 l); a thin, flat base with thick flaring wall (Fig. 77m); a foot-ring base and spheroid body profile (two, Fig. 77n); a

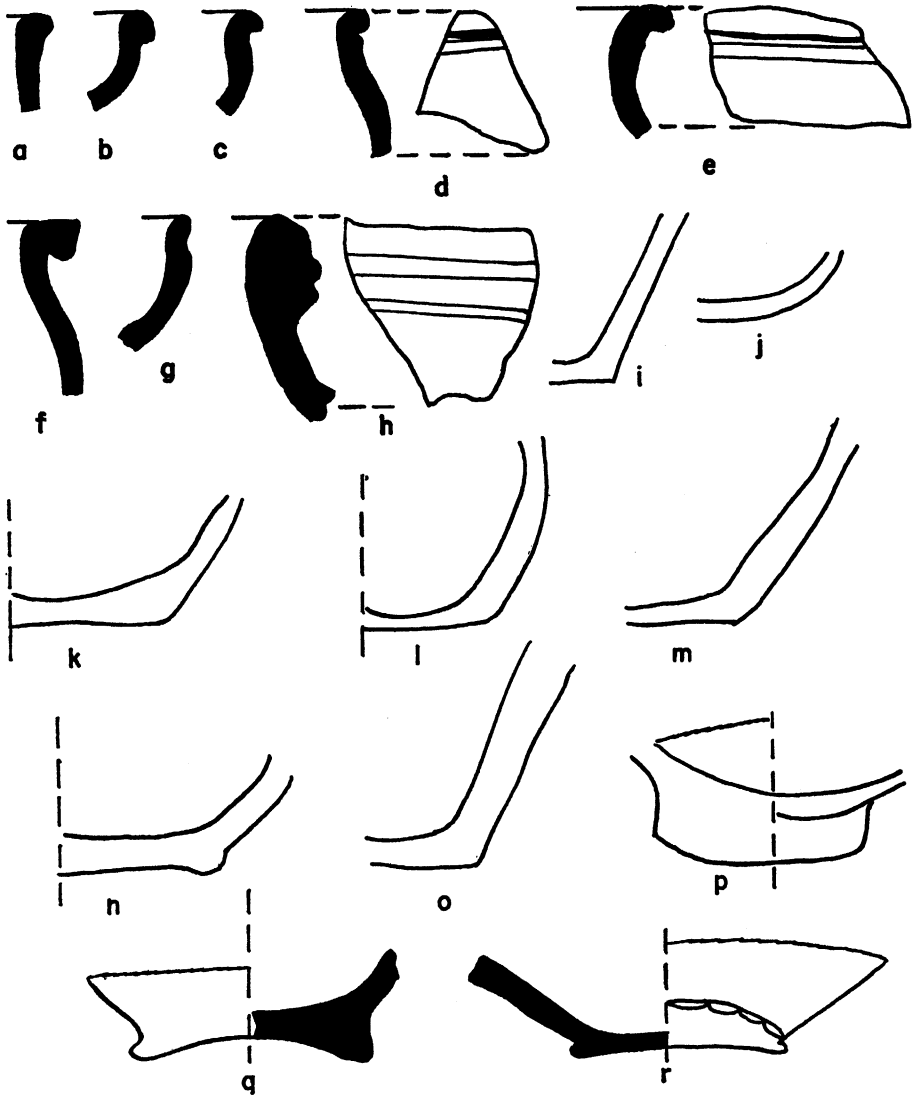


FIG. 77. Rim profiles and bases, Red Ware, Early Islamic. *Ca.* ⅛ natural size.

thin, flat base and sharp-angled wall (Fig. 77o); a convex, slightly rounded base with deep foot ring (Fig. 77p); concave base (Fig. 77q); a slightly concave base, tapering thick wall, and inside black "drapery" painted design (Fig. 77r). Another Red Ware base type is like that in Fig. 63d.

A selection of Black Slip sub-ware rims (Pl. 21a, b, d) produces the following variants: a thickened rim, tapering wall (Fig. 78a); a rim similar to Fig. 77c, but less tapered (Fig. 78b); a flaring rim, narrow neck, and probable globular body (Fig. 78c); a straighter rim and neck than Fig. 78c, but more spheroid in profile (Fig. 78d); a flaring rim and globular body (Fig. 78e); a straight rim, curving shoulder, and ovoid (?) shape (two, Fig. 78f); a thin, clubbed rim (two, Fig. 78g); a straight rim with sharply incurving profile (Fig. 78h).

The commonest Black-Centered sub-ware sherd is from a shallow dish with concave base and flaring rim (Fig. 78i), the diagonal line is Pomegranate Red (6-L-3).

The most frequent motifs occurring on painted sherds are illustrated in Fig. 79a–o: straight, single or multiple horizontal lines (Fig. 79a–b); alternating horizontal undulating and straight lines (Fig. 79c–e); vertical straight

TABLE 10

COLOR CHART FOR PAINTED GRIT WARE SHERDS: EARLY ISLAMIC[a]

	Text Figure
Sherd-Temper	
Light red (4-B-10) on dark red (11-B-7) slip	76d
Dark red (11-B-7) on light red (4-B-10) slip	76e
Red (5-D-4) on reddish buff (11-F-7) slip	76f
Red (5-D-4) on brownish buff (8-C-9) slip	76c
Black on reddish (11-B-7, Toltec Pink) slip	76a, j
Black on buffish (11-F-7) slip	76 l
Polychrome: Dark red (7-C-6) and Black or buffish (11-F-7) slip	76k
Mica-Sand Temper	
Dark red (7-H-3, 7-J-5, 7-H-9) or brown (8-C-9) on reddish buff (11-B-7) slip	76h
Dark red (7-H-3, 7-J-5, 7-H-9) on Beige (11-E-6) slip	76g
Black on reddish (11-B-7) slip	76b
Black on buffish (11-F-7)	76i
Polychrome: Black with two slips: Woodland Rose (4-A-10) and brownish (8-C-9)	76n–t
Polychrome: Cream (9-D02) and Liver Brown (7-H-9) on light red-buff (11-B-7) slip	76u
Hand-Made	
Light red (Woodland Rose) on a lighter red-buff (11-K-7)	76m

[a] Color notations from Maerz and Paul, 1950.

or wavy lines drawn from a horizontal line (Fig. 79f–i, Pl. 23b, h), and diagonal lines, straight or wavy (Fig. 79j–k). Cross-hatched designs are relatively numerous (Fig. 79 l–m). A ladder motif (Fig. 79n) and repeated drapery motifs (Fig. 79o) were also recorded, as were several sherds with horizontal undulating and straight lines.

The design motifs already described, as well as a few new ones not previously noted, were observed on incised, channeled, and appliquéd Red Ware. The most frequently occurring type of incising (Fig. 80a, Pl. 22b) was from a small jar form with a beaded rim, long straight neck, wide mouth, globular body profile, and rounded base, which was first slipped in Woodland Rose and then comb-marked on the neck and shoulder with intersecting straight and undulating lines. Twenty-three sherds of this type were found. A sherd with an appliquéd "rope" motif (Pl. 22d) and several very thick sherds with deep, parallel, channeled lines were also found.

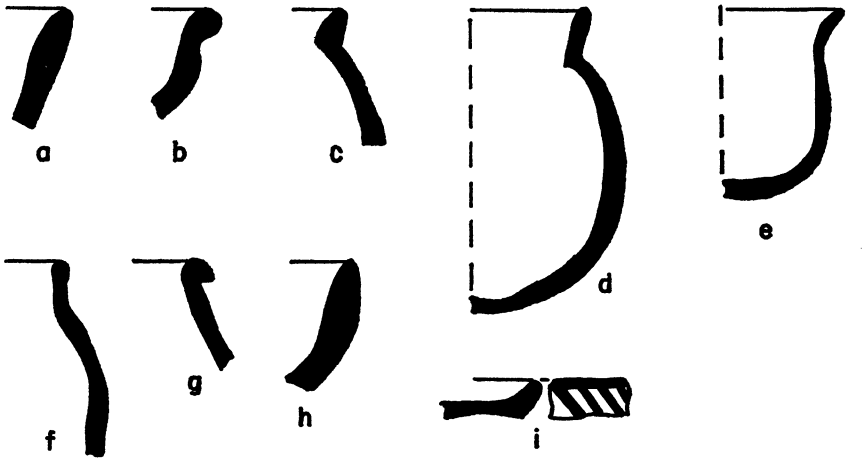


FIG. 78. Rim profiles and bases, Red Ware, Early Islamic. a–h. Red Ware, Black Slip sub-ware. i. Red Ware, Black Center sub-ware. *Ca.* ⅓ natural size.

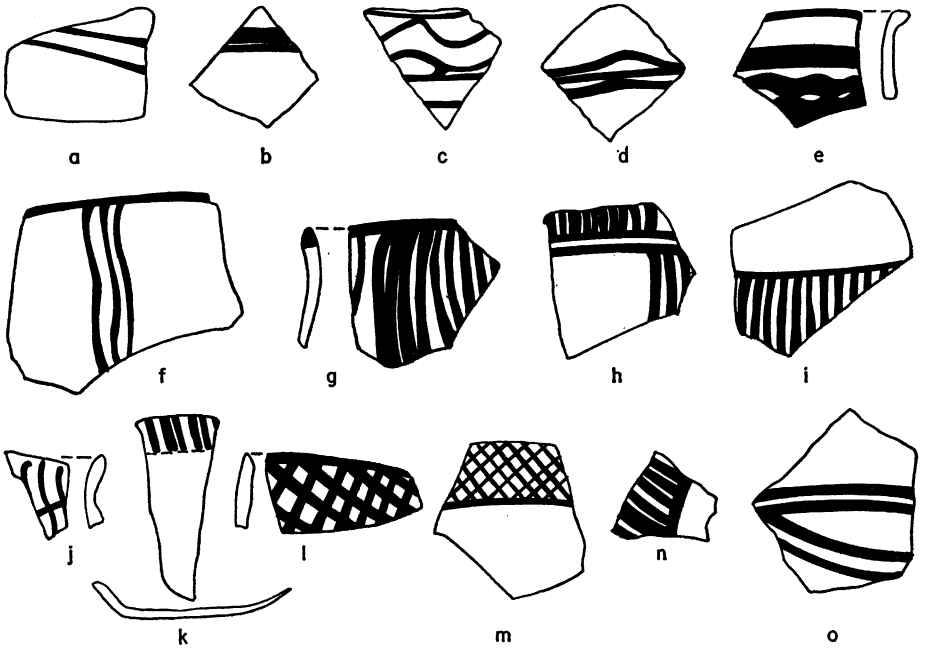


FIG. 79. Painted designs on Red Ware, Early Islamic. *Ca.* ⅔ natural size.

Additional decorated sherds were decorated with appliquéd bands and gadroon-like incisions on the shoulder, pressed bands with stylus marks over undulating comb-marks, and a series of grooves between undulating comb-marks, and a single undulating line between grooves—the "river and bank" motif.

Two purposely rounded, perforated Black Slip sub-ware sherds, one broken, were found (Pl. 21b). Wheeler[1] illustrates such sherds found at Arikamedu and calls them gaming pieces.

A fluted sherd (Pl. 20j) is probably derived from the Sassanian metal dishes and bowls discussed above (p. 225). Many such Sassanian metal forms were adopted by Early Islamic potters.

RED STREAK PATTERN-BURNISHED WARE: The bulk of the Red Streak Pattern-Burnished Ware occurred in the Kushano-Sassanian levels. Black pigment is applied to the burnished portions in less than one-third of the Early Islamic finds. A new pigment, Pomegranate Red, is burnished on the exterior of several sherds (Pl. 24d). Most of the sherds, however, were simply burnished with a stylus. Two bases are rather haphazardly burnished on their outer surfaces (Fig. 81a–b and Pl. 24b). Both are flat, with spheroid or globular body shapes.

Horizontal straight and undulating lines dominate the decorative schemes. This is essentially the same ware that is discussed above. Interior burnishing maintains its popularity in this period.

Rim and base sherds of this ware may be described as follows: a flat, shallow base sherd from a dish (Fig. 81c); a relatively thick wall, with a grooved (for lid?) rim (Fig. 81d); a slightly turned-in rim (Fig. 81e); a turned-in

TABLE 11

COLOR CHART FOR PAINTED RED WARE SHERDS: EARLY ISLAMIC[a]

	Text Figure
Red (5-L-4, 6-H-3) on Beige (11-E-6) slip	79g, j, l
Black or Manganese Brown (15-A-12) on Red (6-H-3)	79b, h–i
Black or Manganese Brown on Beige	79e, o
Dark red (7-C-6) on black (Metallic Black? or fire-burned)	79m
Red (5-L-4) on red (4-A-10)	79a, c–d, f, k, n

[1] Wheeler *et al.*, 1946, Pl. 35:B.

[a] Color notations from Maerz and Paul, 1950.

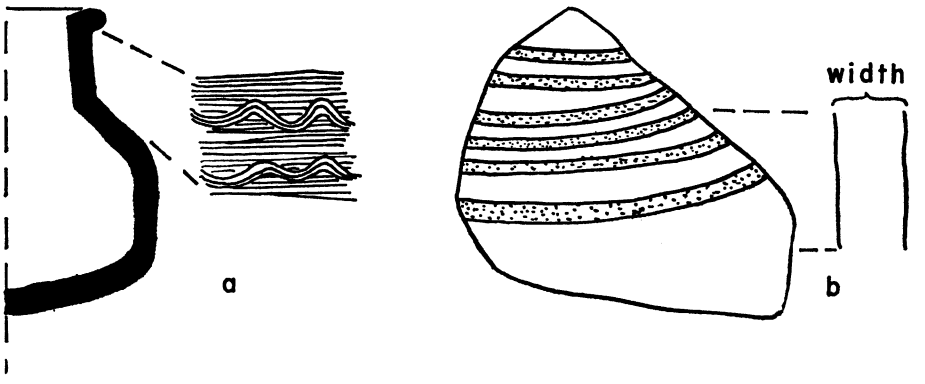


FIG. 80. Incised channeled and appliquéd decoration on Red Ware, Early Islamic. *Ca.* ⅓ natural size.

rim with groove (for lid?) (Fig. 81f; Pl. 24f); a thinned, almost pointed rim with straight profile, probably from a cup (Fig. 81g). Other profiles, like those of small bowls and dishes, were more flaring than those illustrated in Fig. 81.

The Early Islamic Red Streak Pattern-Burnished Ware is as finely executed as the same ware of the earlier periods.

RED WARE, CREAM SLIP: This ware displays the most uniformity throughout all the culture periods at Shamshir Ghar. Most sherds are thinner (average, *ca.* 0.6 cm.) in the Early Islamic levels, mica is more predominant in the temper, and the sherds are channeled on the exterior. However, despite these differences the ware is easily recognizable.

No Inside Ridges sub-ware rims are more flaring than those above described: a flaring rim (Fig. 82a); a rolled, beaded rim (11, Fig. 82b); an out-turned, flat rim (Fig. 82c); a thin, flaring rim and straight wall (Fig. 82d); a flaring rim with a short neck and flaring shoulder, probably from a jar (Fig. 82e); a flat, externally thickened rim with an incurved profile (Fig. 82f). Numerous other rim sherds were found with profiles like those in Figs. 32h, 51b–c, e, n, u–v, y, and 52b–e.

Base sherds from No Inside Ridges sub-ware were generally flat. Examples of these are: a flat base with tapering wall (Fig. 82g); a flat base with possibly a globular or spheroid profile (Fig. 83h); and a base from a shallow plate (Fig. 82i).

Five fragments from a bottle neck, all from the same vessel, were uncovered; the side profile had handle scars. The neck and rim were flaring; possibly the body was ovoid or globular.

A typical decorated sherd of this ware (Pl. 26d) had stylus-impressed bands above single or multiple incised or channeled undulating

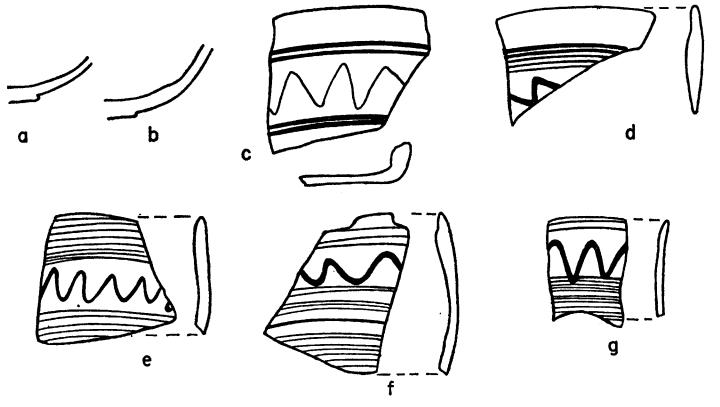


FIG. 81. Bases, rim profiles, and designs, Red Streak Pattern-Burnished Ware, Early Islamic. *Ca.* ⅓ natural size.

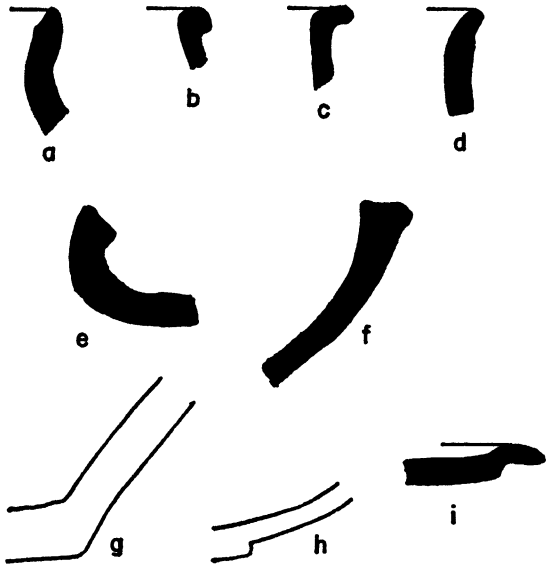


FIG. 82. Rim profiles and bases, Red Ware, Cream Slip, No Inside Ridges sub-ware, Early Islamic. *Ca.* ⅔ natural size.

lines. Very few painted sherds appeared in the Early Islamic levels.

Inside Ridges 1 and 2 sherds were scarce in these levels.

BISQUE PASTE WARE: Together with the Glaze Ware, decorated Bisque (and Greenish) Paste Ware achieves new dominance in this period. The decorations on the Shamshir Ghar ware are common throughout the ceramic traditions of the Early Islamic world.

The profiles, as can be observed in Fig. 83, indicate bottle, water jug, and jar shapes. The rim profiles vary as follows: a slightly in-turned rim with exterior grooves (Fig. 83a); a flaring jug (?) rim with punctations above a groove

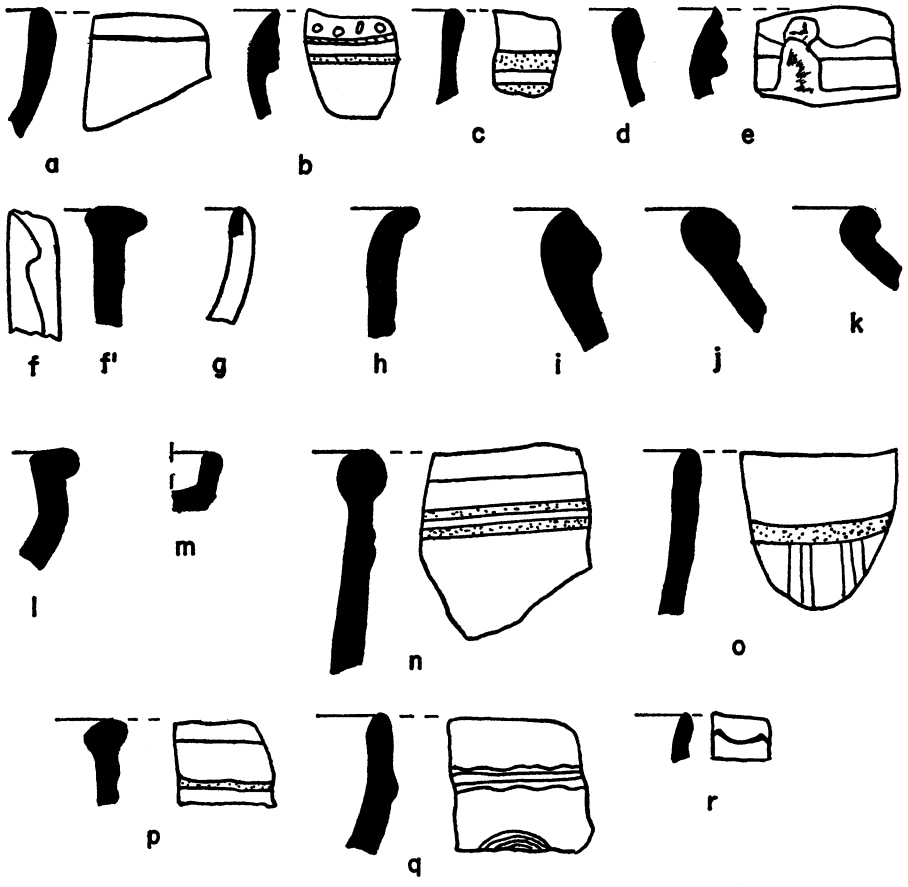


FIG. 83. Rim profiles and designs, Bisque Paste Ware, Early Islamic. *Ca.* ⅔ natural size.

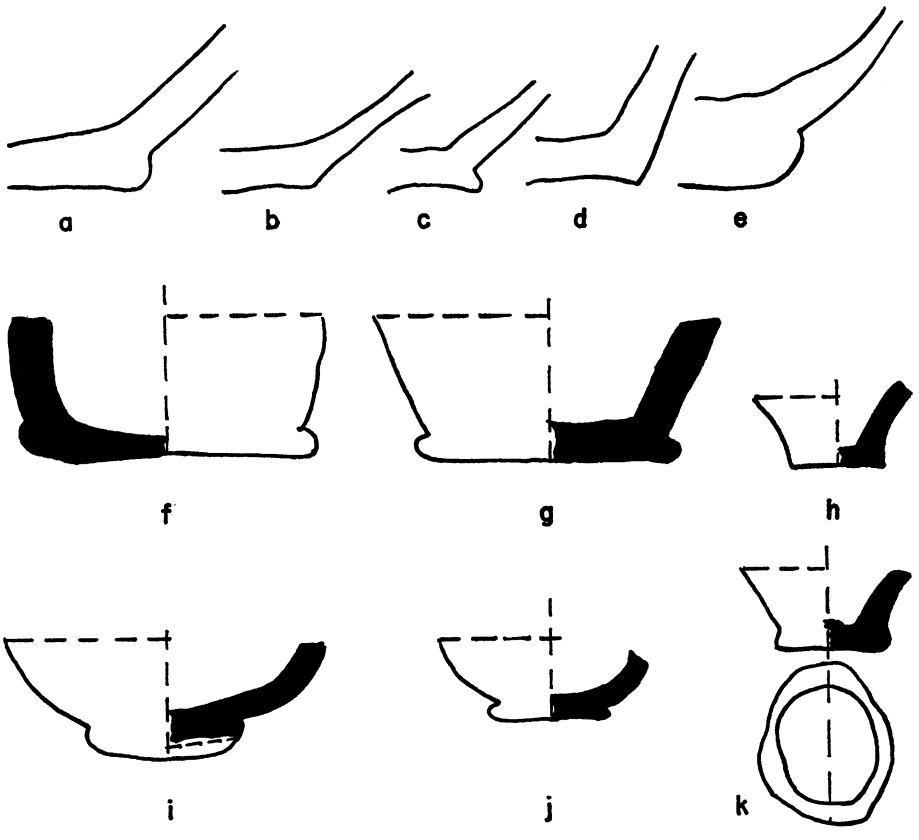


FIG. 84. Bases and rim profiles, Bisque Paste Ware, Early Islamic. *Ca.* ⅛ natural size.

which in turn is over a slight hump (Fig. 83b); an almost straight bottle neck rim with grooves on the neck (two, Fig. 83c); a slightly clubbed rim (Fig. 83d); an incised jar neck with handle fragments (Fig. 83e; Pl. 27u); an internally beaked rim with incised undulating line on top, an almost straight wall, bottle neck (?) (Fig. 83f); a slightly in-turned rim with interior Pomegranate Red line (Fig. 83g); a slightly out-turned rim and straight bottle neck (two, Fig. 83h); a slightly flaring, thickened rim (Fig. 83i); a clubbed rim and thin wall (two, Fig. 83j); a beaded rim (Fig. 83k); a turned-out, almost flat rim with almost no neck, a sharp shoulder, possibly from a small bowl or cup (two, Fig. 83 l); a very small object, possibly a lid, with a flat bottom and almost straight rim (Fig. 83m); a clubbed, almost straight rim, with grooves, on a long jar neck (three, Fig. 83n); an almost straight rim, with low pressed band and vertical incised lines on the exterior of the sherd (Fig. 83o); an internally beaded rim, grooved externally (Fig. 83p); an almost straight rim and an in-curving, comb-marked body and small pressed band between grooves (six, Fig. 83q); small, incised rim (Fig. 83r). Other rims were like those shown in Figs. 53h–i, 69c–e, g–j.

Bisque Ware base sherds are classifiable into flat, concave and convex, and foot-ring: a flat base and tapering wall (three, Fig. 84a); a slightly concave base and flaring wall (two, Fig. 84b); a small, concave base, probably from an ovoid or globular-shaped vessel (two, Fig. 84c); a slightly concave base from an ovoid (?) shape (Fig. 84d); a thick, flat base with a thin wall, ovoid in cross-section (five, Fig. 84e); a concave base from an ovoid water jug shape (Fig. 84f); a flat base, probably from an ovoid shape (Fig. 84g); a narrow, slightly concave base, possibly from an ovoid shape (two, Fig. 84h; also Pl. 21d); an almost convex base and ovoid (?) shape (Fig. 84i); a slightly concave base from an ovoid shape (Fig. 84j); a foot-ring base,

probably ovoid shape (Fig. 84k). Other bases are like those shown in Fig. 53s–u.

Handles are rare at Shamshir Ghar below 20 cm., but almost 50 Bisque Ware handles and handle fragments, not including the uncounted specimens in the Kabul Museum, were found in the Early Islamic levels. Most handles were water-jar types, with terminal ends on necks and shoulders. Three-handled pottery vessels were common during Early Islamic times all over western Asia.

The handles are classified in the following types: grooved externally (Fig. 85a); round or oval in cross-section (Fig. 85b–g); flattish or elliptical in cross-section (Fig. 85h–j); external ridges (Fig. 85k); semicircular in cross-section (Fig. 85 l); externally grooved and attached to a rim like that in Pl. 27 l and Fig. 85m; external

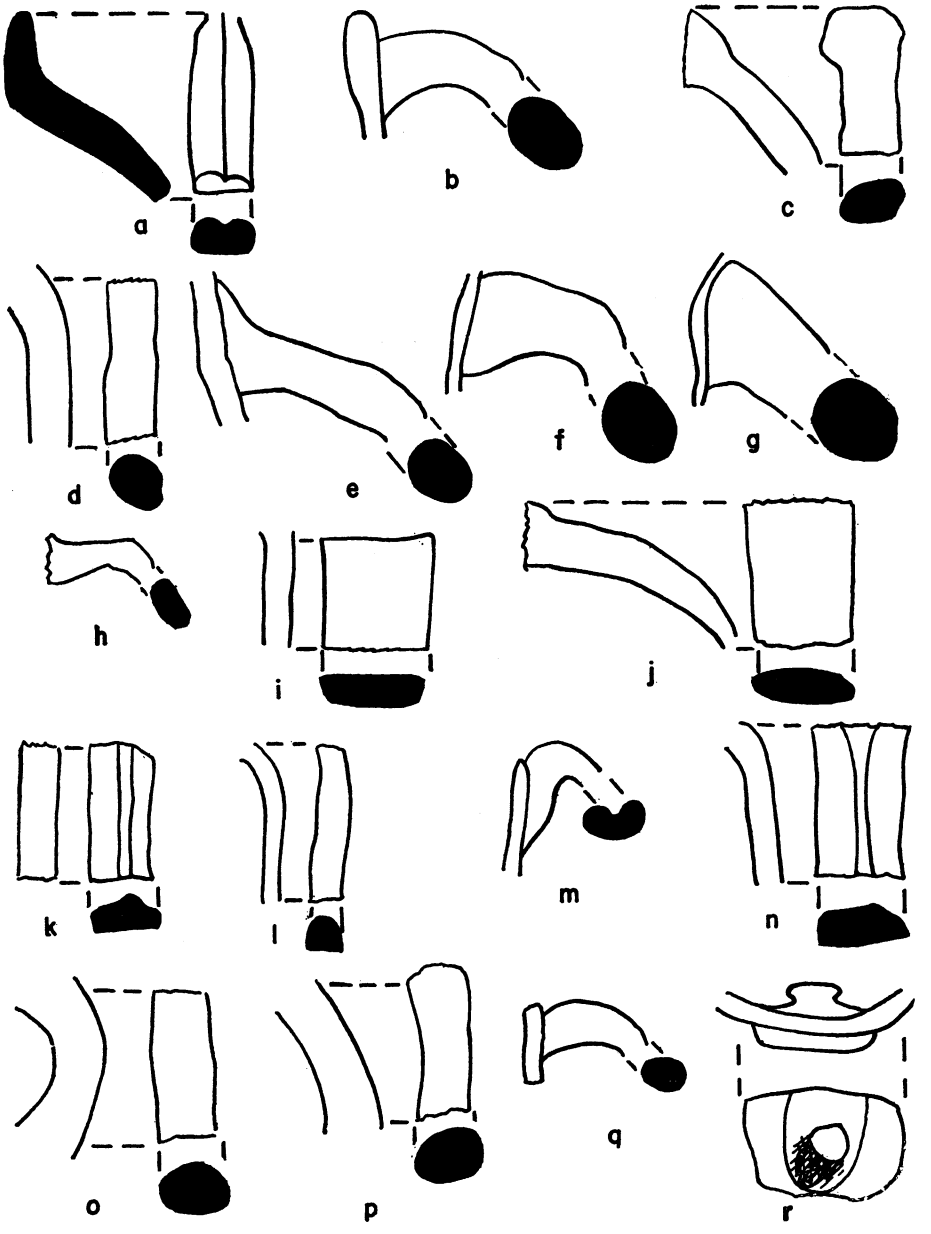


FIG. 85. Types of handles, Bisque Paste Ware, Early Islamic. *Ca.* ⅔ natural size.

ridge (Fig. 85n); round or oval in cross-section (Fig. 85o–q). Other handles resemble those illustrated in Figs. 70b–c, 71 b–c. Handles are also illustrated on Pl. 27j–k, q (note "string of pearls" on each side of central rib).

Many bottle neck sherds were found (Pl. 27g–h).

The profile of the lid shown in Pl. 27y is illustrated in Fig. 85r.

The range of decoration of Bisque Ware, except for painted, is well illustrated on Pls. 28–29. Among these are punctated, incised, and bossed motifs with small, metal-like studs that probably evolved out of flat discs and conical hooks (Pl. 28c–e).[1] However, such pottery discs and hooks were rare in Sassanian times but numerous in earlier Parthian wares.[2] Additional motifs illustrated are: a finely executed rosette boss (Pl. 28f); an incised quatrefoil on the shoulder of a large jar (Pl. 28h); alternating channeled, undulating, and straight horizontal (river-and-bank motif) lines (Pl. 28i); a deep-channeled "drapery" motif between two gadroon-like designs on the neck of a large jar, with deep finger or stylus marks on the shoulder (Pl. 29a); the ornate rim of a large jar with a pressed band, finger marks below a deep-channeled groove and a small applied strip (Pl. 29b); vertical channels on the shoulder and horizontal channels on the neck of a vessel (Pl. 29e); intersecting wavy comb-marks, under a thin pressed band, triangular in cross-section (Pl. 29f); a fluted, channeled sherd (Pl. 29g); slightly wavy, comb-marks (Pl. 29h); intersecting straight comb-marks (Pl. 29i); short comb-marks below incised lines (Pl. 29j).

A few examples of painted Bisque Ware were found. Several designs are illustrated: a black drapery motif below parallel, horizontal, black lines, painted on a buffish slip (Fig. 86a); a light red (11-B-7) dot on the exterior of a handle (Fig. 86b); a light red (11-B-7) dot on a gadrooned and incised sherd (Fig. 86c); a red dot in an incised and punctated sherd (Fig. 86d). The most common motif consists of one or two Pomegranate Red (6-L-3) horizontal parallel lines near the rim lip on the exterior of a vessel.

Almost all the Red Wash Ware is of the Red Wash Inside and Outside sub-ware. The profiles indicate two rim types. The first is a bowl with an out-turned, internally thickened rim,

[1] Day, MS.
[2] Day, MS.

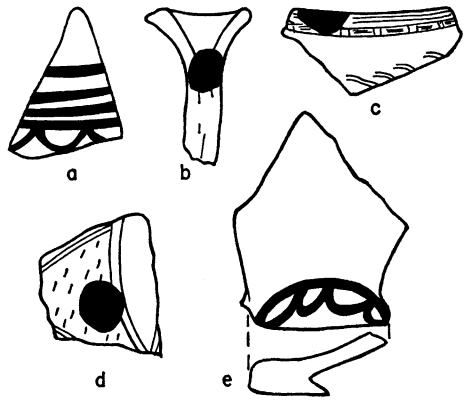


FIG. 86. Painted designs, Bisque Paste Ware, Early Islamic. *Ca.* ⅔ natural size.

short neck, and sharp-breaking shoulder (Pl. 30e; Fig 87a). The outside wavy comb-marks between grooved shoulder and rim should be especially noted. The second rim is from a bowl or dish with flaring and, at times, thickened rim, with a single undulating channeled line inside the rim (Fig. 87b). Six rims of the first type, and 11 of the second, were found in the Early Islamic levels.

Two Red Wash base profiles are illustrated: a concave base with flaring wall, Red Wash only on the inside (Fig. 87c); a flat base and almost straight wall, with Red Wash only on outside (three, Fig. 87d); black drapery volutes (drapery-like) on the inside of a base are similar to those on a sherd found in the upper 5 cm. of Kushano-Sassanian level (Fig. 86e). Like the glaze, the red wash seldom, if ever, extends all the way to the base on the exterior.

GREENISH PASTE WARE: As mentioned above, it is entirely possible that the Greenish Paste Ware is the result of differential firing of Bisque Ware vessels. The profiles and decorative motifs of these two wares are identical. The decorative motifs consist of fine-line incisions; quatrefoils, with "gadroons" around the shoulder (Pl. 28a); bossed, punctated, and incised motifs (Pl. 28g); short channeling (Pl. 29c–d); wavy comb-marks; "drapery" motifs; imbrications; stylus impressions; and pressed bands.

Handle fragments of Greenish Paste ware may be described as follows: a handle fragment, round in cross-section, attached to a shoulder sherd has incised lines radiating from the terminus of the handle (Fig. 88a); a small externally grooved handle (Fig. 88b);

handle round in cross-section (Fig. 88c, f–g); handle and rim fragments in which the upper terminus of the handle forms part of the mouth of the jug (Fig. 88d–e); a small ear-handled fragment, round in cross-section, for a (?) jug (Fig. 88h); a grooved handle that arches high over the rim (Fig. 88i; Pl. 27 l). An interesting handle, round in cross-section, has a knob on top (Fig. 88j; Pl. 27m). Day[1] calls it a "fish hook" handle. A similar handle from eighth to ninth-century Ctesiphon is in the Metropolitan Museum (33.175.75). Sarre[2] illustrates others from ninth-century Samarra. Some shown in Pl. 34b, demonstrating continued popularity of the hare motif in Early Islamic times.

An interesting series of stamped sherds, many of which are identical with the Shamshir Ghar Stamped Ware, were uncovered in 1950 by Pakistani archeologists in a mound near Bhambhor in the vicinity of Karachi. Possibly Bhambhor is the old port of Debul.[7]

Iron Objects

Iron artifacts and fragments of iron are more numerous in the Early Islamic than in the underlying levels.

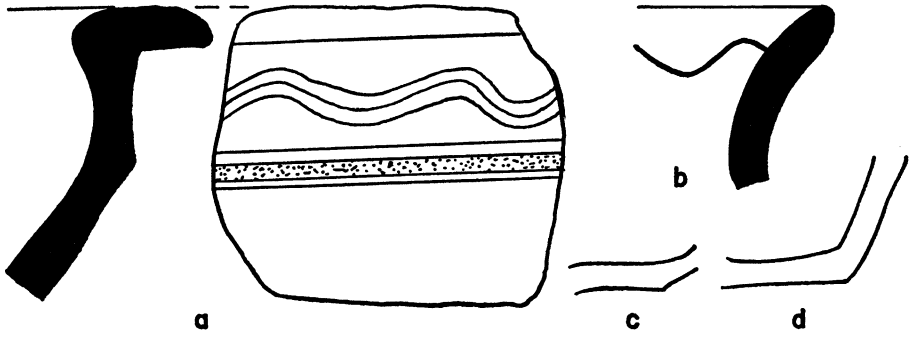


Fig. 87. Rim profiles, bases, and designs, Red Wash, Inside and Outside sub-ware, Early Islamic. *Ca.* ⅔ natural size.

Samarran handles are glazed. Day[3] also reports some green glazed "fish hook" handles from Tarsus. Stein illustrates an ornate "fish hook" from Khotan[4] and one from Shahr-i-Daqianus, Jiruft.[5] "Fish hook" handles were also found in the eighth-century Islamic level at Shah Tepe, Iran.[6]

Three base sherds of Greenish Paste ware are illustrated: a very thin, foot-ring base, with an ovoid (?) body profile (Fig. 88k); a foot-ring base, larger than the preceding (Fig. 88 l); and an almost convex foot-ring base, probably ovoid in cross-section (Fig. 88m).

Stamped Ware: This ware, a characteristic Early Islamic type, is discussed in detail above (pp. 205–207). Of particular interest are the stamped hares illustrated in Pl. 31d–e. These are very similar to the Sassanian base designs

Scissors: One complete and one fragmentary pair of scissors were found (Fig. 89a). Identical iron scissors (7 cm. long) with double shanks are reported from the eighth-century Muslim level at Shah Tepe by Arne.[8]

Horseshoe Fragments: Two fragments of horseshoes were found. The fragment illustrated in Pl. 32aa is 2.5 cm. wide, 0.15 cm. thick; the diameter of the nail holes is 0.6 cm. The second specimen, holeless, has essentially the same shape, but is much more corroded.

Pins or "Wire": The measurements of the three broken pins (Pl. 32n–p) follow: 4.8 cm. long by 0.4 cm. in diameter, head 1 cm. in diameter (Pl. 32n); 6.6 cm. long by 0.5 cm. in diameter (Pl. 32o); 3.8 cm. long by 0.3 cm. in diameter, head 1 cm. in diameter (Pl. 32p).

Forked Projectile Points: Four forked projectile points were recovered. Two (Pl. 32i) occurred *in situ* in the Early Islamic levels, and two in the mixed levels of Cut 3 below 20 cm. They are all the same size and shape:

[1] Day, personal communication, 1953.
[2] Sarre, 1925, 6, 19, 30, 65; Pls. 2–3.
[3] Day, personal communication, 1953.
[4] Stein, 1928, Pl. 1.
[5] Stein, 1937, Pl. 23; probably Seljuk (eleventh to thirteenth centuries A.D.) in date.
[6] Arne, 1945, Pl. 84.
[7] Anonymous, 1952, 29–35.
[8] Arne, 1945, Pl. 72.

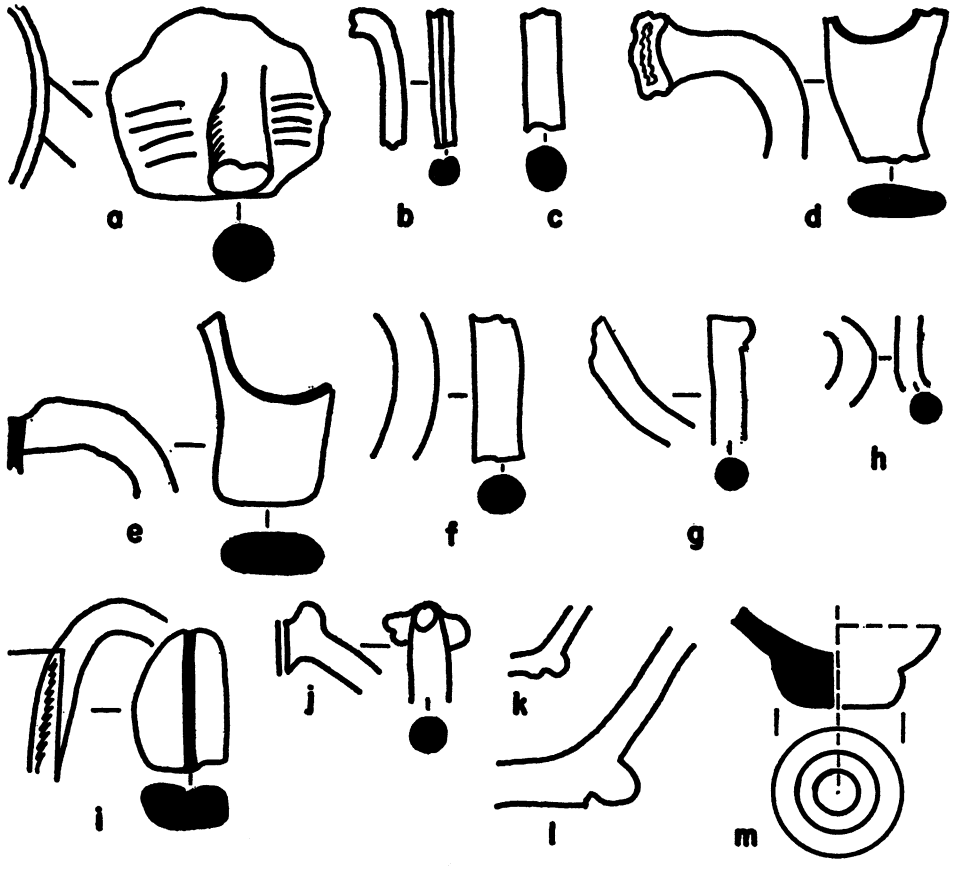


FIG. 88. Handles and bases, Greenish Paste Ware, Early Islamic. *Ca.* ⅔ natural size.

