EXCAVATIONS IN THE QUETTA VALLEY, WEST PAKISTAN

WALTER A. FAIRSERVIS, JR.

VOLUME 45 : PART 2
ANTHROPOLOGICAL PAPERS OF
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PREFACE

THE PRESENT REPORT is the first of a projected series presenting the results of an integrated field program to determine, in so far as possible, the geographic range and stratigraphy of the prehistoric cultures of western Pakistan and southern Afghanistan. Between 1949 and 1951 two field projects were completed under the sponsorship of the Department of Anthropology.

It was the late Albert Ten Eyck Olmstead of the Oriental Institute, the University of Chicago, who indirectly inspired me to initiate these projects. He pioneered in pressing for a realization that the ancient Near East was not an isolated cultural island floating in west Asiatic space, but was an important part of a Greater Near East, with its boundaries extending beyond the narrow limits of the "Fertile Crescent." This concept led him to organize and participate in a coordinated research program in Iran. A staunch champion of an integrated approach to an unknown area, he emphasized in his lectures the importance of a knowledge of such remote regions as Turkestan, Afghanistan, and India to our understanding of the dynamics of civilization.

In spite of numerous surveys and extensive excavations at such sites as Harappa and Mohenjo-Daro, the evidence bearing on the relation of the chronological positions of the early Indian cultures to those of Mesopotamia and Iran is flimsy, especially as it depends primarily on the Mesopotamian rather than the Indian data. Another deterrent to a solution of the problems involved is the tendency to define as a "culture" each of several phases of what is probably a single culture. This is particularly true in Baluchistan where a bewildering variety of "cultures" has been determined, primarily on the basis of ceramics. It is important that we understand the content of the culture of early India and Baluchistan, because it is only through such an understanding that we can determine with assurance whether we are dealing with cultures diverse in time and expression or with phases of a generally homogeneous culture. An understanding of the cultural chronology in these areas will do much to clarify our knowledge of the cultures in adjacent areas.

Piggott and McCown have demonstrated not only that there are significant cultural parallels between northern and southern Iran and Baluchistan and the Indus Valley but that the early cultures of Iran played a significant role in the prehistory of India. According to Piggott this interrelationship is important in determining the chronology of Iran which forms, in turn, a chronological link between the Indus Valley and Mesopotamia. Thus Olmstead's vision of a "Greater Near East" is gradually coming into being. It is obvious that it is impossible to make a limited approach to the archaeology of any portion of the total area. As each grain of evidence contributes to the understanding of a local situation, so it also adds to our knowledge of the essential unity of the ancient world.

It was therefore important that our study of the archaeology of the eastern portion of the "Greater Near East" be undertaken with this objective in mind. Consequently, four areas were selected for field study, not only because the problems involved overlapped but because these areas were adjacent to Iran to the west and the Indus Valley to the east. These areas were: the Quetta-Pishin Valley because it lies between Afghanistan, southern Baluchistan, and Sind on the Bolan Pass route; the Zhob-Loralai Area because of the known extension of Baluchi "cultures" towards the Punjab; the Kandahar-Helmand River Area because it included the junction of major routes to the Indus Area; and Seistan, the Helmand Delta oasis, because it is strategically located between deserts on main routes to the east and west.

The First Afghan Expedition, actually a preliminary reconnaissance, was financed by a number of individuals and institutions, including the Bollingen Foundation, Mr. Willard V. King, Mr. and Mrs. Charles Sutherland, Mrs. Louise Davis, and the Voss Fund of the Department of Anthropology. The personnel included Mr. Louis Dupree, then a graduate student in archaeology, Mr. Henry Hart, a graduate student in geology, and the writer. Equipped with a "jeep" and trailer, we spent the summer of 1949 in a rapid survey in Afghanistan. The areas from Bamiyan to Kandahar, Farah, the northern Seistan Plain, and the Helmand Valley

south of Kajakai as far as Kirtaka were visited. A number of sites in the Quetta-Pishin Area were also examined.

The Second Afghan Expedition was in the field from August, 1950, to May, 1951. More elaborately organized and equipped than the First Afghan Expedition, it comprised 14 individuals as personnel. Responsibilities were assigned as follows: In southern Afghanistan, Mr. and Mrs. Louis Dupree, the former an archaeologist, worked in cooperation with Mr. John Zeigler, a geologist. Mr. George Maranjian devoted himself to problems in physical anthropology in Pakistan and Afghanistan. Miss Rose Lilien, in addition to her participation in the work on various sites in the Quetta Area, was primarily responsible for the excavations at Kili Ghul Mohammad. Her perseverance resulted in the recovery of the preceramic Kili Ghul Mohammad I horizon. Mr. Howard Stoudt supervised the excavations at Q14 and of Cuts 1 and 2 at Damb Sadaat. His efficient supervision of the test cuts at the site resulted in the successful completion of our excavations there. Mr. and Mrs. Leslie Alcock excavated Cut 3, Damb Sadaat. Thanks to their skill and teamwork it became possible to define a third phase of the occupation of that site. Mr. L. D. Kelsey not only participated in the excavations and surveys but ably handled finances and the purchase of supplies. Mr. Alcock guided us past numerous pitfalls in our dealings with the exigencies of field-work in a new area. I am more than grateful for his help in making our way easier. Mr. George MacLellan, probably more than any other single individual, was responsible for the success of our work in the field. His care of equipment and transport, and his contributions to the necessary daily labor involved, went far beyond the requirements of any single individual.

Permission to excavate in Pakistan was granted by the late Prime Minister, the Honorable Liaquat Ali Khan, through the kind offices of Dr. R. E. M. Wheeler, then adviser to the Department of Archaeology for Pakistan. The Honorable Fazlur Rahman, Minister of Commerce and Education, was instrumental in making our stay in Pakistan a profitable one. The late Mohammad Latif, then Deputy Minister of Commerce and Education, expedited our passage through customs and granted us travel permits for northern Baluchistan. His Excellency Khwaja Nazimuddin, then Governor General of Pakistan, visited our excavations, and the Assistant to the Governor General of Baluchistan was most cooperative in helping us conform to local regulations. I am very grateful to these officials of Pakistan for their assistance and cooperation; it not only made our work possible but provided maximum opportunities for success.

The financing of the Second Afghan Expedition was undertaken by the late Mr. A. Perry Osborn, First Vice-President of the American Museum of Natural History. It was primarily through his efforts that the necessary funds were raised. It is a matter of deep personal regret that he did not live to see the results of his efforts.

Generous contributions were made by the following members of the Board of Trustees of the American Museum of Natural History: the late Mr. William Hale Harkness, Mr. E. Roland Harriman, Mr. H. N. Slater, Mr. Keith Spalding, and the late Mr. George M. Moffett. Contributions were also made by Mr. W. J. Gallon, Mrs. Ailsa M. Bruce, and the New York Community Trust. Additional financing was provided from the Voss Fund of the Department of Anthropology.

The Crowell-Collier Publishing Company made a substantial contribution through the kind offices of the Chairman of the Board, the late Mr. Thomas Beck, and the Editor, Mr. Louis Ruppel.

A number of commercial firms provided necessary supplies the cost of which would otherwise have drawn heavily on our operating funds. Among these were the Syntron Company, Parke-Davis and Son, Ciba Pharmaceutical Company, Chas. Pfizer and Co., and Winthrop-Stearns, Inc. Equipment was also made available to us by the American Geographical Society and the Wenner-Gren Foundation for Anthropological Research.

All the members of the Department of Anthropology were extremely cooperative. Dr. James A. Ford, Dr. Gordon F. Ekholm, and Mr. Junius B. Bird frequently gave generously of their time to discuss various aspects of the research. Mr. Bird, assisted by Miss Heath MacBain, studied the textile impressions on pottery from the excavations; his analysis forms part of this report (Appendix 2). Dr. Alphonse Riesenfeld briefly described the human skeletal material (Appendix 3). Dr. Katherine McCann

contributed the section dealing with the stone artifacts. Several student volunteers, particularly Miss Alice Beck, were very helpful in organizing the large body of material on which this report is based. Mrs. Helen Kenyon and Mrs. Jane Orttung have assisted materially by their efficient handling of the paperwork required in launching the expedition, and, subsequently, in patiently typing and retyping the necessary revisions of the manuscript. Mrs. Marilyn Weber is responsible for the drawing of the text figures.

Mr. George G. Goodwin of the Department of Mammals, Dr. George Gaylord Simpson of the Department of Geology and Paleontology, Dr. Dean Amadon of the Department of Birds, Mr. Charles M. Bogert of the Department of Amphibians and Reptiles, and Mr. Frederick V. Weir of the Department of Fishes and Aquatic Biology, all of the American Museum of Natural History, gave freely of their time to examine the animal and other remains pertinent to their special fields. Dr. Richard Cowan of the New York Botanical Garden assisted in the completion of the identification of the flora of the Quetta-Pishin District.

Miss Bella Weitzner of the Department of Anthropology has had a twofold task in relation to these expeditions: first, during the planning and organizational stages of the expedition, and second, the work of editing this manuscript. I am therefore very grateful to her for the large amount of time and effort expended on these essential tasks.

For one who like myself has been raised, as it were, in the shadow of an institution like the American Museum of Natural History, it is especially gratifying to have been a participant in the activities of that museum. I am therefore deeply grateful to Mr. F. Trubee Davison, its former President, to Mr. Alexander E. White, its present President, and to Dr. Albert E. Parr, its Director, not only for sponsoring the expedition and the subsequent research, but for the confidence expressed in me. I am particularly indebted to Dr. Harry L. Shapiro, Chairman of the Department of Anthropology, who above all made this report possible not only through his support of the field-work, but through his support of the necessary laboratory work and research at the museum after my return from Pakistan. Unfailingly, he encouraged everyone involved in the project both personally and materially.

My wife, Jan, sketched many thousands of pottery designs while in the field and assisted in the surveys as well as in the field camp. She is also responsible for the design catalogue published in this report. She, too, has been a constant source of encouragement.

If there is one person to whom I might dedicate this report it would be to my mother who has encouraged my interest in this project from its inception and who has frequently sacrificed her energies and well-being that I might have the opportunity to carry it out. An expression of appreciation is scant return for such faith.

WALTER A. FAIRSERVIS, JR.

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THE SETTING

THE PROVINCE OF Baluchistan has often been described as a marginal area because of its geographic position between the high inland plateau of Central Asia and the low alluvial plains of the Indus River drainage. As usual in such a transitional zone, Baluchistan is essentially a mountainous country, its peaks frequently rising over 9000 feet above sea level. The Baluchistan area in general can be compared to the surf seen at the seashore: the widely spaced mountain ranges of Inner Asia are analogous to the waves rolling in; the low shallow relief of Sind and the Punjab can be compared to the beach, while Baluchistan, where the mountains of Central Asia break into erratic heights and valleys, resembles the turbulent surf.