	CENTIMETERS	
Total length	9.6	
Length of tang	2.7	
Width of tang	0.4	(round in cross-section)
Length of shank	3.8	
Width of shank	1.1	(rectangular in cross-section)
Thickness of shank	0.5	
Length of points	0.8	(triangular in cross-section)
Thickness of point	0.6	at outside, tapering to point on inside

Similar projectile points are not unknown in modern ethnography. Bogoras reported that many forest peoples of the Soviet north used a "blunt wooden tip for small game and a forked iron tip for larger prey."[1] Mr. John L. Hoskins[2] informs me that Japanese archeologists have made similar finds in Manchuria. Major R. Murdoch Smith[3] illustrates several "Parthian spear points" with two and three points, but they do not closely resemble the Shamshir Ghar finds; he purchased rather than excavated these antiquities. Closely similar finds were made at the Indo-Parthian city of Sirkap (Taxila) by Marshall,[4] who identifies them as "weeding forks." These Shamshir Ghar finds are, I think, clearly projectile points, probably of a Central Asian or Far Eastern origin.

Hollow-Sided, Three-Bladed, Projectile Points: This type (Pl. 32j, m) continues to be popular. Six examples, all broken and badly corroded, were uncovered in the Early Islamic levels. The size is, however, more variable in the Early Islamic levels. Compare, for example, the

[1] Bogoras, 1928.
[2] Hoskins, personal communication, 1954.
[3] R. Murdoch Smith, 1876, 20.
[4] Marshall, 1951, Pl. 169, nos. 200–202.

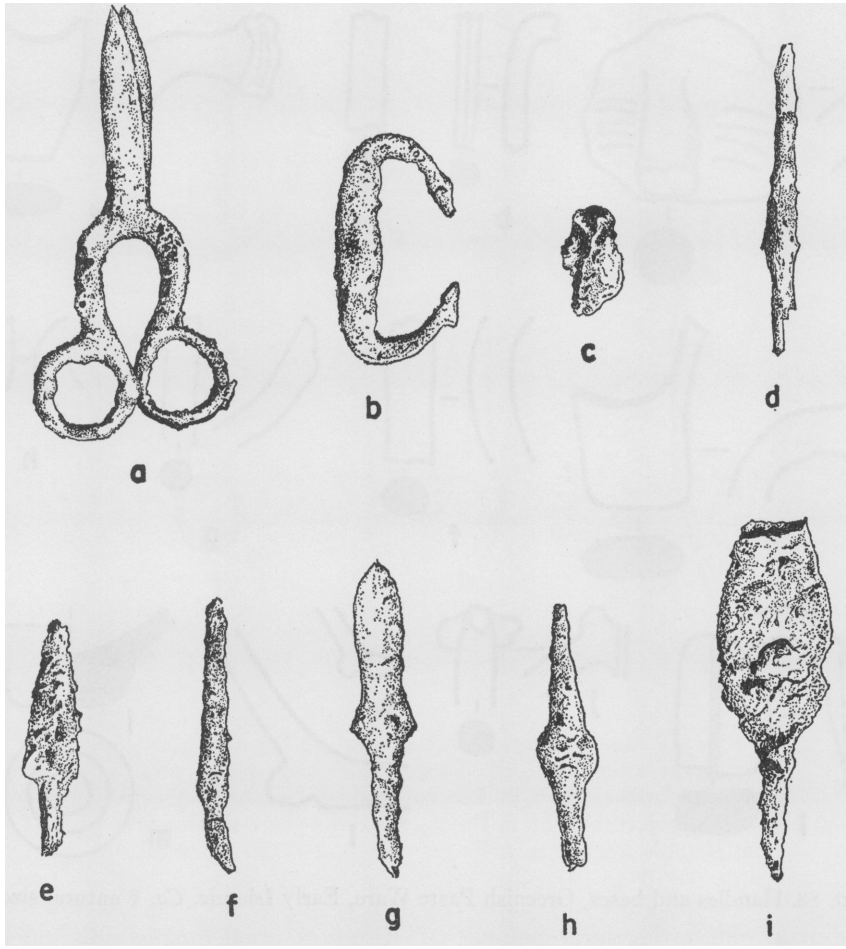


FIG. 89. Metal objects, Early Islamic. a. Iron scissors. b. Bronze buckle. c–f. Iron projectile points. g–h. Iron projectile points elliptical in cross-section. i. Iron, leaf-shaped, tanged spear point. *Ca.* ⅔ natural size.

short, broad blades of Fig. 89c with the long attenuated blades shown in Fig 89d.

Another small, broad-bladed specimen has a bent tang.

Two specimens (Pl. 32j, m) are measurable. One, almost complete (Pl. 32j), measures: total length, 7.4 cm.; total width, 1.35 cm.; width of blades, 0.7 cm.; diameter of tang, 0.35 cm.; the tang has a round cross-section with studs for attachment to the shaft. The broken fragment (Pl. 32m) measures: total length, 3.5 cm.; total width, 1.3 cm.; width of blades, 0.7 cm.

Projectile Points Triangular or Diamond-Shaped in Cross-Section: According to Andrews,[1] who studied and catalogued Stein's collections, the tanged iron projectile points, triangular in cross-section, are common in the Tarim Basin of Chinese Sinkiang. He dates these points from the Han Dynasty (third century B.C. to third century A.D.) onward. (See Fig. 89e.)

Two tapered iron projectile points, diamond- or lozenge-shaped in cross-section, have thick bodies. Another (Fig. 89f) has a long, slender body and a bent tang.

Projectile Points with Elliptical Cross-Sections: A beautifully made, Classical iron point was found (Fig. 89g). Two others have relatively long tangs and tapering points (Fig. 89h).

Lance or Spear Points: These could possibly be classified as large projectile points, but their

[1] Andrews, 1935, 5.

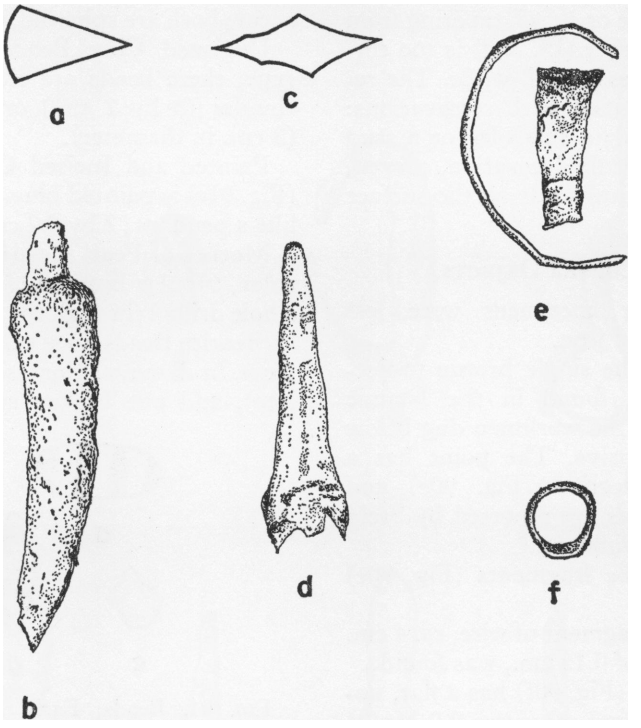


FIG. 90. Metal objects, Early Islamic. a. Tapered cross-section of knife blade. b. Tanged iron knife blade with tapered cross-section. c. Lozenge-shaped cross-section of bronze projectile point. d. Bronze projectile point. e. Bronze cup, handle fragments. f. Finger ring. b, d–f. *Ca.* ⅔ natural size.

weight and size make this rather improbable. All the specimens were broken. The two illustrated (Figs. 72a, 89i) are leaf-shaped, tanged, and have elliptical cross-sections. Closely similar points were found in Begram III.[1] Stein[2] reported similar finds from Moghul Ghundai in Pakistani Baluchistan.

Knife Blades or Curved Lance Heads: These blades have tapering cross-sections (Fig. 90a–b). The tangs were probably fitted in wood. A similar blade from Begram II[3] is classified as a conical arrowhead by Ghirshman.[4] Stein reported steel (?) knives of this shape from Kara Khoja[5] and other sites in Chinese Sinkiang. He also illustrates a copper knife or "spear head" of the same shape from Shah-i-Tump in Iranian Makran.[6]

[1] Ghirshman, 1946, 48, B.G. 559.
[2] Stein, 1929, Pl. 12.
[3] Ghirshman, 1946, Pl. 36, B.G. 290d.
[4] Ghirshman, 1946, 58.
[5] Stein, 1928, 607, Pl. 71.
[6] Stein, 1931, 96, Pl. 13.

Rings: A small broken ring had a diameter 2.5 cm. in cross-section.

Nails or Spikes (Pl. 32s–t): There is no valid explanation for the presence of these nails or spikes in this cave site. For one thing, the heads seem to be too large to permit their use as horseshoe nails. The nail shown on Pl. 32s measures: length of point, *ca.* 2.5 cm.; diameter of point at mid-section, which is round in cross-section, 0.35 cm.; diameter of head, 1.3 cm.; thickness of head, *ca.* 2.0 cm. That shown on Pl. 32t measures: length of point, 3.4 cm.; width of point at mid-section, which is square in cross-section, 0.4 cm.; size of head, 1.9 by 2.2 cm.; thickness of head, *ca.* 0.5 cm.

Miscellaneous Fragments (Pl. 32a–b, d–e, h, q): The original forms of most of the iron fragments are unidentifiable, as all the pieces are broken and badly corroded. It is possible to speculate about the original shape of some of those illustrated. One piece (Pl. 32a) is merely a triangular piece of iron. The specimen shown in

Pl. 32b is a broken knife or chisel, tapering from right to left edge. Another (Pl. 32d) is too corroded to make any guess worth while. The remainder may be identified with reservations: possibly a pin (Pl. 32e); a small leg or a stud (Pl. 32h); possibly a bridle decoration, curved, with small irregular metal studs on the surface (Pl. 32q).

Bronze and Copper Objects

Bronze and copper specimens were less numerous than those of iron.

Projectile Points: The single bronze projectile point (Fig. 90d), found in the Islamic levels of Cut 4, where the workmen dug below 20 cm., may be intrusive. The point has a lozenge-shaped cross-section (Fig. 90c) and long barbs. Similar finds are reported by Stein from Kucha, Chinese Sinkiang.[1]

Handles: Two handle fragments (Fig. 90e) were found.

Pins or "Wire": A fragment of wire, *ca.* 4 cm. long, with a diameter of 0.15 cm., was found.

Rings: A finger ring (Fig. 90f) has a flat, undecorated, ovoid face and measures 0.9 by 0.6 cm.

Buckles: A bronze buckle of almost the same shape as Fig. 89b illustrated from the eighth-century Muslim level at Shah Tepe. Arne identifies it as a Byzantine import.[2]

Circular Bridle Decorations (?): One probable bridle decoration had a small stud on one side: diameter, 4.1 cm.; thickness, 0.1 cm.

Unusual Object (Pl. 32y): This resembles a miniature adze and is of copper or bronze; the broken stem of iron is looped over the thinned part of the copper. This object is now fragile, but in its original state may have been a strong bridle bit.

Beads

The Early Islamic levels contained a greater variety of beads than the earlier levels.

Glass: Of six glass beads found all were long-barreled, circular: two have layers of white and orange (Fig. 91a); three are opaque, milky white, and one had a narrow white streak between black ends (Fig. 91b). Sizes vary from 2.5 by 0.5 cm. to 0.9 by 0.5 cm.

Green-Glazed Beads: Two beads of this type occur; both are spheroid, 0.9 cm. in diameter.

Unglazed Clay Beads: A rather common type, these beads are either trapezoidal-semicircular (3 by 2 cm.) or short-oblate circular (3 cm. in diameter).

Painted and Incised Clay Bead: This bead (Fig. 91c) is painted blue-green and is fashioned like a pendant; 2 by 0.2 cm.

Mother-of-Pearl Bead: A well-polished, circular, tubular bead (0.15 cm. in diameter) has a hole drilled through the flat cross-section.

Steatite Beads: One talc (cylindrical-circular, 1 cm. in diameter), one soapstone (circular-oblate), and one broken steatite (truncated bi-cone-circular) bead with incised circles on the biconical surface (Pl. 32bb) complete the bead roster of this material.

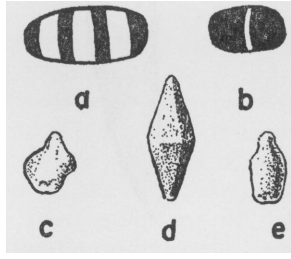


Fig. 91. Beads, Early Islamic. a–b. Glass. c. Painted and incised clay. d. Lapis lazuli. e. Carnelian. *Ca.* ⅔ natural size.

Lapis Lazuli Beads: Five lapis beads were found. Two beads, like that on Pl. 32dd, are badly fire-burned, and short-oblate hexagonal in shape. The other three are: long-barrel elliptical (Fig. 91d); short-oblate circular, about 0.6 cm. in diameter; spheroid, 1.5 cm. in diameter. The lapis lazuli could have come only from the famed Badakhshan mines; the beads were probably made in Bokhara.[3] Kohzad[4] believes that the lapis found in Egyptian tombs dating from the fifteenth century B.C. was mined in Badakhshan. Both Ghirshman[5] and Kohzad agree that the Sialk lapis of the fourth millennium B.C. also came from Badakhshan; possibly the Ur lapis had the same source.

Ruby Beads: Two fire-burned, spherical, ruby beads probably also came from Badakhshan, although they could conceivably have

[1] Stein, 1928, 827, Pl. 111.
[2] Arne, 1945, 332, Pl. 81.
[3] Laufer, 1919, 520–521.
[4] Kohzad, 1948, 2.
[5] Ghirshman, 1938–1939.

come from Ceylon, Salem, or Mysore in South India, or Rewa in central India.[1]

Carnelian Beads: Four carnelian beads were found: two truncated bicone-hexagonal (0.5 cm. in diameter), one badly fire-burned; one spheroid (0.5 cm. in diameter); one teardrop (Fig. 91e).

Agate Bead: A spherical (0.5 cm. in diameter) agate bead was uncovered.

Quartzite Bead: The quartzite bead (about 0.6 cm. in diameter) is misshapen and angular, with green-blue glaze splashed on its surface.

Glass Fragments

Most glass fragments uncovered at Shamshir Ghar were from the Early Islamic levels. These descriptions are based on visual examination. (See Appendix 2 for analysis of specimens.) Their minute size made any attempts at vessel reconstruction impossible. The colors are greens, browns, yellowish browns, and occasional turquoise blues, rosées, or pinks. Some fragments are colorless. All are transparent; many, fire-burned; some, iridescent, even rainbow-colored.

The color classifications given below are at best approximate. Under different lights the fragments take on not only different shades but different colors. To obtain consistency, each fragment was held 12 inches from an unshaded light bulb, and the observed color was recorded from Maerz and Paul.[2]

Greens: The thickness of the wall of the green glass fragments ranges from 0.1 to 0.3 cm.

The greens cluster around Glass Green (18-F-3) and Ocean Green (18-B-5). Most fragments have air bubbles. The narrow, flaring rims and bulbous necks suggest small bottle forms (Fig. 92b–c). Identical forms appear at Shah Tepe.[3] Lamm dates this type of glass ware eighth to tenth centuries A.D. at Samarra[4] and in Iran.[5]

The upper part of a few handle fragments were bent and folded in construction, forming a knob (Fig. 92a). Duplicate forms are reported from Shah Tepe.[6]

Two glass stoppers were found: one conical and fire-burned; the other, greenish yellow, with a cross-section like that shown in the sketch (Fig. 92d).

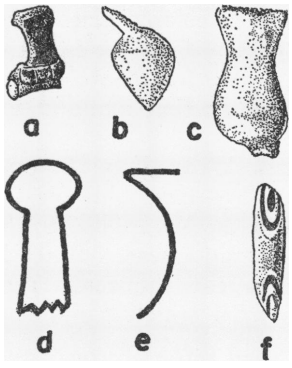


Fig. 92. Fragments of glass. a–c. Possible bottle-neck forms, green. d. Cross-section of glass stopper, greenish yellow. e. Outline of flaring rim fragment. f. Bangle fragment, polychrome. *Ca.* ⅔ natural size.

The green glass bases all have small diameters (up to 3.4 cm.) and indicate a probable ovoid body shape. Similar finds at Shah Tepe are described as "partly free-blown, partly mould-blown. The bottom part is generally outwardly concave, with a correspondingly convex elevation inside."[7] This description perfectly fits the two green glass vessel bases from Early Islamic Shamshir Ghar. The concavities are 0.55 cm. and 0.6 cm. deep, respectively. A break is visible on the under side where the blowing tube was detached. Some Shah Tepe bases are decorated with radiating curved flutings and round dents, oval depressions or circles, or volutes. Similar bases were found at Bhambhor, West Pakistan, together with some plain bases. Shamshir Ghar examples were decorated. All the above finds are duplicated at ninth-century Samarra.[8]

Browns and Yellows: The thickness of the brown and yellow glass fragments ranges from 0.15 to 0.35 cm. Almost all are iridescent and full of air bubbles. The colors vary from a dark "beer bottle" brown to Burnt Umber (15-A-12). One rim fragment is flaring, delicately shaped, and indicates a profile as approximated in Fig. 92e. Duplicates occur at Samarra.[9]

Reds: Only three fragments (thickness, 0.3

[1] Wheeler *et al.*, 1946, 121.
[2] Maerz and Paul, 1950.
[3] Arne, 1945, 334, Pls. 72, 73.
[4] Lamm, 1928.
[5] Lamm, 1935.
[6] Arne, 1945, Pls. 72, 73.
[7] Arne, 1945, 335–336.
[8] Lamm, 1928.
[9] Lamm, 1928.

cm.) of this rose-colored glass were recovered; all are badly burned and iridescent.

Blues: The two fragments of clear turquoise blue glass are like that found at Early Islamic Rayy.[1]

Blue Glass Wire: Four fragments of uncolored glass had light blue glass wire (about 0.15 cm. in diameter) applied to the outer surface. This technique was common in Iran from the eighth to the thirteenth centuries A.D.[2] Other sites from which Samarran and Early Islamic Iranian glass have been reported are Saveh, Aveh, and Nishapur.[3]

Bangle Fragments: Two of the glass bangle fragments found in stratified levels are monochrome (Pl. 32ee); one is polychrome (Fig. 92f). The monochrome fragments are Green Glass; the polychrome is Bole Red, with concentric, alternating black and white ellipses. They are all semicircular in cross-section. Similar multicolored glass bangles were found by Stein at Kalat-i-Gird in Seistan[4] and at several Iranian Makran sites, including Bampur, Qalat-i-Jamshid, Chah Husaini,[5] and Kulli and Suktagen-Dor in Pakistani Makran.[6] Stein assigns an early date to the Kulli finds because they were found deep in his cut. Many are probably Early Islamic. Also, many of his Kulli "chalcolithic" sherds[7] can easily fit in with the Shamshir Ghar Islamic painted wares.

Coins

Twelve copper or bronze coins and one silver coin were found in Early Islamic levels. None has been specifically identified. They are in the custody of Mr. Kohzad, Director of the Kabul Museum. All the coins were corroded. The larger coins may actually be bridle decorations. We anxiously await Mr. Kohzad's report. I have a crude cast of the silver coin. The script on the coin is easily recognizable as Kufic, probably about tenth century.

Spindle Whorls or Large Beads

One, biconical circular, pottery bead (3 cm. in diameter) was found. A steatite bead (3 cm. in diameter) has circles incised on its biconical circular body; another, spheroid (0.3 cm. in diameter), has a repeated zigzag motif incised around the hole openings (Fig. 93a). Three large wooden beads were found: a spheroid (3 cm. in diameter) with a repeated motif shown in Fig. 93b; a truncated, bicone-circular bead (4 cm. in diameter), decorated with repeated incised circles all over the body (Fig. 93c); a spheroid (2 cm. in diameter), with the same repeated circles. A spheroid bone bead was also found.

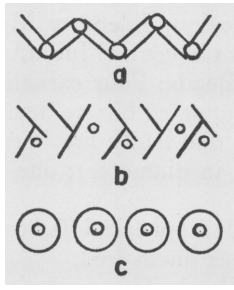


Fig. 93. Designs on stone, and wood spindle whorls or large beads, Early Islamic. a. Steatite spheroid. b. Wooden spheroid. c. Wooden truncated biconical bead.

Pendants

Three stone pendants were uncovered. Two are steatite, oblate, with tubular cross-sections. Both are whitened from fire burning. The third pendant (Fig. 94a) is of polished black steatite, triangular, with an elliptical cross-section.

Seals

Three seals were found in these levels: two are of soft soapstone or steatite, one is of limestone (Fig. 94b). All are decorated with the same general, crudely incised design. The limestone seal is 1.4 cm. high and 2.8 cm. in diameter.

Stone Artifacts

Flintlock Flints: Two flints for flintlock rifles were found on the surface of Cut 3 and in the

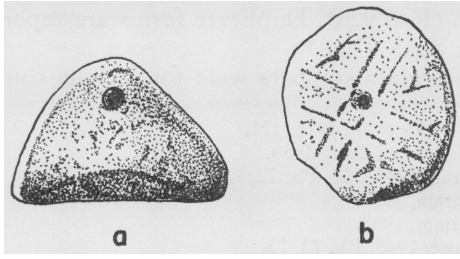


Fig. 94. Soapstone pendant and limestone seal, Early Islamic. *Ca.* ⅔ natural size.

[1] Pope, 1930, 192.
[2] Pope, 1930, 192.
[3] Pope, 1930, 194.
[4] Stein, 1928, Pls. 116, 118.
[5] Stein, 1937, Pl. 10.
[6] Stein, 1931, 63, 123, Pl. 22.
[7] Stein, 1931, Pl. 22.

mixed portion near A B. These probably date any time from the sixteenth century A.D., when flintlocks were first made in India,[1] to the present, for some Pathans still hunt with flintlocks and percussion-cap weapons.

A spherical steel ball, found on the surface, is probably modern. It is 1 cm. in diameter.

Polished Stone: Three cylindrical, basaltic, brightly polished pebbles found in Cut 4 were probably used as polishers.

Fragments of Schist Bowl: In Cut 3, eight badly fire-burned fragments of schist bowls, comprising parts of at least three vessels, were found. There are three distinctly different rims: a grooved rim (for lid?) with round-knobbed ledge handle (Fig. 95a); a rim smaller than that shown in Fig. 95a, with an incised lip (Fig. 95b; Pl. 36a); a straight thin rim with vertical lug to serve as a lid holder (?) (Fig. 95c; Pl. 36b). The fragments illustrated in Pl. 36c–d are perforated, probably for repair.

Similar schist bowls are used today by the mountaineer Tajiks of Badakhshan.

Chopper: A large, reddish quartzite pebble (9.5 cm. across by 11 cm. high by 5 cm. thick) was utilized as a chopper (Pl. 33i).

Quern: A partially worked piece of limestone may be an unfinished quern. It measures 14.5 by 14.5 by 7.4 cm.

Rounded Pebbles: Again, many river-rounded pebbles occur: total, 118. These fall into the same types as described above.

[1] Ferishta, 1908.

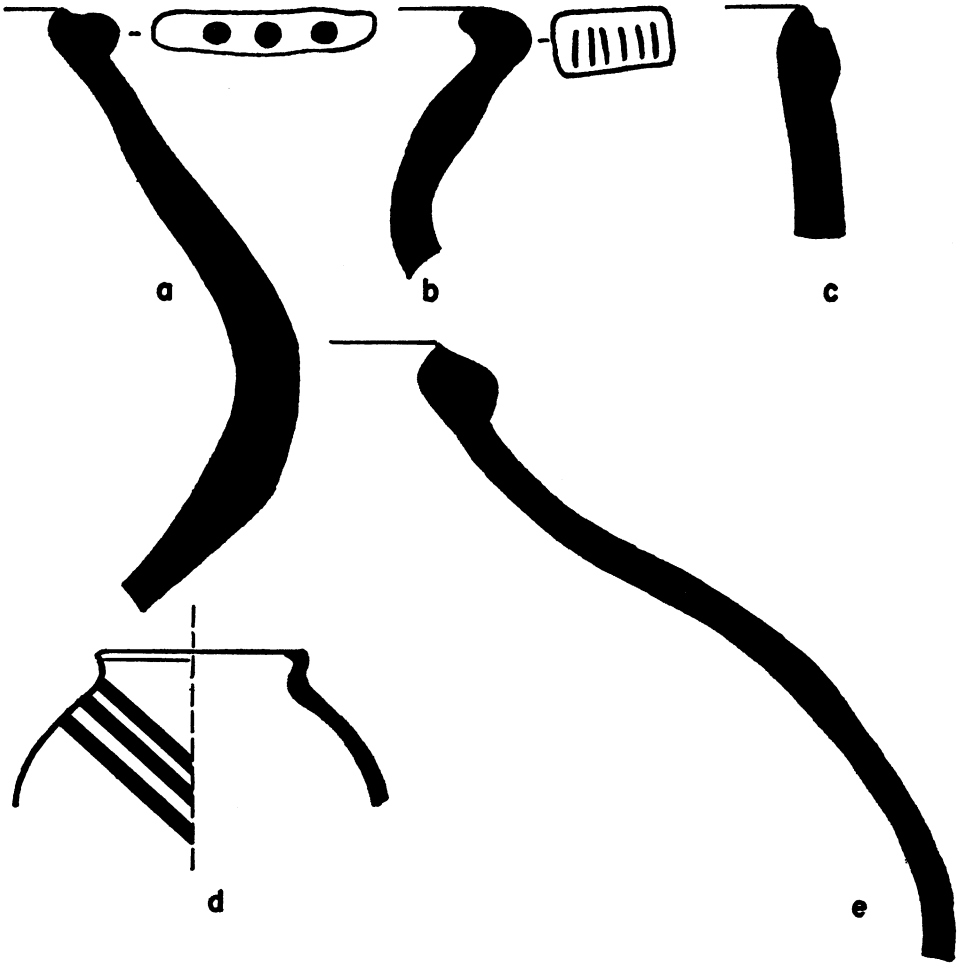


FIG. 95. Rim profiles from fragmentary schist bowls and Red Ware jar, Early Islamic. a–c. Schist bowls. d–e. Red Ware jar. *Ca.* ⅔ natural size.

Hearths

Most hearths in this cultural level occur at a depth of 10 cm. They are usually about 15 cm. in diameter and 3 to 4 cm. thick.

Textiles

Two small fragments of red cloth found are now in the Kabul Museum.

Mollusks

The mollusks from this level have been examined by Dr. Joseph C. Bequaert of the Museum of Comparative Zoölogy, Harvard College. He reports:

> The clams are all of one species, *Corbicula fluminalis* (Müller), a common freshwater species of the Middle East. The one land snail (white) is *Helicella krynickii candaharica* (Pfeiffer), a fairly common species from Afghanistan northward to Turkestan.[1]

One cowrie (?*Cyprea* sp.) now in the Kabul Museum, is still unidentified. A hole bored through one end, if man made, suggests that it may have been a pendant.

[1] Bequaert, personal communication, 1954.

IMPORTANT MISCELLANEOUS AND UNSTRATIFIED FINDS

THE EXCAVATION UNITS included under this category are:

Cut 4, a mixed zone from 20–40 cm. near a deep pit, Second Chamber
Cut 6, a dump zone, Second Chamber
Cut 7, a mixed and dump zone, Second Chamber
Cut 8, a mixed and dump zone, Second Chamber
Front Porch, including surface finds
Fifth Chamber, including wall paintings, a possible wall engraving, and a few sherds found in front of the wall paintings

CUT 4

The disturbed zone in Cut 4 contained a considerable quantity of pottery, including Graffito I, appliquéd Grit Ware, channeled Bisque Paste Ware, channeled Red Ware, incised Red Ware, and incised and punctated Bisque Ware.

Four iron artifacts were also found: a broken pin; two hollow-sided, three-bladed projectile points; a knife or spear head with a curved blade and long, slightly curving tang, rectangular in cross-section (Fig. 96a); a broken, flat, leaf-shaped spearpoint with a bent tang, rectangular in cross-section (Fig. 96b). Stein illustrates similar leaf-shaped points from Chinese Sinkiang.[1]

Aside from two coins, both now in the Kabul Museum, only one bronze object was found: a stamp seal with a long shank, a loop on the end of the shank which permitted its being worn as a seal (Fig. 96c). Stein described a similar find from Kucha, "quatrefoil, pipal-shaped leaves in profiles."[2] He also illustrates similar seals in "Serindia"[3] and from Khotan to Lop,[4] but these are largely Chinese in character.

In and near Kucha, however, Stein purchased and collected about 50 stamp seals, many with motifs similar to those of the Shamshir Ghar Late Kushan levels. Among these are: a seal[5] collected at Yulduz Bagh near Kucha, decorated with a winged griffin (?); on another,[6] a winged animal is encircled by a "ring of pearls"; Stein describes a third as Kucha. 0102, "an attenuated man striding (or standing) with right knee bent, displaying four arms, two downward and two up, with emblems in hand."[7] Stein describes a fourth seal, Kucha. 0156, as follows: "Standing male figure, head to L., in long coat, close flat turban (or cap), staff in R. hand. L. arm held away from body in curved line, sword at belt. Pose recalls that of king on some Kushana coins."[8]

Two bronze stamp seals with shanks are reported from Seistan[9]; one has a bird sitting on the shank and the loop on the circular end of the shield.

Two lignite (steatite?) seals from Kucha offer additional evidence that most of the seals reported by Stein probably date between the fourth and seventh centuries A.D., closer to the fourth century, and contemporaneous with the Kushano-Sassanian levels of Shamshir Ghar, that is, the period when the Sassanians exerted political as well as artistic influence on the Kushans. One of the seals, Yul. 078,[10] bears a head with an elaborate Sassanian type of headdress; a similar seal is illustrated in "Serindia." The second lignite seal, Kucha. 0135,[11] exhibits a "phoenix standing." The phoenix, appearing in Chinese Sinkiang at this time, could have

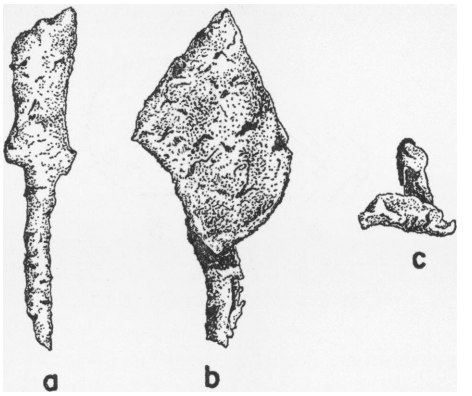


FIG. 96. Metal artifacts, Cut 4. a. Iron knife or spear head. b. Iron, leaf-shaped spearpoint with bent tang. c. Bronze stamp seal. *Ca.* ⅔ natural size.

[1] Stein, 1928, Pl. 71.
[2] Stein, 1928, 829, Pl. 111, Kucha. 0165.
[3] Stein, 1921.
[4] Stein, 1928.
[5] Stein, 1928, 825, Pl. 111, Yul. 047.
[6] Stein, 1928, 826, Pl. 111, Kucha. 02.
[7] Stein, 1928, 827, Pl. 111.
[8] Stein, 1928, 829, Pl. 111.
[9] Stein, 1928, Pl. 116, Sar. 01 and Sar. 02.
[10] Stein, 1928, 826, Pl. 111.
[11] Stein, 1928, 828, Pl. 111.

been inspired by either the Chinese or the Nestorians, large numbers of whom were in Sinkiang by the eighth century A.D.

Four interesting beads were recovered: a circular-tubular agate bead (1 by 0.2 cm.) with radiating etched lines; a rectangular-tubular agate bead (1 by 0.2 cm.) with etched vertical and horizontal intersecting lines; a fire-burned, rectangular-elliptical lapis lazuli bead (1.5 by 0.3 cm.); and a corner-less cube, a long bone bead (1 cm. in diameter) painted in red.

Of three glass fragments, one was green, the second turquoise blue, and the third a single green base similar to bases found in the Early Islamic levels.

Three large beads or spindle whorls are truncated bicone-circular, but they vary in size. One of wood (1 cm. in diameter) has a carved chevron design (Fig. 97a) repeated around the hole openings. Another bead is of plain black steatite (3.2 cm. in diameter), highly polished. The third is of polished pinkish quartzite (2.1 cm. in diameter) and has three sets of circles around each hole opening (Fig. 97b).

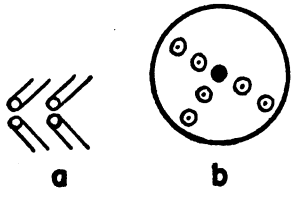


FIG. 97. Designs on beads or spindle whorls, Cut 4. a. Wood. b. Quartzite.

On the whole, most specimens from the mixed zone of Cut 4 appear to belong to the Late Kushan and Kushano-Sassanian periods.

CUT 6, SECOND CHAMBER

A small mound marked the whole area of Cuts 6, 7, and 8. Only the most spectacular finds or well-preserved specimens from Cut 6 are discussed. Unfortunately, for purposes of dating, two very fine metal objects came from this dump area, which was so filled with pottery that no sediments existed. Both objects are probably Kushan. One is a thin, well-preserved copper (or bronze) knife or razor (Pl. 32w) with a broad blade. Its over-all length is 14 cm.; length of tang, 6 cm.; width of blade at midpoint, 4 cm.; width of tang, 0.1 cm.; width of blade, 0.1 cm. The tang probably fitted into a handle of wood, bone, or ivory. The shape is more Far Eastern than Western Asiatic. The second noteworthy specimen is a bronze (or copper) animal figurine, headless, and minus its front leg (Pl. 37a). The figurine is now in the Kabul Museum. Its body is a labyrinth of carving in relief. The following measurements were made on a cast of the figurine: over-all length, 5 cm.; height of the body, including the hind leg, 5 cm.; thickness, about 0.6 cm.; depth of relief, about 0.2 cm. The squarish body, stub tail, and stylized foot offer no clues to an identification of the animal represented. I have three suggestions as to its possible use: as a medallion or plaque to be worn on a uniform; as a stamp seal; or as a decoration for either the bridle head-stall or breast band for a horse. A polished stone chisel (Pl. 33b) was found in association with this animal figurine.

Several pottery specimens merit illustration: an almost complete black-painted Red Ware jar (Black-Centered sub-ware), with slightly flaring, grooved rim, no neck, and globular body (Fig. 95d), and a large Red Ware sherd with slightly turned-out, thickened rim, and probable globular body profile (Fig. 95e). Several small sherds exhibit excellent painted motifs: red (5-L-4) vertical lines on a red (4-A-10) slip, Red Ware (Fig. 98a); black vertical lines lead-

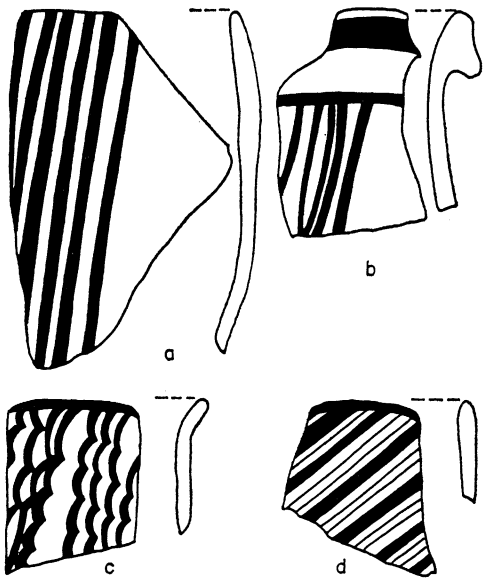


FIG. 98. Painted motifs and rim profiles on Red Ware sherds, Cut. 6. *Ca.* ⅔ natural size.

ing from single black horizontal line, black stripe on rim, Red Ware (Fig. 98b); red (5-L-4) vertical wavy lines on a Beige (11-E-6) slip, Red Ware (Fig. 98c); polychrome, Cream (9-O-2, diagonal lines), Liver Brown (7-H-9, represented by black in drawing) on light red-buff (11-B-7), Mica-Sand Tempered Grit Ware (Fig. 98d).

Cut 7

Cut 7, like Cut 6, is clearly a dump area. A small copper bell or rattle (Pl. 32u) from this cut was probably used to decorate the harness of a horse. It is about 1.8 cm. in diameter. The suspension ring is broken, but the small (about 0.45 cm.) clapper is still inside, and the bell can still be dully rattled. Such cast bells are relatively common in Outer India.[1] From Chinese Sinkiang Stein reports copper bells from Khotan,[2] Niya,[3] LouLan,[4] Kara Koto,[5] and Kucha.[6] A similar bell is reported from Moghul Ghundai in the Zhob District of West Pakistan.[7] Stein calls all his bell finds "cat bells." Wheeler describes a "copper rattle with a slit, and loop for suspension" in the Southern Sector, Late Drain Period (second century A.D.) at Arikamedu.[8] Ghirshman illustrates such a bell from Begram II.[9]

Herzfeld[10] theorizes that these small rounded bells are copied from the pomegranate. Some finds seem to duplicate the fruit[11]; others are highly stylized. According to Herzfeld, the pomegranate did not reach the Far East until at least the second century B.C. Laufer[12] reports that the first mention of pomegranates in Chinese sources is by Lu Kī during the Western Tsin Dynasty (226–313 A.D.). Laufer[13] agrees with de Candolle whom he quotes:

> The modern species of [pomegranate] is a native of Persia and some adjacent countries. Its cultivation began in prehistoric time, and its early extension, first to the west and afterwards into China has caused its naturalization in cases which may give rise to errors as to its true origin, for they are frequent, ancient, and enduring.

Therefore, the small, copper, horse-trapping bells found along the *limes* of China (later at Shamshir Ghar) were probably used by the Kushans and other Central Asian horsemen around the B.C.–A.D. boundary, give or take a hundred years.

Almost no Glaze Ware sherds were found in Cut 7. However, a few of the other types deserve mention, for example, the sherd illustrated in Pl. 16g is similar to Fig. 98d; the Cream (9-D-2) chevron motif on red (4-A-10) slip, Sherd-Tempered Grit Ware (Pl. 18g), and the ring-foot base, Red Ware, red slip sherd (Pl. 20h; Fig. 99a).

The sherd profiles from Cut 7 are of interest: a Red Ware jar, with a narrow mouth, has a flaring outline, and a rim grooved on the inside (for lid?), and no neck. The profile is possibly globular (Fig. 99b). A wide-mouthed Red Ware jar has a flaring rim grooved on the outside, and a globular body profile (Fig. 99c). On a Black on Bisque Ware sherd, a horizontal pressed band is painted and finger-marked (Fig. 100a), and below the pressed band diagonal black lines are enclosed in triangles. An ovoid shape, with a flaring rim, has Tapestry Red (7-J-5) cross-hatchings on Metallic Black Ware or extremely fire-burned Red Ware (Fig. 100b).

A unique, whitish, iridescent, badly fire-burned glass fragment was found at a depth of 30 cm. in Cut 7. It has the scalloped shoulder and slightly flaring neck so characteristic of Romano-Syrian glass of the early centuries after Christ. Duplicates of this ware were found at Begram (mid-second to mid-third centuries A.D.). A similar fragment was discovered at Arikamedu, recorded as a "Fragment of pillar moulded whitish iridescent glass. Northern Sector, post-Arretine," which Wheeler[14] dates from the first century A.D. in Europe. Artisans in Syria continued the tradition until at least the third century. Other fragments have also been found in the earlier French excavations at Arikamedu. A long-barreled circular glass bead has alternating white and orange stripes.

[1] Stein, 1921, Pl. 29.
[2] Stein, 1928, 111, Pl. 10, Kh. 0256.
[3] Stein, 1928, 148.
[4] Stein, 1928, 196–200, Pl. 24, L.M. 0131.
[5] Stein, 1928, 501, K.E. III 03.
[6] Stein, 1928, 824, Pl. 111, Yul. 03, Kucha. 021.
[7] Stein, 1929, Pl. 12.
[8] Wheeler *et al.*, 1946, 103–104, Fig. 43:5.
[9] Ghirshman, 1946, Pl. 37, B.G. 489.
[10] Herzfeld, 1941, 171.
[11] Stein, 1929, Pl. 12.
[12] Laufer, 1919, 278.
[13] Laufer, 1919, 276.
[14] Wheeler *et al.*, 1946, 102.