Along the floors of the upland valleys that lie between the mountain walls the inhabitants maintain a rather precarious semi-arid agricultural and herding economy. From the valleys, access to the neighboring Sind and Punjab regions, and to Inner Asia, is by way of a series of passes that occur frequently along the roughly parallel mountain ranges. The arid climate and the isolating effect of the mountain ranges give rise to desert areas that effectively confine human occupation to the valleys to the east and north of Baluchistan where the meager water supply suffices for growing essential commodities. The Quetta-Pishin District lies generally in one of these valleys (Pl. 9).

The Quetta Valley is located approximately at latitude 30° 10′ N., longitude 67° E., slightly over 5000 feet above sea level. The valley is narrow, rarely exceeding 6 miles in width; its long axis is orientated generally north-south. The distance from the head of the Bolan Pass at the southern terminus of the valley (excluding the Gwandin Valley) to the "gorge" at Mastarzai is approximately 40 miles. In turn, it is about 35 miles across Pishin, the district immediately north of the Quetta District, to the beginning of the Khojak Pass which gives access to Chaman and the Kandahar Plain.[1]

The Quetta-Pishin Area is in a strategic position, not only because of its proximity to the Afghan frontier and Kandahar and its situation at the head of the Bolan Pass, but also because it is the terminus for three major routes in Baluchistan: first, the northeastward trending valleys of the State of Kalat to the south; second, the Shara Rud and the Pishin Lora that open the way to Nushki and the Chagai District to the west (thus to Seistan); third, the route from Khanozai in the Pishin to Hindu Bagh in the Zhob watershed places the entire Zhob Valley, eastward to the Gomel River, within easy access of Quetta-Pishin (Fig. 1).

Quetta City is situated in about the middle of the Quetta Valley. It was apparently rather heavily populated before the British occupation, but increased greatly in size and number of inhabitants when it became a military bastion of British India. Its area was largely augmented by the addition of an extensive cantonment, especially in its eastern and northern portions. A railway line connects Quetta City with Karachi and Lahore, as well as with Chaman, Fort Sandeman, and Nushki.

The Quetta-Pishin District lies in a semi-arid upland region. Baluchistan, as a whole, is west of the monsoonal rain-shadow. The district is completely surrounded by mountains. The most important are the Khwaja Amran, to the north and west, penetrated by the Khojak Pass; the Takatu and Murdar Ghar forming the eastern wall of the valley; and the Chiltan-Kumbelan ranges, the western wall.

The north-south trend of the mountains aids in funneling winds from the northwest (i.e., out of western Central Asia) into the valley, while the southern mountains of Baluchistan act as barriers to the south and east winds. Thus the climate of the district is more akin to that of southern Afghanistan and eastern Iran than to to that of the Sind and the Punjab.

GEOLOGY

Primarily because of its location in the western wing of the Himalayan orogenic belt between the stable older rock formations of Central Asia and Peninsular India, the Quetta-Pishin District has been subjected to the peculiar orogenic movement of the more recent rock formations of Baluchistan. Consequently the geology of the district is quite complicated. A

[1] The British divided Baluchistan Province into administrative districts. One of these, called Quetta-Pishin, includes the Quetta Valley and the Pishin Lora Plain and its adjacent slopes. The Quetta Valley and the Pishin Area are called "*tahsils*," or sub-districts.

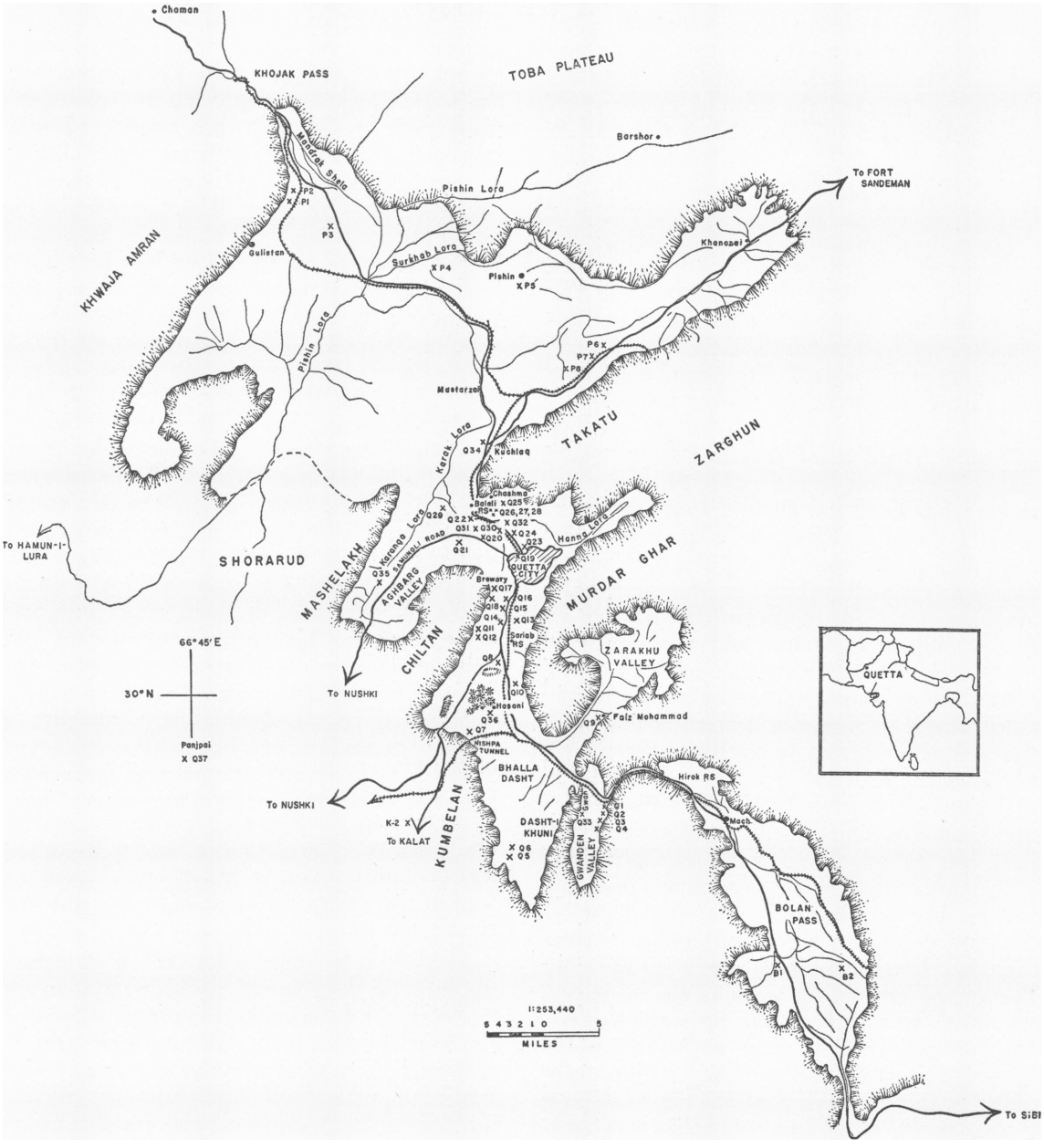

FIG. 1. Map of the Quetta-Pishin area, showing location of archaeological sites.

brief outline of the geological situation follows.

The district contains three distinct mountain systems: Kalat-Quetta, situated in a north-south direction with an east-west thrust; the Chiltan Range, which separates the Aghbarg Valley on the west from the Quetta Valley on the east and intrudes into the southern portion of the district; the Zhob-Harnai system which includes the Murdar, Zarghun, and Takatu mountain ranges that fan out from their focal point on the Quetta plains on the east and southeast of the district. These mountains are roughly oriented east to west, with a thrust varying from southwest to almost due south. Pishin Tahsil, i.e., Pishin sub-district, and the western portion of the Quetta Tahsil are distin-

guished by the system of ranges which are called the Toba system. This system includes the Sarleth and Mashelakh ranges which, on the west, enclose the Shorarud, the Khwaja Amran which is penetrated by the Khojak Pass to Chaman on the northwest, and the Toba Plateau, actually part of the Khwaja Amran on the north (Fig. 1).

These three mountain systems meet apparently to the north of Quetta City, in the Takatu and Zarghun Mountains where the contorted formations bear evidence of the unusual tectonic stresses of the area.

A study of the orogenic direction of the mountain ranges that form the eastern boundary of Baluchistan serves to emphasize the peculiar geological position of Quetta-Pishin. These ranges run almost due north-south along the western border of the Derajat south of Tank, but at Dera Ghazi Khan the orogenic direction veers almost east-west. In the Bugti Hills, the direction gradually shifts to the northwest, sweeping in towards the Bolan Pass just northwest of Sibi. At this point, and very largely in the Quetta-Pishin District, the direction of the ranges changes again, generally to the north-south, and these form the western boundary of Sind and the southern Indus River Valley and are called the Khirtar.

It is obvious then that the Quetta-Pishin District is on a tectonic axis about which this orogenic belt swings, resulting in a geologic instability marked by frequent occurrences of earthquakes. The earthquake of 1935, for instance, not only decimated the population of Quetta City, but destroyed a large portion of the city. The active tectonic character of the district is demonstrated by a fault line along the western edge of the Toba Plateau and the Sarleth Range. This fault line is caused by an overthrust to the southeast that has forced Eocene strata over the late Tertiary Siwaliks which dip to the northwest, "the overthrust being the western continuation of the 'Great Boundary Fault,' which everywhere follows the southern border of the Himalaya."[1] Other thrust faults have been noted in the district. These too are similarly identifiable on the southeast by older rocks superimposed over more recent formations on the northwest. "It is significant that this is the only part of Baluchistan where thrust faults are known to occur."[2] The tectonic activity in Quetta-Pishin has a marked effect on the landscape. Rock falls, especially from the limestone cliffs of Chiltan, were frequent during and shortly after the major tremor of 1935. Fissuring of the recent alluvial deposits of the area was also very common.[3] Though there is no record of changes in the drainage during recent years within the district, such changes have been reported in other earthquake areas, and we have no reason to assume that they did not occur in Quetta-Pishin on a somewhat restricted scale at some earlier period of its human occupation.

The collapse of river banks is well known in earthquake areas[4] and is especially pronounced where the high river banks are of silt or loess. In areas such as the Pishin Plain, where banks of loess occur up to 50 feet in height, the situation is directly parallel to that of North China where the loess cliffs collapse readily with earth movements. The collapse of such banks into the channels of the intermittent streams of the Pishin Plain certainly influences the flow of water even for a short period. The effect of this phenomenon on the welfare of the inhabitants can only be conjectured. In this semi-arid area, the blocking of a water channel even for a short period can very drastically influence local agriculture.

In any consideration of the location of ancient villages in the district, the effect of earthquakes must be taken into account. In general, the small compact mud houses, equally characteristic of modern and ancient Baluchistan, are better adapted to withstand severe shocks than are the larger, less compact houses.[5] However, the mud-brick wall construction tends to weaken them so that a building structurally sound but weak in its basic materials will collapse. Examination of excavated mud walls indicates that ancient village houses withstood earthquakes fairly well. The location of the villages in the valleys also contributed to their survival. It is clear that a location along the banks of a stream would be perilous. In the sec-

[1] Hughes-Buller, 1907, 17–18.

[2] West, 1936, 220–221.

[3] West, 1936, 214–216.

[4] West, 1936, 216–230.

[5] For an account of reactions of various types of structures to the 1935 earthquake, see West, 1936, 224–226.

tion on water sources, it is demonstrated that the most favorable area for water supply is close to the edge of the gravel talus (*daman*) and the alluvium. West comments on the problem of locating sites for the rebuilding of Quetta City as follows:

> Another position of danger during earthquakes is the junction of solid rock and alluvium. In the Mastung-Kalat valley, those villages situated along the side of the valley at the junction of the 'pat' [alluvium] and the hills were generally more severely affected than the villages situated more centrally in the valley. The same was the case nearer Quetta, where the Murree Brewery and Kirani village were completely destroyed, while villages such as Sadulla Khan in the center of the valley were less affected.[1]

If the correctness of West's assumption be granted, it seems likely that at least some settlements that occupied sites near the critical juncture of alluvium and solid rock have been destroyed. This indicates that these settlements have been in valley locations until an earthquake forced their abandonment, an important point to bear in mind when one considers the ancient settlement patterns of the district.

The effect of earthquakes upon wells and *karezes*[2] of the district varies considerably. A surprisingly large number of wells sunk deep into the alluvium are only slightly affected; others collapse completely. An apparent stabilizing factor is the tendency of structures cut into the alluvium to move as a unit with the surrounding bed. Though portions of walls may sheer off, the damage is insignificant. Fissuring may cause considerable change. Frequently, following an earthquake the water table shifts and wells may run dry or the water level may be lowered. This is especially true of artesian wells which are common in the district.

The oldest rock formations in the district are upper Carboniferous. Marine beds are a feature of the Mesozoic. The most important among the latter are the Triassic limestones and the so-called polyphemus limestone beds (massive limestone) of the middle Jurassic, the latter form the main part of the Chiltan Range. The polyphemus beds are overlain by a series of black shales or belemnite beds of the lower Cretaceous. The upper Cretaceous limestones are intruded by igneous rock formations, especially gabbro dykes. These igneous formations probably equate with the Deccan traps of Peninsular India.[3]

The Ghazij shales and the Dunghan limestones, representing the Eocene in the district, are located principally in the Takatu Mountains. The Khojak shales, which resemble the European Flysch, are Oligocene. These shales are very extensive in the district, forming the principal rocks of the Mashelakh, Sarleth, and Khwaja Amran ranges as well as the Toba Plateau. The upper Oligocene Nari beds are found especially around Zarghun.

The Siwalik series of sandstones, clays, and conglomerates are found extensively in the district, especially in the east. Pishin City is situated in a Siwalik zone, and the Zarghun Mountains are characterized by extensive Siwalik rock beds.

The gravel talus slopes, actually the talus fans resulting from the rapid erosion of the surrounding mountains, a characteristic feature of Baluchistan, are of Pleistocene and Recent age. Recent deposits over the valley floor in the district are typically of two varieties. The first are the stream-deposited, small, water-rolled gravels. The second, overlapping and mingling with these alluvial beds, are loess silts that are carried in aerially by the southwest and west winds which sweep over the Registan Desert Basin. The Pishin Lora, an intermittent river, has cut deeply into the loess deposits that cover the plain, resulting in a small-scale copy of the loess cliffs of North China. The flat area north of Quetta City, on the western side of the Kakar Lora, presents a similar situation, for it flows in some places between banks 30 feet high.

The soil varies in coarseness as one proceeds towards the center of these valleys away from the talus fans, which are composed of very coarse angular stones. The other extreme may be observed in river valleys which consist of very fine-grained silts and clays. Between these two extremes is an area of silt and clay mixed with rolled gravels that decreases in size as one approaches the center of the valley.

Loess deposits in the Quetta Tahsil (Quetta sub-district), especially around Quetta City,

[1] West, 1936, 227.

[2] A *karez* system is a method of carrying water from water-bearing gravels by means of underground tunnels connected to the surface by wells. This system is commonly used in the Middle East (p. 189). *Karez* is the equivalent of Persian "*khanat.*"

[3] Wadia, 1953, 301.

average 100 feet deep.[1] Those in Pishin are appreciably thicker, probably because Pishin is more exposed to the western winds than is Quetta.

SOILS

It is clear from the foregoing description that there are three types of soil in the district: the pebble plains, the silt alluvium, and the loess wind deposits, with, of course, a considerable intermixture of the three types. Of the three, the alluvium is not only the most abundant in minerals, but is an excellent retainer of capillary water, so that agriculture can be most successfully carried on in this soil. For maximum productivity the loess deposits require rainfall; however, as this is rare and scanty, the loess-covered areas are generally unproductive. The pebble plains serve as the reservoirs for the montane run-off water and, though they are agriculturally unusable, they make a major contribution to the hydrostatic balance of the valley.

The Quetta Plain is the most fertile area in the entire district. Here is concentrated the productive alluvium deposited by streams from the surrounding ranges. The main valleys of the Sariab Lora and Kakar Lora are also alluvial. In Pishin Tahsil the alluvial deposits are concentrated at the north (Pl. 11a) along the base of the Toba Plateau and around the borders of the Pishin Plain. The small valleys of the plateau itself also contain alluvial deposits.

Loess deposits are abundant in southern and western Pishin Tahsil. They are also found, as is stated above, in the northern portion of Quetta Tahsil.

The *daman* slopes, where they occur in the district, usually cover large areas. In Quetta Tahsil they are more extensive along the eastern side of the Quetta Valley, possibly because of the abruptness of the Chiltan limestone cliffs and the belemnite-shale capping of this limestone which more effectively resists erosion than does the Murdar Ghar Range.

Before this summary of soil features in the district is concluded, it is important to mention the effect of the extrusive limestone deposits on the alluvial soils. The water of Quetta Pishin is naturally quite hard; consequently, alluvial deposits are quite commonly cemented. The hard calcareous structure of the virgin soil when reached in our excavations was unmistakable. Thus the surface waters percolating through the alluvial soils tend to enhance their lime content which can, and often does, render them too alkaline for good crops. The loess deposits with their source in the Registan Plateau are also alkaline in nature.

DRAINAGE

The drainage pattern of Quetta-Pishin is characteristically that of a semi-arid region. The typical feature is an intermittent stream that drains abruptly off a mountain slope and debouches into a gravel fan. Sometimes such a stream is a tributary of a main river which flows as intermittently as its feeders. These features are characteristic of Baluchistan. However, some streams, such as the Kakar Lora of Quetta Tahsil and the Pishin Lora of Pishin Tahsil, because of their drainage patterns maintain some water in their channels—not necessarily flowing, but at least in pools throughout the year.

In Quetta Tahsil the gradient is generally from south to north. Consequently, streams tend to drain initially in the direction of the slope from which they originate and subsequently follow the gradient northward. The streams of the southern portion of Quetta Tahsil, such as the Gwān J, the Zarakhu, and the Hingi, are too intermittent and too small to reach the main drainage of the district. The Sariab Lora, the only important stream south of Quetta, maintains a meager flow throughout the year.

The Quetta Plain receives the bulk of its fluvial water from the Hanna River which drains the slopes of the Zarghun Range. The Zarghun Range provides an excellent water source, probably because its curve tends to channel the drainage from many slopes in the direction of the Hanna River. During the British occupation of Quetta, an elaborate reservoir and dam system was constructed in the Hanna Basin, providing water for modern Quetta.[2] Before it was dammed, the Hanna River probably fed most of its water into the Kakar Lora, the main stream formed primarily from the junction of the

[1] The gravels here may be only tongues of the *daman*, however, and not Siwalik. See Vredenburg, 1901.

[2] Raikes, 1932.

Sariab with the Hanna River.[1] The Kakar Lora meanders through the loess plain of northern Quetta Tahsil and enters Pishin via the "gorge" near Mastarzai where the drop is approximately 45 feet in 3 miles. It then bears west to a junction with the Pishin Lora in approximately the center of the Pishin Plain.

The drainage gradient of Pishin Tahsil is generally from the northeast to the southwest. The Pishin Lora is the principal stream of the subdistrict. This intermittent stream and the Kakar Lora receive the drainage of the Surkhab Lora which flows from the Khanozai area on the western side of the Zhob River watershed, the Arambi Manda which has its source in the Toba Plateau, and the Mandrak Shela which flows from the slopes on the eastern side of the Khojak Pass. The Pishin Lora has its sources in the Barshor area, north of Khanozai. These tributary streams join the Pishin Lora in about the center of the Pishin Plain. The Pishin Lora meanders southwest through this loess plain and gathers up the waters of the northward-flowing Shorarud (headwaters near Panjpai); it then flows abruptly to the northwest, as it threads its channels through the Sarleth Mountains. At the Afghan frontier it turns again to the southwest, flowing across Afghan territory, and debouches into the Hamun-i-Lora of the Chagai District of Baluchistan.

Despite this rather extensive drainage pattern, it should be emphasized that only in years of exceptional precipitation is the Pishin Lora filled with water the entire distance to the Hamun: generally the headwater streams flow throughout the year; there is some water, frequently merely pools, in the meandering rivers of the plain. It is only in spring or late winter that water reaches the Hamun.

None of the rivers of the district attains a width of 100 feet, except under flood conditions when a shallow flood plain permits the spread of a sheet of water for many hundreds of feet on both sides of the main stream. By the same token, these streams are usually never more than a few feet deep, except where deep pools exist or when they are in flood.

Even in periods of heavy precipitation a large number of the torrential streams disappear into the talus fans at the base of the mountain slopes or, as in the Gwandin Valley, which is a closed basin, permeate the alluvium of the valley plain.

It is necessary to emphasize this point because it is certain that not all the streams of the area are tributaries to the river system outlined above. In fact, the observable drainage of torrential waters into the talus fan has been of grave interest to the agriculturists of the district throughout its long history.