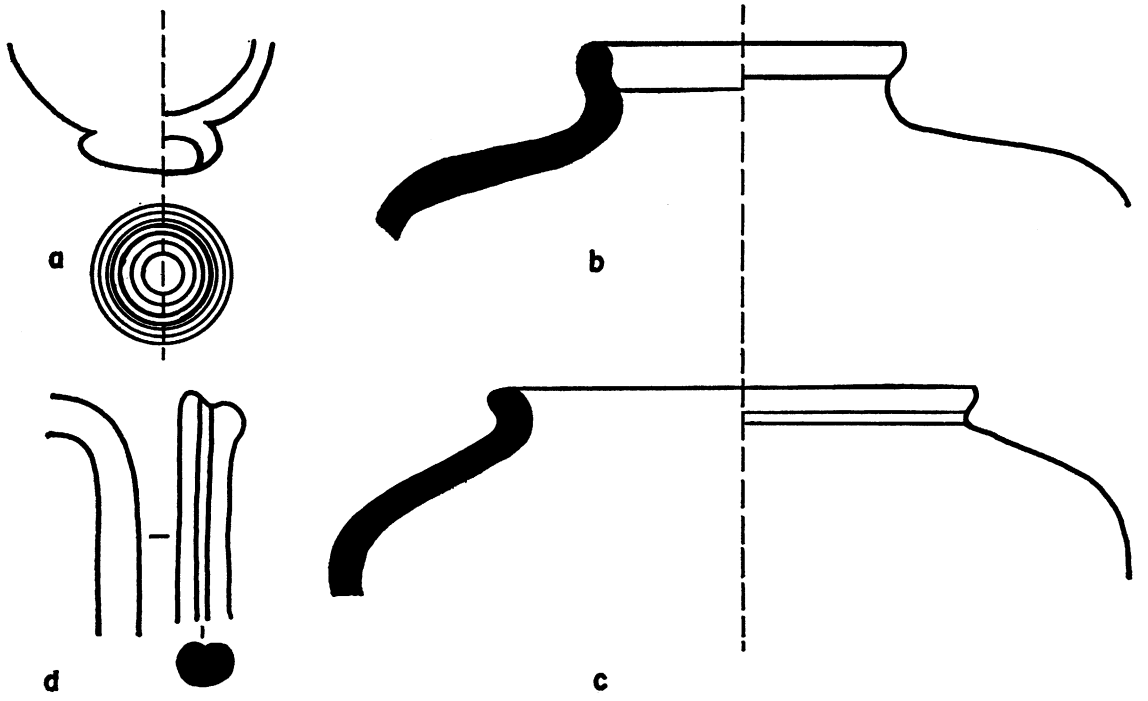


FIG. 99. Rim profiles, base, and handle, Cut 6. a. Red Ware, Red Slip. b–c. Red Ware. d. Bisque Ware. *Ca.* ⅔ natural size.

CUT 8

Several interesting sherds from Cut 8 are illustrated: a large Sherd-Tempered Grit Ware sherd with a gadroon-like motif (Pl. 16a); a twisted handle of Bisque Ware (Pl. 27s); and an externally grooved Bisque Ware handle (Fig. 99d).

The twisted handle (Pl. 27s) was characteristic of Parthian pottery in Iraq,[1] and also popular in Sassanian Iraq, but seemingly not too well liked by Early Islamic potters. In the eleventh century, under the Seljuks, however, the twisted handle again found favor. The Bisque or Buff wares of this ceramic period are

[1] Day, MS.

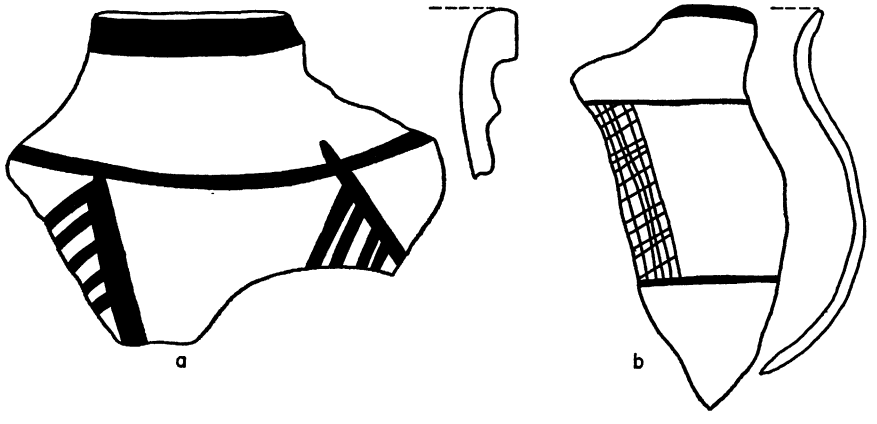


FIG. 100. Pottery designs, Cut 7. a. Black on Bisque Ware. b. Red cross-hatching on Metallic Black or extremely fire-burned Red Ware. *Ca.* ⅔ natural size.

covered with involved arabesques and winding foliage, with an elaborateness second only to that employed by the Far Eastern potters. A few sherds of this type occur in the upper 10 cm. of the Early Islamic levels at Shamshir Ghar (Pl. 31b, y, z). The elaborate Seljuk style is well known and well illustrated by Stein.[1] Other such sherds are illustrated in Pope[2] and Lane.[3]

Ghirshman[4] reports a twisted handle from Bordj-i-Abdallah, the "old city" 600 meters north of Begram. On the basis of the fired bricks used to construct buildings, he dates Bordj-i-Abdallah as Alexandrian, or fourth century B.C. After a careful examination of Ghirshman's illustrations of artifacts, however, it seems plausible to me to date these as sixth to seventh centuries A.D., or post-Begram III. The position of Bordj-i-Abdallah, which is much closer to the confluence of the Ghorband and Panjshir rivers, in relation to Begram proper supports a later date. Below Gulbahar, about 4 miles north of Begram, the Panjshir River flows into the relatively open Jabal-us-Siraj region of Kohistan. The river occasionally shifts its course; at one time it flowed much closer to Begram than it does today. As the locations of Middle Eastern towns and cities generally follow the drainage patterns, it becomes possible to assign relative ages to mounds *in the same geographic zones;* the oldest is usually situated farthest from the present stream bed. Thus it is probable, though not certain, that Bordj-i-Abdallah is post-Begram III, the date of the Shamshir Ghar twisted handle.

The alabaster rim fragment (Pl. 32cc) is probably Early Islamic. Stein[5] reports alabaster fragments from Iranian Seistan, Waziristan,[6] Zhob Valley,[7] Pakistani Makran,[8] and many sites along the Persian Gulf and the basins of southeastern Iran.[9] Stein identified all the alabaster he collected as "neolithic or chalcolithic."[10] I suspect that at least some of his surface-collected finds are dated after the beginning of the Christian era, because most of the stratified finds at Shamshir Ghar can be assigned a date after Christ.

Other interesting finds in Cut 8 are: a spheroid agate bead (diameter, *ca.* 1 cm.); two glass bangle fragments, one monochrome and one polychrome; one hollow-sided, three-bladed, iron projectile point (*ca.* 6 cm. long); one knife blade or curved lance head (*ca.* 10 cm. long.).

Front Porch

This mixed zone in front of the mouth of the cave produced primarily Early Islamic sherds.

A small pottery lamp (Pl. 35e), with a fire-blackened interior and lip, was discovered in the fissure shown in Pl. 11c to the left of my wife. The paste is undecorated Bisque Ware. It is impossible to date this find typologically, because such lamps are known from prehistoric times to the immediate past. Similar finds are reported by Stein[11] and by Ghirshman.[12]

Fifth Chamber

Two enigmatic finds at Shamshir Ghar are the wall paintings and the wall engraving (?) in the Fifth Chamber (Figs. 19–20).

The scale drawing of the wall paintings (Fig. 20) is very accurate. A total of four painted red tridents appear on the low, limestone wall. Near the trident (or cross?) on the left face are two red dots: one on the lower left, the other on the upper right. The uppermost trident seems almost bird-like; four small dots extend in a crooked line from the left point to the top. The central trident has a rough triangular dot to the right of its left arm. Almost directly above the curved right arm of the central trident is an apparently isolated dot. The trident farthest to the right is partly split by calcite. Two dots, one on either side of the main stem, are painted under the curved arm. Originally there may have been additional dots which were obliterated by the calcite smudging of the wall.

What do the tridents and dots mean? Can we safely compare them with similar designs? After all, painted and incised tridents are common

[1] Stein, 1928, Pl. 115; 1930, from Jurjurai stupa, Swat, Pl. 1; 1937, finds from Shah-i-Daqianus, Jiruft, Pls. 22–23.
[2] Pope, 1930, from Rayy, Fig. 32.
[3] Lane, 1948, Pl. 37:B.
[4] Ghirshman, 1946.
[5] Stein, 1928, 951–952, 960, 963, 968, 970.
[6] Stein, 1929, 12.
[7] Stein, 1929, 37–38, 82, Pl. 7.
[8] Stein, 1931, Pls. 6, 10, 13, 14, 18.
[9] Stein, 1937, e.g., Chah Husaini, 127–129; Jaz Murian basin, 137; Jiruft, 150; near Kerman, 168; near Bushire, 218; Khurab, Pl. 6; Bampur, Pl. 8.
[10] Stein, 1931, 55.
[11] Stein, 1928, Pl. 117, a broken specimen of Nishapur 3 style; 1929, Pl. 7, from Periano Ghundai; 1920, Pl. 1, Swat; 1937, Pl. 4, Nishapur 2 type.
[12] Ghirshman, 1946, Pl. 18, B.G. 114, Begram II.

throughout time and space: for example, French Guinea.[1] Many scripts have used tridents: Himyaritic and Nabataean in Arabia[2]; Kharosthi and Brahmi in India and Chinese Sinkiang[3]; Taxila.[4] I use Central Asian and Middle Eastern finds for comparative purposes in preference to extending the quest for parallels to French Guinea.

Tridents were used as weapons in India in the fourth century B.C.[5] The trident is familiar in Graeco-Roman mythology and art as the symbol of Poseidon (Greece) or Neptune (Rome) and naval supremacy. In India, it is a symbol of Śiva, one of the three most important deities in the Hindu pantheon; the other two are Brahma and Vishnu. Tridents representing Poseidon appeared on Greek coins as early as the fifth century B.C.,[6] but such recognizable representations of Śiva probably are no earlier than the B.C.–A.D. boundary, when the worship of the *Trimurti* (trinity of Brahma, Vishnu, and Śiva) took the place of the Vedic gods.[7]

During the reign of the Indo-Parthian kings (satraps of the eastern Parthian provinces), Gondophares substituted the Śiva with trident motif for Zeus on Indo-Parthian coins.[8] Gondophares ruled Seistan (Śakasthana), Sind (Śakadvipa), southern and western Punjab (Taxila), Northwest Frontier Province (Gandhara), southeastern Afghanistan (Paropamisadae), Kandahar (Arachosia), Kaccha, and Surashtha. His reign ended some time between 45 and 65 A.D.

The tridents on the copper coins of the First and Second Kushan dynasties are of greater importance. I bought an excellent example of this coinage in the Panjshir Valley near the Khojak Pass. The coin was probably minted in the reign of Vima Kadphises, or late in the first century A.D. The coins of the early Kushans (first to second centuries A.D.) display mixed religious motifs. This was a period of syncretist religious movements from Rome to China, and all the major religions probed and accepted compatible parts of other theologies.

[1] Abonneng, 1952.
[2] Doughty, 1947, figure opposite 218.
[3] Stein, 1928, Pls. 17–18; 1929, Pls. 17–18.
[4] Marshall, 1951, Pl. 168.
[5] V. Smith, 1919, 64.
[6] Seltman, 1952, 24.
[7] Rowland, 1953, 28.
[8] Marshall, 1951, 60.

The description of the coin follows Herzfeld[9] in his classic discussion of Kushano-Sassanian coins, Dowson,[10] Rowland,[11] and Zimmer.[12] It is a cup-shaped *aurei*. On the obverse are the Greek characters reading "Basilios Basilium Megalu"[13]; a full-sized figure of the king stands in full armor with a trident to the left; the right hand points downward to a small fire-altar, as though throwing incense in the fire; on the right is the four-pronged personal symbol of Vima Kadphises. The club-like weapon is almost always found on early Kushan coins. On the reverse is the Hindu Śiva with his bull Nandi. Śiva holds a trident in his left hand. The script is Kharosthi.[14]

The following religions or cultures are represented on this one coin: Greek world (script); Iranian Zoroastrianism (fire and script); Indian Buddhism (trident in Buddhistic iconography symbolizes the three jewels, the Buddha, the Law, and the Order); Indian Hinduism (Śiva, Nandi, and *Triratna*—the trident, which indicates the triune aspects of Śiva Mahesa); and, lastly, the Kushans themselves (figure and costume of the king).

The First and Second Kushan dynasties were indeed cosmopolitan in their cultural tastes and tolerant in their religious practices and beliefs.

Dr. John Zeigler, the expedition geologist, believes that the Shamshir Ghar wall paintings are of "some antiquity." He bases his opinion on the intrusive calcite stringers. I suggest dates around 300 A.D., when Late Kushan refugees from Sassanian armies might have occupied the cave, or the sixth century A.D., when the Kushan satraps of Sassanid Iran lived in the cave to escape the White Huns.

No evidence of blood sacrifice was found. We can therefore dismiss the idea that the cave was used for the blood rites of the followers of Kali,

[9] Herzfeld, 1930.
[10] Dowson, 1953.
[11] Rowland, 1953.
[12] Zimmer, 1953.
[13] W. B. Henning and Frederic Will read the Greek as follows: ΒΑΣΙΛΕΤΣ ΒΑΣΙΕΩΝ [c] ΩΤΗΡ ΜΕΓΑΣ ΟΟΚΙΟ [for ΟΟΗΜΟ] ΚΑΔΦΙΣΗS translated as "King of Kings, Great Savior, Vima Kadphises."
[14] A. D. H. Bivar, personal communication, 1956, reads the Kharosthi as follows (brackets mark what is legible on the coin): ["Manarajasa rajadirajasa] sarvaloga iśvarasa mahiśvarasa Vi[ma Kathphiśasa tradara"], translated as ["Coin of] the great king, the king of kings, lord of the world, the Mahiśvara Vima Kathphiśa, the defender."

Śiva's destructive manifestation. Sects devoted to Kali were common in North India, Gilgit, Kashmir, and Nepal from the seventh to the eleventh centuries A.D.[1] Fewer than 250 sherds were found in the dust in front of the paintings, and they are predominantly Grit Ware and Red Ware, Cream Slip. A few Graffito I sherds indicated that the cave had been explored at least until the tenth or eleventh centuries A.D. Small, artificially carved, cup-like depressions in the base rock at the foot of the paintings are fire-burned and may have been used as lamps by the artists.

Whether the artists were Buddhist or Hindu remains a question, but I lean towards the Buddhist side, principally because Baladhuri, an early Arab historian quoted by LeStrange,[2] says that the Muslims who first attacked Kandahar destroyed the great idol "al-Budd," which was worshipped by the local population. Incidentally, this was an amphibious attack, launched from boats on the Helmand River.

The figure shown in Fig. 19 may or may not be man-made. It appears to be a line engraving of a mammal (?), comparable to rock drawings found by Bergman[3] in the Lop Desert of Chinese Sinkiang in association with three lines of Mongol script, so the animals, stick men, and other figures need not necessarily be prehistoric. Similar finds were made by the First Afghan Expedition of the American Museum and photographed by me.[4]

The Shamshir Ghar find may be an aberrant work of nature, because the area is defaced with calcite stringers. In any event, the "engraving" is not identifiable or datable.

[1] Dr. Sri N. Prasad, personal communication, 1954.
[2] LeStrange, 1930, 347.
[3] Bergman and others, 1939, Pls. 17–18.
[4] Fairservis, 1950b, 248.

HISTORICAL PERSPECTIVE: SECOND CENTURY B.C. TO 1222 A.D.[1]

SIX SERIES OF INVADERS entered Afghanistan during the historical periods with which we are concerned. They came successively out of Central Asia, the Iranian Plateau, India, Central Asia, the Arabian Peninsula, and Mongolia (see Figs. 101 and 102).

THE MOVEMENTS OUT OF CENTRAL ASIA: SECOND CENTURY B.C. TO THE B.C.–A.D. BOUNDARY

The Graeco-Bactrian kingdoms in Afghanistan and northwest India (now Pakistan) first felt the impact of nomadic invaders from Central Asia about 135 B.C., when the Śakas pushed them out of Bactria (northern Afghanistan). The Śakas (variously called Sacas, Sacae, Sacarauli, or Sacaraucae in Indo-European classical sources; Se, Sewang, and Se-jung in Chinese sources) had been slowly pushed west by a chain reaction which had its origin on the western frontiers of Ch'in Dynasty China in the second century B.C.

In the third century B.C., the two strongest groups in the Far East, the sophisticated Han Dynasty Chinese and the nomadic confederation of the Huing-Nu or Huns, were constantly at war. Against these marauding herdsmen the great Ch'in emperor, Shih Huang-ti, began to build the Great Wall in 214 B.C. By the beginning of the second century B.C., a pattern of raid and retaliation had been established. The Huing-Nu invaded the Chinese borderlands at will, and the Chinese sent armies to drive them out. As a result the Huns could not permanently occupy the looted land, but neither could the Chinese system of *limes* keep the nomads from periodically raiding the frontier.

About 165 B.C., the Huing-Nu were attacked by one of their subject kingdoms, the Yueh-Chih,[2] setting in motion the chain reaction mentioned above. Beaten by the Huing-Nu, but still strong, the Yueh-Chih packed up horses, flocks, tents, and baggage, and moved west, the only possible route to freedom. The Huing-Nu controlled the north; the Chinese, the south and east. A small group of the Yueh-Chih (called the Little Yueh-Chih) moved southwest and settled among the war-like Kiang tribes of Tibet. The majority, the Great Yueh-Chih, traveled north of the Gobi into the lands of the Wusun. The numerically inferior Wusun were defeated by the Yueh-Chih; subsequently they moved north and attached themselves to the Huing-Nu for protection.

The Yueh-Chih continued to move west, always searching for sufficient pasture lands. They found such lands across Lake Issik-Kul (now Lake Balkash, latitude 43° 35′ N., longitude 76° 00′ E.) in the Dzungarian Basin, but to gain possession of the land they were forced to drive out the occupants, the Śakas. The Śakas fled in two directions; one group crossed the Oxus River into the Afghan-Greek kingdom of Bactria (Dahia or Tahia); another went westward to Parthian Iran. They did not remain long in Bactria, however, for the chain reaction began again.

About 140 B.C., the Wusun, supported by the Huing-Nu, pushed the Yueh-Chih from the Lake Issik-Kul region. The Yueh-Chih, in turn, drove the Śakas from Bactria. The Śakas occupied Śakastan (modern Seistan), founding a kingdom which, for a brief period, extended from the Helmand River to the Persian Gulf and modern Iraq. Then the great Parthian soldier-king, Mithradates II (*ca.* 124–88 B.C.), reconquered Śakastan which, once again, became a Parthian satrapy.

[1] All references used for this section were secondary sources in Western languages. Middle Persian (Pahlavi), early Arabic, Sanskrit and early Hindi, and Chinese are outside my present limited knowledge.

The following are among the most important sources used: V. Smith, 1904, 1919; Rapson, 1922; Parker, 1924; Barthold, 1928; Haig, 1928; Coomaraswamy, 1935; Tarn, 1938; McGovern, 1939; Lattimore, 1940; Sykes, 1940; Herzfeld, 1941; Hitti, 1949; Coon, 1943, 1948; Brockelmann, 1947; Carter, 1948; Ghirshman, 1948; Vladimirtsov, 1948; Majumdar *et al.*, 1950; Hazard, 1951; Hourani, 1951; Marshall, 1951; Lal, 1952; Rowland, 1953; Dupree, 1956a. Needless to say, some were more helpful than others. None apparently is complete.

Other major sources were the Encyclopedia of Islam and the Shorter Encyclopedia of Islam.

[2] In referring to the Yueh-Chih, Kushans, *et al.*, I am speaking of the ethnic groups that took group action to meet specific situations. For example, not *all* the Śakas migrated to Seistan, nor to West Pakistan. Many stayed behind in Parthian Iran to serve as mercenaries or to settle down as agriculturists. Also, the term Kushan refers to the ruling section of the five-sectioned Yueh-Chih nation.

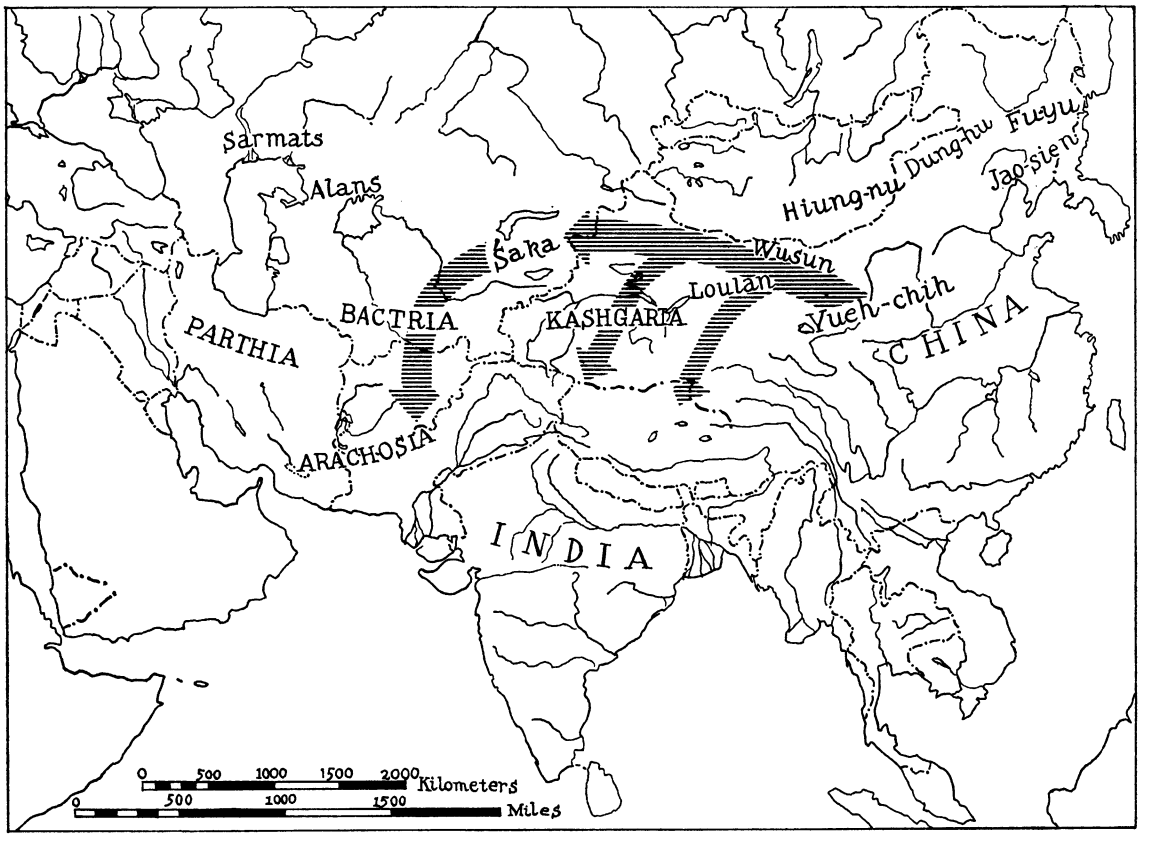


FIG. 101. East Asia in the second century B.C., showing the route by which the Śaka and Yueh-Chih (Kushans) reached Bactria and Arachosia. After Morris.

The Śaka nobility became satraps and garrison troops in most of the eastern Parthian empire. Gradually, the Śaka satraps of Gandhara (including Peshawar and Jalalabad), Mathura (modern Muttra in India), Kaccha (Cutch), Surashthra (Kathiathur), and Arachosia (Kandahar) made themselves kings. Although they still maintained their allegiance to the Parthian rulers, they were virtually independent.

By about the beginning of the Christian era, most of the Greek states south of the Hindu Kush had fallen to the Śaka-Parthian kings. The last to fall was the kingdom of Kabul under Hermaeus, about 50 A.D. Whether Kabul fell to the Śaka or the Yueh-Chih is still a moot question.

The Rise and Fall of the Kushans: First to Fourth Centuries A.D.

The hold of Parthia on her eastern empire weakened, and finally collapsed between 45 and 64 A.D. This collapse was precipitated by the rise of the Kushans, one of the five principal Yueh-Chih tribes (the other four were Humi, Sewangi, Hitum, and Koruto), some time between 25 and 40 A.D. The Kushans united the Yueh-Chih into a powerful military machine. Middle Eastern, Indian, and Western sources after the first century A.D. refer to the Yueh-Chih as the Kushans, but the Chinese continued to use the older name. Henceforth I shall call this empire and people Kushan, but it should be borne in mind that Kushan and Yueh-Chih are interchangeable.

Kujula Kadphises (Kadphises I) and his son, Vima Kadphises (Kadphises II), of the First Kushan Dynasty spread Kushan control from the lower Indus Valley (minus Surashthra) to the Iranian frontier, from the Sinkiang border to the Caspian and Aral seas. Some time after the death of Kadphises II, Kanishka I founded the Second Kushan Dynasty.

Kanishka is certainly one of the two or three really great figures in Indian history. Not only was he a great soldier, but it was undoubtedly due in no small measure to his influence that Gandhara, the seat of his government, became a potent and vital center of literary and artistic activity. He was also a magnificent patron of religious learning, and the northern Buddhists looked upon him in the same manner as the Eastern Christians looked upon Constantine. Numerous monuments and coins dating from his reign have been reported, but so lacking are the Indians in historical tradition that we are still in some doubt as to when his reign actually took place.[1]

Whenever he lived and died (probably around the close of the first century A.D.), Kanishka left an indelible mark on the Indian, Afghan, Iranian, and even the Chinese cultural landscape, for it was during his reign that Buddhism rose to its apogee in Central Asia and subsequently spread to the Far East and southeast Asia. His armies marched down the Ganges at least as far as Benares and Ghazipur and conquered Surashthra and peoples living at the mouths of the Indus. Kashmir, Sinkiang, Kashgar, Yarkand, Khotan, and all the Chinese provinces north of Tibet and east of the Pamirs also fell to Kanishka. He moved his capital from Bactria to Purushapura (Peshawar), and Kapísa (Begram) became his summer capital. The north Indian capital was Mathura. As were his origin and much of his life, the death of Kanishka is shrouded in mystery. Tradition holds that he was assassinated by his own officers, who had tired of being military exiles from their homes and families.

The Kushan empire held its own under the last two Second Dynasty kings, Huvishka and Vasudeva (who probably died about 220 A.D.). Then it began to break up into independent and semi-independent states. The first two Kushan dynasties were periods of great artistic and intellectual achievements.[2]

Commercially this period was also of great importance. Land and sea routes both permitted an exchange of goods from China to Rome. Overland routes were more important during the first two centuries of the Christian era, but some sea-borne trade existed between India and Rome, as is conclusively proved by excavations at Arikamedu on the southeast coast of India.[3] The major east-west land route from China skirted the Gobi and entered Chinese Turkestan (Sinkiang) at Tun Huang, turned northwest past Turfan and Urumchi (Tiwa) and passed through the Dzungarian Gates, then continued across the Central Asiatic steppes, south of Lake Balkash, through Tashkent, Samarkand, and Bokhara. From these last-named centers, the route led south to Balkh, Bamiyan, Begram, Kabul, Peshawar, Taxila, and on to the Indian Ocean. Another route led across Parthian Iran through Merv and Ecbatana (Hamadan) to Seleucia, Petra, Palmyra, or Tadmor (Syria), which were among the more important central storehouses of goods for Rome and China.

Major items of export from the Roman empire (including Syria and Egypt) were gold and silver plates, woolen and linen textiles, topaz, coral, amber, frankincense, glass vessels, and wine. From India came cotton cloth, indigo, spices, semi-precious stones, pearls, ivory, Kashmir wool, steel swords, and furs. Central Asia (including Afghanistan) contributed rubies, lapis lazuli, silver, turquoise, various gums, and drugs. China sent raw silk to Rome, embroidered silks to Central Asia and India, and furs (from Siberia and Manchuria) and many spices to both India and Rome. The "ultimate" markets are indicated by the discoveries of Roman glass in China, of Indian pottery at Pompeii in Italy, of Chinese pottery in Roman tombs in the European Rhineland.[4]

The Kushano-Sassanian Period of Small, Semi-independent States: Fourth to Fifth Centuries A.D.

While the Kushan empire was slowly breaking up into independent fragments, a powerful new dynasty, the Sassanian, was rising in Iran. The Sassanians, under the founder, Ardashir-i-Bahegan (226–240 A.D.), quickly overthrew the Parthians, and a violent reaction against Greek, Roman, and Central Asiatic influences began in Iran. Ardashir overran the Kushan states from Sogdia to the Punjab. But, by the time of his death, most Kushan states were again semi-independent and only nominally recognized Sassanian overlordship.

[1] McGovern, 1939, 251–252.

[2] Rowland, 1953, 75–122, is the most recent work which discusses this.

[3] Wheeler, Ghosh, and Deva, 1946.

[4] Wheeler, 1950, 52.

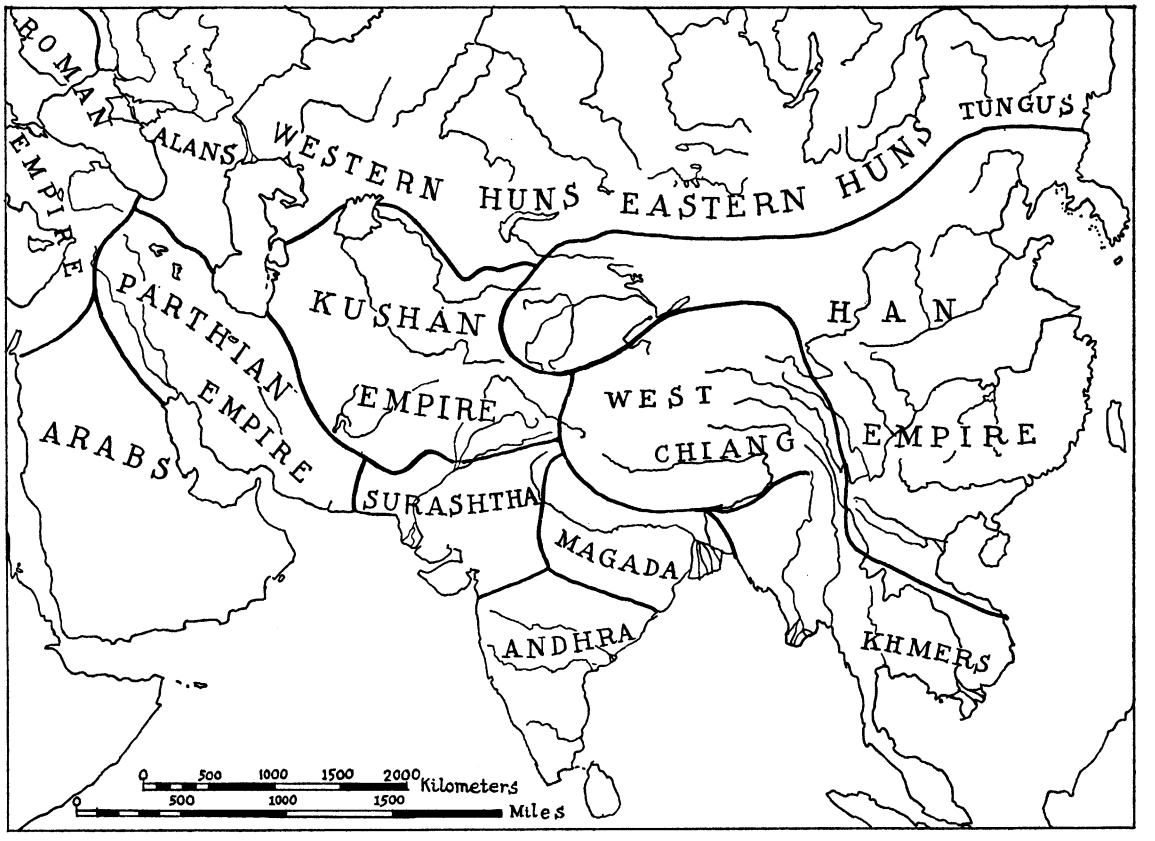


FIG. 102. Political boundaries of East Asia, first century A.D. After Morris.

From the beginning the Sassanians considered Byzantium, against which they fought many wars, their main foe. This was one of the first periods of sustained East-West conflict and lasted from 229 A.D., when Ardashir first marched against the Roman Empire, until the final defeat of the Sassanians by the Arabs in the seventh century A.D.

The effects of this struggle for the control of the Levantine coast, Asia Minor, and Mesopotamia were far-reaching economically as well as politically. The overland east-west trade routes were more and more replaced by seaborne trade across the Indian Ocean. This upsurge in the sea trade did not mean that the overland trade was dead, or even dying, for, as the Romans and Sassanians wore each other down militarily, the land routes were reopened and the Sassanians themselves became the land-trade middlemen, with Balkh, Samarkand, Bokhara, Merv, and Nishapur serving as their headquarters.

Minor invasions from contemporary India must be mentioned briefly. A native Indian dynasty, the Gupta (*ca.* 320–535 A.D.), had established itself from the west to the east coast of India. The Guptas were as pro-Indian as the Sassanians were pro-Iranian. They tried to throw the Śakas and Kushans out of western and northwestern India, succeeding with the former, but only partially defeating the Kushans, who retained control of the upper Indus Valley.

The Epthalite Huns (White Huns): Fifth to Seventh Centuries A.D.

The small Kushan states were not united and thus could not meet the sudden threat to Bactria in the fifth century A.D. The Epthalite (or Hepthalite) Huns, as these new Central Asiatic invaders were called, are as much a mystery people as the earlier Śakas and Kushans, and the date of their invasion is difficult to determine. History first records the Epthalites as

clients of the Avar Mongolian Empire about the end of the fourth century A.D. Probably wishing to be free of their overlords, the Epthalites moved through Chinese Turkestan and Sogdia, extorting tribute en route. Crossing the Oxus, the Epthalites drove out the Kushans, ruled by Kidara, a Fourth Kushan Dynasty king. The military aristocracy of the Bactrian Kushans fled south over the Hindu Kush and, forced east by the Sassanians, passed through Kandahar and eventually conquered parts of Gandhara. The Kidarites (as the Fourth Dynasty kings are sometimes called) ruled northwest India, the Punjab, and southwest Afghanistan from *ca.* 390 to 460 A.D., when they were again displaced by the Epthalites.

The Epthalite empire in Afghanistan and northwest India lasted about 150 years (*ca.* 400–565 A.D.) and extended from Chinese Sinkiang to Sassanian Iran, from Sogdia to the Punjab. More than 30 separate semi-independent or independent kingdoms had been conquered. The Epthalites did not have a peaceful reign, however, and the Sassanians were their chief antagonists. Several Sassanian monarchs, frustrated in wars with Byzantium, turned to the east. After being initially successful, they were ultimately defeated by the more militarily adroit Epthalites.

About 565 A.D. the Epthalites were attacked by the combined forces of the Sassanians and Western Turks, who had made their appearance in the political arena about 552 A.D. when they rebelled against and crushed the Avar Empire of Central Asia. As a result of the victory the Turks became masters of all the White Hun territories north of the Oxus. The Sassanians ruled south of the Oxus.

Thus, at the beginning of the seventh century A.D., most of Afghanistan was under Sassanid control. It was divided into provinces governed by White Hun satraps in the north and Kushan (and/or Śaka) satraps in the south and southwest. While the Sassanian empire slowly disintegrated as a result of the Arab attacks in the second quarter of the seventh century, anarchy and minor invasions swept Afghanistan. Each new satrap had to fight for his position.

To complicate the picture further, the Hindus and Western Turks kept pushing the frontiers of the petty states, absorbing a few, accepting tribute from others.

From the Islamic to the Mongol Invasion: Eighth Century to 1222 A.D.

Sassanian power was broken by the Arabs at Qadisiya in 637 A.D. The *coup de grace* was delivered at Nihawand (near Hamadan) in 641 A.D., and all eastern Iran fell into Arab hands. The first big Arab raid through Kandahar and central Afghanistan took place in 699–700 A.D., when the Arab governor of Seistan was sent to chastise the Kushan (now called Shahiya) king of Kabul, who had refused to pay tribute. Even though defeated, the Kushans continued to rule Kabul as vassals of the Umayyad caliphs.

At this time T'ang Dynasty China, which had defeated the Eastern Turks about 630 A.D., also covetously eyed Afghanistan. During the period from 665 to 715 A.D. the Chinese, unable to fight actively for control of Afghanistan because of internal difficulties, helplessly watched Arab raids for booty give way to permanent military garrisons. The native rulers were permitted to retain their thrones, but were assisted by Arab military governors and tax collectors.

When the Abbasid caliphs came into power (750 to 1258 A.D.), revolts occurred all over the Islamic world, but al-Mansur, the second caliph of this dynasty, secured the empire. By 850 A.D., however, the Abbasids were beginning to crumble, and many petty independent Muslim states were formed in North Africa and Western Asia. The first three semi-independent, eastern dynasties were of Iranian origin: Tahirid (820 to 872 A.D.) penetrated Afghanistan only in the extreme west, bordering Khurasan; Saffarid (869 to *ca.* 900 A.D.) broke the power of the Buddhist Kushans (Turki Shahs) of Kabul, Zamindar, Bust, Ghor, and Kandahar; Samanids (*ca.* 900 to 999 A.D.) ruled Seistan, Kandahar, all of modern Iran, and Transoxiana. All these semi-independent dynasties professed outward loyalty to the caliphs in Baghdad. Although the intellectual center of Islam was still Baghdad, the Samanid capital, Bokhara, and its chief city, Samarkand, saw the rise of Persian scholarship. By the end of the Samanid Dynasty, both these cities ranked with Baghdad as centers of learning and art.

During the Samanid period, the Turks from the north, who had been gathering strength since the beginning of the Chinese Sung Dynasty (960 A.D.), thrust themselves into the

Islamic limelight for the first time. In 990 A.D., the Ilek (Ilaq) Khan (Kara Khanids or Toquz-Oghuz Turks) of Turkestan captured Bokhara, and nine years later finished off the Samanids, dividing the Samanid domains with the Ghaznavids, who under Subuktigin had seized Khurasan south of the Oxus in 994 A.D.

With the Ghaznavids or Yamini Dynasty (962 to 1186 A.D.), the Turks became the power in Iran, Afghanistan, and India. The founder of the dynasty, Alptigin, had been a Turkish slave in the bodyguard of the Samanid ruler. As had happened before and would happen again many times, the "slaves" of the Western Asian ruling families slowly and subtly (and at times not so subtly) exchanged roles with their masters. Gibb and Bowen[1] published a brilliant study of this "ruling slave" phenomenon in the late Ottoman Empire (1299 to 1923 A.D.).

Alptigin gained the confidence of his master and was made governor of Khurasan (capital, Nishapur), but, having exceeded his authority, he quickly found himself in disfavor and was forced to flee for his life. With a few loyal Turk followers, Alptigin established an independent dynasty at Ghazni. The real founder of the Ghaznavid Empire was Subuktigin (976 to 997 A.D.), son-in-law and one-time slave of Alptigin. The succeeding 16 Ghaznavid rulers, the most famous of whom was Mahmud (999 to 1030 A.D.), were all lineal descendants of Subuktigin.

Mahmud was one of the greatest generals in history. He conducted at least 17 successful campaigns against India, added northwest India and the Punjab to his empire, and enriched his treasury by looting Hindu temples. He overthrew the ruler of Ghur (Ghor), an independent mountain kingdom in central Afghanistan, in 1002 A.D. The Ghurid ruler was of "East Persian" descent,[2] probably one of the last of the Kushans.

At this time, the Sunni Caliph was virtually a prisoner of the Shi'ite Buwayhid ruler of western Iran. Sunni Mahmud invaded Iran and sliced Isfahan, Rayy, and the Makran coast from Buwayhid control. The Caliph, al-Qadir (991 to 1031 A.D.), showed his appreciation by titling Mahmud *Yamin-al-Dawlah* (the right arm of the state).

Despite his military reputation, Mahmud filled his capital and other cities with men of learning and became a patron of the arts. Among these learned men were the scientist and historian al-Biruni, the poet Firdawsi, and the historian al-Utbi. At the death of Mahmud, the familiar pattern of the breakdown of central authority occurred. Small independent states sprang up in the Indian provinces, while the Kara Khanids to the north and the Seljuks (who had replaced the Buwayhids in 1055 A.D.) from Iran nibbled away at the frontiers. The death blow came from the Ghurids in 1186 A.D., when they defeated the last Ghaznavid prince at Lahore.

Thus in the last half of the twelfth century A.D., Turkish dynasties controlled all the Eastern Caliphate. Afghanistan, eastern Iran, and west Pakistan were all under the Turkish Ghurids; central and western Iran were in the hands of the Seljuk Turks, until the Turkish Khwarizm Shahs came out of Transoxiana to overthrow them in 1194 A.D.

The Abbasid Caliph was caliph in name only; the Arabs no longer controlled Western Asia as the year 1200 A.D. approached. The Turks were invincible, but there were rumors from Central Asia that a savior was on the way. The Christians believed Prester John was coming to save them from the Muslims; the Caliph hoped the new invader would re-establish the glory of a centrally powerful Caliphate.

The man who came out of Asia in 1220 A.D. was not a noble savior on a white horse; he was a brutal, brilliant military technician on a scraggly Mongol pony, leading an army of men who seemed to be part horse. Temujin, or Chingis Khan (1155–1227 A.D.), made history by destroying the finest civilizations of the thirteenth century. He carved an empire from the China Sea to the Adriatic, but it was a transient empire, and the emperor slept in a tent instead of a palace. The results were not transient; Western Asia still bears the scars, still suffers from the economic impact. The atom bomb on Hiroshima and Nagasaki may have destroyed much and killed many, but now the cities are rebuilt, even if the dead cannot be returned. The silent ruins, silted canals, and destroyed cities in Western Asia are still Chingis Khan's monument in world history.

As the uppermost stratigraphic levels at Shamshir Ghar contain only sherds of pre-Mongol invasion date, we leave Afghanistan, a

[1] Gibb and Bowen, 1951.
[2] Sykes, 1940, 189.

nation broken by the Mongol hordes, at this point in her history.