The drainage pattern and the action of water within that pattern emphasize the semi-arid nature of this portion of Baluchistan and thus parallel conditions in Seistan and southern Afghanistan.

WATER SOURCES AND SUPPLY

The Quetta-Pishin District is probably better situated for receiving a water supply than any other area in Baluchistan. Nevertheless, the low rainfall, evaporation, and the loss by surface run-off because of deforestation make the water supply somewhat precarious. Water is obtained by many methods: by drawing directly from rivers and streams, wells, artesian wells, springs, and the *karez*. In modern times, at least, reservoirs and dams are utilized.

It is clear from the foregoing that extensive riverine irrigation could not be utilized in the district. The intermittent character of the streams and the high bluffs of the river beds, which confine the flood plain to a small area, are obstructive factors. In the uplands, such as the Toba Plateau valleys, where the water sources and terrain are suitable, riverine irrigation is employed more commonly than on the plain. There is dry farming in these areas as well.

Every village has its own well or series of wells, usually equipped with an apparatus for drawing up the water. This consists of a wooden frame that holds a rotating wheel or drum over the well on which the bucket cord can be wound (Pl. 10b). The bucket is raised by man or animal power. The wells vary in depth, relative usually to the distance from the talus slopes. These slopes have a rather gentle dip (20° to 35°) so that the water-bearing gravels are most deeply buried at the center of the valley. Because of the labor involved in constructing and maintaining deep wells, as well as the difficulty in hauling water from them, the villagers tend to dig wells conveniently close to the talus fan.

Artesian wells are found in the Quetta Area,

[1] The Karanga Lora of the Aghbarg Valley joins the Sariab Lora near Kuchlaq Village, north of Baleli. This river is about the same size as the Sariab.

though they are uncommon in India. These are made possible by the extension of gravel "tongues," actually arms of the talus fans which become submerged in the sediments of the valley. The water in these arms can be tapped by wells. Because of the resulting differential pressures between the permeability of the gravels and the impermeability of the surrounding deposits, the water rises in the well shaft. Artesian wells appear to have been intentionally drilled only in recent times. Because there are no surface indications, it is difficult to locate the gravel tongues. The wells are usually of considerable depth, and the chances of missing the gravel are very good. Artesian wells were probably located only accidentally as the *karezes* were dug.[1]

The extensive *karez* system in Quetta-Pishin is another method of drawing water from the gravels. The water sources are the talus deposits at the sides of the valley. A horizontal passage is dug for many feet into the loess at such a depth that the tunnel outlet is approximately on a level with the expected water source. The water then flows through the passage, borne up by the impermeable fine alluvial loess. The passage is connected to the surface along its path by a series of vertical shafts or wells. Though great labor is involved in building these *karezes*, the loess lends itself readily to tunneling operations and its walls hold firmly.

Oldham[2] in discussing the occurrence of springs in the Quetta Tahsil Plain postulates a theory as to their origin which is of interest to the archaeologist. In examining the causes for the surface emergence of underground waters, one should bear in mind two significant facts: first, the gravels underlying the silt deposits of the valley are the sources of the water; second, these silt deposits are so fine that their compactness makes them impermeable to water. This condition prevents the water, which is under pressure owing to the gradient of the talus slopes, from reaching the surface. As the silts accumulate, the water-bearing gravels are buried deeper, effectively sealing the water underground. Oldham accounts for the pressure of springs by noting that in almost ever case the water seems to rise up through a rather well-defined channel. These channels, he believes, were dug " . . . by a race the very memory of whom has now been forgotten." Oldham's admitted speculation fails to consider the possibility of deep fissuring of the loess deposits by earthquakes. That surface fissuring does occur is noted above (p. 186). It is possible that well-defined channels can be formed by the rising waters which, following the line of the break in the alluvium, wear a channel to the surface. This is, of course, scarcely less speculative than Oldham's theory.

CLIMATE

The climate of Quetta-Pishin can be characterized as semi-arid; the rainfall is somewhat less than 10 inches annually. The temperature is moderate; the mean for the summer (Quetta City) is 78° F.; for the winter, 40° F. The winds are generally from the northwest, but the topography of the district tends to funnel them into several directions. The Khojak winter wind, for example, appears to blow from due north. It is, however, a southwest wind, bringing low temperatures, sometimes below freezing.

As is the greater part of Baluchistan, the district is outside the monsoonal rain-shadow. It depends for its moisture, therefore, on the so-called cold air storms which carry some rains over the Iranian Plateau from the Mediterranean area. The rainy season is thus the reverse of that of India proper, the rains being heaviest in the winter months, especially January and February. From about May through September, the rain-bearing winds are replaced by a dry, warm, and dust-bearing wind which blows from the northwest. This wind is probably identical with that of the *bad-i-sad-o-bist ruz* of Seistan. The upland character of the district is very important in intercepting these high altitude winds which save it from being completely arid, as are the neighboring district lowlands of Chagai. The seasons in Quetta-Pishin are well marked, paralleling, in the main, those of temperate Europe.

ETHNOGRAPHY

The population of Quetta-Pishin District consists primarily of Pushtu-speakers, i.e., Pathan.[3] The Kakar Pathan tribes make up half

[1] Oldham, 1892, especially 48–50; Vredenburg, 1904, 24–28.

[2] Oldham, 1892, 44–48.

[3] These data exclude Europeans, Punjabi, etc., who reside in Quetta City and are engaged in industry or in military services.

of the Pushtu representation, with the Tauris somewhat less numerous. Pathan settlements in general cluster most heavily in the areas north of Quetta City. The Toba Plateau, Gulistan, Khanozai, and Kila Abdullah are centers of Pathan occupation in Pishin. In the areas around Kuchlaq, Sheikh Manda, and Kili Ghul Mohammad, in Quetta Tahsil, the Pathan are dominant in the population. Scattered Pathan villages occur south of Quetta City (Pl. 10a).

Pathan villages in the district tend to be rather large. A village may consist of as many as 300 people under its *malik* (head man). The houses are usually enclosed by compound walls, of which a wall or walls of the house are a part. Building materials consist usually of sun-dried brick mixed with straw. The brick walls are plastered with mud. The dried surface is often whitewashed. The interior walls of rooms are quite commonly decorated with flower or geometric designs. Floors are of hard clay that has been smoothed. Roofs are of mud plaster and heavy straw mats laid over crossbeams of wood. Flat roofs are conventional. Some corrugated iron, as well as fired brick, is now used.

The house of a well-to-do owner has a large central common room usually covered with mats and rugs and contains a fire-pit or a brazier. The men's and women's quarters may each consist of several small rooms or of a single large room. A working area may or may not be enclosed, but is usually roofed. The interior of the compound may be divided so that horses are kept in one area and a truck garden in another. In the district, trees are of common occurrence in these compounds.

Agriculture is the major occupation, with emphasis on wheat growing, though other grains are also cultivated. Vegetables, such as lettuce, onions, beets, and potatoes, are grown in some quantity. Melon-growing is of major importance. Vineyards are common. Cultivation of fruit trees is increasing in importance, as the district has proved to be favorable to the profitable growing of a wide variety of fruits, including apples, peaches, and cherries. On the Toba Plateau there is some emphasis on sheep and goat herding. As a result, the Pathan shepherds move their flocks between the plateau and the valleys, ascending the plateau in the spring and returning to the valleys in the fall. However, most of the Pathan villages of the district are occupied throughout the year.

Because the Pathans are Sunni Moslem, each village contains a mosque of some form. The mullah, or village priest, exercises considerable influence in the village, and it is interesting that the village *malik*, who retains his office on the basis of influence rather than inheritance (the reverse of the custom among the Brahui and Baluchi), may often come into conflict with the mullah in attempting to modernize village customs. However, many of the mullahs are highly intelligent, and considerable advancement has been made in both education and technology in villages where both *malik* and mullah are compatible. The mullahs represent the conservatives among the Pathans, whereas the younger men tend to break away from tradition; the *maliks*, ideally, take a middle position, but in recent years have shown tendencies in opposition to strict traditionalism. The present pattern of conflict within the villages has unquestionably a long history and therefore may throw some light on the static aspect of some traits as revealed in the archaeological record.

The Brahui occupy the southern portion of the district. They are Dravidian-speakers. Their center is at Kalat, where they have a long tradition of service to the Khan of Kalat, the leader of the so-called Brahui Confederacy. Brahui villages are similar in pattern to, but smaller and less elaborate than, those of the Pathans. The Brahui cultivate wheat, melons, and vegetables. They have emphasized sheep and goat herding, but in recent years have tended to depend more and more on agriculture. With improving agricultural methods a number of Brahui have settled permanently in the district, though the majority still migrate for the winter into Kachhi or Kalat. Their permanent villages are reoccupied in the spring (Pl. 9a). The less prosperous Brahui build rude shelters of branches which are covered with hides. These shelters are usually set up close to the permanent villages. In towns such as Sibi (Kachhi District), the Brahui trade wood, sheep and goat products, embroidery, and metal-work for utilitarian and luxury objects.

MIGRATORY MOVEMENTS

It is apparent that in recent time at least the pattern of migration in the district is quite limited. It consists of two separate and distinct movements: the Pathan herders move season-

ally from the Toba Plateau to the Pishin Plain or the Quetta Valley; the Brahui descend to the lowlands of Kachhi, especially around Sibi. These movements though definite are not on a large scale and are carried out by small bands accompanied by moderate herds of pack camels and donkeys. Large numbers of people are never involved, nor is there an order or form of march such as might characterize a wholesale migration.

Another observable population movement in the district is the occasional influx of small groups of Ghilzai nomads from the Zhob District en route to the Bolan Pass.

The intermediate position of the district, between the Kandahar Area and the Indus River Basin, suggests that some consideration be given to the tendency of the modern population to seek an outlet for its migrants.

The position of the district in terms of its possible influence on western India emphasizes the significance of its geographic situation. Innumerable writers have considered the route from Kandahar southward over the Khojak Pass, through Quetta-Pishin to the Bolan Pass, down to Kachhi, and thence to the Indus Valley to be a major invasion channel from Central Asia into India. By giving the Bolan Pass the same value as the Khyber Pass many scholars have found it possible to envision a kind of pincers movement within which the hapless people of India were conquered by Aryans, Greeks, and Huns. Historically, a number of reasons can be given to demonstrate the importance of the Bolan Pass. During the First Afghan War (1838–1840), the British Army, in an attempt to drive on Kabul and Kandahar from another direction, to support its columns operating out of Peshawar and Jellalabad, sent its units from Sind near Sukkur via the shortest route possible to Kandahar. This route traversed four difficult areas: first, the arid plain of Kachhi, with *no* dependable water sources for a distance of 60 miles, coupled with unbearable heat; second, the Bolan Pass, an area that is

> . . . totally deficient in camel forage and fuel, and water at parts is scarce. Except when rain fills a puddle in the Dasht-i-Bedaulat, a march of 28 miles is necessary for water. . . . is exposed to floods in winter[1];

[1] Broadfoot, 1886, 381–382.

third, the Khojak Pass which requires a climb and descent of about 2000 feet, most of it concentrated in a 2-mile area (Pl. 11b). In addition, snow can and does block the pass in winter. Incidentally, this is not a defile pass, like the Bolan, but an ascent up the valley of one mountain stream over a ridge to the headwaters of another. The ascent and descent are correspondingly tortuous, and footing must have been (before the road was constructed) frequently uncertain. Fourth, the 75-mile trip over the barren Kadanai River plain which skirts the eastern edge of Registan to Kandahar. Crossing this plain, Broadfoot comments:

> At last, when we reached the cultivation of Kandahar, our horses were starved, our camels were failing, the men had dysentery, and the road behind us was strewed with the bodies of camels and horses.[2]

The statements made by military writers should probably be read with qualification as their objectives are not precisely identical with those of peaceful migrants or traders. Nevertheless, it is clear that compared with the routes through the Khyber and the Gomel passes, this route is more difficult in terms of supply at least.

A migration route by way of the Bolan Pass would bring a traveler to the head of a kind of cul-de-sac between the Khirtar Ranges on the west and the Suleiman-Bugti Hills on the east. The intervening area is, on the whole, very flat desert plain into which the mountain streams drain. The streams are lost in this plain because it is, in fact, a basin of interior drainage. The distance across the arid plain is approximately 100 miles to Jacobabad, on the borders of Upper Sind and Baluchistan. Jacobabad and the more southerly city of Shikarpur mark the limits of the irrigation system which has its water sources in the Indus River. Once the traveler reaches the Indus River he has the choice of two directions, i.e., north or south, because to the east is an effective barrier to easy travel—the Great Indian or Thar Desert. To the south is the Lower Sind Valley, terminating in the delta of the Indus River on the Arabian Sea, a scantily populated area and, except for Hyderabad City, with few centers for trade.[3] To the north are the large urban centers of the Punjab with easy

[2] Broadfoot, 1886, 381–382.]

[3] At present there is no indication that Karachi was a city of any considerable antiquity or of mercantile importance before comparatively recent times.

access to the Ganges River area. However, it is approximately 200 miles in a straight line from Sukkur to Multan, southernmost of the major mercantile centers of the Punjab. This distance is considerably increased by the endless windings of the road which follows the meandering river.

The foregoing indicates that the Bolan route is in reality a circuitous way of reaching those areas on the Indus and Ganges rivers where the larger centers of population and thus of mercantile opportunity are located. In addition, the route is considerably more difficult than the shorter and more favorable routes of the Gomel, Kurram, and Khyber passes. It should be noted that the Ghilzai nomads now make their principal seasonal migration via the Gomel Pass and somewhat less frequently across the Kurram, Tochi, and Khyber passes; the Bolan Pass plays a minor part in these migrations. There are obvious advantages in using these passes rather than the Bolan. All the passes lead directly to the populous centers of the Punjab. Once the mountains are crossed ample supplies of water and food are immediately available, and markets easily accessible.

In Afghanistan, Kabul is the junction for the major routes from the north over the Hindu Kush. From Kabul the route through the Khyber Pass, along the valley of the Kabul River, is the obvious road to the Punjab. Similarly, Ghazni is the junction for the major routes of southern Afghanistan. The overland route from Herat continues via Kandahar along the Tarnak River Valley to Ghazni. From Ghazni there are direct routes via Kabul to the Khyber Pass, via Gardez to the Kurram Valley, and via the Kotanni Pass to either the Tochi Pass or the Gomel Pass. The importance of Ghazni therefore cannot be overestimated. Kandahar is intermediate between Herat and Ghazni on the southern route. There are also less important routes to Kandahar via passes out of the Hazarajat. In addition to the route to the Khojak Pass, a route frequently used by the Ghilzai has Kamruddin Karez in the northern Zhob District as its nearest terminus. This can be reached via the Arghastan River Valley or overland from the Tarnak River Valley. Kamruddin Karez affords relatively easy access to the Kundar River or the Zhob River valleys and then to the Gomel Pass.

The military campaigns of the various conquerors, or raiders, of India in prehistoric times invariably illustrate the awareness of the comparative value of these passes out of the Central Asia area. As examples, the following may be regarded as characteristic:

Conqueror	Date	Major City, or Area, Attacked	Pass
Alexander	327 B.C.	Taxila	Kunar Valley
Kadphises I	*ca.* 45 A.D.	N. W. Province	Khyber
Epthalites	*ca.* 470 A.D.	N. W. Province and Punjab	Khyber
Mahmud of Ghazni	*ca.* 1000 A.D.	N. India	Khyber, Kurram
Timur-i-lang	1398 A.D.	N. India	Khyber
Babur	1520 A.D.	N. India	Khyber
Nadir Shah	1738 A.D.	N. India	Khyber

Even in an attack on Sind, it was apparently preferable to march down the Indus River Valley than to negotiate the Baluchistan passes. Thus Nadir Shah's campaign in Sind, 1739–1740 A.D., was begun via the Kurram Valley, though he did return to Kandahar via the Bolan Pass.

Historically the Khojak Pass has been used for either peaceful or warlike invasion of the State of Kalat. For example, in 1758 A.D. when Nasir Khan of Kalat revolted against Ahmad Shah Durrani, the invasion of Kalat was carried out via Khojak Pass and the Mastung Road. It is significant that though the Khans of Kalat, from the time of Ahmad Shah Durrani to the early part of the nineteenth century, paid at least lip service to the rulers of Kabul, they actually were independent. The Quetta District was controlled principally by Kalat rather than by Kandahar, which indicates that the Afghan rulers did not consider this route so important as the others.

British policy in Central Asia during the nineteenth century gradually led to an endeavor to occupy strategic posts along the Indian borders of Afghanistan. In the First Afghan War the British-Indian Army used the Bolan route twice: the first march on Kan-

dahar (1839) with Shir Ali, and the relief of Kandahar under General England (1842). The Treaty of Jacobabad (1876) with Kalat State ceded Quetta to the British. The Treaty of Gandamak (1879) with Kabul ceded Pishin and Sibi to Great Britain. In the Second Afghan War (1879) British control of Quetta led very quickly to the capture of Kandahar. In the period from 1880 to 1914, a railroad was carried into the district as far as Chaman, a military post. The railroad construction included cutting a lengthy tunnel through the Khwaja Amran Range near the Khojak Pass. Quetta City was expanded into one of the major cantonments of the Indian Army.

All this emphasis was centered upon the Bolan-Khojak route because it gave the British control of Kandahar and thus, in effect, of southern Afghanistan. This control, plus that of the Khyber, Kurram, Tochi, and Gomel passes, assured the British political control of this frontier of their Indian Empire.

It is clear that undue stress has been placed on the Bolan Pass route as a major channel of invasion from Central Asia, perhaps because of the recent emphasis on the use of that route for military forces operating in the opposite direction against southern Afghanistan. Though the route was occasionally used to reach the Indus, historically it was apparently not regarded as a very important road for the invasion of India. What is true historically seems to have a parallel in prehistoric times as well. The routes of the Quetta-Pishin District are primarily directed towards Kalat and Sibi and, secondarily, towards Kandahar. There is some emphasis on routes running to Chagai and to the Zhob Valley.[1]

[1] An interesting note on the Bolan Pass route and its use historically is found in the distribution of the so-called petroglyphs. These represent animals (usually ibexes or goats), human figures, and geometric motifs on rocks. They have not as yet been dated. They are found along all the well-known trade routes: Bobrinskii (1908) reported them from Russian Turkestan; we saw them in the Kunduz area, the Shiba Pass, and in the Ghorband Valley on the northern route to Kabul from the Oxus River area. Beatrice de Cardi (1951) has reported them from Dilaram, and we have seen them near Kandahar (Kajakai) on the Herat-Kandahar route. We again encountered them at Ghazni and, finally, near Fort Sandeman in the Zhob Valley. In our surveys in Quetta-Pishin, we observed similar petroglyphs in Pishin only, and these are small in number. None are reported from the Bolan Pass area.

THE SURVEY

BECAUSE NO ADEQUATE archaeological survey had been made in the Quetta-Pishin District, our work necessarily had to begin with a reconnaissance. Our aim was to make this as complete and detailed as possible to serve first as the basis for selection of sites meriting excavation and, second, to furnish data on the settlement patterns of various periods. In so far as we were physically able, we explored every promising area in the Quetta Sub-district. Our survey was somewhat less thorough in Pishin and very selective in the Bolan and Mastung areas.

Our method of survey involved the use of two sets of Survey of India maps: one at a scale of 1 inch to 4 miles; the other at 1 inch to 1 mile. Each day a survey party was assigned to cover as much of a designated area as was possible. Each survey party consisted of two or three individuals; at the beginning of the survey the groups were larger. A truck and a "jeep" were employed to convey the party to a selected take-off point from which the vehicles were used to traverse the areas as far as was practicable. However, most of the survey of the Quetta Sub-district was made on foot. Local information was verified; although this was frequently misleading, a fair percentage of such clues resulted in our locating sites. In spite of the thoroughness attained by surveying on foot, sites were occasionally overlooked, owing in part to the initial inexperience of the survey parties. For example, though we had carried out an extensive foot survey in the Gwandin Valley, we had overlooked Site Q33, which was on a spur of the mountain wall in the northwestern corner of the valley, where its location was such as to conceal its presence as we walked over the valley floor. Even binocular examination failed to reveal any trace of it. However, the persistence of our guide led to a recheck of the western side of the valley some weeks later, and this important site was located.

Usually the sites were low mounds located close to the valley walls and adjacent to modern villages. This proximity to modern villages is of some importance, principally because it emphasizes a similarity of economic needs from prehistoric to modern times. The sources of water, the location of fields, and the drainage pattern are intimately related to the locations of villages as is detailed above (pp. 185–189).

A few sites consist merely of deposits of sherds strewn on flat ground, or a few of boulders usually laid out crescentically with a scattering of sherds. The latter structures were usually used for defense. Another interesting type was found in the middle of a very flat area which was covered with scattered sherds and large stones. In this area a well had been sunk by the villagers. A meter below the surface, mud-brick and stone walls were found. This spot probably marked the site of a low mound which may have been obliterated by a combination of valley floor deposition and surface erosion. It is quite probable also that sites near the center of the valley were so effaced and that those more protected, situated nearer the valley walls, survived. This probability should be considered in determining settlement patterns.