But Islam did not die in the rubble. "In the darkest hour of political Islam, religious Islam has been able to achieve some of its most brilliant successes,"[1] for "less than half a century after Hugalu's (a grandson of Chingis Khan) merciless attempt at the destruction of Islamic culture, his great grandson Ghazan, as a devout Muslim, was concentrating much time and energy to the reunification of the same culture."[2]

[1] Hitti, 1949, 475.

[2] Hitti, 1949, 488.

CONCLUSIONS

The Cultural Sequence Summarized

"For me, archaeology is not a source of illustration for written sources, but an independent source of historical confirmation, no less valuable and important, sometimes more important than the written sources."[1]

The preceding geological, stratigraphic, and artifact evidence helped us to establish a relative sequence. The historical evidence summarized in pages 276–282 places the dates of occupation from the first century B.C. to the thirteenth century A.D.

Early Kushan Period: *Circa* 100 B.C. to 100 A.D.

A thin stratigraphic level much intruded by the hearths and pits of later occupants, the Early Kushan Period is characterized mainly by an almost complete absence of Glaze (a few intrusive sherds occur) and Stamped Wares. The other finds are similar to those of Late Kushan.

Almost a quarter of the Red Ware sherds in this level were painted.

The copper or bronze harness decoration pieces are unique at the site.

Late Kushan: *Circa* 100 to 300 A.D.

This is the period of the Major Hearth (and pit) Complex.

Much of the pottery (Grit Ware, Red Ware, Red Ware, Cream Slip) is the same as Early Kushan, but new types appear.

One Blue-Green glazed sherd of Parthian type was found *in situ*.

Again, no Stamped Ware was definitely found *in situ* in this level.

Red Streak Pattern-Burnished sherds appear and are almost universally inside-burnished, the burnishing tool having been dipped in a black pigment to emphasize the horizontal, straight, and undulating line designs.

Sherds of a unique Black Inside, Red Outside sub-ware were found.

Several Red Ware, Cream Slip sherds were imbricated after slipping.

Almost no Bisque handles turned up in the Late Kushan levels, and none was grooved.

Although many Bisque and Greenish Paste Ware sherds were excavated from these levels, only a negligible handful had surface decoration. Several goblet bases occurred. Bisque sherds were occasionally covered with a Cream slip.

The Red Wash (Bisque Paste Ware) subwares appeared: Red Wash, Inside and Outside "frying pans" were dominant.

The most unusual feature of this cultural period (and also the Early Kushan) is the large series of painted sherds: Grit Ware, Red Ware, and Bisque Ware. No similar assemblage has been reported from any stratified sites of comparable (or almost comparable) age, although, profile for profile, it is possible to match the Late Kushan sherds with those of Begram I–III, Sirsukh (Taxila), and Arikamedu (South India). Probably the unexcavated Kushan city of Sirkap at Taxila hides such painted sherds. Their absence in distant South India is understandable, but not so at Begram. A few sherds are reported by Ghirshman, but almost all of these are in Begram II, or mid-second to mid-third centuries A.D. It is probable that the Early Kushan level at Shamshir Ghar takes over (stylistically) where Begram III leaves off.

Gettens[2] reports that the artists who painted the splendid murals at Bamiyan used many pigments, all with animal glue tempera: e.g., blue (ultramarine), red (iron oxide, red lead), yellow (ocher), white (calcium sulphate), black (charcoal), and ?green. With this range of colors being used at Bamiyan, it is strange the neighboring Begram potters did not utilize more paint for their utilitarian wares, royal city or not.

The metal finds in the Late Kushan levels indicate that the cave occupants were equestrians, just as the unique find of the Early Kushan period had done.

The most popular projectile point was a hollow-sided, three-bladed iron point of the classic "Scythic" type. Other points that were elliptical in cross-section were found, in bronze as well as in iron.

Beads are almost exclusively carnelian.

Several fire-burned fragments of green glass were found, too fragmentary to be diagnostic.

[1] Rostovtzeff, 1922, viii.

[2] Gettens, 1938, 163–193.

Perhaps the most important single group of specimens are the seals, all of which point to an Indo-Sassanian origin.

A beautifully polished celt was also found.

Kushano-Sassanian: *Circa* 300 to 700 A.D.

Although the bulk of the Kushano-Sassanian material culture objects differs little from that of Late Kushan, violent changes had taken place in the political arena. The first sign of change occurs in the upper 5 cm., where the Early Islamic Glazed Ware began to appear.

The Grit Ware, Red Ware, and Red Ware, Cream Slip, with the attendant painted sherds of the first two levels, continue unabated. Lime-Temper Grit Ware became more rare.

New pottery trends are: an increase in Mica-Temper, Grit Ware sherds; the appearance of a new buffish (11-D-5) slip, used mainly on Fiber-Tempered sub-ware; Red Streak Burnished Ware sherds become more numerous, with an increase in Red Pattern Burnished; the appearance of the Metallic Black wares, found only in this cultural period; the same is true for the Red Ware, Distinctive Bowl sub-ware sherds.

The impression of a finely executed Sassanian type of seal was found on the bottom of a Bisque base. Almost all the Bisque Ware and Greenish Ware sherds still bear no surface decorations, however, and the few handles that occur are almost exclusively Greenish Paste.

The Black Slip, Black Inside-Red Outside, Black-Centered and Red Wash sub-wares were almost totally absent, but reappeared in small numbers in the Early Islamic period.

Two Bisque Ware rim sherds have outside Kharosthi inscriptions.

Only one Stamped Ware sherd occurred *in situ* in these levels.

The most numerous iron projectile points were the hollow-sided, three-bladed types. The two forked projectile points found in this level are probably intrusive.

Iron and bronze horse trappings were found, as well as a copper earring.

No carnelian beads were present; instead, we found serpentine and clay (both glazed and unglazed) beads.

Glass colors are more varied (greens, blues, and reds) than in Kushano-Sassanian.

An agate seal has a common Sassanian motif, an intaglio scorpion.

Early Islamic Period: 700 to 1222 A.D.

The uppermost stratified levels yielded a few ornate, Seljuk White sherds of the twelfth or thirteenth century, thus helping to establish a terminal date for the stratified cultural levels. Any occupations of the cave after the Mongol invasion were short and left no traces. Even shepherds shunned this cave; no knee-deep sheep dung mantled the floor.

The Early Islamic Period saw an influx of new wares and a shift in tastes. The glazed and surface-decorated pottery in these levels corresponds nicely to Hobson's[1] Period I (622 to 1200 A.D.) and Day's[2] Early Islamic (seventh to twelfth centuries A.D.). Dates of individual glaze types are discussed above (pp. 189–198).

The period is characterized by several glazed sub-wares and surface-decorated Bisque and Greenish wares.[3] Bisque and Greenish Ware handles, including many externally grooved specimens, heretofore absent, were abundant. In several stratified levels of this period, these Bisque wares were dominant over both the Grit and the Red Ware, Cream Slip wares, which constituted the bulk of the sherds in the underlying levels. There is also a marked reduction in the Red Streak Burnished Ware.

Stamped Ware sherds were very common and date just prior to the Mongol invasion.

Painted sherds were relatively fewer; designs and colors were less varied.

Again, the most numerous iron projectile points were the hollow-sided, three-bladed type. Specimens elliptical in cross-section also occurred. One new type, with two forked points, appeared. Another new type is triangular in cross-section. Several lance or spearpoints and ?knife blades were found.

Except for a pair of scissors, most of the other iron fragments represent parts of horse trappings.

Bronze and copper finds were rare. They include a projectile point and some horse trappings.

A greater variety of beads occurred in the Early Islamic levels. These are made of glass, glazed and unglazed clay, mother-of-pearl, stone, lapis lazuli, ruby, carnelian, agate, and quartzite.

[1] Hobson, 1932.

[2] Day, 1953, personal communication.

[3] Appliquéd, finger and stylus marked, punctated, bossed, incised, channeled, and so on.

In this Early Islamic Period, glass was more plentiful and of better quality than that in the underlying levels. The specimens found include bases and rims. The colors are greens, blues, browns, yellows, and reds. Four fragments are decorated with blue spun-glass wire.

Two polychrome handle fragments occurred.

All the stratified coins at Shamshir Ghar were found in the Early Islamic levels: 12 copper and one silver, probably dating between the eighth and tenth centuries A.D.

A number of schist bowl fragments were uncovered.

The two textile fragments now in the Kabul Museum have not yet been studied.

It is interesting to note that almost all the metal arms and horse trappings point to Central Asia, whereas the ceramics, glass, seals, and ornaments point to Iran.

Who? Why?

Having discussed the specimens excavated and established a sequence, we must now consider who occupied the cultural levels, and why they bothered to live in a cave. Before attempting to identify the ethnic groups, we should perhaps first decide what type or types of people would have lived in a remote cave, difficult to reach. There are six possibilities:

1. It does not seem plausible to assume that the occupants were permanent residents by choice, as a number of towns and villages, within a few days' march of Shamshir Ghar, were situated along the Helmand and Arghandab rivers long before the Christian era.[1] LeStrange lists several sizeable towns that were reported by pre-thirteenth-century Arab geographers and travelers: Bust (Bost or Bast) was the second largest city in tenth-century Seistan[2]; near Bust was the fortress palace of Al-'Askar ("The Camp"), the Sultan's residence, built like a small city, which is probably the site of Lashkari Bazaar, excavated by the French[3]; north of Bust, along the Helmand River, were four chief towns, Dartall, Dargash, Baghnin, and Sharwan, and numerous small villages[4]; Kandahar, though mentioned, was not nearly so important as it is today.[5] Concerning Panjwai, LeStrange writes:

> The Rukhkhaj district, occupying the country round about Kandahar, lay to the eastward of Bust along the banks of the streams now known as the Tarnak and the Arghandab. The capital of Rukhkhaj in the middle-ages was Banjaway, the Arabic form of Panj-way, "Five Streams," which is still the name of the district west of Kandahar, near the junction of the two rivers Tarnak and Arghandab. The Rukhkhaj district was immensely fertile during the middle-ages, and wool was exported thence in large quantities, bringing in a good revenue to the treasury. The site of Banjaway city is difficult to fix. It lay on the high road four marches from Bust, at the point where the ways bifurcated, one road going north in 12 marches to Ghazneh, the other east in six marches to Sibi. It probably was not far from Kandahar, but the distance between the two cities is nowhere given. One league to the west of Banjaway city was the fortress of Kuhak, "the Hillock," with a town lying around the fort. Banjaway itself had good fortifications, as well as a fine mosque. It got its water from the neighboring river.[6]

The approximate position of the present town of Panjwai is marked X on Fig. 3. It is the capital of the sub-province of Panjwai and is about 3.5 miles south-southwest of Shamshir Ghar, and about 15 miles east-southeast of Kandahar. Many mounds are found in the vicinity of modern Panjwai, which is situated at the confluence of the Arghandab and Dori rivers. Probably Early Islamic Panjwai (as described above) was located in the immediate vicinity of modern Panjwai, which even today is in a much better position to control the caravan trade plying up and down the Helmand than the site suggested by LeStrange. It is also probable that the "local" wares discussed in the preceding pages (pp. 198–205) were manufactured in Early Islamic Panjwai. Not until after the Mongol invasion did Panjwai take an economic position inferior to Kandahar.

Two articles in "Afghanistan" agree with and help substantiate the above view.[7] With so many large towns located near Shamshir Ghar, with all the urban conveniences of the time, it is not probable that many people would choose to live in caves.

2. As the cave is situated along one of the main Afghan trade routes, it may have been used as a temporary shelter by legitimate

[1] Dupree, 1951; Casal, 1952.
[2] LeStrange, 1930, 344–345.
[3] LeStrange, 1930, 344–345.
[4] LeStrange, 1930, 343–344.
[5] LeStrange, 1930, 346–347.
[6] LeStrange, 1930, 346–347.
[7] Sedqi, 1952; Benava, 1953.

travelers and traders. Although the possibility of very temporary, probably overnight, sporadic occupation of this sort cannot be discounted it is doubtful whether such short-lived visits would have contributed much to the thick cultural levels. Again, old Panjwai, with the protection of its walled caravansaries, was less than an hour away from the cave, so there would be no need for a trader or traveler to hide in the hills. If used at all in this way, the number of occupants at any one time would have been small because of the size of the First Chamber. The cave could not possibly have housed a fraction of a long, well-loaded caravan of pre-truck Afghanistan.

3. Many caves in the Middle East are used as sheep-havens today. Shamshir Ghar is not, because few sheep are kept in the adjacent village of Badwan, and the cave is not easily accessible to the villagers. As mentioned above the cave floor before excavation was covered with dust and limestone fragments, but no sheep dung.

4. Every country in the Middle East and, for that matter, every country in the world, has caves named "Smuggler's Cave," usually accompanied by a legend or two about the smugglers and Robin Hood-like bandits who ranged from the caves, harrassing legal authority and plundering rich caravans. The possibility that bandits and smugglers lived in, or rather operated out of, Shamshir Ghar is excellent. In that case, it would have been used as a temporary "hide-out" until the loot could safely be sold in a large town or city.

5. Early Hindus, Buddhists, Christians, and Muslims all recognized the supernatural aura which surrounds caves. Many caves throughout Asia are still considered holy enough to rate periodic pilgrimages. The trident and dot paintings in the Fifth Chamber probably have religious significance, but I suspect that they are the results of refugee, and not pilgrim, art.

6. The most plausible possibility, however, is that the cave was used by refugees fleeing for safety from the many wars that continually overthrew and crowned kings, usually in rapid succession. The evidence in support of this conjecture is ample but not definitely provable. However, the refugee theory fits the facts more closely than the preceding five possibilities although each may have contributed to the total bulk of specimens at one time or another.

Two routes, both equally inaccessible, lead to the cave from the village of Badwan and the Arghandab River. The steep ravine and stony arroyo leading from the mouth of Shamshir Ghar toward the Arghandab River are shown on Pl. 37b. Farther down the ravine, after a slight northeasterly turn, the fields of Badwan and the Arghandab come into view (Pl. 38a). A good lookout point is located where the ravine turns right. The trade routes, ancient and modern, are located across the river, emphasizing the isolation of the cave. A horse can be led over the large limestone boulders of the ravine, but only with the greatest difficulty. The subprovincial governor of Panjwai, a regular visitor to our excavations and a great help to our expedition at all times, tried to ride a horse to the cave and failed. The presence of horse trappings in Shamshir Ghar does not mean the cave was used as a stable; only desperate men would bring horses into a steep ravine with such precarious footholds. Any refugees who occupied the cave probably kept their horses in an adjacent, more level, ravine valley just west of Shamshir Ghar. A path leading to this valley is seen in the left center of Pl. 38a.

Plate 38b is a photograph of the mountains west of Badwan, taken from a field of forage crops near the almost dried-up Arghandab River bed. The ravine leading to Shamshir Ghar is marked with an arrow: the route to the small valley ravine is marked with an inked line.

The second route from the cave to Badwan is higher up and even more precipitous than the first route. The people of Badwan almost never visit the cave today. No one does except to deposit dead bodies.

The use of caves as refuge areas is nothing new in world history. As recently as World War II, French partisans and American O.S.S. agents hid in and operated from many caves and rock-shelters in southern France.

More important to us is the fact that Shamshir Ghar was used as a refuge area as late as 1929, when a few families moved to the cave in fear that Bacha-i-Saqao, a Tajik bandit who had seized the throne at Kabul, would take reprisals against the Pathans who supported Amanullah, the deposed king. The families remained in the ravine for only a few days, cooking their meals at the opening, but sleeping in the cave at night. A coin of Amanullah's reign

and a box of Swedish matches were found in a small crevasse on the Front Porch, possibly placed there and forgotten by the short-time residents of 1929. The mouth of the cave had been closed with small limestone boulders to keep the children of the village from returning and getting into mischief. When we reached the cave most of the stones had been removed or knocked down.

The artifacts themselves, listed below, give us some speculative points to support the refugee theory:

1. Several makeshift stone choppers and other stone tools were used, probably because of expediency.

2. No complete pots and few whole metal objects were found. If the occupants of the cave were refugees, they presumably would take only whole objects with them when they left the cave, whether by choice or in fear.

3. The absence of fine Luster Ware in the Early Islamic levels may be explained on the assumption that such luxury items would either be left behind when the people fled, or would have been carefully handled and probably not broken. Consequently no sherds would be found. Probably, however, no Luster Ware was ever brought to Shamshir Ghar.

The refugee theory fits nicely into the cultural and historical sequences of contemporary Afghanistan:

The Early and Late Kushan levels could have been the result of occupation by high officials of the independent Kushan state in the Kandahar region which was reconquered first by the Parthians and then by the Sassanians. The Kandahar Kushans later became satraps of the Parthians or Sassanians, but, as usual, had to flee when first attacked. It must be remembered that the refugees were probably all government officials and their retainers. The peasantry had no reason to flee; they were accustomed to oppression. This phenomenon is familiar in the Middle East. A king conquers an independent state, appoints its defeated ruler as satrap or governor, and permits him a relatively free hand. Gradually the satrap usurps more and more power, and he, or one of his successors, declares his independence. Then the reconquering process begins.

The thick Kushano-Sassanian level was probably the result of repeated occupations, for this is the period of wars waged between the Epthalites and the Sassanians for supremacy in eastern Iran and western Afghanistan. Probably the occupants were almost always Kushans, who served as satraps for whoever happened to be in control of southwestern Afghanistan. This was a period of anarchy as well, and each new satrap or king had to fight to gain and hold his position.

The latter part of Kushano-Sassanian time was a period of early Arab raids, mainly for plunder. In the Kandahar area the Arabs found the people still practising Buddhism, and we know that the Kushans, though tolerant of all religions, were primarily Buddhists. Sykes[1] states that many semi-independent Kushan princes' principalities existed at least until the seventh century, and Ghirshman[2] reports a small Epthalite or Kushan kingdom around Kabul.

The Early Islamic period was also one of continued upheaval. Dynasty gave way to dynasty in rapid succession. Shamshir Ghar had no lack of potential tenants.

Little in the cave suggests post-thirteenth century occupation. Perhaps the total war waged by Mahmud of Ghazni and later by Chingis Khan left no room for refugees.

[1] Sykes, 1940, 121, 168.
[2] Ghirshman, 1946, 11.

APPENDIX 1. ANIMAL AND BIRD BONES[1]

ABOUT 1700 BONES AND TEETH were recovered from the various cuts at Shamshir Ghar. Of these, 801 were returned to the American Museum where they were examined and identified. The results of the study are summarized in Table 12.

[1] The animal and bird bones were examined and identified by Mr. George G. Goodwin of the Department of Mammals and Dr. Dean Amadon of the Department of Birds, both of the American Museum of Natural History.

Only two categories of faunal finds were unusual:

1. If the questionable bat is *Rhinopoma microphyllum*, this is the farthest east it has been reported.

2. Four ox teeth (two Kushano-Sassanian, two Early Islamic) have man-made grooves along their longitudinal axes. The grooves were apparently made with a blunt tool, and taper as they reach the crown of the teeth.

TABLE 12

IDENTIFICATION OF ANIMAL AND BIRD BONES

	Early Kushan	Late Kushan	Kushano-Sassanian	Early Islamic	Totals
Domesticated sheep and/or goat	75	307	112	117	611
Oxen (*Bos*, probably Brahma)	10	58	25	45	138
Pig (*Sus scrofa*)	1	2	2	5	10
Horse (*Equus* sp.)	—	—	—	3	3
Porcupine (*Hystrix* sp.)	?1	—	—	3	4
Leaf-nosed bat (*Hipposideros* sp.)	2	—	1	—	3
Long-winged bat (*Miniopterus schreibersii*)	—	—	—	1[a]	1
Larger rat-tailed ?bat (*Rhinopoma microphyllum*)	—	3	2	2	7
Bandicoot (*Bandicota* sp.)	—	—	—	4	4
Beech marten (*Martes foina*)	1	—	—	—	1
Antelope (*gutturosa*)	1	1	1	1	4
?Dog	—	—	—	1	1
Sambar (*Cervus unicolor*) or red deer (*C. elaphus*)	—	—	—	1	1
Chukar partridge (*Alectoris graeca*)	1	4	1	3	9
Man (*Homo sapiens*)	1	3	—	—	4
Totals	93	378	144	186	801

[a] A recent mummified specimen.

APPENDIX 2. TECHNICAL REPORT ON SHAMSHIR GHAR GLASS SPECIMENS

THE SPECIMENS OF GLASS were examined by Ray W. Smith, Chairman of the International Committee on Ancient Glass, whose comments follow:

Your specimens show a remarkably homogeneous character, and differ from any that I have seen, including two specimens of the earlier ware from Begram. Excluding your No. XVII, which you label as a clearly modern surface find, the only specimen not showing rubidium is your No. VIII. I do not think that rubidium is a common element in ancient glass. In the 151 specimens of Islamic cut glass which I have had analyzed through the courtesy of Corning, a trace of the element was reported in only four. A special determination of rubidium should be carried out on your samples and a series of Islamic cut specimens, as it would be most significant if it can be confirmed that your group is completely divergent in this respect. Many of the Islamic specimens were doubtless found in northeastern Iran and were contemporary with your early Islamic dating. My specimens were probably predominantly of the ninth–tenth century.

In other respects your specimens are distinctive. The contents of Bo, K, Al, Mg, Ti, V, and Fe are apparently divergent from those in Islamic cut glass, and your group does not resemble any group from another period as far as I am familiar with analytical results. Your specimens are less divergent from Islamic colored cut glass than from clear material of the same period, which is to be expected as they are virtually all colored.

On the basis of your analyses, one might wonder whether there could have been one or more active glass-making centers in the general area. It is important that such a hypothesis be confirmed by further research or denied, as the case may be.

TABLE 13

Spectrographic Examination of Ancient Glass[a]

Sample No.	Color	Chemical Compounds																					
		SiO_2	B_2O_3	Na_2O	K_2O	Li_2O	Al_2O_3	As_2O_5	Sb_2O_5	MgO	CaO	PbO	BaO	TiO_2	ZrO_2	V_2O_5	CuO	Fe_2O_3	NiO	Co_3O_4	Cr_2O_3	MnO_2	SnO_2	Ag_2O	Rb_2O
I[b]	Yellow-brown	50—	.05	12	5.0	.05	8	—	—	8.0	5	.001	.05	.5	.008	.05	.02	8.0	.005	—	.5	.08	.005	.0005	.05
II	Yellow-brown	50—	.05	12	5.0	.008	8	—	—	8.0	5	.001	.05	.5	.008	.05	.02	8.0	.005	—	.02	.08	.005	.0005	.05
III	Yellow-brown	50—	.05	12	5.0	.008	8	—	—	8.0	5	.001	.05	.5	.008	.05	.02	8.0	.005	—	.02	.08	.005	.0005	.008
IV	Yellow-brown	50—	.05	12	5.0	.008	8	—	—	8.0	5	.001	.05	.5	.008	05	.02	8.0	.008	—	.05	.08	.005	.0005	.008
V	Yellow-brown	50—	.05	12	5.0	.008	8	—	—	8.0	5	.001	.05	.5	.008	.05	.02	8.0	.005	—	.02	.08	.005	.0005	.008
VI	Yellow-brown	50—	.05	12	5.0	.008	8	—	—	8.0	5	.001	.05	.5	.008	.05	.02	8.0	.005	—	.05	.08	.005	.0005	.005
VII[c]	Rosée	50—	.05	12	.2	.008	8	—	—	8.0	5	—	.05	.8	.05	.05	.02	8.0	.008	—	.02	8.00	—	.005	.002
VIII	Blue	50—	.008	12	5.0	.005	8	—	—	2.0	5	.001	.02	.2	.005	.005	.2	.2	.005	—	—	.08	.0005	.005	—
IX	Green	50—	.05	12	.8	.008	8	—	—	8.0	5	—	.05	.5	.008	.05	.02	8.0	.008	—	.05	.08	—	.0005	.005
X	Green	50—	.008	12	8.0	.008	8	—	—	8.0	8	—	.05	.2	.005	.05	.005	8.0	.005	—	.008	.08	—	.0005	.008
XI	Green	50—	.05	12	2.0	.008	8	—	—	8.0	8	—	.05	.5	.008	.05	.008	8.0	.005	—	.05	.5	—	.0005	.005
XII	Green	50—	.005	12	5.0	.008	2	—	—	8.0	5	.001	.02	.05	.005	.005	12.0	.5	.008	—	.005	.8	.008	.008	.008
XIII	Blue	50—	.005	12	5.0	.008	2	—	—	5.0	5	.001	.02	.2	.02	.008	12.0	.8	.008	—	.005	.05	.005	.02	.005
XIV[d]	Green	50—	.05	12	8.0	.008	8	—	—	8.0	5	—	.05	.5	.008	.05	.02	8.0	.005	—	.05	.08	.0005	—	.008
XV[e]	Green	50—	.05	12	8.0	.008	8	—	—	8.0	5	.005	.05	.5	.008	.05	.02	8.0	.005	—	.05	.08	.0005	—	.008
XVI	Green	50—	.05	12	8.0	.008	8	—	—	8.0	5	.001	.05	.5	.008	.05	.02	8.0	.005	—	.05	.08	.0005	—	.008
XVII[f]	Clear	50—	.08	12	.05	.002	2	.2	—	.08	5	.001	—	.05	.008	.0005	.008	.08	.0005	—	—	.08	—	—	—
XVIII[b]	Clear	50—	.008	12	5.0	.008	8	—	—	5.0	5	.001	.02	.2	.008	.005	.08	.5	.005	—	—	.2	.0005	.005	—

[a] Prepared by Research Laboratory, Corning Glass Works, Corning, New York.
[b] Nos. I–XIII, Early Islamic, tenth century A.D.
[c] Mo_2O_3 occurs in this glass only (about 0.001%).
[d] Sassanian, ?seventh century A.D.
[e] Nos. XV–XVI, Kushan, ?fifth century A.D.
[f] Plain modern (surface find).

APPENDIX 3. CHEMICAL EXAMINATION OF METAL SPECIMENS

THE METAL SPECIMENS were examined and analyzed quantitatively by Professor Earle R. Caley, of the Department of Chemistry, the Ohio State University. In this task one of Caley's graduate students, Wallace H. Deebel, assisted substantially in carrying out the chemical analyses.

Seven specimens were examined, all corroded to various degrees. Sufficient metal was present in four to provide samples for quantitative analyses.

1. BRONZE COIN: Diameter, 17–18 mm.; weight, 2.37 grams; date, ninth to tenth century A.D.

This coin was covered with such a dense and uniform layer of green corrosion products that no trace of a design could be distinguished before it was cleaned. After electrolysis, parts of corrupt or crude types were visible. On one side was what appeared to be a standing elephant, and on the other a crouching or rampant animal, possibly a tiger. No lettering was visible. For analysis the surface layers were filed away, and two samples of fairly clean metal were obtained. The results of the analysis are shown in Table 14.

It will be seen that this coin was composed of a lead-tin bronze of rather high lead content. Because of lack of analyses no comparison with respect to composition can be made between this coin and other coins of similar provenance. However, it is interesting that bronze of about the same composition was used for late Greek coins struck in eastern provinces of the Roman Empire. In all probability the silver in the alloy was introduced as an accidental impurity in the lead made from argentiferous galena. Though the proportion of nickel present as an accidental impurity falls within the normal range for an ancient bronze, the proportion of cobalt is unusually high and may be indicative of copper ore from a particular source. There is nothing remarkable about the proportions of iron and zinc. The low summations are due to the presence of undetermined oxygen and other non-metallic impurities in the form of corrosion products within the samples of metal.

2. FRAGMENT OF THIN BRONZE: Length, 25 mm.; maximum width, 15 mm.; thickness, *ca.* 1 mm.; weight, 2.00 grams; date, ninth–tenth century A.D.

This appeared to be a segment of a disc, though the complete object could have had a different shape. Faint traces of a design were visible on the surface, which was covered with a thin layer of dirt and corrosion products. These were removed mechanically as far as practicable in the preparation of the two samples for analysis. The results of the analysis are shown in Table 15.

These results show that this fragment was also composed of a lead-tin bronze, but one of lower tin content and even higher lead content than the metal of the coin. It is not surprising that the percentages of copper and lead in the two samples are not in agreement, for in bronze of such high lead content the lead is often irregularly distributed in the alloy. A comparison of the figures in Table 15 with those of Table 14 will show that both bronzes contained the same impurities and that all except nickel were present in higher proportion in the metal of the fragment. The parallelism between the percentages of silver and lead in all samples is a definite indication that the silver was introduced as an impurity along with the lead. The higher proportion of cobalt in the metal of this fragment as compared to the proportion of nickel is still more indicative of the use

TABLE 14

ANALYSIS OF BRONZE COIN

Metal	Sample A Per Cent	Sample B Per Cent
Copper	76.86	77.07
Tin	5.75	5.78
Lead	14.96	15.14
Silver	0.12	0.16
Iron	0.12	0.06
Nickel	0.15	0.11
Cobalt	0.08	0.03
Zinc	0.20	0.14
Total	98.24	98.49

TABLE 15

ANALYSIS OF FRAGMENT OF OBJECT COMPOSED OF THIN BRONZE

Metal	Sample A Per Cent	Sample B Per Cent
Copper	67.22	64.54
Tin	3.36	3.29
Lead	25.53	28.29
Silver	0.20	0.22
Iron	0.49	0.52
Nickel	0.11	0.11
Cobalt	0.13	0.12
Zinc	0.66	0.74
Total	97.70	97.83

of copper ore from some particular source. As might have been expected, the summations of the results in Table 15 are low because of the presence of corrosion products in the samples. In general, the analysis shows that the object from which this fragment came was composed of a kind of bronze suitable for ornaments but not for objects requiring hardness or strength.

3. Fragment of Pin or Clasp: Length, 32 mm.; weight, 3.84 grams; date, *ca.* tenth century A.D.

This fragment appeared to be part of the shank of some sort of pin, clasp, or fibula. Mold marks on its sides indicated that this part of the original object had been formed by being cast in a two-piece mold. The fragment was coated with a thin, rather uniform layer of grayish white corrosion products that contained stannic oxide and basic lead carbonate. The underlying metal was soft and white. Preliminary qualitative tests showed the presence of tin and lead

TABLE 16

Analysis of Pewter Fragment from a Pin or Clasp

Metal	Sample A Per Cent	Sample B Per Cent
Tin	63.87	63.64
Lead	32.64	32.89
Zinc	0.08	0.07
Iron	0.03	0.02
Total	96.62	96.62

as the major components of this metal. For quantitative analysis the surface layer of corrosion products was filed away, and two samples of rather clean metal were obtained. However, because the metal of this fragment had undergone extensive intergranular corrosion, it was not possible to obtain samples free from corrosion products. The results of the analysis are shown in Table 16.

It will be seen that this fragment was composed of an alloy of tin and lead containing only iron and zinc as accidental impurities in very small proportion. This alloy is a kind of pewter in which the proportion of tin is very close to twice that of the lead. If allowance is made for the probable proportions of tin and lead in the corrosion products that were present in the samples, the original composition is even closer to this proportion than these figures show. This degree of exactness in the proportion would seem to be a strong indication that the alloy was deliberately prepared from carefully weighed amounts of the two component metals and that it was not the product of their accidental or careless combination.

4. Broken Piece of Iron Pin or Shaft: Length, 69 mm.; weight, 4.86 grams; date, seventh–eighth century A.D.

This was a deeply rusted short length of straight rod that still contained some residual metal in its core as shown by tests with a magnet. On the removal of the layers of rust mechanically, a short, thin piece of metal was isolated. This iron was so soft that it could be easily filed, and so ductile that it could be flattened out easily on being hammered. After being heated to bright redness and plunged into cold water it still could be easily filed and was still so ductile that it could be hammered out without any sign of fracture. This behavior is characteristic of iron containing a very low percentage of carbon. The metal of this object must have been, therefore, wrought iron or a very mild steel.

5. Broken Piece of Iron Pin or Shaft: Length, 45 mm.; weight, 4.37 grams; date, seventh–eighth century A.D.

This was similar to No. 4 in appearance, though somewhat thicker, and it also contained a short, thin core of metal. This iron was noticeably more resistant to the file than the metal of No. 4, and much less ductile on being hammered. After being heated to bright redness and plunged into cold water it was still more resistant to the file, and on being hammered it broke into pieces. This behavior is characteristic of iron containing enough carbon to be classed as a steel. In view of the difference in behavior before and after heat treatment, it must be concluded that the metal of the object was a tempered steel.

6. Broken Piece of Iron Arrowhead: Weight, 2.11 grams; date, seventh–eighth century A.D.

This was part of a bayonet-shaped arrowhead with three flanges. No residual metal could be detected by means of a magnet. The form of this fragment and the extent to which it had rusted indicated that the arrowhead had been made from wrought iron or steel and was not an iron casting.

7. Irregular Flat Piece of Cast Iron: Thickness, 3–5 mm.; weight, 48.6 grams; date, tenth–thirteenth century A.D.

This piece of cast iron broke readily on being struck with a hammer and showed the bright crystalline structure characteristic of white cast iron. It also had the characteristic hardness of this variety of cast iron, for it could be neither drilled nor filed with tools of ordinary steel. The layer of rust on its surfaces was not more than a few tenths of a millimeter in thickness, which is not surprising in view of the known resistance of cast iron to natural corrosion. This specimen appeared to be a fragment from an iron plate, or possibly a piece from the bottom of a dish or pan. The fact that its thickness tapered regularly from 3 mm. at one end to 5 mm. at the other was perhaps indicative of the latter possibility. One side was smooth and the other slightly rough-

TABLE 17

ANALYSIS OF FLAT PIECE OF CAST IRON

Element	Per Cent
Carbon	4.25
Silicon	0.13
Phosphorus	0.11
Sulfur	Trace
Manganese	Trace

ened, which may indicate that the original object was cast in an open mold. A few small blowholes were present in the metal just under the roughened surface, and this also may be an indication of the use of the same technique. Except for these blowholes the casting was sound. Separate samples were taken for the determination of the usual constituents of cast iron. The results of these determinations are shown in Table 17.

These results fully confirm the previous observations indicating that this fragment was composed of white cast iron. The proportion of carbon is too high for steel, and is nearly the maximum that can occur in cast iron. Iron containing this particular proportion of carbon is the so-called eutectic alloy of iron and carbon, the one that melts or solidifies at a lower temperature than any other combination of iron and carbon. This minimum temperature is 1140° C., which corresponds to 2084° F. The percentages of the other constituents are much lower than in modern cast iron. Iron of such high purity could have been produced by smelting a carefully selected, pure iron ore with charcoal in a blast furnace maintained at a relatively low temperature by the use of a regulated flow of unheated air. The higher percentages of impurities in modern cast iron arise from the use of unselected ore, coke as a fuel, and the higher temperature resulting from the use of a blast of preheated air. From the standpoint of quality, the iron in this specimen is superior to modern white cast iron.

GENERAL CONCLUSIONS

A surprising variety of alloys and metallurgical techniques is represented by these few specimens. Such a variety of alloys and skills indicates an advanced state in the art of metallurgy that could have been reached only on the basis of a long background of experience and practice.

APPENDIX 4. A TECHNOLOGICAL LOOK AT THE SHAMSHIR GHAR POTSHERDS[1]

FREDERICK R. MATSON

THE PROBLEM

At the request of Dr. Louis Dupree, I made a megascopic examination of sherds representing the several wares he found at Shamshir Ghar. It was realized that a thorough study of the materials would not be worth while, even if the time and facilities could have been arranged, for the sherds excavated in the trenches in the cave represent occupations of possibly refugee peoples from diverse regions through several centuries and do not constitute a collection of wares produced at one stratified village site. Doubtless many trade items are included in the cave materials, but, until far more is known about the ceramic history of Afghanistan, attempts at identification of the place of manufacture of most imported wares will be fruitless. The importance of the Shamshir Ghar sherd collections lies in its stratigraphically documented record of pottery manufacture in a region and time as yet unexplored in any detail. Dupree's study provides an initial stratigraphically controlled ceramic description of artifacts of the cave occupants who brought with them from their villages essential domestic utensils. An examination of some of these sherds for evidence of technological changes may help emphasize problems that need thorough study in the field before the division of the sherd collection takes place. A field examination of the total materials excavated at a village site is essential, if the materials brought home are to represent accurately the ceramic documentation of the site. The present study suggests some of the simple ways in which such information can be obtained. Then the materials available for detailed analysis along the lines suggested by Shepard in her invaluable monograph[2] will more truly represent the ceramic history of the site.

METHOD OF STUDY

The sample examined consisted of 236 unglazed and 104 glazed sherds. This represented slightly more than 1 per cent of the material shipped to the United States which in turn constituted 65 per cent of the total sherd collection. In both the initial division and in the selection of sherds for technological study, considerations of shape, decoration, and the number of sherds available of a certain type influenced the constitution of the sample. Therefore little or no comment of a statistical nature can be made in this Appendix with reference to stratigraphic position or frequency of occurrence. Such information is given above by Dupree for the wares as he defined them.

The sherd sample arrived boxed according to ware designations as established by Dupree. This greatly facilitated the study. A chip was broken from the edge of each sherd with pliers so that the body could be examined on a freshly exposed surface. All sherds were then studied under a four diopter magnifying glass with tangential lighting and were classified according to method of manufacture, degree of firing as indicated by the color of the clay, and the presence and abundance of visible mineral inclusions such as muscovite, serecite, biotite, limestone, and hematite. This information forms the basis for the following comments on the ceramic products found at Shamshir Ghar. It is recognized that such megascopic observations do not clearly define all the types of clays that the potters used in the production of the many wares, clays certainly coming from more than one locality. However, major groupings indicating the relationship of wares to one or more types of clay and to differences in the ways in which the pottery was produced can be established.

As might be expected, this study suggests some modifications in Dupree's classification and may be of use to field archeologists who always have too little time and unsatisfactory conditions for sherd study while the total pottery collection is available. Expeditions in the future should include a staff member with some familiarity with the basic technical problems of pottery manufacture so as to be able to deal effectively in the field with that abundant and po-

[1] Professor Frederick R. Matson of the Pennsylvania State University kindly agreed to examine a small collection of Shamshir Ghar sherds after I had completed my site report. We would have preferred to study the ceramic material together before I had decided on the final typology, but this proved impossible. My types are culturally, not technologically, oriented, and I generally used decorative motifs and surface treatment as primary guides to classification. Matson's appendix vividly points out the mistakes I made in discussing technology. Because of this, I am fortified in my belief that lengthy observations on pottery types are justified, especially if one deals with periods and potteries heretofore unknown.

My discussion of the pottery in the various cultural levels stands, but Matson has clarified many technical points which troubled me, and I am sure continue to trouble other field archeologists. For his aid, I am eternally grateful. L. D.

[2] Shepard, 1956.

tentially most significant group of artifacts—the potsherds.

CLAY COLOR AND FIRING TEMPERATURE

The color of pottery is determined by the mineral and chemical composition of the clay used and by the kiln history of the ware. The latter includes such variables as the time-temperature relations during firing and cooling, the atmosphere in the kiln (which may vary from strongly oxidizing to strongly reducing during one firing), the types of fuel used and the rates at which they are placed in the fire boxes, and the position of the individual piece of pottery within the kiln. Most of these factors, which have been discussed elsewhere,[1] influence the final appearance of the ware and make it essential that a large number of sherds be examined before one classifies pottery in terms of color of the body or the assumed presence and color of applied slips.

Most Shamshir Ghar wares were made from clays containing iron and lime, which together cause an interesting series of color effects with increasing firing temperatures. In brief, such clays are dark gray at low temperatures, dark to medium brown at around 600° C. and salmon to brick red over the next 200-degree rise. Above 800° C. the surface of the ware may turn yellow and give the appearance of a slip although no slip was applied. Over about the next 200 degrees of temperature rise the body becomes yellow, fades to a very pale color, and then becomes increasingly green. These color changes can serve as clues in the study of the control of firing and temperature distribution in the kilns, but the temperatures just mentioned should be taken only as very rough guides, because the time for which a temperature is maintained, the kiln atmosphere, and other factors can greatly affect the color development. If the temperature rises very rapidly in some parts of the kiln, the ware may retain a black core and even a dark gray surface color. Clays low in lime usually will not develop the yellow to green colors, but will produce a series of browns and reds similar to those seen on building brick. If salts have been deposited in the clay beds by river floods or by ground water action, they can strongly affect the fired color development. This factor is particularly important to consider when one is examining the exterior surface, the coloration of which can make it appear as if a slip had been applied to the ware. Such variables suggest that caution must be used when one is classifying wares in terms of color.

COMMENTS ON THE WARES

With the exception of the glazed pottery the wares are discussed in the order in which Dupree lists them.

Grit Ware

This category consists of thick sherds (up to about 20 mm.) with visible angular inclusions, often 2 to 3 mm. in width. Grit is a good general classificatory term to use when mineralogical identification of the inclusions cannot be made. Those coarse sherds that Dupree terms "Sherd Tempered," "Quartz-Sand Tempered," and "Lime Tempered" should be grouped together in terms of paste, for they are tempered with grains of limestone. Such sherds constitute about 86 per cent of the Grit Ware that I studied. When thick-bodied vessels are fashioned it is often necessary to use clays containing coarse, nonplastic grains which help serve as a supporting skeleton while the clay dries and reduce shrinkage and possible cracking of the vessel during this process. Sometimes it is possible to find natural clays containing sufficient coarse plastic materials, but at times the potter may mix fine gravel with the clay. One would have to know something about the nature of the local clay deposits before suggesting whether or not the potter intentionally tempered the clay, washed it, or used it as he found it.

Almost all the Grit Ware sherds examined were brown to red in color; a few were a little lighter on the exterior surface. This is not surprising, because limestone decomposes when heated much above 900° C. The resultant lime granules in the vessels fired above this temperature would gradually take on moisture and carbon dioxide from the air, as in the setting of plaster, would swell, and would cause the pottery to crumble. Therefore any coarsely tempered vessels fired above 900° C. (yellow to green in color), unless taken to very high temperatures, would quickly decompose in the weeks after firing and would not be found in an archeological deposit.

Only one sherd of the group seen calls for special comment. It contains a moderate amount of limestone granules—probably the amount naturally occurring in the clay; in addition there are present the impressions of fine chaff 3 to 4 mm. in length. These impressions can be seen on both surfaces and on the fractured edges of the sherd. The point of particular interest is the size of the chaff; it is too fine to have come from a threshing floor without special selection. This reminds one of the appearance of far earlier pottery, for which it has been suggested that the chaff was comminuted by being passed through the alimentary canals of animals and appeared in the pottery because manure was mixed with the clay as a plasticizer and perhaps as an aid in firing.[2] Another possibility, which will be documented in detail in the study of the Jarmo pottery, is that the chaff that remains after dung beetles have thoroughly explored the animal droppings could have been used. Such small piles of very fine chaff are common in the Near East.

[1] Matson, 1945a, 1945b, 1955.

[2] Matson, 1956.

The sherds which Dupree terms "Fiber Tempered" might better be called chaff tempered, as "fiber tempering" has a specific meaning to archeologists in southeastern United States. The simple chaff-marked wares represent a continuation of a practical ceramic tradition going back as far as the beginnings of the village-farming communities when vessels and house walls were formed of straw-tempered clay after the threshing was finished.

"Mica-Sand Temper" (in this case biotite is abundant) represents but an extreme in the normal series of thin-walled painted vessels and should not be included among the Grit Wares if one may judge from the few sherds of this type that were seen. The amount of mica in a clay can vary considerably, depending upon the part of the water-deposited bed from which it was taken. There is a small amount of limestone in these sherds.

The "hand made" sherd seen is not a Grit Ware but is very fine textured, and of an interesting group that Dupree terms "Black-Centered Red Ware." A discussion of this wheel-made imported and important group appears below. The hand-made sherd examined represents a section of the neck and shoulder joint where finger pressure would be needed in the assembling of the vessel.

Red Ware

The group has in common its dominantly red color. The Dupree subdivisions relate to features of the appearance of the sherds, but, as is shown here, they are not all significant and often group together unrelated wares. It is not practical to discuss in detail all the categories. Instead it can be suggested that most of the Red Ware indicates a lower firing temperature for vessels made of the same clays as the Bisque wares. A classification in terms of shape and decoration might be a more useful starting point in an analysis of the ware, although it is easy to see how one would be impressed by the marked color differences.

The close examination of the surfaces and freshly fractured edges of the Shamshir Ghar sherds showed that most of them could be divided on the basis of clay into those that contained serecite (very fine muscovite white mica), and those that contained very fine to coarser biotite (brown mica). The latter group showed more of a tendency to contain fine grains of limestone than did the former. A few sherds contained some coarse muscovite. It is probably too simple an approach to suggest that only two major sources of clay are here represented, but, without detailed microscopic studies, further subgroupings or detailed discussions would be futile. One has to look carefully to detect the mica on the sherds. It is also necessary to note that in some cases there are lime "pops" and occasionally spalling of clay above plates of mica. These can serve as firing-temperature indicators. Both the serecite and biotite clays are well represented among the Red Wares, so a statement as to the relative abundance of the two based on an examination of 1 per cent of the total sherd series would be useless.

The "Red Ware, Undecorated" has no slip on the surface. This is a normal, simple type of pottery in the same series as the Bisque Ware. Occasionally the surface appears more red than the body, because it is smoother and therefore reflects the light in a different manner. The wet smoothing of the surface of vessels also tends to bring finer particles to the surface, and they not only give a denser layer, but may also be relatively richer in iron, with a resultant deepening of the red color. The decorated Red Ware should be included in this normal group. Two special sherds were removed from this collection, for they were obviously imports in terms of texture, appearance, and clay.

The "Red Ware, Cream Slip" does not have a slip for reasons already outlined in the discussion of firing changes of clays rich in lime. Four of the sherds seen in this group might have a slip, but it is also quite possible that in the wet smoothing when the potter's hands were coated with fine clay a "mechanical slip" or "self slip" was applied to the vessel as it rotated on the wheel. The two types into which this group is subdivided in terms of the height of the ridges on the interior of the vessels certainly relate to the technique of the potters making this wheel-formed ware, the size of the vessels, and the size of the mouth opening, which might or might not permit the potter to smooth the interior surface effectively and reduce the ridging which is so characteristic of the initial stages of vessel shaping on a wheel. This characteristic can be evaluated only when related to the shape and size of the vessels as well as to stratigraphy.

A slip does occur on many red sherds, particularly on those that have painted decoration. Often the slip is badly weathered, and only traces of it remain on protected portions of the sherds. The slip was probably prepared from an iron-rich clay that had been washed well to remove all coarser particles. Such fine material often does not adhere well to a normal clay surface of low-fired ware unless the slipped surface is burnished. The presence of grease or dust on the dry clay surface, or even too dry a surface when the slip is applied, may result in poor adherence on the fired ware. It would be necessary to examine an extensive series of sherds before detailed comments on the techniques of slipping would be in order. The "distinctive bowl" sherds have a red slip on their surfaces. The red slip which appears on the Bisque Ware often tends to be more brown in color than that on the lower-fired red sherds, but the slip color shows that the pottery in the kiln cooled in an oxidizing atmosphere.

The black-slipped ware is identical with the red-slipped. The difference between the two lies not in

the ware but in the position in the kiln, the atmosphere (reducing or oxidizing), and the firing temperature. Black slips can indicate a smoky reducing atmosphere, but they can also represent higher-fired wares that cooled quickly without the possibility of the iron colorant's being oxidized to its ferric state.

The "painted sherds" do not constitute a valid grouping. In this collection appear several variations in clay type, as might be expected, and differences in paint color from red through brown and purple to black that relate to the same production factors as those just discussed for the slips. Many of the sherds have the paint applied over a slip. Some of the pieces were over-fired. This group certainly relates to body sherds that appear in other categories, and it can best be discussed in terms of technological and often also cultural significance when the sherds representing painted zones of vessels can be associated with the undecorated pieces from the same ware.

The "Pattern Burnished" sherds form an interesting group. They have narrow burnished concentric lines decorating dull reddish brown surfaces. The decoration was scribed on the vessels when they were in a "leather hard" condition—about that of hand soap. The stylus could indent the surface without forming cracks, and in the act of being compressed a burnished strip was produced. With some clays it might be necessary to have the stylus lubricated with a little water. A few pieces were slipped before the burnished decoration in several styles was applied and were of the biotite clay, whereas the unslipped sherds were of the serecite clay. Not all clays can be burnished, so the application of slip might have been a technological necessity. Burnishing was evidently not an extensively used technique in the area and time span represented by the Shamshir Ghar sherd collection.

Bisque and Greenish Paste Wares

These sherds represent higher-fired vessels than the Red Ware. They were made of the same types of clay and were undoubtedly fired together in the same kilns. In every kiln load of pottery some vessels are exposed to higher firing temperatures than others, with resultant differences in color. Some pieces are even overfired and become warped and discolored. The transitional sherds between this group and the Red Wares are those that had been mistakenly awarded a cream slip; this mis-attribution of a cream slip is quite common in archeological reports. The extreme color range of the highest temperatures reached in the kilns is that of the greenish sherds. Such color sortings of ware of a given period and of successive periods is often a useful means of following technological change. This was done in the study of the Hellenistic and Parthian pottery from Seleucia-on-the-Tigris.[1]

[1] Matson, 1945a.

The stamped-ware sherds examined, all from late levels, were made of the biotite clay and were all from vessels that had been fired to a yellow color. The relationship of firing temperature to ware in Islamic times is a very interesting subject.

The "Metallic Black" sherds of Type II (Type I was not available for study) must be grouped with the high-temperature pottery of the normal clays of the region despite its exotic appearance. When clay is fired to high temperatures very rapidly, not all the organic material may burn out of the paste. The clay also begins to vitrify, and in this semi-glassy condition the iron present remains in a black reduced state which gives a dark gray to black color to the pottery. Such over-fired pieces are not very common, because often a vessel exposed to this high a temperature slumps or warps in the kiln and is destroyed immediately after removal because it is useless. These vitrified sherds, with a resonant sound when struck, can often furnish clues related to the upper range of firing temperature and kiln practices at the village or town site.

Imported Wares

When one becomes familiar with the sherds from a site and learns the range in ceramic properties that occur, it becomes fairly easy to identify some of the imported wares. Other materials can be recognized only after detailed microscopic study. One group of light tan-colored, extremely fine-textured sherds with well-smoothed but unburnished surfaces differs from the major series. A few other sherds are distinctive but are not described in detail.

One group, however, is challenging. Dupree has termed this "Black-Centered Red Ware." It is a very fine-textured thin ware 4 to 5 mm. thick, with a gray to dark gray core and a slight orange to tan or a dark surface. It was fired rapidly to a fairly high temperature, but cooled under oxidizing conditions. Similar material was found at Seleucia-on-the-Tigris where it was recognized as an import, probably from the east. There the sherds were all from small closed containers. A few sherds have also been seen in collections from other sites. Shamshir Ghar has 93 sherds of this type, so gives evidence of another area in which it occurs.

Glazed Wares

The collection of glazed sherds represents so many types that little would be gained from describing them in detail at present. An analysis of the chemical composition of the glaze may be useful, particularly from sherds from levels that can be accurately dated. Certainly there are trade implications in the presence of many of the Islamic wares represented at the site. Technologically, one point that should be made is that the firing temperature of the pottery, as indicated by its color, correlates well with the type of glaze applied to that ware. It is

recognized that differences in the local clays is of importance in such a color classification, but this approach of color differences is useful in learning more about the firing processes of the glazed wares. The Shamshir Ghar sherds will be useful in such long-range studies.

SUMMARY

The careful examination of a sampling of Shamshir Ghar sherds, which involved a restudy of the collection three times so as to have in mind the over-all ceramic picture and the variants that occurred, has shown that a classification based on over-all color differences is useful as a first approximation. But it should be refined, in the field if possible, by a more detailed consideration of the physical properties of the pottery so that shape, decoration, clay type, degree of firing, and other factors may be related to the stratigraphic development of the study of the site.

Most of the pottery, formed on the wheel, was made of two types of clay characterized by the presence of either serecite or biotite. Small lumps of limestone occurred in some sherds, especially in the biotite clay. The clay was probably washed to free it of coarse inclusions. The degree of firing of the wares resulted in colors ranging from brown through green. A rough indication of the proportions of the several colors in order of increasing firing temperature is approximately: one-third, brown and red; almost two-fifths, red with cream surface; one-fifth, cream (bisque); one-twentieth, green. These figures give some idea of the temperature distribution in the kilns, as long as it is realized that the above attempt is but a first approximation.

The pottery was decorated with slip, paint, occasionally burnished lines, incising, and stamping. The thick utilitarian ware was tempered intentionally or naturally with limestone grains which gave it greater strength before firing. Some imported sherds were found in the cave.

Thus several traditions of pottery manufacture are represented in the collection. When a village or town site is excavated in the same region it will be possible to evaluate the ceramic history of Shamshir Ghar in more significant detail.

LITERATURE CITED

ABONNENG, E.
1952. Inventaire et distribution des sites archéologiques en Guyane Française. Jour. Soc. Americanistes Paris, vol. 41, no. 1, pp. 43–62.

ANDREWS, FRED H.
1935. Descriptive catalogue of antiquities recovered by Sir Aurel Stein. Delhi, Central Asia Antiquities Museum.

ANONYMOUS
1952. Five years of Pakistan. Karachi, Pakistan Publications.

ARNE, T. J.
1945. Excavations at Shah Tepé, Iran. *Publication 27 of* Reports from the scientific expedition to the north-western provinces of China under the leadership of Dr. Sven Hedin, VII, Archaeology, 5. Stockholm.

AUBOYER, J.
1950. Joseph Hackin (1886–1941) in memoriam. Afghanistan, vol. 5, no. 3, pp. 1–9.

BARGER, EVERT
1938–1939. The results of the recent archaeological expedition to Swat and Afghanistan, in relation to the present position of Indian studies in this country. Jour. Roy. Soc. Arts, vol. 87, no. 4490, pp. 102–124.
1939a. Opening up of a rich new field of archaeological research in Central Asia. Illustrated London News, April 22, pp. 682–683.
1939b. Exploration of ancient sites in northern Afghanistan. Geogr. Jour., London, vol. 93, no. 9, pp. 377–391.
1944. Some problems of Central Asian exploration. *Ibid.*, vol. 103, no. 1, pp. 1–16.

BARGER, EVERT, AND P. WRIGHT
1941. Excavations in Swat and explorations in the Oxus territories of Afghanistan; a detailed report of the 1939 expedition. Mem. Archaeol. Surv. India, no. 64.

BARTHOLD, W.
1928. Turkestan down to the Mongol invasion. London.

BARTHOUX, J.
1930. Les fouilles de Hadda, figures et figurines. Mém. Délégation Archéol. Française en Afghanistan, Paris, vol. 6.
1933. Les fouilles de Hadda: stûpas et sites. *Ibid.*, vol. 4.

BECK, H.
1928. Classification and nomenclature of beads and pendants. Archaeologia, London, vol. 77, pp. 1–76.

BENAVA, ABDUL RAOUF
1953. Panjwai. Afghanistan, vol. 8, no. 3, pp. 23–26.

BERGMAN, F., AND OTHERS
1939. Archaeological researches in Sinkiang. *Publication 7 of* Reports from the scientific expedition to the north-western provinces of China under the leadership of Dr. Sven Hedin, VII, Archaeology 1. Stockholm.

BERKEY, CHARLES P., AND FREDERICK K. MORRIS
1927. Geology of Mongolia. Natural history of Central Asia, vol. 2. New York, the American Museum of Natural History.

BIVAR, A. D. H.
1953. The Hepthalite inscriptions of Uruzgan. Afghanistan, vol. 8, no. 4, pp. 1–4.

BOGORAS, W.
1928. Ethnographic problems of the Eurasian Arctic. Special Publ. Amer. Geogr. Soc., no. 7, pp. 189–207.

BRAIDWOOD, R. J., AND LINDA BRAIDWOOD, JAMES G. SMITH, AND CHARLES LESLIE
1952. Matarrah: a village of early farmers in Iraq. Jour. Near Eastern Studies, vol. 11, no. 1, pp. 1–75.

BROCKELMANN, CARL
1947. History of the Islamic peoples. New York.

BUTLER, A. J.
1926. Islamic pottery, a study mainly historical. London.

CAMMANN, SCHUYLER
1953. Types of symbols in Chinese art. *In* Wright, Arthur F. (ed.), Studies in Chinese thought. Mem. Amer. Anthrop. Assoc., no. 75, pp. 195–231.

CARTER, D.
1948. Four thousand years of China's art. New York.

CASAL, JEAN-MARIE
1952. Mundigak: un site de l'âge du bronze en Afghanistan. Afghanistan, vol. 7, no. 4, pp. 41–48.
1955. The Afghanistan of five thousand years ago: excavating the huge bronze age mound of Mundigak. Illustrated London News, May 7, pp. 832–834.

CONTENAU, G.
1927–1947. Manuel d'archéologie orientale. Paris, 4 vols.

COOMARASWAMY, ANANDA K.
1935. Elements of Buddhist iconography. Cambridge, Harvard University Press.

COON, C. S.
1943. Southern Arabia, a problem for the future. *In* Coon, Carleton S., and James M. Andrews, IV (eds.), Studies in the anthropology of Oceania and Asia. Papers Peabody Mus. Amer. Archaeol. Ethnol., Harvard Univ., vol. 20.

1948. The races of Europe. New York.

DALTON, O. M.
1926. The treasure of the Oxus. Second edition. London, Oxford University Press.

DAY, F. E.
[MS.] Mesopotamian pottery: Parthian, Sassanian, and Early Islamic. Doctoral thesis, unpublished, University of Michigan, Ann Arbor.

DE CARDI, BEATRICE
1950. On the borders of Pakistan: recent exploration. Jour Roy. India, Pakistan and Ceylon Soc., London, vol. 24, no. 2, pp. 52–57.
1951. A new prehistoric ware from Baluchistan. Iraq, British School of Archaeology in Iraq, vol. 13, pt. 2. pp. 63–75.

DIMAND, M. S.
1930. A handbook of Mohammedan decorative arts. New York, Metropolitan Museum of Art.

DIMAND, M. S., C. K. WILKINSON, WALTER HAUSER, AND J. M. UPTON
1937. The Iranian expedition (1936): the excavations at Nishapur. Bull. Metropolitan Mus. Art, vol. 32, no. 10, pp. 3–39.

DOUGHTY, C. M.
1947. Travels in Arabia Deserta. Fourth edition. New York, Random House, 2 vols.

DOWSON, JOHN
1953. A classical dictionary of Hindu mythology and religion, geography, history and literature. London.

DUPREE, LOUIS
1951. Preliminary field report on excavations at Shamshir Ghar, Koh-i-Duzd, and Deh Morasi Ghundai. Afghanistan, vol. 6, no. 2, pp. 22–31; no. 3, pp. 30–35.
1956a. Afghanistan between east and west: 2nd century B.C. to 1222 A.D. Jour. Roy. Central Asian Soc., vol. 43, no. 1, pp. 52–60.
1956b. Shamshir Ghar. Orientalistische Literaturzeitung, Leipzig, no. 7/8, pp. 293–296.
1957. Shamshir Ghar, a cave in Afghanistan. Archaeology, vol. 10, no. 2, pp. 108–116.

ELLERMAN, J. R., AND T. C. S. MORRISON-SCOTT
1946. Check list of Palaearctic and Indian mammals: 1758 to 1946. London, British Museum (Natural History).

FAIRSERVIS, WALTER A., JR.
1950a. Archaeological research in Afghanistan. Trans. New York Acad. Sci., ser. 2, vol. 12, no. 5, pp. 172–174. (Also published in Afghanistan, 1950, vol. 5, no. 4, pp. 31–34.)
1950b. Exploring the desert of death. Nat. Hist., vol. 59, no. 6, pp. 246–253.
1951. Afghanistan (news note). Amer. Jour. Archaeol., vol. 55, no. 1, pp. 97–98.
1952a. New discoveries in Baluchistan. Archaeology, vol. 5, no. 2, pp. 100–103.
1952b. Preliminary report on the prehistoric archaeology of the Afghan Baluchi areas. Amer. Mus. Novitates, no. 1587.
1956. Excavations in the Quetta Valley, West Pakistan. Anthrop. Papers Amer. Mus. Nat. Hist., vol. 45, pt. 2, pp. 165–402.

FAIRSERVIS, WALTER A., JR., WITH BILL DAVIDSON
1951a. Journey to 4000 B.C. I. Collier's, December 22, pp. 22–23, 57–60.
1951b. Christmas in Kabul. II. *Ibid.*, December 29, pp. 22–23, 54–56.
1952. Exploring the desert of death. III. *Ibid.*, January 5, pp. 32–33, 46–47, 50–51.

FERISHTA, MAHOMED KASIM
1908. History of the rise of Mahomedan power in India until the year A.D. 1612. Translated from the original Persian by Lt. Col. John Briggs. London, 4 vols.

FERRIER, J. P.
1870. Voyages et aventures en Perse, dans l'Afghanistan, le Belouchistan et le Turkestan. Paris, 2 vols.

FITCH, FLORENCE MARY
1950. Allah: the god of Islam. New York.

FLURY, S., AND A. GODARD
1925. Ghazni: premiers résultats de la Mission Archéologique Française en Afghanistan. Paris.

FOUCHER, A.
1924. Notes sur les antiquités bouddhiques de Haibak (Turkestan Afghan). Jour. Asiatique, vol. 205, pp. 139–153.
1930. Bustes provenant de Hadda (Afghanistan) au Musée Guimet. Extrait des Monuments et Mémoirs publiés par l'Académie des Inscriptions et Belles-Lettres, vol. 30, pp. 101–110.

FRYE, RICHARD N.
1954. An epigraphical journey in Afghanistan. Archaeology, vol. 7, no. 2, pp. 114–118.

GARDIN, J.-C.
1957. Céramiques de Bactres. Mém. Délégation Archéol. Française en Afghanistan, Paris, vol. 15.

GESSNER, H.
1931. Die Schlammanalyse. Leipzig.

GETTENS, R. J.
1938. The material in the wall-paintings of Bamiyan of Afghanistan. Tech. Studies Fine Arts, Harvard Univ., vol. 6, no. 3, pp. 186–193.

GHIRSHMAN, RENÉ
1938–1939. Fouilles de Sialk. Paris, Musée du Louvre, 2 vols.
1939. Fouilles de Nadi-Ali dans le Seistan Afghan. Rev. Arts Asiatiques, vol. 13, no. 1, pp. 10–22.
1946. Begram: recherches archéologiques et historiques sur les Kouchans. Mém. Déléga-

tion Archéol. Française en Afghanistan, Cairo, vol. 12.
1948. Les Chionites-Hepthalites. *Ibid.*, Paris, vol. 13.

GIBB, H., AND H. BOWEN
1951. Islamic society and the West. London, vol. 1, Islamic society in the eighteenth century, pt. 1.

GODARD, A., Y. GODARD, AND J. HACKIN
1928. Les antiquités bouddhiques de Bamiyan. Mém. Délégation Archéol. Française en Afghanistan, Paris, vol. 2.

GREGORY, J. W.
1930. Palestine and the stability of climate in historic times. Geogr. Jour., London, vol. 76, no. 6, pp. 487–494.

GRIESBACH, C. L.
1887. Field-notes #5: to accompany a geologic sketch map of Afghanistan and northeastern Khorissan. Rec. Geol. Surv. India, no. 20, p. 93.

GRIGORIEFF, G.
1940. Tali-Barzou (in Russian). Gossoudarstveniy Ermitage. Troudiotdela istorii koultouri i iskoustva vostoka. (Discussed in Ghirshman, 1946.)

HACKIN, J.
1928. Les fouilles de la Délégation Archéologique Française à Hadda (Afghanistan): mission Foucher-Godard-Barthoux (1923–1928). Rev. Arts Asiatiques, Ann. Mus. Guimet, vol. 5, no. 2, pp. 66–77.
1934. The recent work of the French Archaeological Mission at Bamiyan. Indian Art and Letters, London, vol. 8, no. 1, pp. 36–42.
1935. The eastward extension of Sassanian motives. Bull. Amer. Inst. Persian Art and Archaeol., vol. 2, no. 1, pp. 5–6.
1938a. Les travaux de la Délégation Archéologique Française en Afghanistan, compte-rendu sommaire, Sept. 1936–Août 1937. Rev. Arts Asiatiques, vol. 12, no. 1, pp. 2–11.
1938b. The work of the French Archaeological Mission in Afghanistan, Sept. 1936–August 1937. Indian Art and Letters, London, vol. 12, no. 1, pp. 41–49.
1950. L'art bouddhique de la Bactriane et les origines de l'art gréco-bouddhique. Afghanistan, vol. 5, no. 1, pp. 1–9.
1951. Les fouilles de Begram (1939). *Ibid.*, vol. 6, no. 4, pp. 1–10.

HACKIN, J., AND J. CARL
1933. Nouvelles recherches archéologiques à Bamiyan. Mém. Délégation Archéol. Française en Afghanistan, Paris, vol. 3.
1936. Recherches archéologiques au col de Khair Khaneh. *Ibid.*, vol. 7.

HACKIN, J., and R. HACKIN
1939. Recherches archéologiques à Begram. Mém. Délégation Archéol. Francaise en Afghanistan, Paris, vol. 9 (2 vols.).

HACKIN, J., R. HACKIN, J. CARL, AND P. HAMELIN
1954. Nouvelles recherches archéologiques à Begram (ancienne Kapici) (1938–1940). Mém. Délégation Archéol. Francaise en Afghanistan, Paris, vol. 11.

HAIG, LT. COL. SIR WOLSELY (ED.)
1928. Turks and Afghans. *In* The Cambridge history of India. Cambridge, England, vol. 3.

HAZARD, H. W.
1951. Atlas of Islamic history. Princeton, New Jersey, Princeton University Press.

HEDIN, S.
1904–1907. Scientific results of a journey through Central Asia. Stockholm.
1910. Zu land nach Indien durch Persien, Seistan, und Baluchistan. Leipzig, 2 vols.

HENRI-MATIN, G.
1946. Note préliminaire sur un niveau tayacien dans la station préhistorique de Fontéchavade (Charente). Bull. Soc. Préhist. Française, vol. 43, no. 5–6, pp. 179–182.
1947. L'homme fossile tayacien de la grotte de Fontéchavade. Compt. Rendus Acad. Sci., Paris, vol. 225, pp. 766–767.

HERZFELD, E. E.
1930. Kushano-Sasanian coins. Mem. Archaeol. Surv. India, no. 38.
1941. Iran in the ancient east. New York.

HITTI, P.
1949. History of the Arabs. Fourth edition. New York.

HOBSON, R. L.
1924. A guide to the pottery and porcelain of the Far East. London, Oxford University Press.
1928–1930. Potsherds from Brahminabad. Trans. Oriental Ceramic Soc., pp. 21–23.
1932. A guide to the Islamic pottery of the Near East. London, British Museum, Department of Ceramics and Ethnography.

HOOPER, DAVID
1937. Useful plants and drugs of Iran and Iraq. Publ. Field Mus. Nat. Hist., sci. ser., vol. 9, no. 3, pp. 73–241.

HORNER, N. G.
1933. Geomorphic processes in continental basins of Central Asia. Rept. 16, Internatl. Geol. Congr., no. 2, pp. 721–735.

HOURANI, GEORGE
1951. Arab seafaring in the Indian Ocean in ancient and early medieval times. Princeton, New Jersey, Princeton University Press.

HUNTINGTON, E.
1905a. A geologic and physiographic reconnaissance in Central Turkestan. Publ. Carnegie Inst. Washington, no. 26, pp. 159–216.
1905b. The basin of eastern Persia and Seistan. *Ibid.*, no. 26, pp. 219–317.
1906. The rivers of Chinese Turkestan and the dessication of Asia. Geogr. Jour., London, vol. 28, no. 4, pp. 352–367.
1907a. The depression of Turfan, Central Asia. *Ibid.*, vol. 30, no. 3, pp. 254–273.
1907b. The pulse of Asia. Boston.

KIDDER, A. V.
1924. An introduction to the study of southwestern archaeology, with a preliminary account of the excavations at Pecos. Papers Southwestern Exped., Phillips Acad., Andover, no. 1.

KOECHLIN, RAYMOND
1928. Les céramiques musulmanes de Suse au Musée de Louvre. Mém. Mission Archéol. Perse, Paris, vol. 19.

KOHZAD, A. A.
1948. Le lapis-lazuli et son rôle dans les relations de l'Ariana avec les pays de l'Asie occidentale. Afghanistan, vol. 3, no. 4, pp. 1–2.
1950. The tour of the archaeological mission of the American Museum of Natural History in Seistan. *Ibid.*, vol. 5, no. 1, pp. 28–32.
1953. Recherches archéologiques en Afghanistan. *Ibid.*, vol. 8, no. 2, pp. 1–11.

KROPOTKIN, PRINCE P.
1904. The dessication of Eur-Asia. Geogr. Jour., London, vol. 23, no. 6, pp. 722–741.

LAL, B. B.
1952. New light on the "Dark Age" of Indian history: recent excavations at the Hastināpura site, near Delhi. Illustrated London News, October 4, pp. 551–553.

LAMM, C. J.
1928. Das Glas von Samarra (Die Ausgrabungen von Samarra IV). Berlin.
1935. Glass from Iran. Stockholm.

LANE, ARTHUR
1948. Early Islamic pottery. London.

LATTIMORE, OWEN
1940. Inner Asian frontiers of China. Res. Ser. Amer. Geogr. Soc., no. 21.

LAUFER, BERTHOLD
1919. Sino-Iranica, Chinese contributions to the history of cultivated plants and products. Publ. Field Mus. Nat. Hist., anthrop. ser., vol. 15, no. 3.

LECOQ, ALBERT VON
1913. Chotscho. Berlin.
1929. Buried treasures of Chinese Turkestan. Translated from the German by Anna Barwell. London.

LESTRANGE, GUY
1930. The lands of the eastern caliphate. Second edition. Cambridge, Cambridge University Press.

LIBBY, W. F.
1954. Chicago radiocarbon dates, IV. Science, vol. 119, no. 3083, pp. 136–137.

MCGOVERN, W. M.
1939. The early empires of Central Asia: a study of the Scythians and the Huns and the part they played in world history. Chapel Hill, University of North Carolina Press.

MACKAY, E. J. H.
1943. Chanhu Daro excavations. New Haven.

MAERZ, A., AND M. REA PAUL
1950. A dictionary of color. Second edition. New York.

MAJUMDAR, N. G.
1934. Explorations in Sind. Mem. Archaeol. Surv. India, no. 48.

MAJUMDAR, R. C., AND H. C. RAYCHAUDHURI, KALIKINKAR DATTA
1950. An advanced history of India. Second edition. London.

MARCH, B.
1934. Standards of pottery description. Occas. Contrib. Mus. Anthrop. Univ. Michigan, no. 3.

MARSHALL, JOHN
1951. Taxila. Cambridge, England, 3 vols.

MATSON, FREDERICK R.
1945a. A technological study of the unglazed pottery and figurines from Seleucia on the Tigris. Microfilm Abstr., vol. 6, no. 1, pp. 7–8. (Ph. D. dissertation, 1939, published on microfilm.)
1945b. Technological development of pottery in northern Syria during the Chalcolithic Age. Jour. Amer. Ceramic Soc., vol. 28, no. 1, pp. 20–25.
1955. Ceramic archaeology. Bull. Amer. Ceramic Soc., vol. 34, no. 2, pp. 33–44.
1956. Techniques of the early bronze potters at Tarsus. *In* Goldman, Hetty, Excavations at Gozlu Kule, Tarsus. Princeton, New Jersey, Institute for Advanced Study, vol. 2.

MEUNIÉ, J.
1942. Shotorak. Mém. Délégation Archéol. Française en Afghanistan, Paris, vol. 10.

MINNS, E. H.
1913. Scythians and Greeks. London.

MORSE, EDWARD S.
1901. Catalogue of the Morse collection of Japanese pottery. Cambridge, Museum of Fine Arts of Boston.

MUNSELL, A. H.
1919. A color notation: an illustrated system defining all colors and their relations by measured scales of hue, value, and chroma. Fifth edition. Boston.
1929. Munsell book of color, defining, explaining,

and illustrating the fundamental characteristics of color. Baltimore, 2 vols.

PARKER, E. G.
1924. A thousand years of the Tartars. Second edition. London.

PENCK, A.
1930. Central Asia. Geogr. Jour., London, vol. 76, no. 6, pp. 477–487.

PEZARD, MAURICE
1920. La céramique archaïque de l'Islam et ses origines. Paris, vols. 1, 2.

PHILLIPS, PHILIP, JAMES A. FORD, AND JAMES B. GRIFFIN
1951. Archaeological survey in the lower Mississippi alluvial valley, 1940–1947. Papers Peabody Mus. Amer. Archaeol. Ethnol., Harvard Univ., vol. 25.

PIGGOTT, STUART
1949. Sassanian motifs on painted pottery from north-west India. Ancient India, Bull. Archaeol. Surv. India, no. 5, pp. 31–34.

POPE, A. U.
1930. An introduction to Persian art since the seventh century, A.D. London.

POPE, A. U. (ED.)
1938–1939. A survey of Persian art. New York, 4 vols.

POPE, A. U., WITH CONTRIBUTIONS BY P. ACKERMAN AND E. SCHRODER
1945. Masterpieces of Persian art. New York.

RAPHAEL, OSCAR C.
1923–1924. Fragments from Fostat. Trans. Oriental Ceramics Soc., pp. 17–25.

RAPSON, E. J. (ED.)
1922. The Cambridge history of India. Cambridge, England, vol. 1.

REUTER, OSCAR
1930. Die Ausgrabungen der deutschen Ktesiphon-Expedition im Winter, 1928–1929. Wittenberg.

RICE, D. TALBOT
1934. The Oxford excavations at Hira. Ars Islamica, vol. 1, pt. 1, pp. 57–73.

RICE, T. T.
1957. The Scythians. New York.

ROSENTHAL, ERNST
1949. Pottery and ceramics. Middlesex, England, Penguin Books.

ROSTOVTZEFF, M. I.
1922. Iranians and Greeks in south Russia. London.
1931–1932. L'art gréco-iranien. Rev. Arts Asiatiques, vol. 7, no. 4, pp. 202–222.

ROSTOVTZEFF, M. I., AND OTHERS
1943–1949. The excavations at Dura Europos. New Haven, Yale University Press (final rept. 4; 4 pts.).

ROWLAND, B., JR.
1953. The art and architecture of India: Buddhist, Hindu, Jain. Middlesex, England, Penguin Books.

SARRE, FRIEDRICH
1923. Die Kunst des alten Persien. Berlin.
1925. Die Keramik von Samarra. Die Ausgrabungen von Samarra. Berlin, vol. 2.

SARRE, FRIEDRICH, AND E. HERZFELD
1911–1920. Archäologische Reise im Euphrat-und-Tigris Gebiet. Berlin, 4 vols.

SCHLUMBERGER, DANIEL
1947. The archaeological exploration of Afghanistan. Afghanistan, vol. 2, no. 4, pp. 1–22.
1948. La prospection archéologique de Bactres (printemps, 1947): rapport sommaire. *Ibid.*, vol. 3, no. 1, pp. 40–51.
1949. Les fouilles de Lashkari Bazar: recherches archéologiques su l'époque ghaznévide. *Ibid.*, vol. 4, no. 2, pp. 34–44.
1950. Les fouilles de Lashkari Bazar: les résultats de la deuxième et de la troisième campagne. *Ibid.*, vol. 5, no. 4, pp. 46–56
1952a. Le grande mosquée de Lashkari Bazar. *Ibid.*, vol. 7, no. 1, pp. 1–4.
1952b. Le temple de Surkh Kotal, en Bactriane. Jour. Asiatique, vol. 240, no. 4, pp. 433–453.
1953. Surkh Kotal: a late Hellenistic temple in Bactria. Archaeology, vol. 6, no. 4, pp. 232–238.
1954. Surkh Kotal. Afghanistan, vol. 9, no. 1, pp. 44–54.

SCHMIDT, E. F.
1935–1936. The Persian expedition to Rayy. Bull. Univ. Mus., Philadelphia, vol. 5, no. 5, pp. 41–49; vol. 6, no. 4, pp. 133–136.
1936. Rayy research, 1935, Part I. *Ibid.*, vol. 6, no. 3, pp. 79–87.

SEDQI, M. U.
1952. Qandahar. Afghanistan, vol. 7, no. 4, pp. 21–34.

SELTMAN, CHARLES
1952. A book of Greek coins. Middlesex, England, Penguin Books.

SHAKUR, M. A.
1947. A dash through the heart of Afghanistan, being personal narrative of an archaeological tour with the Indian cultural mission. Peshawar.

SHEPARD, ANNA O.
1956. Ceramics for the archaeologist. Publ. Carnegie Inst. Washington, no. 609.

SMITH, R. MURDOCH
1876. Persian art. London.

SMITH, VINCENT
1904. The early history of India. London.
1919. The Oxford history of India. London.

STARR, R. F. S.
1937–1939. Nuzi. Report on the excavations at Yorgan Tepe near Kirkuk, Iraq. Cambridge, Harvard University Press. 2 vols.

STEIN, AUREL
1921. Serindia (Central Asia and westernmost China). London, 5 vols.
1928. Innermost Asia. Detailed report of explorations in central Asia, Kan-Su and eastern Irān. Oxford, 4 vols.
1929. An archaeological tour of Waziristan and northern Baluchistan. Mem. Archaeol. Surv. India, no. 37, pp. 1–93.
1930. An archaeological tour in upper Swat and adjacent hill tracts. *Ibid.*, no. 42.
1931. An archaeological tour in Gedrosia. *Ibid.*, no. 43, pp. 1–190.
1937. Archaeological reconnaissances in north-western India and south-eastern Iran. London.
1942. A survey of ancient sites along the "lost" Sarasvati river. Geogr. Jour., London, vol. 99, no. 4, pp. 173–182.

STENZ, E.
1946. The climate of Afghanistan, its aridity, dryness, and divisions. New York, Polish Institute of Arts and Sciences in America.
1948. Le climat de Kaboul. Afghanistan; vol. 3, no. 1, pp. 12–19.

SYKES, SIR PERCY
1940. A history of Afghanistan. London, 2 vols.

TARN, W. W.
1938. The Greeks in Bactria and India. Cambridge, England.

TATE, G. P.
1909. The frontiers of Baluchistan. London.
1910–1912. Seistan. A memoir on the history, topography, ruins and people. Calcutta, Govt. Printing Office, 2 vols.

TERRA, H. DE
1932. Geologische Forschungen im westlichen K'un-lun und Karakorum-Himalaya. *In* Wissenschaftliche Ergebnisse der Dr. Trinkler. schen Zentralasien Expedition, Berlin, vol. 2.

TOLL, N.
1943. The green glazed pottery. Excavations at Dura-Europos; final report, IV. New Haven, Yale University Press, pt. 1, fasc. 1.

TRINKLER, E.
1928. Through the heart of Afghanistan. Boston.

UPTON, J. M., AND C. K. WILKINSON
1936. The Persian expedition, 1934–1935, excavations at Nishapur. Bull. Metropolitan Mus. Art, vol. 31, pp. 176–182.

VATS, M. D.
1940. Excavations at Harappā. Being an account of archaeological excavations at Harappā carried out between the years 1920–21 and 1933–34. Delhi, 2 vols.

VAVILOV, N. I., AND D. D. BUKINICH
1929. Agricultural Afghanistan. Leningrad. (In Russian; English summary, pp. 535–610.)

VEIMAR, B.
1940. The art of Central Asia. Moscow. (In Russian.)

VLADIMIRTSOV, B.
1948. Le régime social des Mongols: le féodalisme nomade. Paris, Librairie d'Amerique et d'Orient, Maisonneuve.

WAAGE, F. D., AND OTHERS
1948. Ceramics and Islamic coins, Antioch-on-the-Orontes. Princeton, New Jersey, Princeton University Press.

WENTWORTH, C. K.
1922. A scale of grade and class terms for clastic sediments. Jour. Geol., vol. 30, no. 5, pp. 377–392.

WHEELER, R. E. M.
1947. Archaeology in Afghanistan. Antiquity, vol. 21, no. 82, pp. 57–65.
1950. Five thousand years of Pakistan. London.

WHEELER, R. E. M., A. GHOSH, AND KRISHNA DEVA
1946. Arikamedu: an Indo-Roman trading station on the east coast of India. Ancient India, Bull. Archaeol. Surv. India, no. 2, pp. 17–124.

WHISTLER, HUGH
1949. Popular handbook of Indian birds. Fourth edition. London.

WOODFORD, A. O.
1925. The San Onofre Breccia. Bull. Dept. Sci., Univ. California, vol. 15, no. 7, pp. 159–280.

WRIGHT, H. E., JR.
1952. The geological setting of four prehistoric sites in northeastern Iraq. Bull. Amer. School Oriental Res., no. 128, pp. 11–24.

WU, CHING-TING
1938. Prehistoric pottery in China. London.

YOUNG, R. S.
1954. Afghanistan reconnaissance. Archaeology, vol. 7, no. 1, pp. 51–52.
1955. The south wall of Balkh-Bactria. Amer. Jour. Archaeol., vol. 59, no. 4, pp. 267–276.

ZEIGLER, JOHN M.
[MS.] Geological report of the Second Afghan expedition.
1958. Geological study of Shamshir Ghar cave, southern Afghanistan, and report of terraces along Panjshir Valley near Kabul. Jour. Geol., vol. 66, no. 1, pp. 16–27.

ZIMMER, H.
1953. Myths and symbols in Indian art and civilization. Third edition. *In* Campbell, Joseph (ed.), Bollingen series VI. New York, Pantheon Books.