Sites are most heavily concentrated around Quetta city. This situation bodes ill for the completeness of an archaeological survey in the District. The large amount of military and civilian construction which made Quetta a modern metropolis has, doubtless, also erased many traces of the past. Though street search and inquiries were made within the limits of Quetta City, the results were largely negative.

When a site was found, systematic recording and collecting were consistently followed. Each individual was equipped with a large muslin bag (28 by 14 inches) to carry the sherds collected over an assigned track. Thus one person collected at the top of the mound, while the others circled it at various levels along its slopes. Though some attention was paid to possible horizontal sectionalism, it was found that generally the surface remains were mixed haphazardly.

The sherds were collected at random in order to obtain as unbiased and representative a sampling of the plainwares as of the decorated wares. The previous emphasis on decorated wares and complete pottery vessels has had a tendency to reduce the quantity of analyzable evidence in the hands of the investigator. Too often, sites with few decorated sherds on the surface have been either completely ignored or omitted for research purposes. We believe that some of

the "gaps" in the relative chronology result from this common practice.

We planned, at the time of the survey, to apply the quantitative technique used commonly in the New World in surface collecting.[1] However, it was soon clear that the characteristically consistent re-occupation of most of the sites would mitigate against our establishing a proper poll of popularity of ceramic types for any one period on the basis of a surface survey. Later, the quantitative technique was successfully applied to excavated material. Random sampling is always difficult because of the human element involved. It was possible, however, to insist on thoroughness. As most of the personnel understood the problems, we are convinced that a good representation of sherds was gathered. After the random collecting, a selective search was made for diagnostic material which was separated from the random samples. In addition, the investigators were constantly in search of ditches, trenches, exposed walls, or other structures where stratified material might be recovered.

Each party was equipped with a number of sets of catalogue cards. Each set consisted of two 8 by 5-inch cards stapled together with two labels. The labels were of two materials; one of cloth tied to the neck of the bag, the other of heavy paper, placed inside the bag. When the site was recorded, a carbon paper was slipped between the cards so that a duplicate record was always made. Each site was given a sequence number in the order of discovery; in Quetta Tahsil, the numbers were preceded by the letter Q; similarly in Pishin Tahsil, the site numbers were preceded by P, and so forth. In addition, a catalogue number was always assigned to a site, or to a level, or to an area where a survey was made even when the results were negative. Any new point of archaeological interest, whatever its order, was immediately given a catalogue number. In the laboratory the cards were placed in two files: one according to site, the other in numerical sequence of catalogue numbers. All sherds and other material gathered from the surface of a site were given the catalogue number of that particular site except where circumstances, such as location within the site, warranted the assignment of additional numbers.

The survey of the Quetta Tahsil was carried on from August 23, 1950, to September 23, 1950. However, surveys of the areas beyond the limits of the sub-district were continued well into November.

QUETTA TAHSIL

The limits of this archaeological area were, for all practical purposes, the limits of its political boundaries. However, the archaeological survey was confined almost solely to the valley floors and the spurs and low hills of the mountain walls. The mountains are precipitous and barren, and no caves or defensive systems were encountered in them. Later, we discovered that for the most part the gravel talus slopes found extensively in parts of this sub-district were also archaeologically barren. To a lesser extent this was also true of the central portions of sub-valleys where drainage systems had obliterated any archaeological remains that might have existed or where desert conditions had eroded possible sites.

The survey began in the Gwandin Valley, at the head of the Bolan Pass, near the Kolpur railroad station. In the center of this small desert valley, which extends north to south from that point, is an intermittent stream, the Gwan. The gravel talus slope on its borders is never extensive, and the bulk of the valley floor consists of loess and stream-borne silts. It is therefore quite fertile when water is available. The valley is very sparsely inhabited.

A group of sites was examined on the northeastern side of the valley, starting about three-quarters of a mile south of the railroad line.

Q1: A low mound (*ca.* 4 meters high) eroded on the eastern slope by arroyos and on the west by irrigation. It is about 65 yards long, east to west, and about 25 yards wide, north to south.[2] It was described locally as the site of the terminal end of an old railroad spur.

Q2: A low mound, surrounded by a sunken area forming an almost perfect circle, strewn with red-fired brick. This was obviously a modern brick-drying area.

[1] Ford and Willey, 1949; Fairservis, 1952.

[2] In the estimates of gross horizontal measurements, it was found to be more feasible to use the more familiar English system; however, all vertical measurements were made in the metric system, which lends itself more readily to subdivision, as, for example, in the excavation of prescribed levels.

Q3: A series of five small mounds covered an area about 40 yards north to south by 35 yards east to west. Sherds were found in the intervening space between the mounds, but not on them. The mounds were covered with broken stones.

Q4: A series of low mounds covered an area 100 by 60 yards; the highest was approximately 4 meters.

A single site was found in the northwestern portion of Gwandin Valley.

Q33: A site about 50 yards north of the Gwandin Village lies on a spur of the western wall of the mountains. Rock outcrops, some possibly parts of stone walls, project from the surface of the site which may have been fortified. From the valley floor to the top of the site is approximately 15 meters. The talus slopes of the site itself spread out on either side of the occupied spur to a total distance of about 100 yards. Its width is about 75 yards.

Due west of the Gwandin Valley, over the Dhik spur, is an exceedingly barren but very extensive sub-valley which surrounds Bhalla Dasht, an alluvium-loess desert. As in Gwandin Valley, a more ample supply of water would certainly make this sub-valley flourish. Modern occupation is limited. It is most sparse along its eastern slopes, the so-called Dashti-i-Khūni area, but more extensive along its western side. Two sites were located in the southwestern portions of the valley near the village of Umar Dhor.[1]

Q5: A hillock about 7 meters high on a point of a mountain spur. There are also small, approximately 1-meter high hillocks situated haphazardly around the spur. Sherds are rather sparse.

Q6: A mound about 75 yards to the northeast of Q5, approximately round, about 65 yards in diameter and about 10 meters high. This site is now used as a graveyard by the villagers.

The northeastern portion of the Bhalla Dasht, was, for our purposes, neatly enclosed by the main line of the North Western Railroad to Quetta, and the north and northwestern portion by the line to Nushki via the Nishpa tunnel. About 150 yards south of the railroad, close to the western side of an automobile road:

Q7: A small, stone-covered mound about 30 yards square and about 2 meters high. Sherds were sparsely scattered over both the mound and the surrounding plain.

Extending in a northeasterly direction from the Bhalla Dasht area and thus lying behind the curving mass of the Murdar Ghar is the Zarakhu Valley. Its upper limits are gravel talus, and therefore cultivation is possible only in its lower half. The Zarakhu River itself is intermittent, and its channel is lost in the Bhalla Dasht.

The single site found in this valley is very important because it is the largest prehistoric site in the entire district. It is located near the village of Faiz Mohammad in the southeastern portion of the area.

Q9: A group of five mounds forms a complex approximately 200 yards long by 100 yards wide. The mounds range between a height of 10 and 20 meters.

North of the Nushki railroad line the Quetta Valley is broken by three hills or outcrops that are isolated from the Chiltan Range in the west. The Sibi-Quetta rail line and road run due northeast of these outcrops and parallel the western wall of the Murdar Ghar. West of the Murdar Ghar the talus gravels reach the rail line. West of the rail line the loess-alluvium extends up to the narrow talus of Chiltan. However, this western talus extends to the three outcrops, so that the alluvium is reduced to a very narrow belt in that vicinity. Arid conditions limit cultivation in the neighborhood of the mountain spurs, but north of these *karezes* and wells have made the land flourish. Population becomes more concentrated until it is climaxed in Quetta City.

Three sites were found in the vicinity of the Chiltan outcrops.

Q36: A site located near the village of Hasani, west of Mile Post 14 on the Quetta-Sibi Road, was uncovered in the course of well digging. Mud-brick and stone walls and a large quantity of pottery were reported 1 meter below the surface. Sherds were scattered on the surface over an area of about 50 yards.

Q10: We found a rock "cairn" on the talus east of the Quetta-Sibi Road (*ca.* 100 yards). The site is 40 yards long (east to west), 20 yards wide, and about 1.5 meters high.

[1] References to villages are based on Survey of India maps. Local names tend to vary because villages are customarily named after the current sirdar or *malik* (head man).

Q8: This site, described by Piggott,[1] was located just southeast of the Nushki Road as it begins to round the northernmost spur of the outcrop. It is known locally as Mian Ghundai Damb, but on the official records of the Pakistan Archaeological Survey is listed as Damb Sadaat. It is an approximately oval mound, about 14 meters high (Fig. 2).

A line running east-west through the Sariab railroad station marks the southernmost limits of the heavily irrigated and therefore cultivated area south of Quetta City. With a single exception, Q13, all the sites encountered were west of the Quetta-Sibi Road.

Q11: An apparent camp site with a scattering of sherds was located on a tongue of the gravel talus, running east from Chiltan. Located 97° R. F. Sariab Customs Post, R. F. 233° Chiltan Peak. The site was horseshoe-shaped, measuring 5 by 8 feet. The center was clear, but stones were piled around its borders. The open end of the horseshoe was downhill. There may be similar sites in the vicinity.

Q12: This site, perhaps 100 meters in diameter, located one-half of a mile south of Shamozai, consisted of an area of disintegrating mud houses. Some of the house walls projected to 2 feet in height. The houses appeared to be two-roomed, the rooms measuring 12 by 18 feet inside.

Q13: A low mound, located only 20 yards east of the Quetta-Sibi Road at the $5\frac{1}{8}$ Mile Post, lay in the midst of an extensive *karez* system. It was about 50 yards long by 40 yards wide, with a height of 3.5 meters.

Q14: A low mound, about 400 yards west of Mile Post 5 on the Quetta-Sibi Road, was just outside the eastern wall of the village of Kechi Beg. It measured 50 by 75 yards and was 3.5 meters high.

Q15: A mound, Piggot's Ahmad Khanzai South,[2] was located about 100 yards west of the Quetta-Sibi Road, $3\frac{1}{4}$ miles south of Quetta City. It was approximately 8 meters high and 80 yards in diameter. It is now used as a graveyard, and there is also some indication of digging at the top.

Q16: A mound, Piggott's Ahmad Khanzai North,[3] was located near Milestone 194/5, i.e., $2\frac{3}{8}$ miles south of Quetta City. It was roughly circular, about 100 yards in diameter, and about 4 meters high. It was surrounded by trees. An irrigation ditch was located at its northern end.

Q17: On the eastern tip of the gravel talus, just south of the Quetta-Brewery Road which runs due west from Quetta City, there is what appears to be a mound (perhaps natural). A number of sherds were sparsely scattered over its surface. The site was roughly circular, about 100 yards in diameter. It was highest on its western side, about 15 meters.