CATALOGUE DATA FOR CERTAIN PLATES

12. Glaze Wares. Early Islamic
    a. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747a)
    b. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747b)
    c. Early Islamic, Graffito I, Trench 3, Cut 5, 10–20-cm. level (73-4747c)
    d. Early Islamic, Graffito I, Trench 3, Cut 5, 10–20-cm. level (73-4747d)
    e. Early Islamic, Graffito I, Trench 3, Cut 5, 10–20-cm. level (73-4747e)
    f. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747f)
    g. Early Islamic, Graffito I, Trench 2, Cut 4, 0–10-cm. level (73-4747g)
    h. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747h)
    i. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747i)
    j. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747j)
    k. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747k)
    l. Early Islamic, Graffito I, Trench 2, Cut 3, 10–20-cm. level (73-4747 l)
    m. Early Islamic, Graffito II, Trench 2, Cut 3, 10–20-cm. level (73-4748a)
    n. Early Islamic, Graffito II, Trench 2, Cut 3, 10–20-cm. level (73-4748b)
    o. Early Islamic, Graffito III, Trench 2, Cut 3, 0–10-cm. level (73-4749a)
    p. Early Islamic, Graffito III, Trench 2, Cut 4, 0–10-cm. level (73-4749b)
    q. Early Islamic, Graffito III, Trench 2, Cut 4, 0–10-cm. level (73-4749c)
    r. Early Islamic, Graffito III, Trench 2, Cut 4, 0–10-cm. level (73-4748d)
    s. Early Islamic, Graffito III, Trench 2, Cut 4, 0–10-cm. level (73-3749e)
13. Glaze Wares. Early Islamic and Kushano-Sassanian
    a. Early Islamic, Graffito IV, Trench 2, Cut 3, 10–20-cm. level (73-4750a)
    b. Early Islamic, Graffito IV, Trench 2, Cut 3, 10–20-cm. level (73-4750b)
    c. Early Islamic, Graffito IV, Trench 2, Cut 3, 10–20-cm. level (73-4750c)
    d. Early Islamic, Graffito IV, Trench 2, Cut 3, 10–20-cm. level (73-4750d)
    e. Early Islamic, Graffito IV, Trench 2, Cut 3, 10–20-cm. level (73-4750e)
    f. Early Islamic, Mottled and Plain Green, Trench 2, Cut 3, 10–20-cm. level (73-4751a)
    g. Early Islamic, Mottled and Plain Green, Trench 3, Cut 5, 20–25-cm. level (73-4751b)
    h. Early Islamic, Mottled and Plain Green, Cut 8, 0–10-cm. level (73-4751c)
    i. Early Islamic, Mottled and Plain Green, Trench 2, Cut 3, 0–10-cm. level (73-4751d)
    j. Early Islamic, Mottled and Plain Green, Trench 2, Cut 3, 0–10-cm. level (73-4751e)
    k. Kushano-Sassanian (probably intrusive), Mottled and Plain Green, Trench 2, Cut 4, 20–30-cm. level (73-4751f)
    l. Kushano-Sassanian (probably intrusive), Mottled and Plain Green, Trench 2, Cut 4, 20–30-cm. level (73-4751g)
    m. Early Islamic, Mottled and Plain Green, Cut 8, 10–20-cm. level (73-4751h)
    n. Early Islamic, Mottled and Plain Green, Cut 8, 10–20-cm. level (73-4751i)
    o. Early Islamic, Champlevé Yellow, Trench 3, Cut 5, 10–20-cm. level (73-4752a)
    p. Early Islamic, Champlevé Yellow, Trench 2, Cut 4, 10–20-cm. level (73-4752b)
    q. Early Islamic, Champlevé Green, Trench 2, Cut 4, 0–10-cm. level (73-4753a)
14. Glaze Wares. Early Islamic and Kushano-Sassanian
    a. Early Islamic, Bole Red, Trench 2, Cut 3, surface (73-4754a)
    b. Early Islamic, Bole Red, Trench 2, Cut 3, 10–20-cm. level (73-4754b)
    c. Early Islamic, Bole Red, Trench 2, Cut 3, surface (73-4754c)
    d. Kushano-Sassanian, Blue and Blue-Green, Trench 2, Cut 4, 20–30-cm. level (73-4755a)
    e. Early Islamic, Blue and Blue-Green, Trench 2, Cut 4, 10–20-cm. level (73-4755b)
    f. Early Islamic, Blue and Blue-Green, Trench 2, Cut 4, 10–20-cm. level (73-4755c)
    g. Early Islamic, Blue and Blue-Green, Trench 2, Cut 4, 10–20-cm. level (73-4755d)
    h. Early Islamic, Blue and Blue-Green, Trench 2, Cut 4, 10–20-cm. level (73-4755e)
    i. Early Islamic, Blue and Blue-Green, Trench 2, Cut 4, 10–20-cm. level (73-4755f)
    j. Kushano-Sassanian (probably intrusive), Imitation Celadon, Trench 2, Cut 3, 20–30-cm. level (73-4756a)
    k. Kushano-Sassanian (probably intrusive), Imitation Celadon, Trench 2, Cut 3, 20–30-cm. level (73-4756b)
    l. Early Islamic, Imitation Celadon, Trench 2, Cut 3, surface (73-4756c)

m. Early Islamic, Imitation T'ang Splash, Trench 2, Cut 3, 0–10-cm. level (73-4757a)
n. Early Islamic, Imitation T'ang Splash, Trench 2, Cut 3, 10–20-cm. level (73-4757b)
o. Early Islamic, Imitation T'ang Splash, Trench 3, Cut 5, 0–10-cm. level (73-4757c)
p. Early Islamic, Samarkand bowl, Trench 2, Cut 3, 10–20-cm. level (73-4758a)
q. Early Islamic, Samarkand bowl, Trench 2, Cut 3, 10–20-cm. level (73-4758b)
r. Kushano-Sassanian (probably intrusive), Samarkand Kufic, Trench 2, Cut 3, 20–30-cm. level (73–4759a)
s. Early Islamic, Samarkand Kufic, Trench 2, Cut 3, 10–20-cm. level (73-4759b)
t. Early Islamic, Samarkand Kufic, Trench 2, Cut 3, 10–20-cm. level (73-4759c)
u. Kushano-Sassanian (probably intrusive), Samarkand Kufic, Trench 2, Cut 3, 20–30-cm. level (73-4759d)

15. Glaze Wares. Kushano-Sassanian and Early Islamic
a. Kushano-Sassanian (probably intrusive), Nishapur 1, Trench 2, Cut 3, 20–30-cm. level (73-4760a)
b. Early Islamic, Nishapur 1, Trench 3, Cut 5, 0–10-cm. level (73-4760b)
c. Early Islamic, Nishapur 1, Trench 3, Cut 5, 0–10-cm. level (73-4760c)
d. Early Islamic, Nishapur 1, Trench 3, Cut 5, 0–10-cm. level (73-4760d)
e. Early Islamic, Nishapur 1, Trench 3, Cut 5, 0–10-cm. level (73-4760e)
f. Early Islamic, Nishapur 1, Trench 3, Cut 5, 0–10-cm. level (73-4760f)
g. Early Islamic, Nishapur 1, Trench 3, Cut 5, 0–10-cm. level (73-4760g)
h. Early Islamic, Nishapur 2, Trench 2, Cut 4, 10–20-cm. level (73-4761a)
i. Early Islamic, Nishapur 2, Trench 2, Cut 4, 0–10-cm. level (73-4671b)
j. Early Islamic, Nishapur 3, Trench 2, Cut 3, 0–10-cm. level (73-4762a)
k. Early Islamic, Nishapur 3, Trench 2, Cut 3, 0–10-cm. level (73-4762b)
l. Early Islamic, Nishapur 3, Trench 2, Cut 4, 0–10-cm. level (73-4762c)
m. Early Islamic, Nishapur 3, Trench 3, Cut 5, 10–20-cm. level (73-4762d)
n. Early Islamic, Nishapur 3, Trench 3, Cut 5, 10–20-cm. level (73-4762e)
o. Early Islamic, Nishapur 3, Trench 3, Cut 5, 10–20-cm. level (73-4762f)
p. Early Islamic, Nishapur 4, Trench 3, Cut 5, 0–10-cm. level (73-4763a)
q. Early Islamic, Nishapur 4, Trench 2, Cut 4, 0–10-cm. level (73-4763b)
r. Early Islamic, Nishapur 4, Trench 2, Cut 3, 10–20-cm. level (73-4763c)
s. Early Islamic, Nishapur 4, Trench 2, Cut 4, 0–10-cm. level (73-4763d)
t. Early Islamic, Nishapur 4, Trench 2, Cut 4, 0–10-cm. level (73-4763e)
u. Early Islamic, Nishapur 4, Trench 2, Cut 4, 0–10-cm. level (73-4763f)
v. Early Islamic, Nishapur 4, Trench 2, Cut 4, 0–10-cm. level (73-4763g)
w. Early Islamic, Brown-Green, Trench 2, Cut 4, 0–10-cm. level (73-4764a)
x. Early Islamic, Brown-Green, Trench 2, Cut 4, 0–10-cm. level (73-4764b)
y. Early Islamic, Brown-Green, Trench 3, Cut 5, 10–20-cm. level (73-4764c)

16. Grit Wares, Sherd Temper. Late Kushan, Kushano-Sassanian, Early Islamic, and unstratified
a. Unstratified, Cut 8 (73-4765a)
b. Late Kushan, Trench 1, Cut 1, 30–40-cm. level (73-4765b)
c. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4765c)
d. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4765d)
e. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4765e)
f. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4765f)
g. Unstratified, Cut 7 (73-4765g)
h. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4765h)
i. Early Islamic, Trench 2, Cut 3, 0–20-cm. level (73-4765i)
j. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4765j)
k. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4765k)

17. Grit Wares, Quartz-Sand Temper, Fiber Temper, Lime Temper, Mica-Sand Temper. Early Islamic, Late Kushan, and Kushano-Sassanian
a. Late Kushan, Quartz-Sand Temper, Trench 3, Cut 5, Major Hearth Complex (73-4766a)
b. Late Kushan, Quartz-Sand Temper, Trench 3, Cut 5, Major Hearth Complex (73-4766b)
c. Late Kushan, Quartz-Sand Temper, Trench 3, Cut 5, Major Hearth Complex (73-4766c)
d. Early Islamic, Quartz-Sand Temper, Trench 2, Cut 3, 0–10-cm. level (73-4766d)
e. Kushano-Sassanian, Quartz-Sand Temper, Trench 3, Cut 5, 20–25-cm. level (73-4766e)
f. Kushano-Sassanian, Quartz-Sand Temper,

Trench 3, Cut 5, 20–25-cm. level (73-4766f)
g. Late Kushan, Fiber Temper, Trench 3, Cut 5, Major Hearth Complex (73-4766g)
h. Kushano-Sassanian, Lime Temper, Trench 3, Cut 5, 20–25-cm. level (73-4766h)
i. Early Islamic, Lime Temper, Trench 3, Cut 5, 0–10-cm. level (73-4766i)
j. Late Kushan, Mica-Sand Temper, Trench 3, Cut 5, Major Hearth Complex (73-4766j)
k. Late Kushan, mat-marked, fiber temper, Trench 3, Cut 5, Major Hearth Complex (73-4766k)
l. Unstratified, mat-marked, fiber temper, Cut 6 (73-4766 l)
m. Early Islamic, fiber temper, Trench 2, Cut 4, 10–20-cm. level (73-4766m)

18. Painted Grit Ware. Late Kushan, Kushano-Sassanian, Early Islamic, and unstratified
a. Early Islamic, hand-made, Trench 1, Cut 1, 0–20-cm. level (73-4767a)
b. Early Islamic, hand-made, Trench 1, Cut 1, 0–20-cm. level (73-4767b)
c. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73–4767c)
d. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4767d)
e. Kushano-Sassanian, Trench 3, Cut 5, 20–25-cm. level (73-4767e)
f. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4767f)
g. Unstratified, Cut 7 (73-4767g)
h. Unstratified, Cut 6 (73–4767h)
i. Early Islamic, Trench 2, Cut 4, 0–10-cm. level (73-4767i)
j. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4768a)
k. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4768b)
l. Kushano-Sassanian, Trench 2, Cut 5, 20–30-cm. level (73-4768c)
m. Late Kushan, Trench 1, Cut 1, 30–40-cm. level (73-4768d)
n. Early Islamic, Trench 2, Cut 3, Front Porch (73-4768e)
o. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4768f)
p. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4768g)
q. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73–4768h)
r. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4768i)
s. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4768j)
t. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4768k)
u. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4768 l)
v. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73–4768m)
w. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4768n)

19. Grit Ware. Early Islamic, Late Kushan, and Kushano-Sassanian
a. Late Kushan, rim, Cut 7, 10–20-cm. level (73-4769a)
b. Early Islamic, lid, Trench 3, Cut 5, 10–20-cm. level (73-4769b)
c. Early Islamic, lid, Trench 3, Cut 5, 10–20-cm. level (73-4769c)
d. Kushano-Sassanian, lid, Trench 3, Cut 5, 20–25-cm. level (73-4769d)
e. Kushano-Sassanian, handle, Trench 3, Cut 5, 20–25-cm. level (73–4769e)
f. Early Islamic, spout, Trench 2, Cut 4, 10–20-cm. level (73-4769f)

20. Red Ware, Red Slip, undecorated. Early Islamic, Late Kushan, Kushano-Sassanian, Early Kushan, and unstratified
a. Early Islamic, Cut 7 (73-4770a)
b. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4770b)
c. Late Kushan, Cut 7 (73-4770c)
d. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4770d)
e. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4770e)
f. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4770f)
g. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4770g)
h. Unstratified, Cut 7, 10–20-cm. level (73-4770h)
i. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4770i)
j. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4770j)
k. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4770k)
l. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4770 l)
m. Early Kushan, Trench 3, Cut 5, grayish layer below Major Hearth Complex (73-4770m)

21. Red Ware subtypes. Early Islamic and Kushano-Sassanian
a. Early Islamic, black slip, Trench 3, Cut 5, 10–20-cm. level (73-4771a)
b. Early Islamic, black slip, Trench 3, Cut 5, 10–20-cm. level (73-4771b)
c. Kushano-Sassanian, Black Inside, Red Outside slip, Trench 3, Cut 5, 20–25-cm. level (73-4771c)
d. Early Islamic, Black Inside, Red Outside slip, Trench 3, Cut 5, 10–20-cm. level (73-4771d)

e. Kushano-Sassanian, Black-Centered, Trench 2, Cut 3, 20–30-cm. level (73-4771e)

22. Red Ware, decorated. Early Islamic, Late Kushan, and Kushano-Sassanian
    a. Late Kushan, incised, channeled, Trench 3, Cut 5, Major Hearth Complex (73-4772a)
    b. Early Islamic, incised, channeled, Trench 2, Cut 3, 10–20-cm. level (73-4772b)
    c. Late Kushan, incised, channeled, Trench 2, Cut 3, 40–50-cm. level (73-4772c)
    d. Early Islamic, incised, Trench 2, Cut 2, 0–10-cm. level (73-4772d)
    e. Kushano-Sassanian, incised, Trench 2, Cut 3, 20–30-cm. level (73-4772e)
    f. Late Kushan, incised, Trench 2, Cut 3, 20–30-cm. level (73-4772f)
    g. Early Islamic, unoxidized center, Trench 2, Cut 4, 0–20-cm. level (73-4772g)
    h. Kushano-Sassanian, incised, channeled, Trench 2, Cut 2, 20–30-cm. level (73-4772h)
    i. Kushano-Sassanian, distinctive bowl, Trench 1, Cut 2, 20–30-cm. level (73-4772i)
    j. Kushano-Sassanian, distinctive bowl, Trench 2, Cut 2, 20–30-cm. level (73-4772j)
    k. Kushano-Sassanian, distinctive bowl, Cut 7 (73-4772k)
23. Red Ware, painted sherds. Late Kushan, Kushano-Sassanian, and Early Islamic
    a. Kushano-Sassanian, Cut 7 (73-4773a)
    b. Early Islamic, Trench 2, Cut 3, 0–10-cm. level (73-4773b)
    c. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73–4773c)
    d. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4773d)
    e. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4773e)
    f. Kushano-Sassanian, Trench 2, Cut 2, 20–30-cm. level (73-4773f)
    g. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4773g)
    h. Early Islamic, Trench 2, Cut 4, 0–10-cm. level (73-4773h)
    i. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4773i)
    j. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4773j)
    k. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4773k)
    l. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4773 l)
    m. Kushano-Sassanian, Trench 2, Cut 2, 20–30-cm. level (73-4773m)
    n. Late Kushan, Trench 1, Cut 1, 30–40-cm. level (73-4773n)
    o. Kushano-Sassanian, Trench 2, Cut 2, 20–30-cm. level (73-4773o)
24. Red Streak Pattern-Burnished Ware and Metallic Black. Early Islamic, Late Kushan, and Kushano-Sassanian
    a. Late Kushan, Red Streak Pattern-Burnished Ware, Trench 2, Cut 2, 40–50-cm. level (73-4774a)
    b. Early Islamic, Red Streak Pattern-Burnished Ware, Trench 2, Cut 4, 0–20-cm. level (73–4774b)
    c. Early Islamic, Red Streak Pattern-Burnished Ware, Trench 2, Cut 4, 0–20-cm. level (73-4774c)
    d. Early Islamic, Red Streak Pattern-Burnished Ware, Trench 2, Cut 4, 0–20-cm. level (73-4774d)
    e. Kushano-Sassanian, Red Streak Pattern-Burnished Ware, Trench 2, Cut 3, 20–30-cm. level (73-4774e)
    f. Early Islamic, Red Streak Pattern-Burnished Ware, Trench 2, Cut 4, 10–20-cm. level (73-4774f)
    g. Late Kushan, Red Streak Pattern-Burnished Ware, Trench 1, Cut 1, 30–40-cm. level (73-4774g)
    h. Kushano-Sassanian, Red Streak Pattern-Burnished Ware, Trench 2, Cut 2, 20–30-cm. level (73–4774h)
    i. Kushano-Sassanian, Red Streak Pattern-Burnished Ware, Trench 2, Cut 3, 20–30-cm. level (73-4774i)
    j. Kushano-Sassanian, Red Streak Pattern-Burnished Ware, Trench 1, Cut 1, 20–30-cm. level (73-4774j)
    k. Kushano-Sassanian, Red Streak Pattern-Burnished Ware, Trench 2, Cut 3, 20–30-cm. level (73-4774k)
    l. Kushano-Sassanian, Metallic Black, Type I, Trench 2, Cut 3, 20–30-cm. level (73-4775a)
    m. Kushano-Sassanian, Metallic Black, Type I, Trench 2, Cut 3, 20–30-cm. level (73-4775b)
    n. Kushano-Sassanian, Metallic Black, Type I, Trench 2, Cut 3, 20–30-cm. level (73-4775c)
    o. Kushano-Sassanian, Metallic Black, Type I, cross-section, Trench 2, Cut 3, 20–30-cm. level (73-4776a)
    p. Kushano-Sassanian, Metallic Black, Type I, cross-section, Trench 2, Cut 3, 20–30-cm. level (73-4776b)
    q. Kushano-Sassanian, Metallic Black, Type II, Trench 2, Cut 3, 20–30-cm. level (73-4776c)
25. Red Ware with Cream Slip. Late Kushan, Ku-

shano-Sassanian, Early Islamic, and Early Kushan
- a. Late Kushan, No Inside Ridges, Trench 3, Cut 5, Major Hearth Complex (73-4777a)
- b. Late Kushan, No Inside Ridges, Trench 3, Cut 5, Major Hearth Complex (73-4777b)
- c. Late Kushan, No Inside Ridges, Trench 2, Cut 3, 40–50-cm. level (73-4777c)
- d. Late Kushan, No Inside Ridges, Trench 2, Cut 4, 30–40-cm. level (73-4777d)
- e. Late Kushan, No Inside Ridges, Trench 2, Cut 4, 30–40-cm. level (73-4777e)
- f. Late Kushan, No Inside Ridges, Trench 2, Cut 4, 30–40-cm. level (73-4777f)
- g. Late Kushan, No Inside Ridges, Trench 2, Cut 4, 30–40-cm. level (73-4777g)
- h. Late Kushan, No Inside Ridges, Trench 2, Cut 4, 30–40-cm. level (73-4777h)
- i. Early Kushan, No Inside Ridges, Trench 3, Cut 5, grayish earth (73-4778a)
- j. Late Kushan, No Inside Ridges, Trench 2, Cut 3, 30–40-cm. level (73-4778b)
- k. Late Kushan, No Inside Ridges, Trench 2, Cut 3, 40–50-cm. level (73-4778c)
- l. Late Kushan, No Inside Ridges, Trench 2, Cut 3, 40–50-cm. level (73–4778d)
- m. Early Islamic, No Inside Ridges, Trench 3, Cut 5, 10–20-cm. level (73-4778e)
- n. Kushano-Sassanian, Inside Ridges I, Trench 2, Cut 3, 20–30-cm. level (73-4778f)
- o. Kushano-Sassanian, Inside Ridges II, Trench 2, Cut 3, 20–30-cm. level (73-4778g)
- p. Kushano-Sassanian, Inside Ridges II, Trench 2, Cut 3, 20–30-cm. level (73-4778h)

26. Red Ware with Cream Slip. Early Islamic, Early Kushan, Late Kushan, and Kushano-Sassanian
- a. Late Kushan, Trench 2, Cut 2, 30–40-cm. level (73-4779a)
- b. Kushano-Sassanian, Trench 2, Cut 4, 20–30-cm. level (73-4779b)
- c. Early Kushan, Trench 3, Cut 5, grayish earth (73-4779c)
- d. Early Islamic, Trench 3, Cut 4, 0–20-cm. level (73-4779d)
- e. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4779e)
- f. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4779f)
- g. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4779g)
- h. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4779h)
- i. Kushano-Sassanian, Trench 2, Cut 2, 20–30-cm. level (73-4779i)
- j. Late Kushan, Trench 3, Cut 5, Major Hearth Complex (73-4779j)
- k. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4779k)
- l. Late Kushan, pottery "scrapers," Trench 3, Cut 5, Major Hearth Complex (73-4779 l)
- m. Late Kushan, pottery "scrapers," Trench 3, Cut 5, Major Hearth Complex (73-4779m)

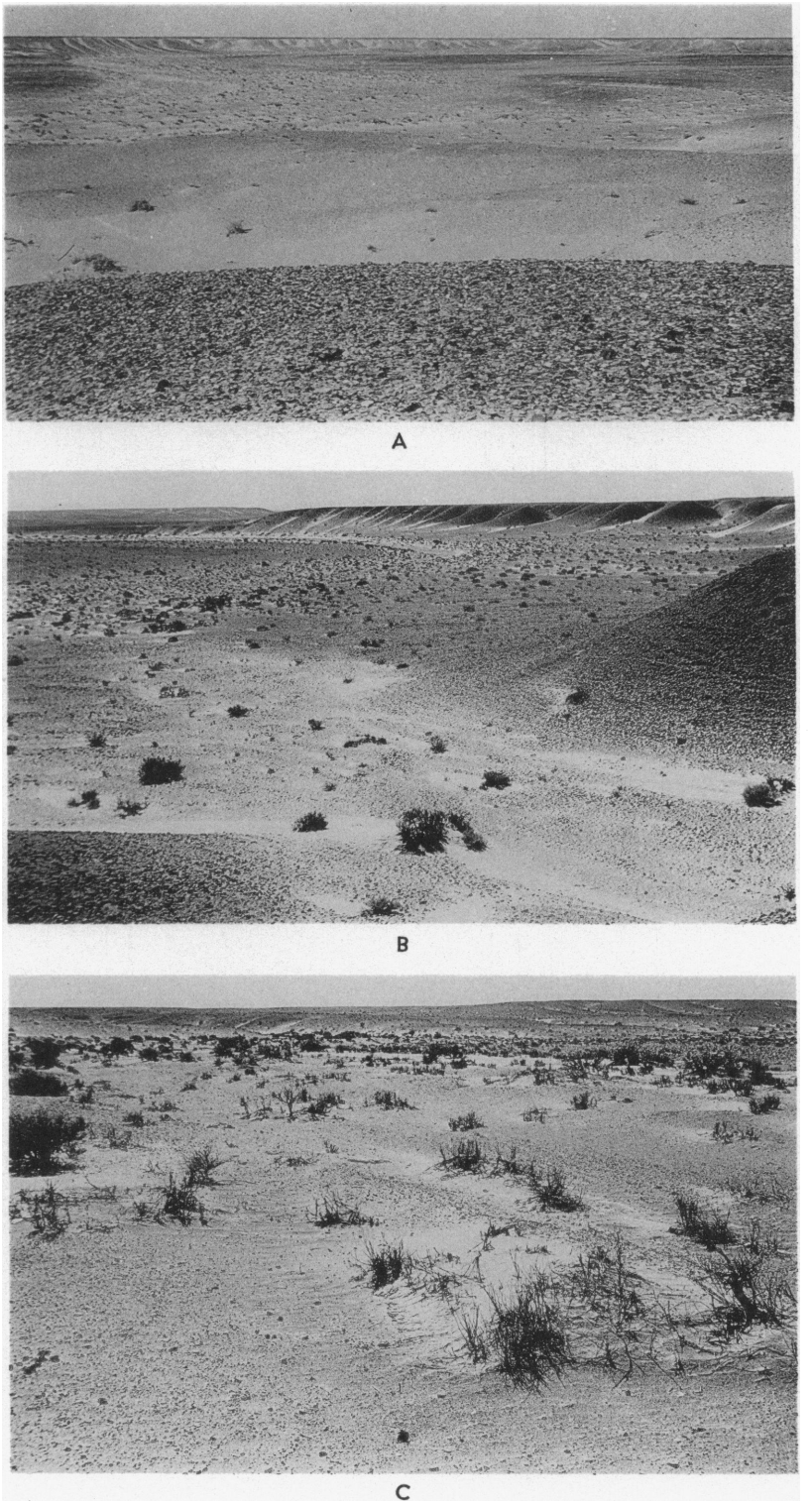
27. Bisque and Greenish Paste Wares. Early Islamic, Late Kushan, Kushano-Sassanian, and unstratified
- a. Early Islamic, Bisque, Trench 1, Cut 1, 0–20-cm. level (73-4780a)
- b. Late Kushan, Bisque, Trench 1, Cut 1, 30–40-cm. level (73-4780b)
- c. Early Islamic, Bisque, Trench 2, Cut 4, 0–10-cm. level (73-4780c)
- d. Early Islamic, Bisque, Trench 2, Cut 4, 10–20-cm. level (73-4780d)
- e. Late Kushan, Bisque, Trench 2, Cut 2, 30–40-cm. level (73-4780f)
- f. Late Kushan, Greenish, Trench 2, Cut 2, 30–40-cm. level (73-4780e)
- g. Early Islamic, Bisque, Trench 2, Cut 2, 0–10-cm. level (73-4780g)
- h. Early Islamic, Bisque, Trench 2, Cut 2, 0–10-cm. level (73-4780h)
- i. Kushano-Sassanian, Bisque, Trench 1, Cut 1, 20–30-cm. level (73-4780i)
- j. Early Islamic, Bisque, Trench 2, Cut 2, 10–20-cm. level (73-4781a)
- k. Early Islamic, Bisque, Trench 2, Cut 2, 10–20-cm. level (73-4781b)
- l. Early Islamic, Greenish, Trench 3, Cut 5, 10–20-cm. level (73-4781c)
- m. Early Islamic, Greenish, Trench 2, Cut 3, 10–20-cm. level (73-4781d)
- n. Kushano-Sassanian, Greenish, Trench 2, Cut 2, 20–30-cm. level (73-4781e)
- o. Early Islamic, Greenish, Trench 3, Cut 5, 0–10-cm. level (73-4781f)
- p. Kushano-Sassanian, Greenish, Trench 2, Cut 3, 20–30-cm. level (73-4781g)
- q. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4781h)
- r. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4781i)
- s. Unstratified, Greenish, Cut 8 (73-4781j)
- t. Kushano-Sassanian, Greenish, Trench 3, Cut 5, 20–25-cm. level (73-4781k)
- u. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4781 l)
- v. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4781m)
- w. Kushano-Sassanian, Bisque, Trench 2, Cut 3, 20–30-cm. level (73-4781n)
- x. Early Islamic, Greenish, Trench 2, Cut 3, 10–20-cm. level (73-4781o)
- y. Early Islamic, Bisque, Trench 2, Cut 3, 10–20-cm. level (73–4781p)

28. Bisque and Greenish Paste Wares, decorated. Early Islamic and Kushano-Sassanian
    a. Early Islamic, Greenish, Trench 3, Cut 5, 10–20-cm. level (73-4782a)
    b. Kushano-Sassanian, Bisque, Trench 2, Cut 3, 20–30-cm. level (73-4782b)
    c. Early Islamic, Bisque, Trench 3, Cut 2, 10–20-cm. level (73-4782c)
    d. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4782d)
    e. Early Islamic, Bisque, Trench 2, Cut 3, 10–20-cm. level (73-4782e)
    f. Early Islamic, Bisque, Trench 2, Cut 3, 10–20-cm. level (73-4782f)
    g. Early Islamic, Greenish, Trench 3, Cut 5, 10–20-cm. level (73-4782g)
    h. Early Islamic, Bisque, Trench 2, Cut 3, 10–20-cm. level (73-4782h)
    i. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4782i)
29. Bisque and Greenish Paste Wares, decorated. Early Islamic
    a. Early Islamic, Bisque, Trench 2, Cut 2, 0–10-cm. level (73-4783a)
    b. Early Islamic, Bisque, Trench 2, Cut 3, 0–20-cm. level (73-4783b)
    c. Early Islamic, Greenish, Trench 2, Cut 3, 0–20-cm. level (73-4783c)
    d. Early Islamic, Greenish, Trench 3, Cut 5, 0–10-cm. level (73-4783d)
    e. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4783e)
    f. Early Islamic, Bisque, Trench 2, Cut 3, 10–20-cm. level (73-4783f)
    g. Early Islamic, Bisque, Trench 2, Cut 3, 10–20-cm. level (73-4783g)
    h. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4783h)
    i. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4783i)
    j. Early Islamic, Bisque, Trench 3, Cut 5, 10–20-cm. level (73-4783j)
30. Bisque Ware, Red Inside and Outside Slip. Early Islamic, Late Kushan, Kushano-Sassanian, and unstratified
    a. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4784a)
    b. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4784b)
    c. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4784c)
    d. Late Kushan, Trench 2, Cut 3, 30–40-cm. level (73-4784d)
    e. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4784e)
    f. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4784f)
    g. Kushano-Sassanian, Trench 2, Cut 3, 20–30-cm. level (73-4784g)
    h. Unstratified, Cut 7 (73-4784h)
    i. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4784i)
    j. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4784j)
    k. Late Kushan, Trench 2, Cut 3, 40–50-cm. level (73-4784k)
31. Stamped Ware. Early Islamic, ?Kushano-Sassanian
    a. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785a)
    b. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785b)
    c. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785c)
    d. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4785d)
    e. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4785e)
    f. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4785f)
    g. Possibly Kushano-Sassanian, Trench 3, Cut 5, 20–25-cm. level (73-4785g)
    h. Early Islamic, Trench 2, Cut 3, 0–10-cm. level (73-4785h)
    i. Early Islamic, Cut 8, 0–10-cm. level (73-4785i)
    j. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785j)
    k. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4785k)
    l. Early Islamic, Trench 2, Cut 4, 0–10-cm. level (73-4785 l)
    m. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785m)
    n. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4785n)
    o. Early Islamic, Trench 2, Cut 4, 0–10-cm. level (73-4785o)
    p. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73-4785p)
    q. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785q)
    r. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785r)
    s. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785s)
    t. Early Islamic, Trench 3, Cut 5, 10–20-cm. level (73–4785t)
    u. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785u)
    v. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785v)
    w. Early Islamic, Trench 2, Cut 4, 0–10-cm. level (73-4785w)

x. Early Islamic, Trench 2, Cut 4, 0–10-cm. level (73-4785x)
y. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785y)
z. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785z)
aa. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785aa)
bb. Early Islamic, Trench 2, Cut 3, 10–20-cm. level (73-4785bb)

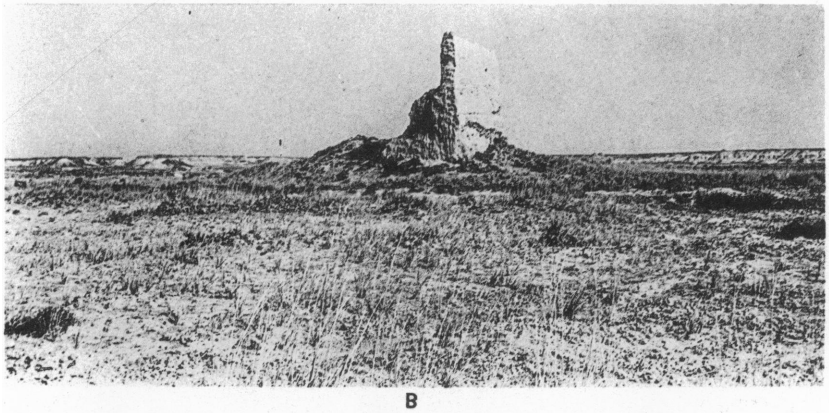
32. Metal, beads, alabaster, and glass. Early Islamic, Late Kushan, and Kushano-Sassanian
a. Early Islamic, iron, Trench 3, Cut 5, 0–10-cm. level (73-4787a)
b. Early Islamic, iron, Trench 3, Cut 5, 10–20-cm. level (73-4787b)
c. Late Kushan, iron, Trench 2, Cut 2, 30–40-cm. level (73-4787c)
d. Early Islamic, iron, Trench 2, Cut 2, 0–10-cm. level (73-4787d)
e. Early Islamic, iron, Trench 2, Cut 3, 0–20-cm. level (73-4787e)
f. Early Islamic, iron, Trench 2, Cut 3, 0–20-cm. level (73-4787f)
g. Kushano-Sassanian, iron, Trench 2, Cut 3, 20–30-cm. level (73-4787g)
h. Early Islamic, iron, Trench 2, Cut 2, 10–20-cm. level (73-4787h)
i. Early Islamic, iron, Trench 1, Cut 1, 0–20-cm. level (73-4787i)
j. Early Islamic, iron, Trench 2, Cut 4, 0–20 cm. level (73-4787j)
k. Kushano-Sassanian, iron, Trench 2, Cut 3, 20–30-cm. level (73-4787k)
l. Kushano-Sassanian, iron, Trench 2, Cut 3, 20–30-cm. level (73-4787 l)
m. Early Islamic, iron, Trench 2, Cut 3, 10–20-cm. level (73-4787m)
n. Early Islamic, iron, Trench 2, Cut 3, 10–20-cm. level (73-4787n)
o. Early Islamic, iron, Trench 2, Cut 3, 10–20-cm. level (73-4787o)
p. Early Islamic, iron, Trench 2, Cut 3, 10–20-cm. level (73-4787p)
q. Early Islamic, iron, Trench 2, Cut 3, 0–10-cm. level (73-4787q)
r. Late Kushan, iron, Trench 2, Cut 2, 30–40-cm. level (73-4787r)
s. Early Islamic, iron, Trench 1, Cut 1, 0–20-cm. level (73-4787s)
t. Early Islamic, iron, Trench 2, Cut 3, 0–20-cm. level (73-4787t)
u. Dump, copper or bronze, Cut 7 (73–4788a)
v. Kushano-Sassanian, copper or bronze, Trench 2, Cut 3, 20–30-cm. level (73-4788b)
w. Dump, copper or bronze, Cut 6 (73-4788c)
x. Late Kushan, copper or bronze, Trench 2, Cut 3, 30–40-cm. level (73-4788d)
y. Early Islamic, iron and copper, Trench 2, Cut 3, 0–20-cm. level (73-4788e)
z. Late Kushan, copper or bronze, Trench 2, Cut 2, 30–40-cm. level (73-4788f)
aa. Early Islamic, iron, Trench 2, Cut 3, 0–20-cm. level (73-4787u)
bb. Early Islamic, bead fragment, steatite, Trench 1, Cut 1, 0–20-cm. level (73-4789)
cc. Early Islamic, alabaster rim fragment, Trench 2, Cut 3, 0–20-cm. level (73-4790)
dd. Early Islamic, fire-burned lapis lazuli bead, Trench 2, Cut 3, 0–20-cm. level (73-4791)
ee. Early Islamic, monochrome green glass bangle fragment, Trench 2, Cut 3, 0–20-cm. level (73-4792)

36. Schist bowl fragments. ?Early Islamic
a. Trench 2, Cut 3, 0–10-cm. level (73-4786a)
b. Trench 2, Cut 3, 0–10-cm. level (73-4786b)
c. Trench 2, Cut 3, 0–10-cm. level (73-4786c
d. Trench 2, Cut 3, 0–10-cm. level (73-4786d



Dasht-i-Margo. a, b. Ancient lake bed. c. Desert vegetation

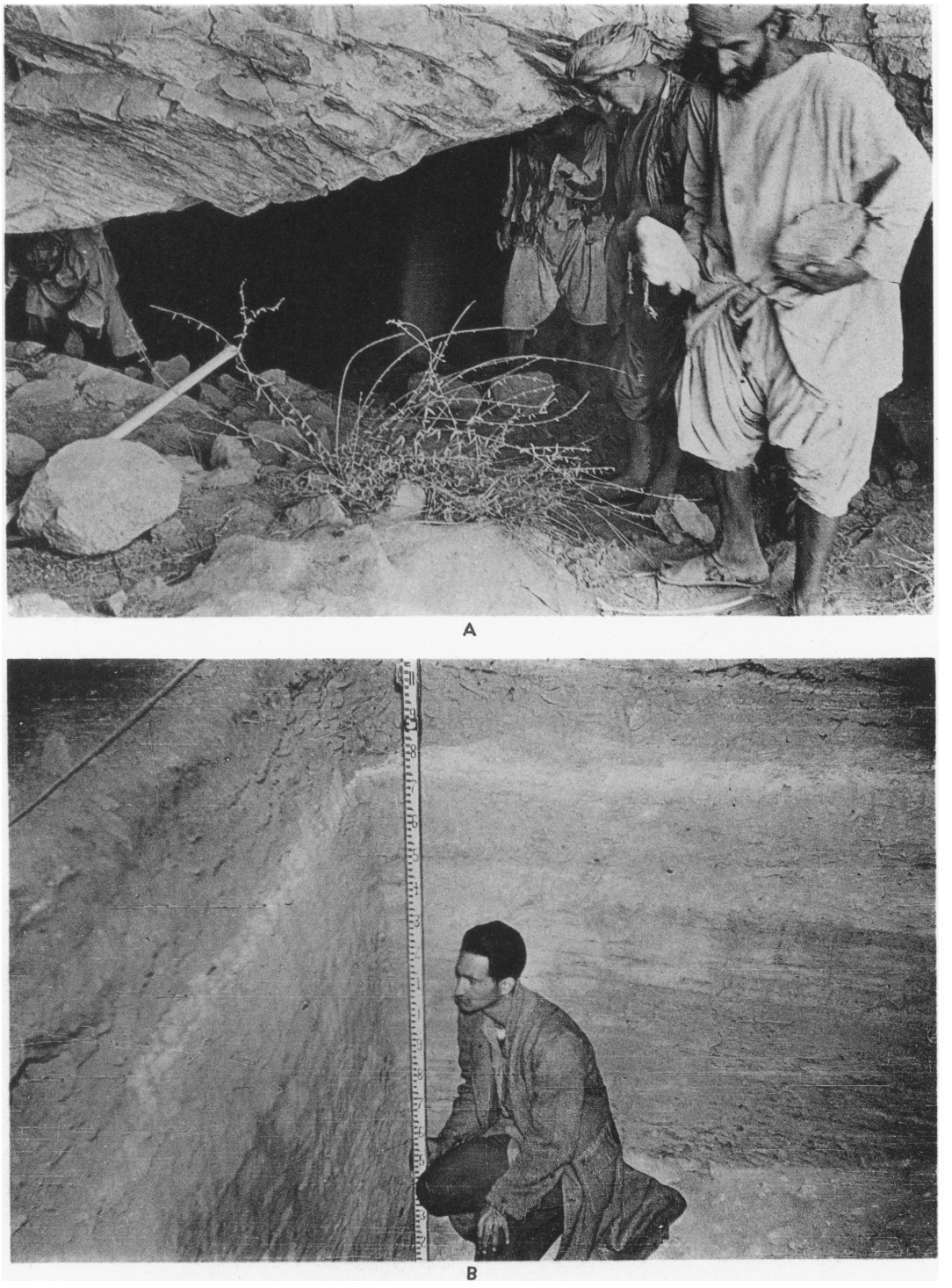
A



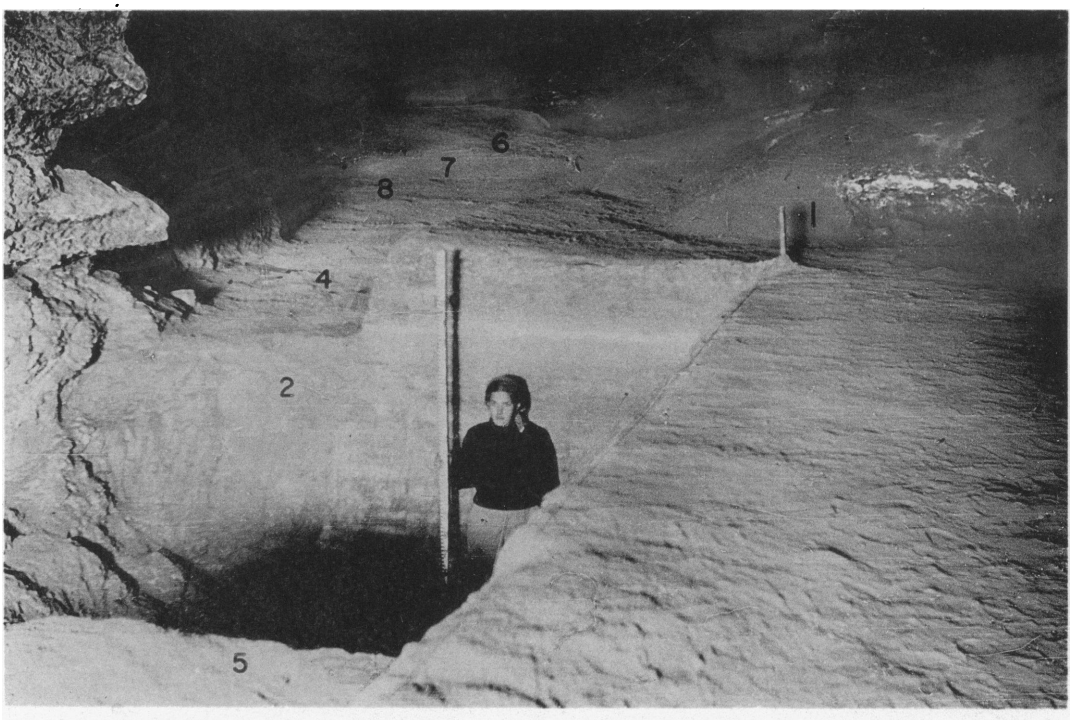
B

C

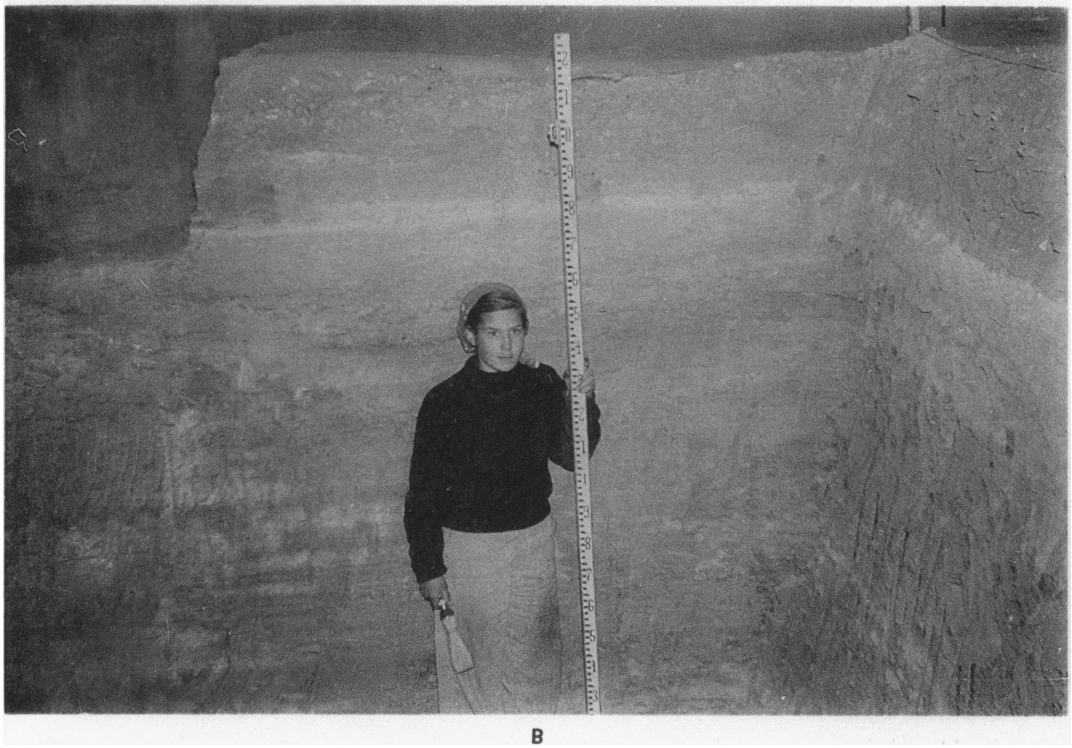
a. The Arghandab River in southwestern Afghanistan. b. Ruins in once fertile Registan. c. Helmand River



a. Boulders being removed from entrance to Shamshir Ghar. b. Mohammed Ibrahim Khan, Afghan archeologist, standing on limestone floor of Cut 2 and holding stadia rod along point H. Note white caliche layer, potsherds sticking out of face of trenches above caliche, and alternating light and dark sterile clays below caliche