Q18: An oval mound, measuring 80 by 50 yards, was located in the cemetery called Kuzbagh, just west of the village of Ahmad Khanzai. It is about 4 meters high. Its surface was heavily cut by Islamic burials.

Quetta City, with its cantonments, lies just east of the open area at the northern terminus of the Chiltan Range. The Hanna River issues from a very narrow valley to the northeast of Quetta City. Due north of Quetta City, as well as in the area to the east, most of the plain is of the gravel talus type. On the northwest and west, however, the fertile loess-alluvium soil occurs along both banks of the Karak Lora.

As is noted above, the search for sites within the environs of Quetta City produced largely negative results. I have no doubt, however, that sites exist within some of the private compounds, railroad yards, and military reservations. On the basis of the availability of water, good soil, and convenient locale, as represented by the site of Quetta City, this is an obvious conclusion.

Q19: This site is the Quetta Miri, or arsenal. It has already been described by Piggott and others.[4] It was the highest site in the district. It was so high and massive that it almost certainly must have been a fort at some period.

The site was virtually destroyed in the late nineteenth century by the construction of an arsenal and artillery emplacement. The arsenal consisted of a deep shaft sunk into the mound, with side cellars or vaults projecting from the shaft. It is probably true that at least some of its massiveness results from the talus thrown out in the course of construction. By permission of the military authorities, we collected from the surface.

[1] Piggott, 1947, 134.
[2] Piggott, 1947, 134.
[3] Piggott, 1947, 134.
[4] Piggott, 1947, 134; Hughes-Buller, 1907, 45–47.

Q23: A very low mound (*ca.* 2 meters high) measured, as closely as can be estimated in view of its eroded condition, 60 by 40 yards. It was located about 100 yards north of the government butchery on the northwestern outskirts of Quetta City. A barbed-wire fence surrounded the butchery and apparently cut across part of the site, for sherds were seen in the butchery yard for about 60 yards beyond the fence.

Two roads extend to the northwest from Quetta City. The southernmost runs to Samungli, skirting the northernmost limits of the Chiltan gravel fan; the northern is the main road to Chaman. It bisects a fertile plain which gradually merges into an arid alluvial plain. This transition line is approximately marked by the road running north from Samungli to Baleli railroad station, located at the tip of the southern spur of the Murghi Kotal.

Q20: An extensive low-lying site was on a slight rise on the north side of the Samungli Road, just west of the Tirkhar Lora which crosses just beyond Mile Post 5 from Quetta City.

Q21: Stone foundations on a low ridge were located just south of Khaizi Village, 1½ miles east of Samungli. The walls were about 18 inches thick, of large stones, oriented north-south, east-west.

Q22: A mound just southwest of Sheik Manda Village, immediately to the south of a small mosque, was about 40 yards square and about 6.5 meters high. Mud and glazed bricks were visible *in situ* in its sides, especially in the upper levels.

North of the Quetta-Chaman Road the fertile plain is in a kind of cul-de-sac made by the junction of the Murghi Kotal on the west and north and the east-to-west inclined gravel fan on the east. This plain is intersected by ravines formed by the passage of the Hanna River and smaller streams that flow out of the Takatu Range.

Q24: This site, known as Kili Ghul Mohammad, was first described by Piggott.[1] It was located about one-half of a mile northeast of the village of Kili Ghul Mohammad, just beyond a brick-firing pit. It was approximately 100 yards long (northwest to southeast) by 60 yards wide. It had been heavily cut into by grave digging on all except the south side. On its edges irrigation trenching has uncovered many sherds, especially along the south and east (Pl. 12b).

Q25: One mile east of Chashma Village, some 2 miles north of the Quetta-Chaman Road, was a large site consisting of four mounds. The site was about 150 yards long, northwest to southeast, and about 120 yards wide, northeast to southwest. The highest mound was about 7 meters high, the lowest about 3 meters.

Q26: A mound, located one-quarter of a mile southeast of Chashma Village, was about 125 yards in diameter and about 4 meters high. The site was covered with Islamic graves.

Q27: A small mound, about 100 yards southwest of Q26, measured about 20 by 25 yards and was not over 1 meter high. Its outlying portions were clearly plowed under.

Q28: A small mound, located one-quarter of a mile due south of Chashma Village on the west side of the road, by which it was probably intersected, measured approximately 75 by 50 yards. It was about 1.5 meters high. It is possible, though not confirmed, that this is an extension of Q26 located 200 yards to the west.

Q32: On the eastern bank of the Hanna River ravine, about three-quarters of a mile southeast of Chashma Village, a very large sprawling site has been terraced for planting, blurring its outlines. As accurately as can be judged, the site measured 500 by 400 yards. It was about 8 meters high at its highest portion (northern) and only about 0.5 meter high at its lowest (south and east).

Pottery assignable to prehistoric periods was found in quantity in its northern and western portions, while Islamic and other wares were abundant at the east.

In the vicinity of the village arsenal and railroad station of Baleli, the drainage of the Chashma pocket passes around the Murghi Kotal spur. In the immediate proximity of this drainage there were good wells and sufficient irrigation to sustain crops. Two sites were found in this region.

Q30: A low mound, south of the Chaman Road just beyond Milestone 8 from Quetta City, measured about 40 by 60 yards. It was about 3 meters high. The surface of the site has been disturbed by graves. There is a Moslem grave at its summit.

Q31: A rounded mound with a flattened top

[1] Piggott, 1947, 134.

was set in the midst of an orchard, known locally as Dhozakh Khansian, immediately overlooking the Chaman Road. It was about 60 yards in base diameter and about 15 meters high.

North of the Baleli Junction the drainage of the Aghbarg and Quetta valleys joins in the Karak Lora which flows into Pishin Tahsil, its border being around Mastarzai. The area west of the Karak Lora is in general an arid plain intersected by deep ravines, gradually merging with the gravel talus which derives from the low ranges forming the west wall of the valley. Modern occupation of this area is negligible.

Q29: A single site was found in the extreme south near the Baleli-Gulistan Road which traverses it from east to west. Known locally as Baleli Mound, this site has been described by Stein.[1] It was located about 90 yards north of the Baleli Road, midway across the valley. It has been used as an artillery redoubt and therefore is badly cut up. Its visible portion is about 100 yards in diameter and about 18 meters high.

East of the Karak Lora the upper Quetta Valley is rather thickly populated. Water supply from both the Lora and the Takatu gravel taluses, which are skirted by the road, is good. This area was thickly covered with orchards. A number of mounds were found here, one of which, Tirkha Ghundai, we did not visit. This site is also mentioned by Stein.[2]

Q34: This site, described by Stein under the name of Kasiāno-dozakh,[3] was located some 300 yards north by west by north of the Kuchlaq railroad station. It was really a double site, with a small mound some 3 meters high on the west and on the east a larger mound about 5 meters high and about 140 yards in diameter. The smaller mound was surmounted by an Islamic tomb. Both mounds show evidence of grave digging.

To the south of the Karak Lora Area, i.e., south of the Baleli Road and west of the Chiltan Range, the rather arid Aghbarg Valley extends south towards Kalat State. The drainage of this valley centers on the meandering Karanga Lora which flows in the western half of the valley. Water is available in the middle reaches of the Karanga Lora Area, and it is there that the maximum occupancy of this valley occurs. Otherwise the absence of water in the alluvial areas and the presence of the gravel fans mitigate against agriculture.

The boundaries of the district are reached at approximately the watershed divide, south of which is the district of Sarawan.

Q35: A humpbacked mound about halfway across the valley south of Ali Mohammad Village (Chiltan R. F. 157°), 100 yards long by 55 yards wide by 10 meters high. The site had been cut into by a trench about 12 feet to the northwest of its highest point.

Q37: Though properly in the Sarawan District, the site of Panjpai, located about midway between Quetta City and Nushki, is included in the group of Quetta District sites. First reported by Beatrice de Cardi,[4] this mound was located against the hills on the eastern side of the Panjpai Valley, but south of Panjpai. It was oval in shape, about 150 yards long and about 15 meters high. A second, smaller mound has been reported farther north.

CHAGAI

A trip was made to Nushki to visit the site reported in the vicinity of that town.

Ch1: Nushki mound is situated on the end of a natural ridge of conglomerate to the west of Nushki. The top of the mound was disturbed by modern construction. Stone walls, with at least five successive building periods, show clearly on the eroded south face overlooking a nulla (dry stream bed).

SARAWAN (KALAT STATE)

Two sites were located in the area between Lak Pass and Mastung City in the District of Sarawan.

K1: A mound located 1 mile south of the customs barrier at the south end of Lak Pass, 100 yards east of a small stream, measured approximately 100 by 75 yards. It was 7 meters high. There are indications of graves at the top.

K2: A large mound about 4.5 miles northwest of Mastung City, probably Hargreaves' Sampur mound,[5] was about 300 by 100 yards in area and about 16 meters high. Actually a

[1] Stein, 1929, 89.
[2] Stein, 1929, 88–89.
[3] Stein, 1929, 88.
[4] De Cardi, 1950.
[5] Hargreaves, 1929, 1.

double mound, the westernmost one was about 8 meters high. The site had been trenched.

BOLAN PASS AREA

The passage through the upper Bolan Pass begins at Kolpur railroad station, whence it descends between steep rock walls to the Hirok railroad station. At this point the valley walls recede, and a valley several miles wide inclines towards the lower pass which in turn pierces the Kohan spur. This broad valley is primarily a stony waste through which the meandering and rather diffuse Bolan River flows. The Bolan Valley is very sparsely inhabited except for villages or posts dependent on, or used by, the Bolan Railroad.

B1: A double mound 1 mile south of Bībi Nani Levy Post is called Gudri Mound. It was probably built on a rock or gravel outcrop at the foot of the mountain wall talus slope. The site measures about 100 by 200 yards and 6 to 7 meters high. Clear traces of numerous stone walls were observable on the mound surface.

B2: A large mound, located about 5 miles north of Kirta and about 2 miles west of the eastern valley wall, measured about 130 yards (north to south) by 90 yards (east to west). It was about 8 meters high. It had been cut into by grave diggers. On the surface were traces of stone walls.

Another site, called Sar-har-dem, is reported several miles south of Kirta.