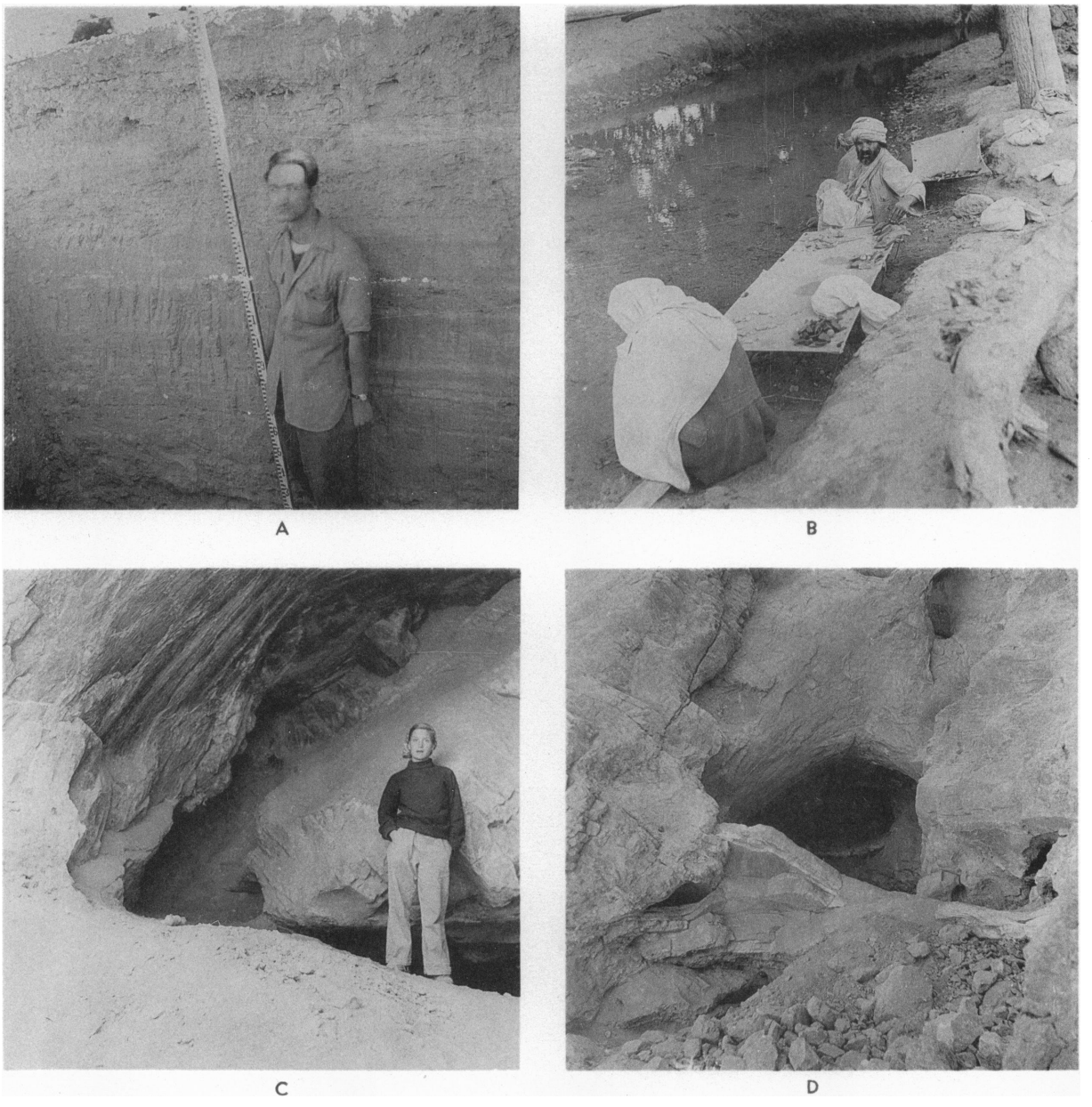


A

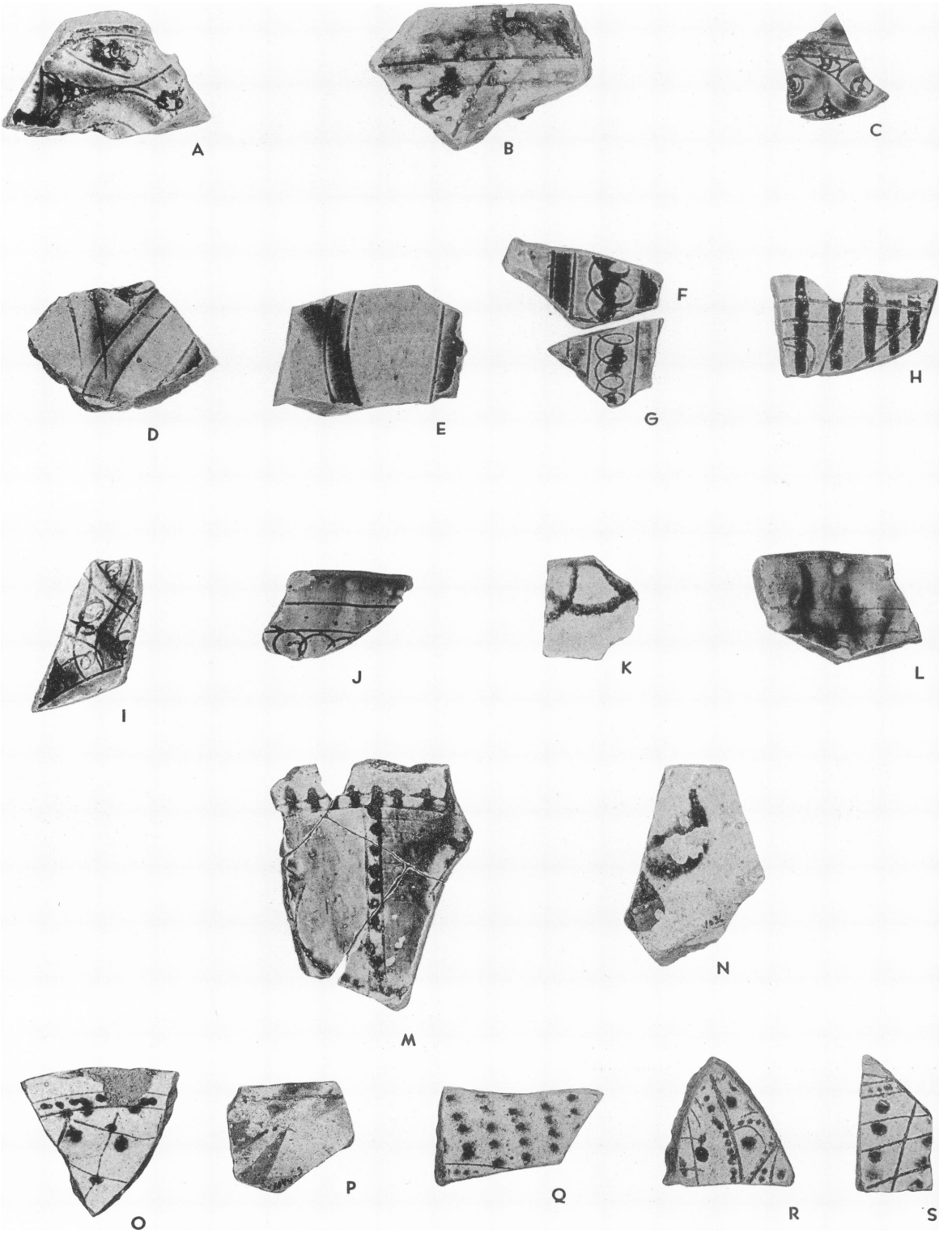


B

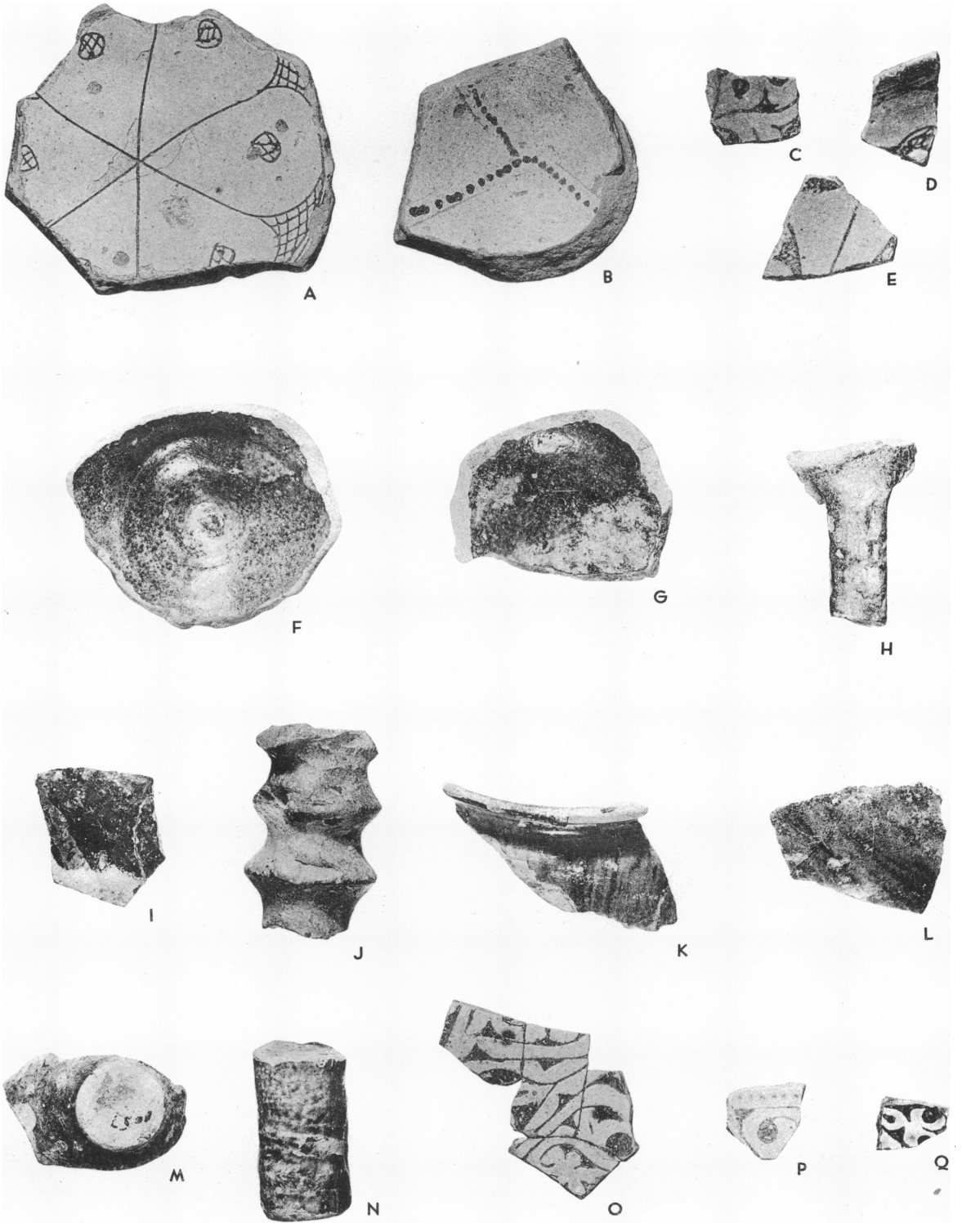
a. Mrs. Ann Dupree stands in Trench 3, Cut 5. Figures indicate relative positions of various cuts. Second Chamber in background. Stake to right in point I. b. Close-up of north face, Trench 2, Cut 2, and east face, Trench 3, Cut 5



a. Mohammed Ibrahim Khan stands directly beneath a Major Hearth Complex pit, Trench 2, Cut 2, East Face. b. Workmen washing pottery (sherds were laid on the cot to dry). c. Pottery lamp was found in fissure to the left of Mrs. Ann Dupree. d. Shamshir Ghar after excavation



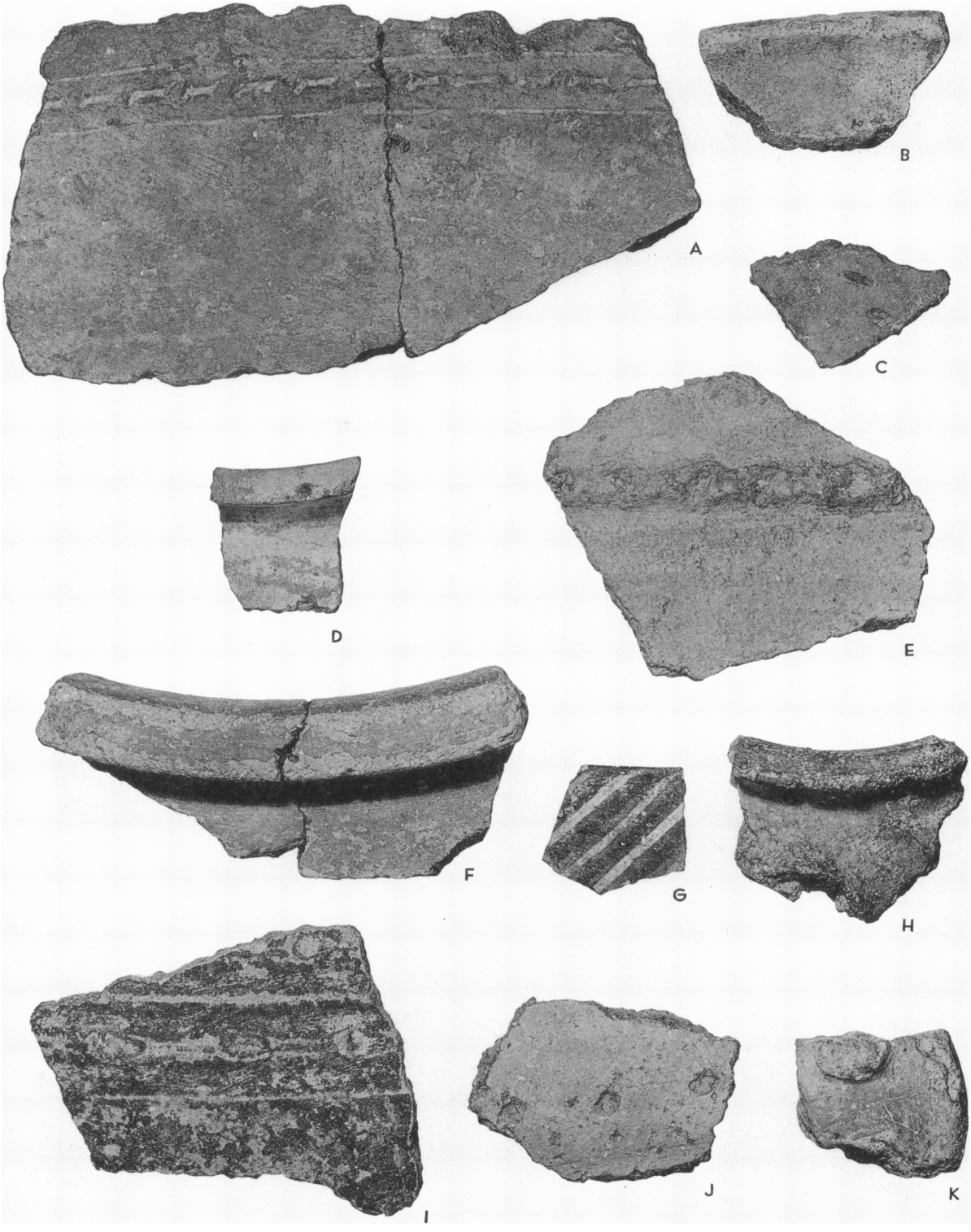
Glaze Wares. Early Islamic. a–l. Graffito I. m, n. Graffito II. o–s. Graffito III



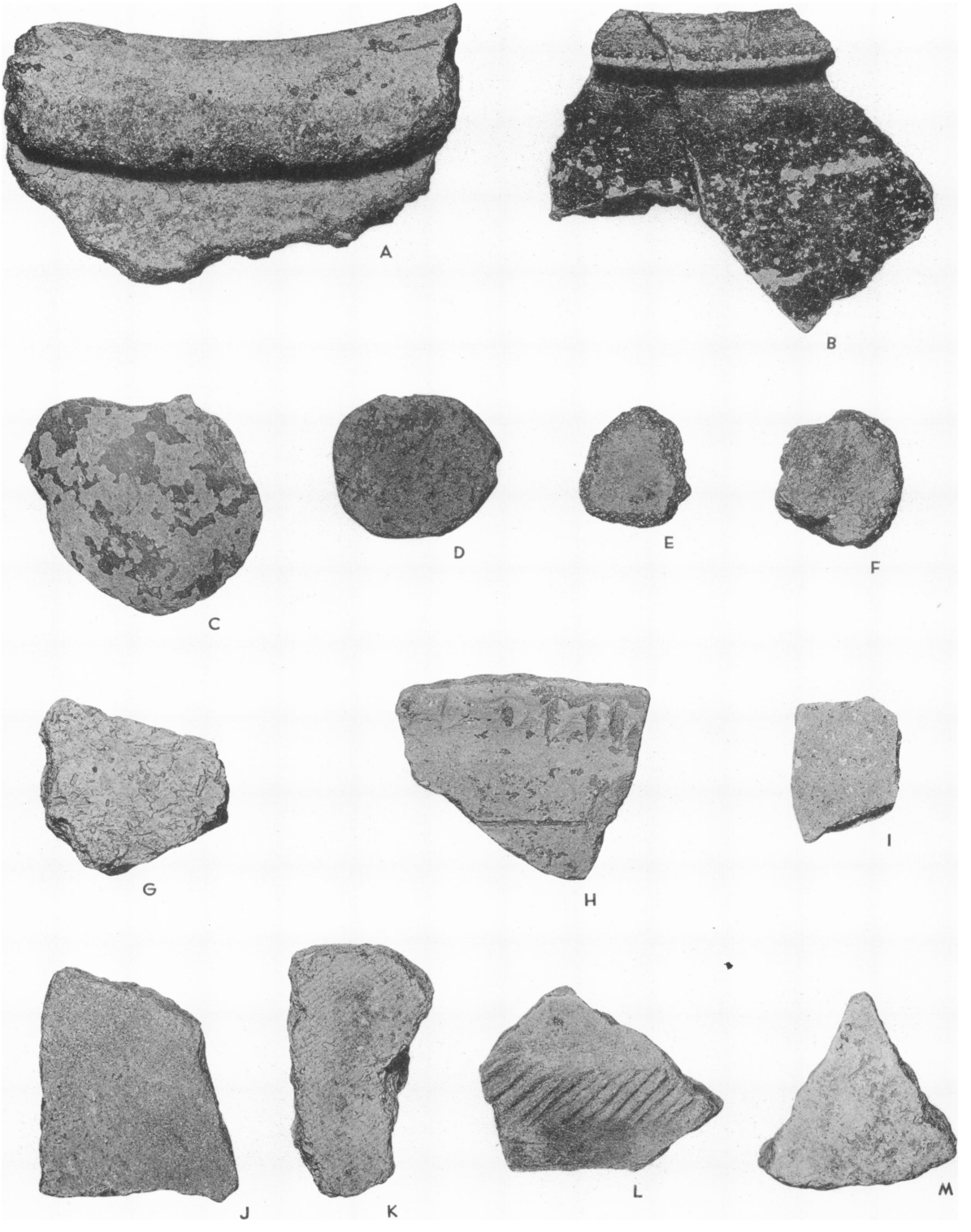
Glaze Wares. a–e. Graffito IV, Early Islamic. f–j, m, n. Mottled and Plain Green, Early Islamic. k, l. Mottled and Plain Green, Kushano-Sassanian. o, p. Champlevé Yellow, Early Islamic. q. Champlevé Green, Early Islamic

Glaze Wares. a–c. Bole Red, Early Islamic. d. Blue and Blue-Green, Kushano-Sassanian. e–i. Blue and Blue-Green, Early Islamic. j–k. Imitation Celadon, Kushano-Sassanian. l. Imitation Celadon, Early Islamic. m–o. Imitation T'ang Splash, Early Islamic. p–q. Samarkand bowl, Early Islamic. r, u. Samarkand Kufic, Kushano-Sassanian. s, t. Samarkand Kufic, Early Islamic

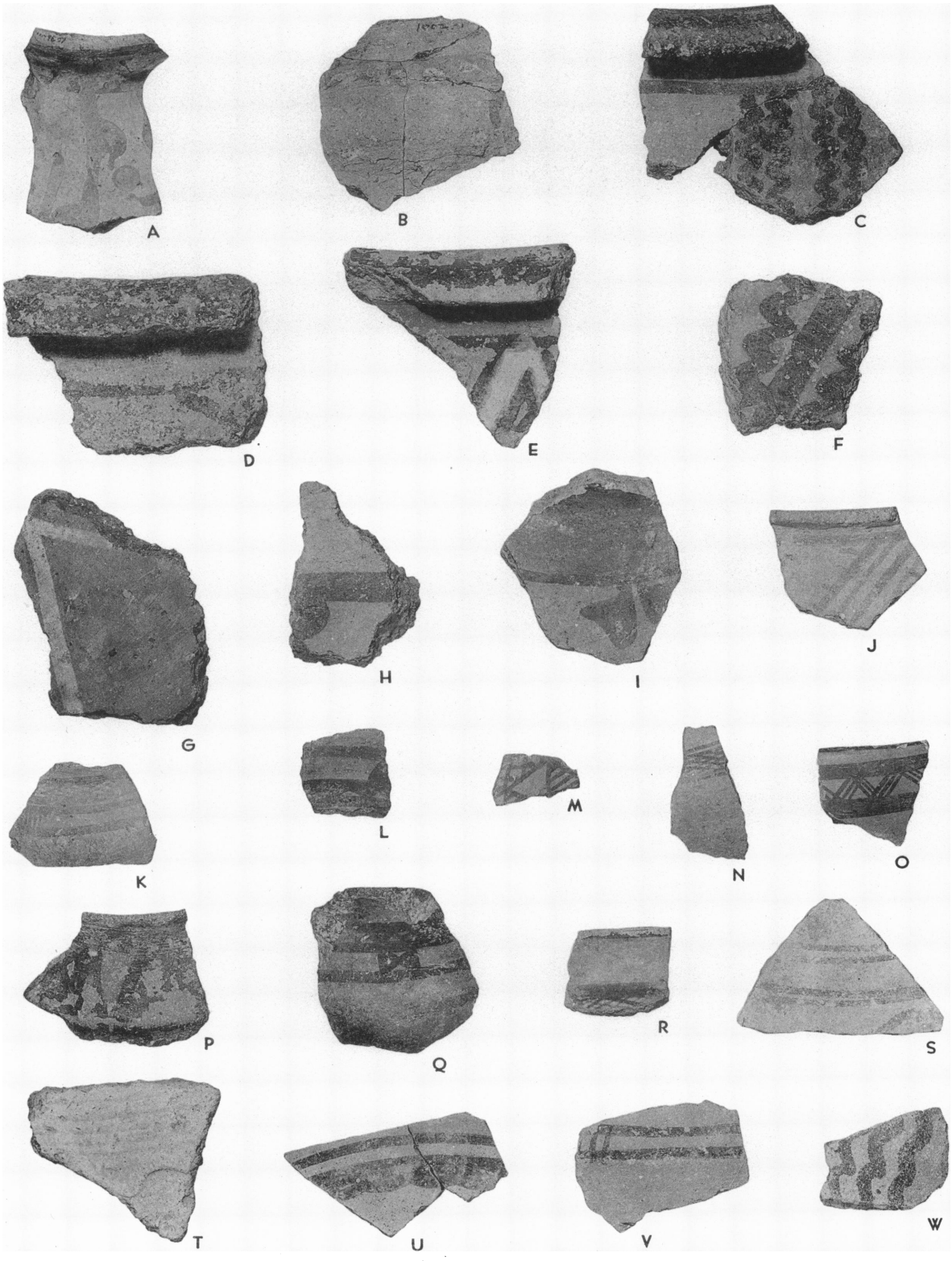
Glaze Wares. a. Nishapur 1, Kushano-Sassanian. b–g. Nishapur 1, Early Islamic. h, i. Nishapur 2, Early Islamic. j–o. Nishapur 3, Early Islamic. p–v. Nishapur 4, Early Islamic. w–y. Brown-Green, Early Islamic



Grit Wares, Sherd Temper. a, g. Unstratified. b, e, f, j, k. Late Kushan. c, d. Kushano-Sassanian. h, i. Early Islamic

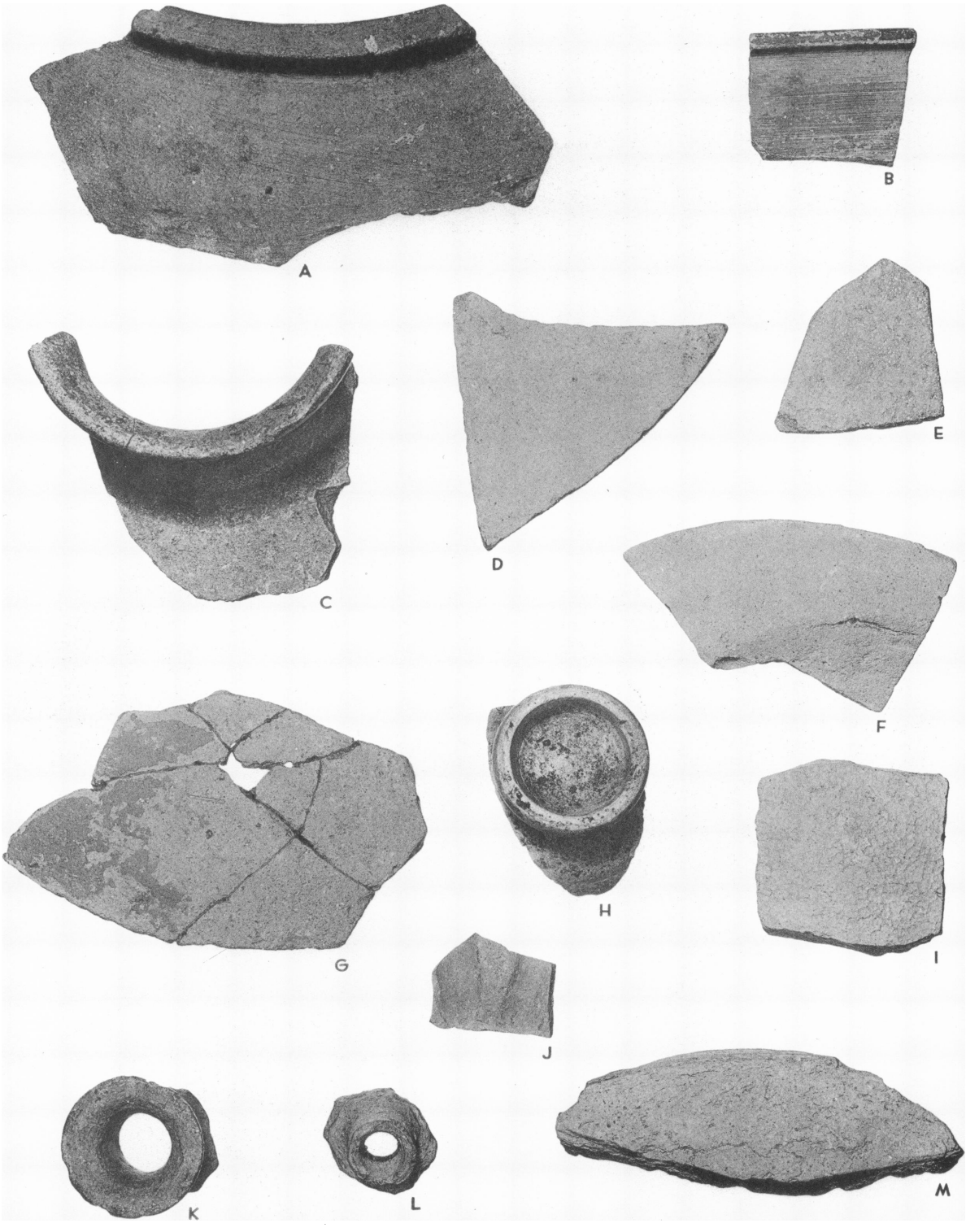


Grit Wares, Quartz-Sand Temper, Fiber Temper, Lime Temper, Mica-Sand Temper. a–c. Quartz-Sand Temper, Late Kushan. d. Quartz-Sand Temper, Early Islamic. e, f. Quartz-Sand Temper, Kushano-Sassanian. g. Fiber Temper, Late Kushan. h. Lime Temper, Kushano-Sassanian. i. Lime Temper, Early Islamic. j. Mica-Sand Temper, Late Kushan. k. Mat-marked, Fiber Temper, Late Kushan. l. Mat-marked, Fiber Temper, unstratified. m. Fiber Temper, Early Islamic



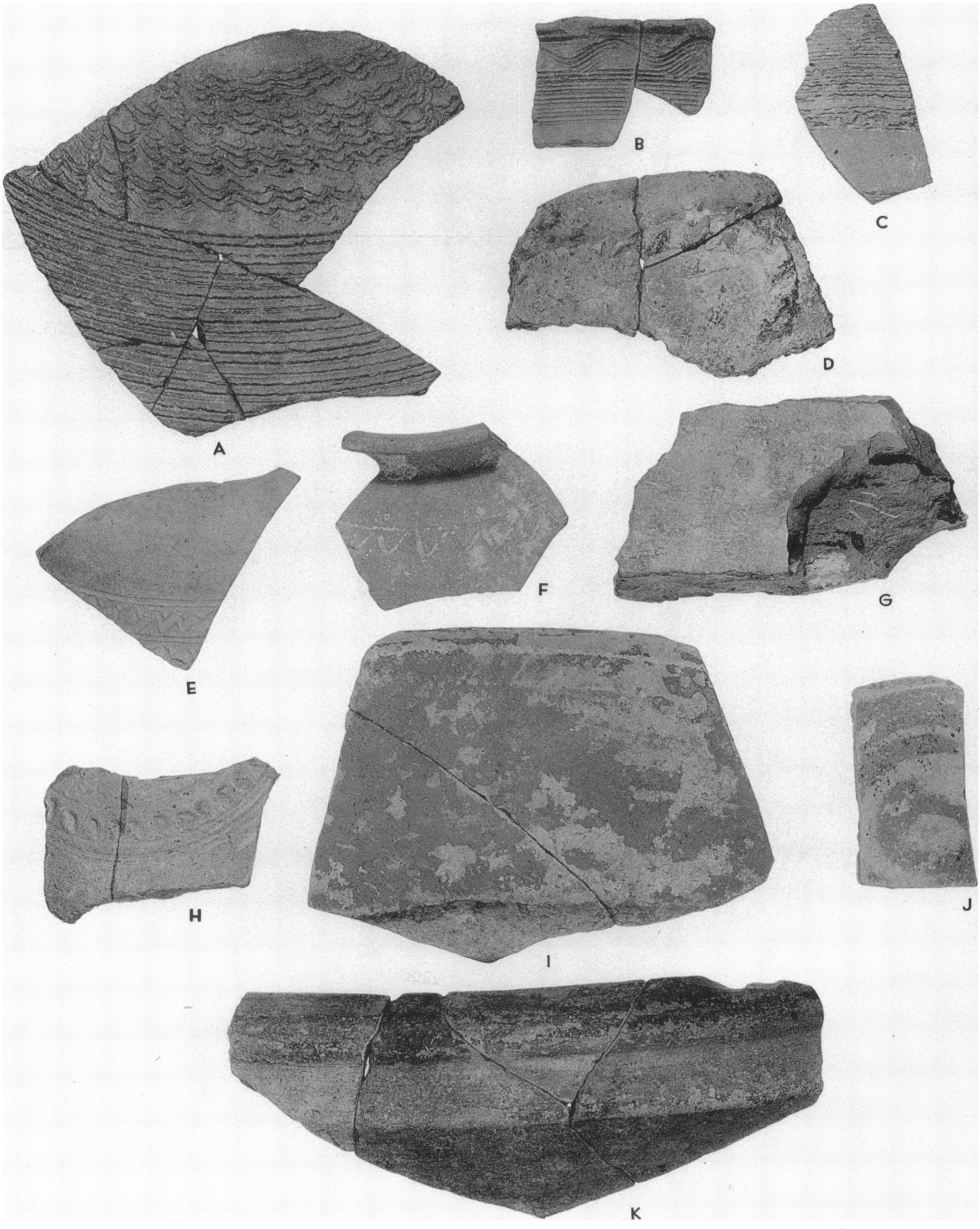
Painted Grit Ware. a, b. Hand-made, Early Islamic. c, d, f, j, k, m, o–r, v, w. Late Kushan. e, l. Kushano-Sassanian. g, h. Unstratified. i, n, s–u. Early Islamic

Grit Ware. a. Late Kushan. b, c, f. Early Islamic. d, e. Kushano-Sassanian

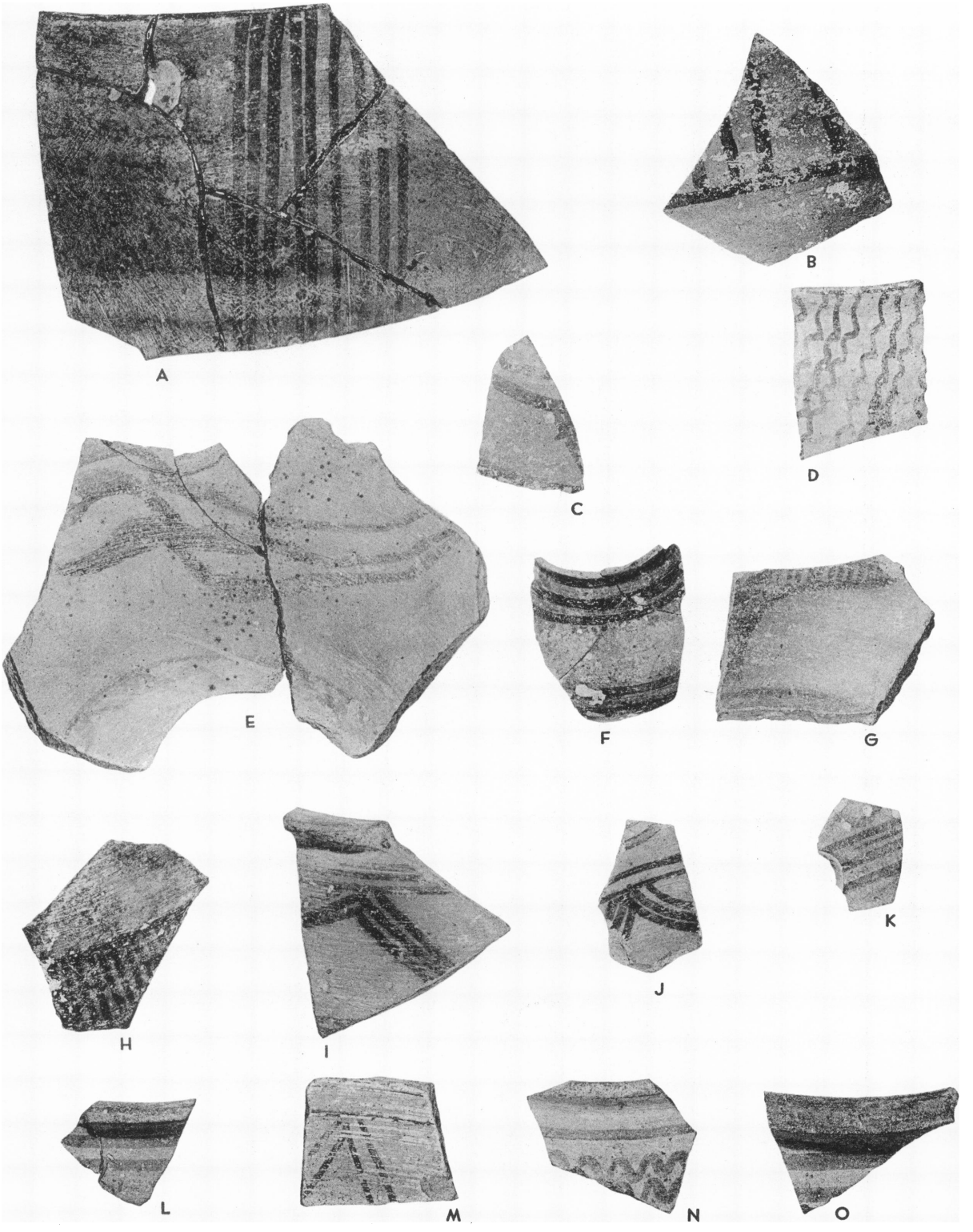


Red Ware, Red Slip, undecorated. a, j. Early Islamic. b–g, i. Late Kushan. h. Unstratified. k, l. Kushano-Sassanian. m. Early Kushan

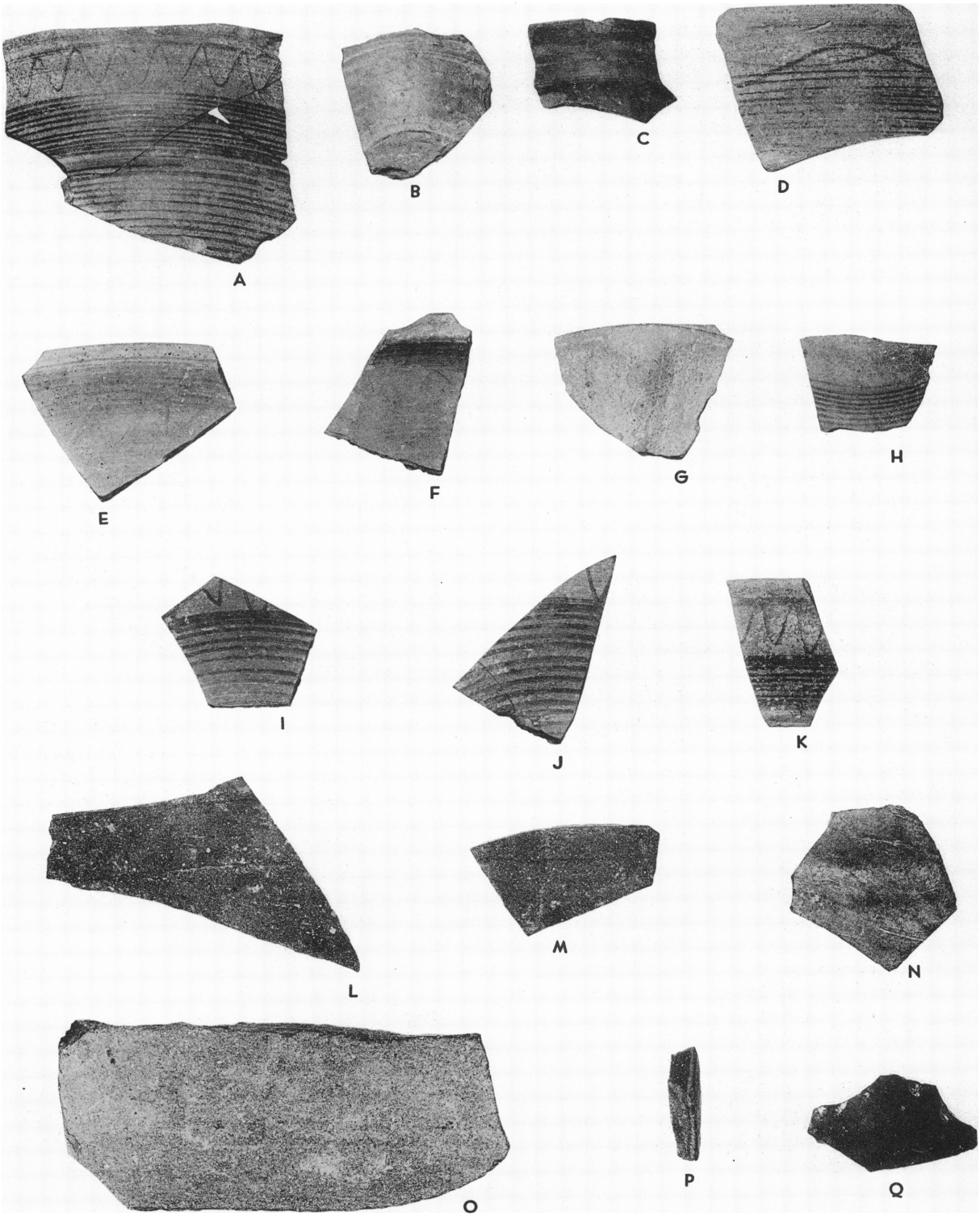
Red Ware subtypes. a, b. Black slip, Early Islamic. c. Black Inside, Red Outside slip, Kushano-Sassanian. d. Black Inside, Red Outside slip, Early Islamic. e. Black-Centered, Kushano-Sassanian



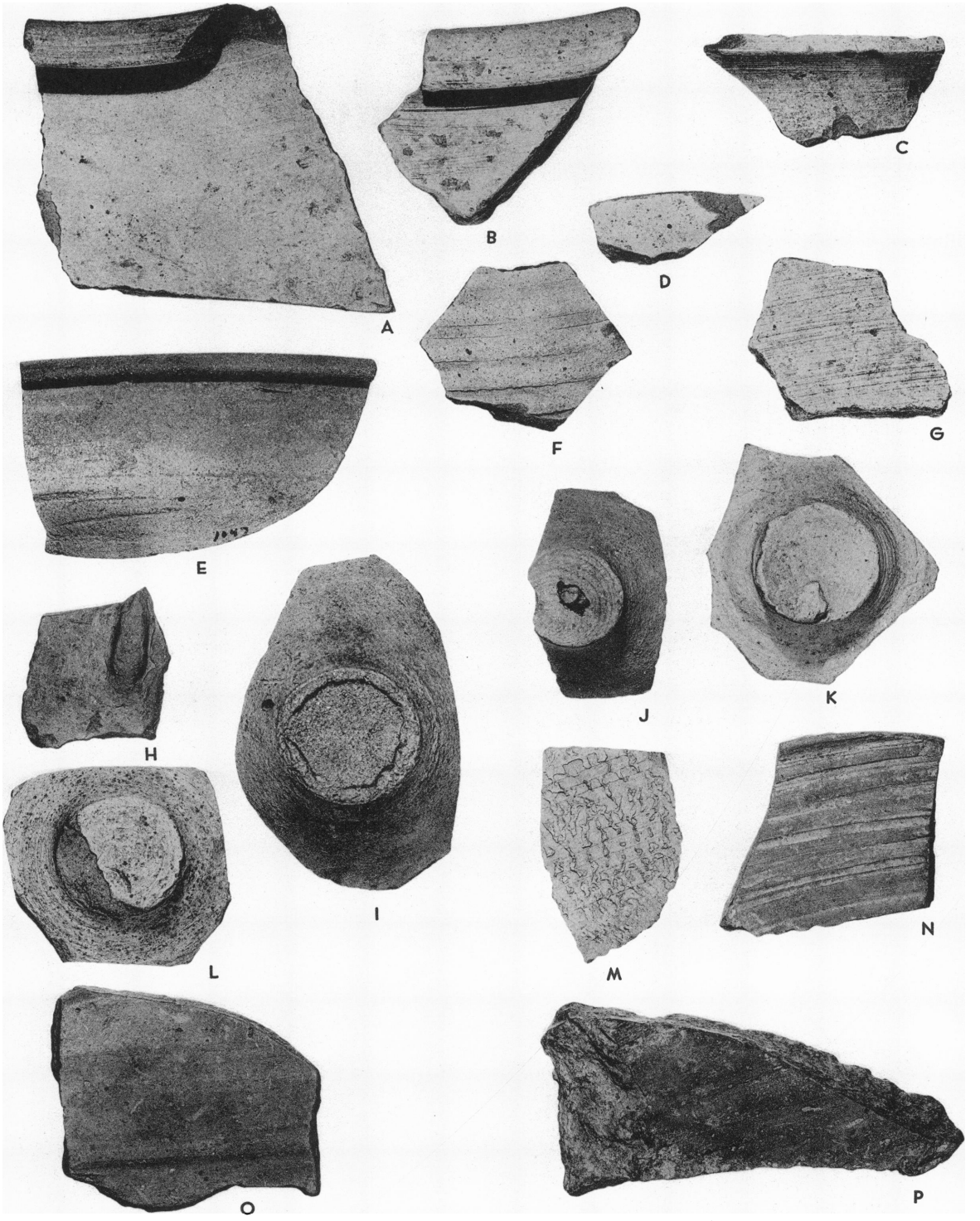
Red Ware, decorated. a, c. Incised, channeled, Late Kushan. b. Incised, channeled, Early Islamic. d. Incised, Early Islamic. e. Incised, Kushano-Sassanian. f. Incised, Late Kushan. g. Unoxidized center, Early Islamic. h. Incised, channeled, Kushano-Sassanian. i–k. Distinctive bowl, Kushano-Sassanian



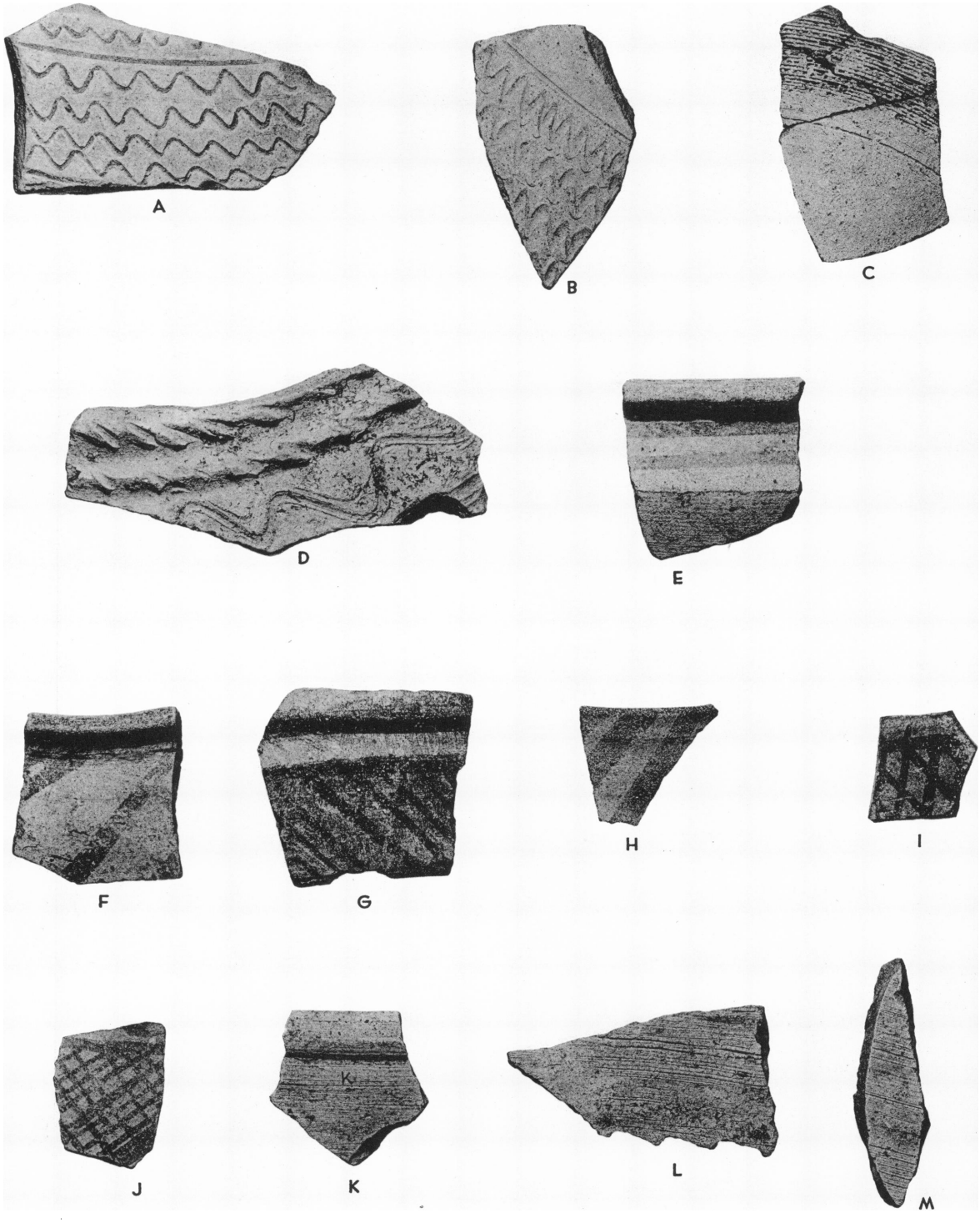
Red Ware, painted sherds. a, f, j, m, o. Kushano-Sassanian. b, h. Early Islamic. c–e, g, i, k, l, n. Late Kushan



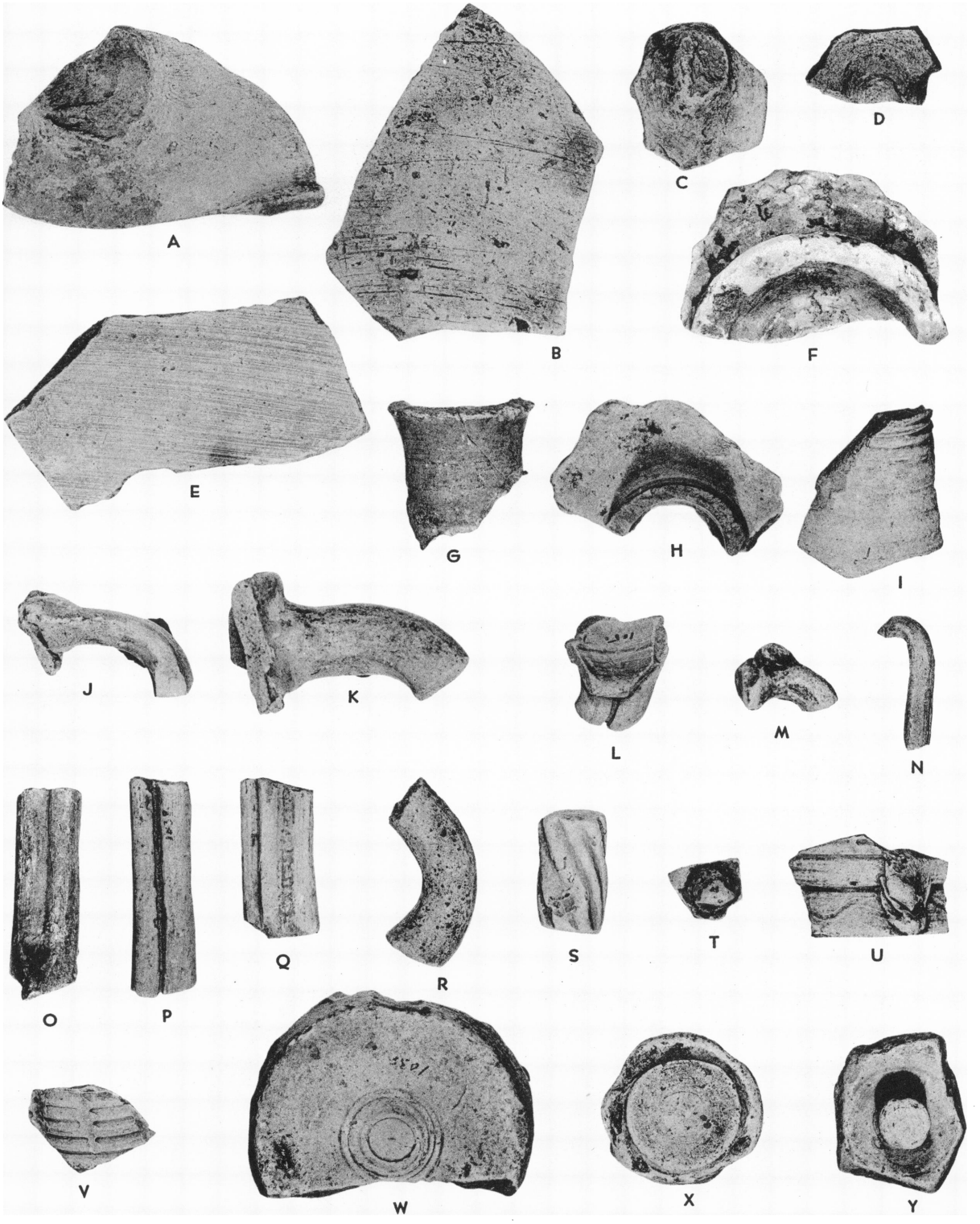
Red Streak Pattern-Burnished Ware and Metallic Black. a, g. Red Streak Pattern-Burnished, Late Kushan. b–d, f. Red Streak Pattern-Burnished, Early Islamic. e, h, i–k. Red Streak Pattern-Burnished, Kushano-Sassanian. l–p. Metallic Black, Type I, Kushano-Sassanian. q. Metallic Black, Type II, Kushano-Sassanian



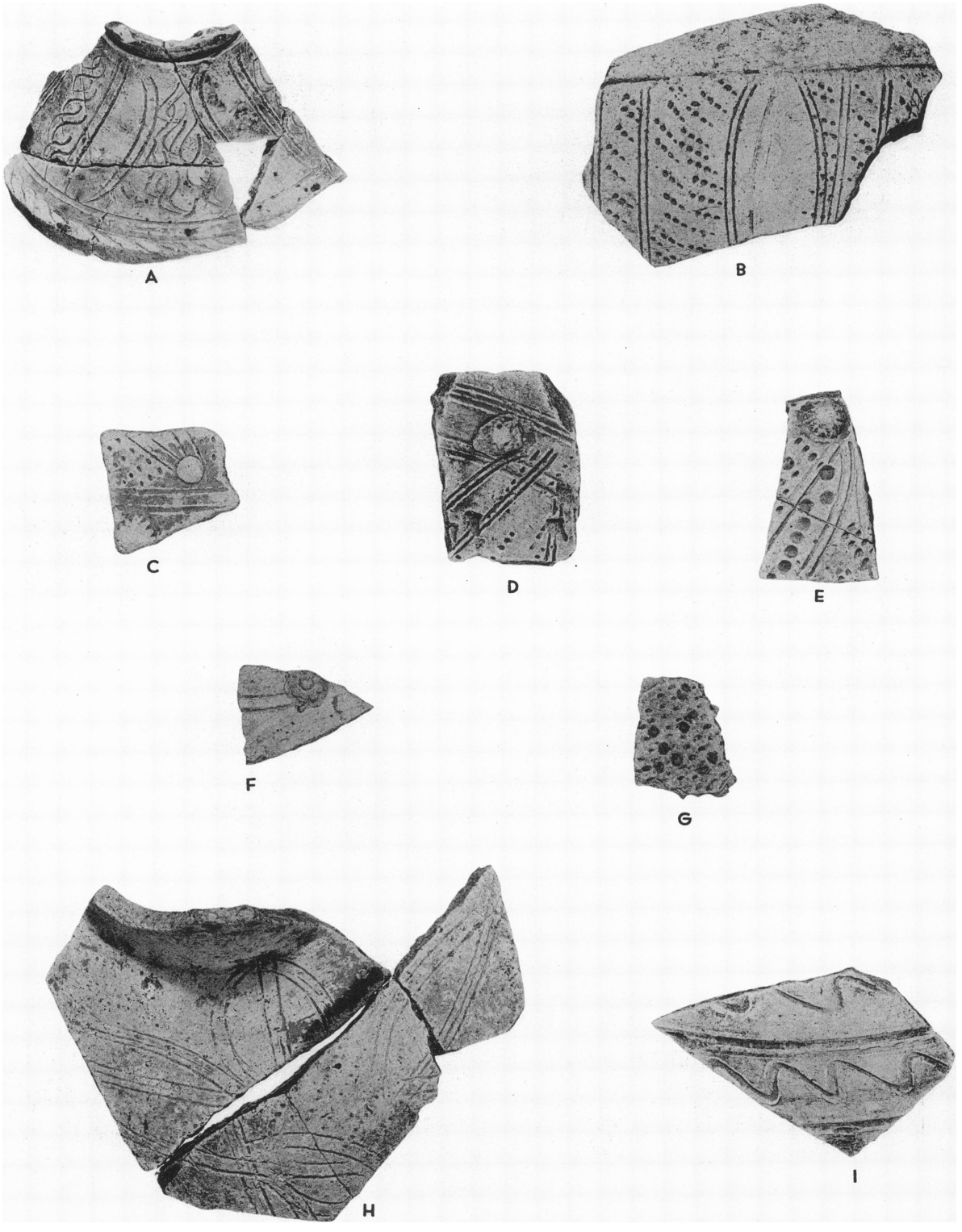
Red Ware with Cream Slip. a–h, j–l. No Inside Ridges, Late Kushan. i. No Inside Ridges, Early Kushan. m. No Inside Ridges, Early Islamic. n. Inside Ridges I, Kushano-Sassanian. o–p. Inside Ridges II, Kushano-Sassanian



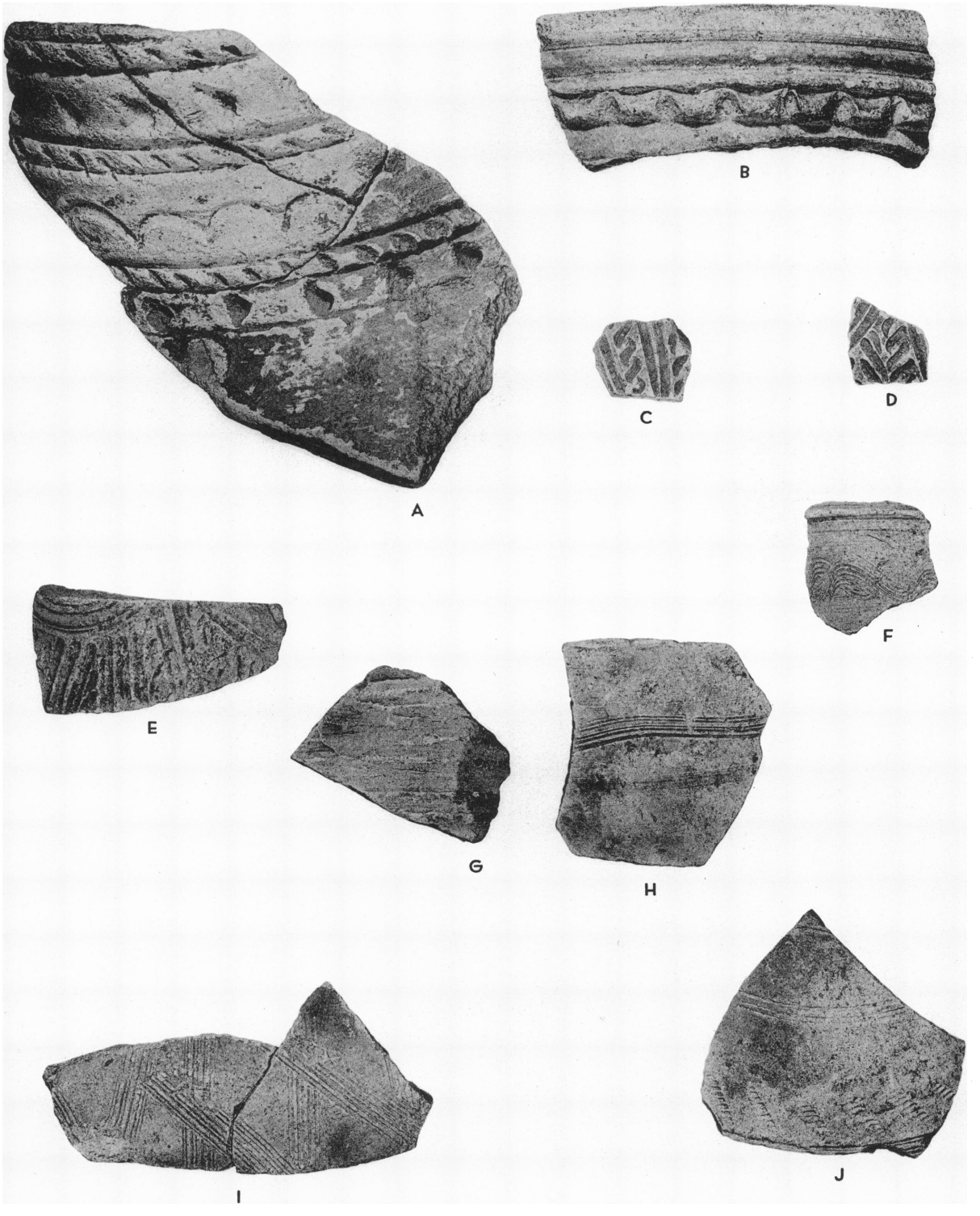
Red Ware with Cream Slip. a, e–h, j, l, m. Late Kushan. b, i. Kushano-Sassanian. c. Early Kushan. d, k. Early Islamic



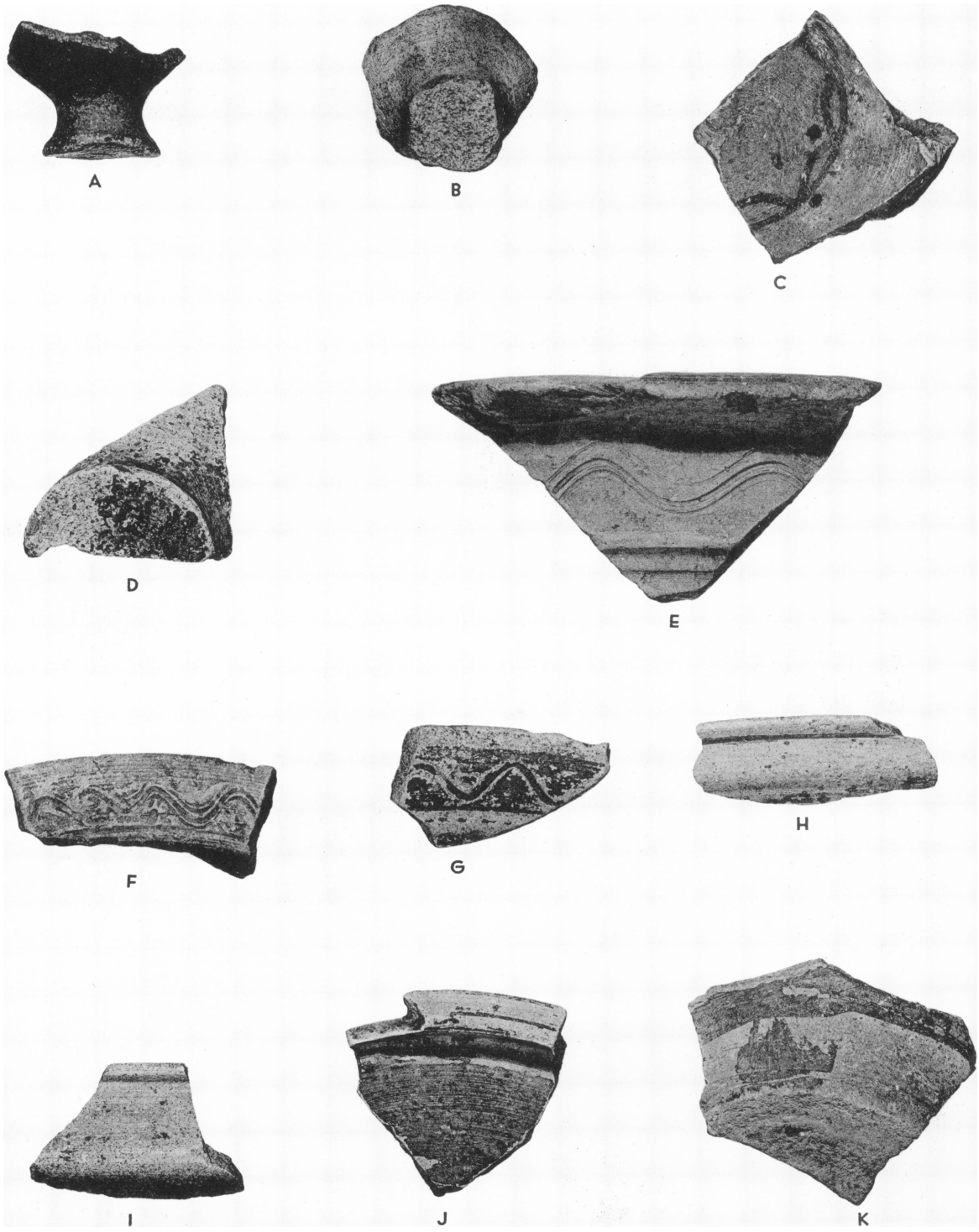
Bisque and Greenish Paste Wares. a, c, d, g, h, j, k, q, r, u, v, y. Bisque, Early Islamic. b, e. Bisque, Late Kushan. f. Greenish, Late Kushan. i, w. Bisque, Kushano-Sassanian. l, m, o, x. Greenish, Early Islamic. n, p, t. Greenish, Kushano-Sassanian. s. Greenish, unstratified



Bisque and Greenish Paste Wares, decorated. a, g. Greenish, Early Islamic. b. Bisque, Kushano-Sassanian. c–f, h, i. Bisque, Early Islamic

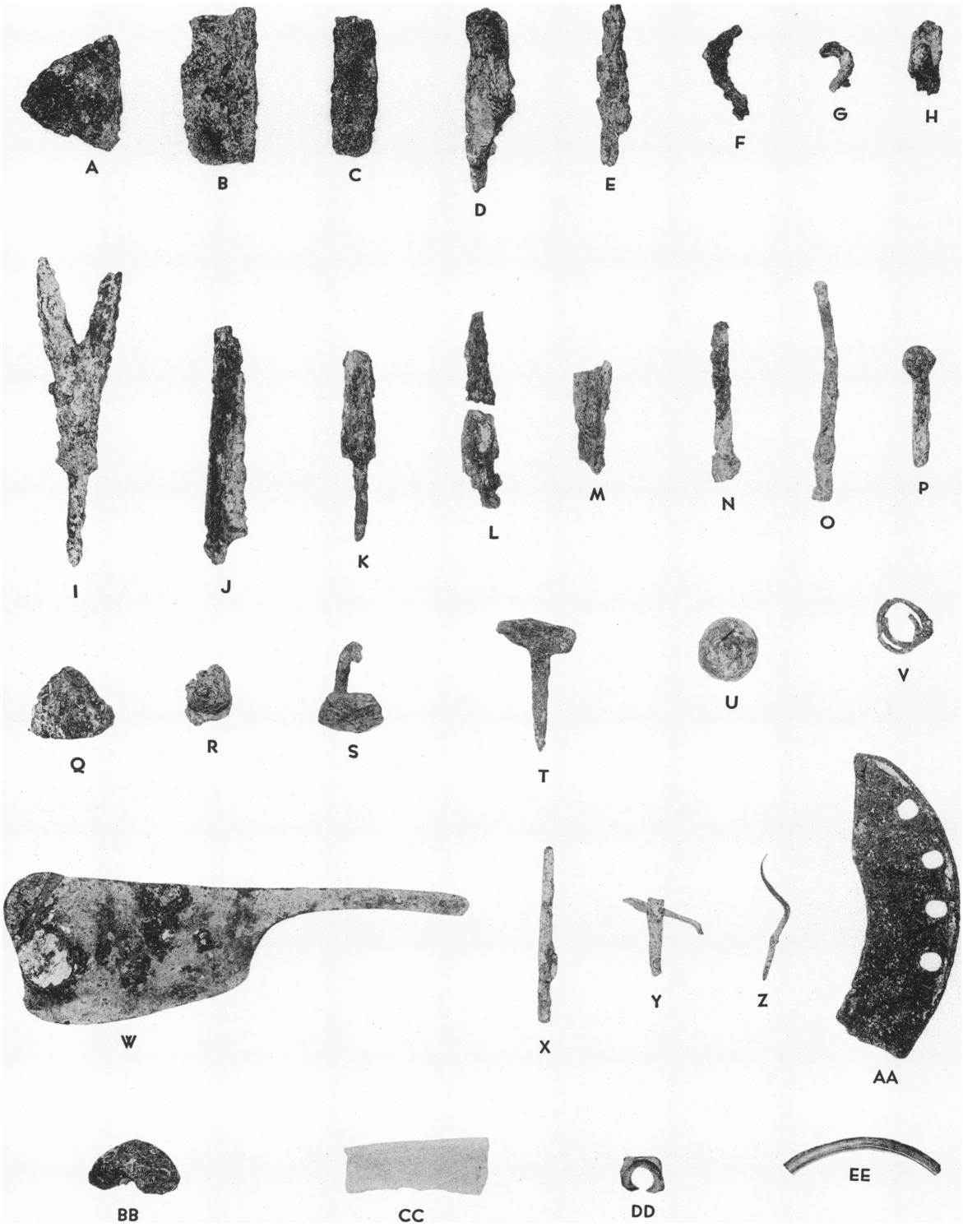


Bisque and Greenish Paste Wares, decorated. Early Islamic. a, b, e–j. Bisque. c, d. Greenish

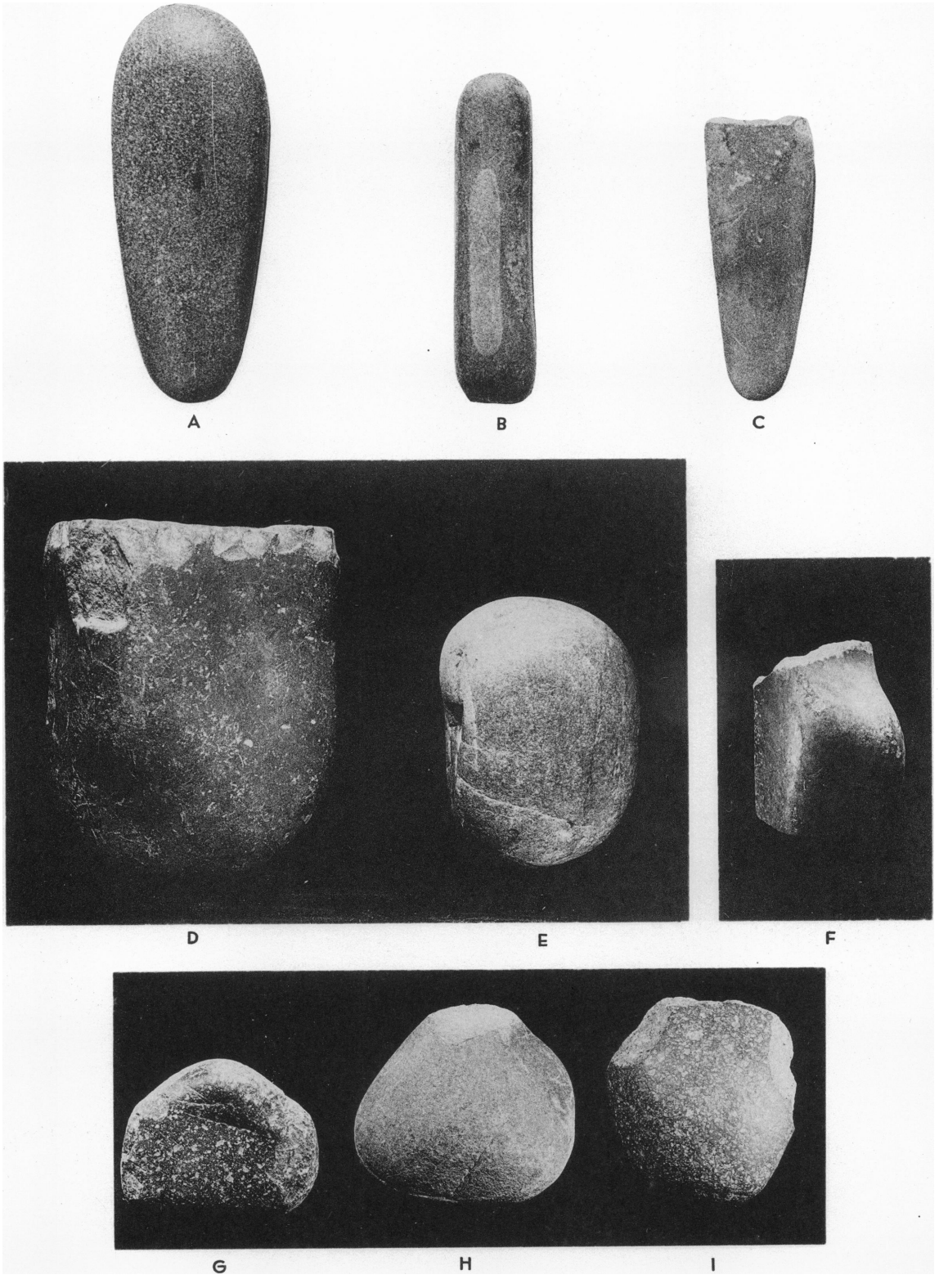


Bisque Ware, Red Inside and Outside Slip. a–d, i–k. Late Kushan. e. Early Islamic. f, g. Kushano-Sassanian. h. Unstratified

Stamped Ware. a–f, h–bb. Early Islamic. g. Possibly Kushano-Sassanian



Metal, beads, alabaster, and glass. a, b, d–f, h–j, m–q, s, t, aa. Iron, Early Islamic. c, r. Iron, Late Kushan. g, k, l. Iron, Kushano-Sassanian. u, w. Copper or bronze, dump. v. Copper or bronze, Kushano-Sassanian. x, z. Copper or bronze, Late Kushan. y. Iron and copper, Early Islamic. bb. Steatite bead fragment, Early Islamic. cc. Alabaster rim fragment, Early Islamic. dd. Lapis lazuli bead, Early Islamic. ee. Green glass bangle fragment, Early Islamic

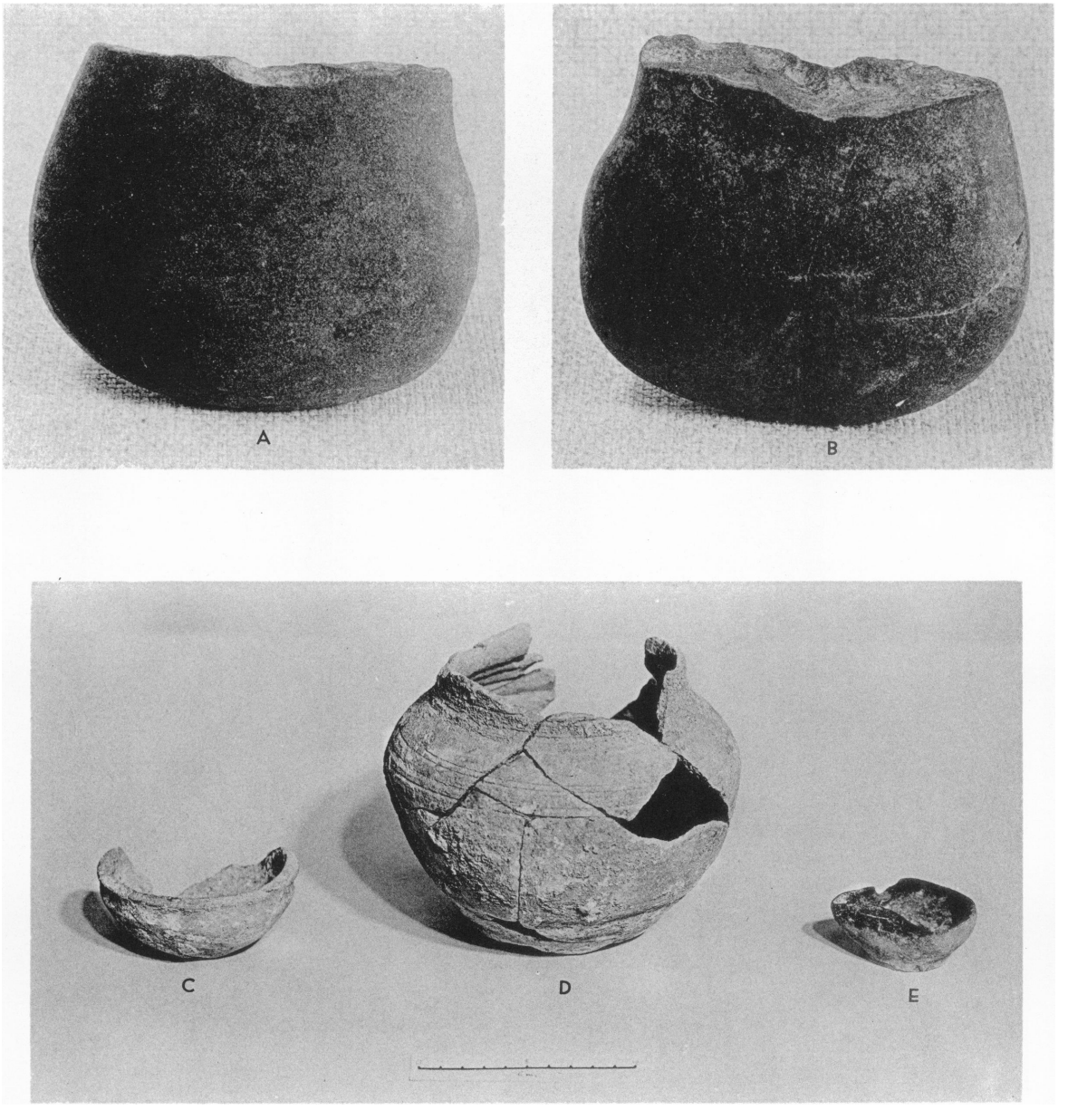


Stone artifacts. a-c. Celts. d-i. Utilized pebbles

A

B

a. Rounded pebbles. b. Seal impression of hare on base sherd, Late Kushan. The rule equals 10 cm.



a, b. Utilized basaltic pebble. Red Ware vessels. c. Bowl or cup. d. Jar. e. Lamp. The rule equals 10 cm.

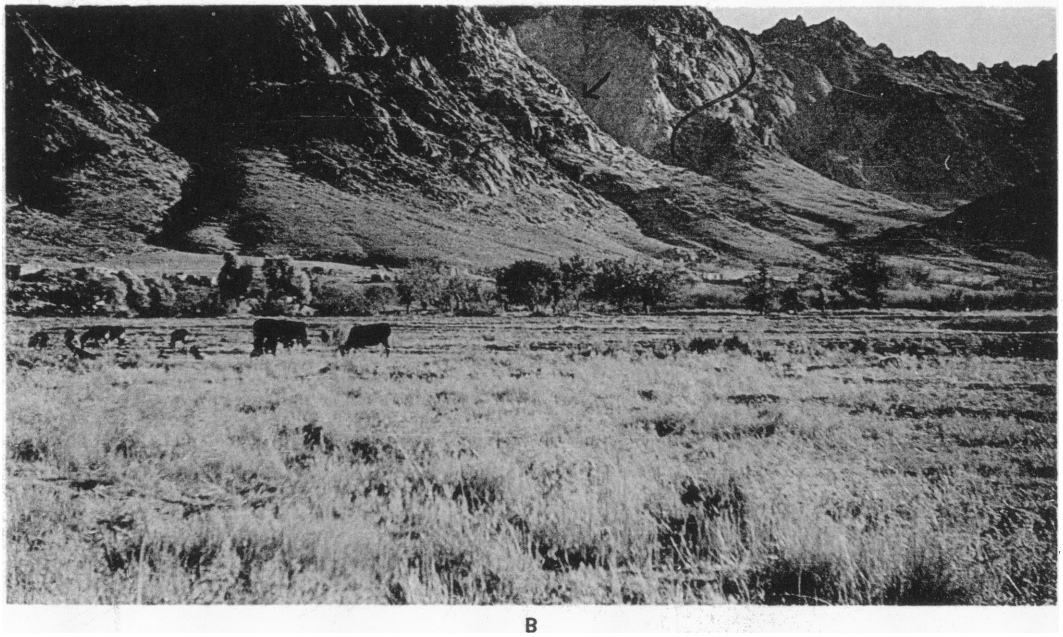
Early Islamic schist bowl fragments. *Ca.* 3/5 natural size

A

B

a. Caste of bronze animal figurine, Cut 6. b. Ravine opposite Shamshir Ghar leading to Badwan

A



B

View of area about halfway from Shamshir Ghar to Badwan. a. Looking towards Arghandab River. b. Looking towards path to Shamshir Ghar from Arghandab floodplain

ANTHROPOLOGICAL PAPERS
OF THE
AMERICAN MUSEUM OF NATURAL HISTORY

Volume 46

PART 1. Poverty Point, a Late Archaic Site in Louisiana. By James A. Ford and Clarence H. Webb, in collaboration with Junius B. Bird and Michael Beckman. Pp. 1–136, 6 plates, 45 text figures, and 9 tables. 1956. Price, $2.00.

PART 2. Shamshir Ghar: Historic Cave Site in Kandahar Province, Afghanistan. By Louis Dupree. Pp. 137–312, 32 plates, 102 text figures, and 17 tables. 1958. Price, $4.00.

Volume 46 is complete in two parts.