PISHIN TAHSIL

The Pishin Tahsil, which lies north of the Quetta Tahsil, is actually a large basin into which flows the drainage of the Khwaja Amran, the Quetta Tahsil water systems, and that of Takatu. The Pishin Lora receives this drainage in the middle of the Pishin Basin and then flows to the southwest. The northern portion, as well as the surrounding rim of Pishin, is mountainous and, as Stein showed in his survey of 1929, the sites of Pishin, as in other districts of Baluchistan, are generally situated in the flood plain or lowlands. This can be further qualified in Pishin by emphasizing its extreme aridity which dooms otherwise fertile loess-alluvium to non-productivity except for occasional patches where a spring or well has made it flower or when rain or heavy flood opens areas to irrigation. For this reason modern occupation of Pishin tends to cluster around the borders of the alluvial basin where the water table can be tapped.

The tributaries of the middle Pishin Lora, lying southeast of Gulistan, are in a setting of high loess cliffs or bluffs which remind one at once of the plains of North China. Northwest of this loess plain, the alluvial deposits merge into the gravel fans except where "fingers" of river drainage extend the fertile areas.

P1: A high mound known locally as Safid Ghundai has been described by Stein under the name of Spinā Ghundai.[1] It was located about 1½ miles north of Habibzai Village, 100 yards east of the Gulistan-Kila Abdullah Road. The site measured about 60 by 80 yards. It was about 20 meters high. It had characteristically very steep sides, in some places as much as a 65-degree angle. The top was flat and there the mud-brick ruins of walls were discernible. These walls, however, do not appear to be thick enough for defensive purposes (Pl. 12a).

P2: A group of low mounds is situated about 300 yards east of the Gulistan Road, midway between P1 and the Chaman-Quetta Road: one, a low mound (3.5 meters?), 60 or 70 yards square; a slightly higher mound (5 meters) to the south, roughly circular and about 20 yards in diameter; and a scattering of smaller mounds.

P3: This site, described by Stein,[2] lay in the midst of a tamarisk forest known as "Jungla Populzai," located about 1 mile west of the Chaman Road and 1 mile northeast of Pir Alizai Village. It was very silty, with salt excrescence everywhere. Its dimensions were difficult to ascertain because its boundaries merged with the surrounding plain. However, it was about 125 yards north to south and 50 yards east to west and somewhat over 5 meters high.

P4: A large mound located about 300 yards north of the Chaman Road about 1 mile east of Saranan Village. It was roughly oval, measuring about 100 by 75 yards, and about 7 meters high. A concavity at its center formed a sort of crescent, with an opening on the south side. This was probably Stein's Bābari Ghundai[3] (Pl. 11a).

P5: A site called Kila Bhutāsī was located 1

[1] Stein, 1929, 87.
[2] Stein, 1929, 86–87.
[3] Stein, 1929, 83.

mile southwest of Pishin Village. It was a fort, rectangular in groundplan, measuring 100 by 75 yards. Its perimeter walls were about 4 meters high.

P6: An area covered with sherds, located on a rocky knoll 50 yards to the north of the Pishin City-Khanozoi Road, about 15 miles from Khanozai. It is called "Lal Ghundai." There are remnants of what may have been stone walls.

P7: A sherd area was located 200 yards south of the Pishin-Khanozai Road on a rocky knoll one-half of a mile south of P6.

P8: A mound located at the village of Sahib Khan, 2.5 miles northeast of Bostan, about 1 mile north of the Quetta-Khanozai Road, was roughly circular, about 75 yards in diameter, and approximately 5 meters high.

Stein mentions a group of mounds located to the northeast of Pishin City,[1] which we did not visit. They are Riasā Ghundai, Kuchnai Ghundai, Spina Ghundai, Sra-Kala, Mata Ghundai, Kāzha-viala, Majo, and Kranai.

West of the Pishin cantonment, Stein found a site, Akhpara Ghundai, near Batezai.

[1] Stein, 1929, 80–86.

THE EXCAVATIONS

THE COMPLETION OF THE SURVEY cleared the way for a decision to excavate in certain specific sites. This decision was based on a number of factors, the most important of which was the need for stratigraphic definition of the prehistoric assemblages encountered in the survey. Initially, however, it was necessary to classify the prehistoric ceramics wherever possible. Certain sites, such as Q14 (Kechi Beg) and Q29 (Baleli), had produced sherd types which were unassignable to any assemblage yet known, and we believed that it was necessary to know more of them for the sake of completeness if nothing else. Q14, Kechi Beg, was therefore our first choice. The rock cairn site, Q10, was excavated simultaneously to ascertain its position in the known historical sequence. The second, Q13, was a very low-lying mound near Kechi Beg. Its surface sherds were all of the type classified as Quetta ware by Piggott. By excavating at this site we hoped to learn more about the particular assemblage to which that type of ware belonged.

The two sites chosen for stratigraphic excavation were Q8 (popularly known as Mian Ghundai) and Q24 (Kili Ghul Mohammad). The latter site was especially selected because its surface sherd collections contained both Zhob and Quetta types.[1]

Before the various excavations undertaken are described in detail, it is necessary to describe our excavation techniques. In general, these were based on a methodology now commonly used in New World archaeology, for example on the techniques used in the exploration of the Viru Valley in Peru as defined by Ford and Willey.[2] These techniques may be described as anthropologically oriented.

In essence this anthropological orientation indicates awareness of culture as a dynamic phenomenon composed of traits continually changing through time and space. It is the evolving character of a cultural trait that must be considered by the archaeologist as he sets up his criteria for measuring culture history. When culture history is defined solely in terms of periods, only an outline of the story of the evolution is provided. We wish to know what occurred within each period, i.e., trends and drifts of cultural forms. In period definition the archaeologist forces the diagnostic traits he has chosen to fit the framework he has formulated. In effect, he extends or compresses his data so that they no longer are sensitive to the culture changes they originally represented. As is shown here, this is probably one reason for the "hiatus" in the cultural history of India after the end of the Harappan civilization.

For obvious reasons pottery was chosen as a diagnostic for the determination of the time sequence. It is in the recovery and in the description of this pottery that our applied excavation techniques are given purpose.

If pottery is to be used as the diagnostic criterion in the tracing of cultural history, then its classification must be valid. The classification should permit the depiction of change of ceramic trait through time, with the least interference possible from the classifier. It is clear that, for this to be achieved, there must be, initially, a statistical validity which can only come about by an adequate sampling of the ceramic contents of each phase of the occupations of a site. This should not be interpreted to mean all the pottery from an excavation, for this would limit archaeological work to mere sherd counting. It does mean, however, that a portion of that excavation[3] should be devoted to the collection of pottery on as refined a scale as possible. The remainder of the excavation should be so arranged as to permit a qualitative check on the results obtained in the chosen area, both in the field and in the laboratory.

The refined scale necessary for the analysis of pottery in a critical area, or areas, dictates a specific method of excavating. If sherds are removed solely according to their natural stratigraphic association, i.e., with walls, floors, ash layers, etc., the chronological possibilities of the occupation levels of the site are frequently ignored. A layer 12 inches thick may represent

[1] We had, at first, planned to excavate at Q1 in the Gwandin Valley where we had recovered a black-on-red ware with floral designs not unlike the Harappan decorative style. However, local natives saved us from that error by telling us of the railroad spur which the site marked, and parallelisms to modern pottery proved them to be correct.

[2] Ford and Willey, 1949.

[3] This should not be in too limited an area because of the danger of making too selective a sample.

100 years of occupation, whereas one a yard thick may represent only 25 years. If these layers are given equal value in the stratigraphic study, the temporal outlines of occupations are misunderstood and the culture history of the site is measured grossly according to the haphazard sequence of events that the natural stratigraphy represents.

The human factor must also be taken into consideration when one deals with the identification of walls or floor levels, colors of soil, etc. When the extent of stone or fired-brick structures is followed, the building pattern is usually very clear. The identification of mud-brick construction, especially in prehistoric context, is at best so difficult that even the most experienced excavators fall into error. The surrounding soil is frequently similar in shade and composition to the walls, a situation further complicated by fallen and rebuilt walls and mud-brick paved floors. Stamped floors are not always clearly definable after millennia of water soaking in addition to original erosion. Though half a dozen floors may be identified in a few meters, traces of others may be so faint that they are overlooked or unwittingly destroyed by the pick or, more important, they may have been completely obliterated. Such are the factors that continually militate against obtaining a complete stratigraphic sequence even by the most disciplined observer.

Bearing all these factors in mind, we decided to use a system of artificial levels that would serve to control the stratigraphic sequence of our ceramic sample and so offset the difficulties involved in other systems. We excavated in 25-cm. levels within each quadrant.[1] Each of these levels was assigned a catalogue number and a quadrant-designating letter. The number and the letter were then placed on every sherd found at that level. At the same time a close check was kept on the natural stratigraphy and the peculiar features noted as would be done in the customary archaeological excavations in these areas.[2] In this way the over-all situation of the assemblages within the site was not overlooked despite the reliance on an artificial stratigraphic frame. Architectural features, soil changes, location of objects, etc., were recorded as may be seen in the sections (Figs. 4, 7, 12, 14, 15).

As indicated above, the prime results obtained by the excavations are in terms of ceramics. This was precisely the aim of the field-work. We hoped that by concentrating on ceramics it would be possible to set up a standard for the Quetta Area with which ceramic material from neighboring areas might be compared. Surveys and excavations in Loralai-Zhob and southern Afghanistan, so far unpublished, have gained in importance because this standard has rendered the chronological relationships far more apparent.

Because of our determination to set up such a standard and also because of the limitations of time, labor, and funds, we did not attempt any large-scale excavations. We confined our excavations to test pits, though no excavation was initially less than 3.5 meters in diameter. However, where practicable, the cuts were enlarged sufficiently for the content of the site to be explored as much as possible. Such was the case at Damb Sadaat (Q8). Here an initial 7 by 7-meter cut was enlarged to 14 by 7 meters, while in another area of this site a third excavation, the most extensive attempted, consisted of test pits and exploratory trenches. In each case the excavations were continued until virgin soil was reached in at least some portion of the site.

The area to be excavated was carefully selected with the expectation that maximum results would be attained. Usually the excavation was started at the very top or the high slope of a site, though this was not always possible.

Q8: Three cuts were excavated in this mound (*ca.* 14 meters high). Cuts 1 and 2 were combined, so that a total area of 14 by 7 meters was excavated on its southeastern slope. Cut 3 consisted of a complex of trenches designed primarily for exploration of the architectural features at the top of the mound. At two places in Cuts 1 and 2 (northeast and southeast corners), strata cuts 2 by 2 meters were sunk to virgin soil (10.24 meters in the northeast cut and 9.50 meters in the southeast cut). A deep pit made in Cut 3 encountered the same assemblages revealed in the upper portion of

[1] Twenty-five centimeters was the maximum dimension that would serve our purposes.

[2] I use the phrase "natural stratigraphy" to mean the stratigraphic levels one would observe if sectioning were made in cultural deposits. This includes soil differences and architectural features.

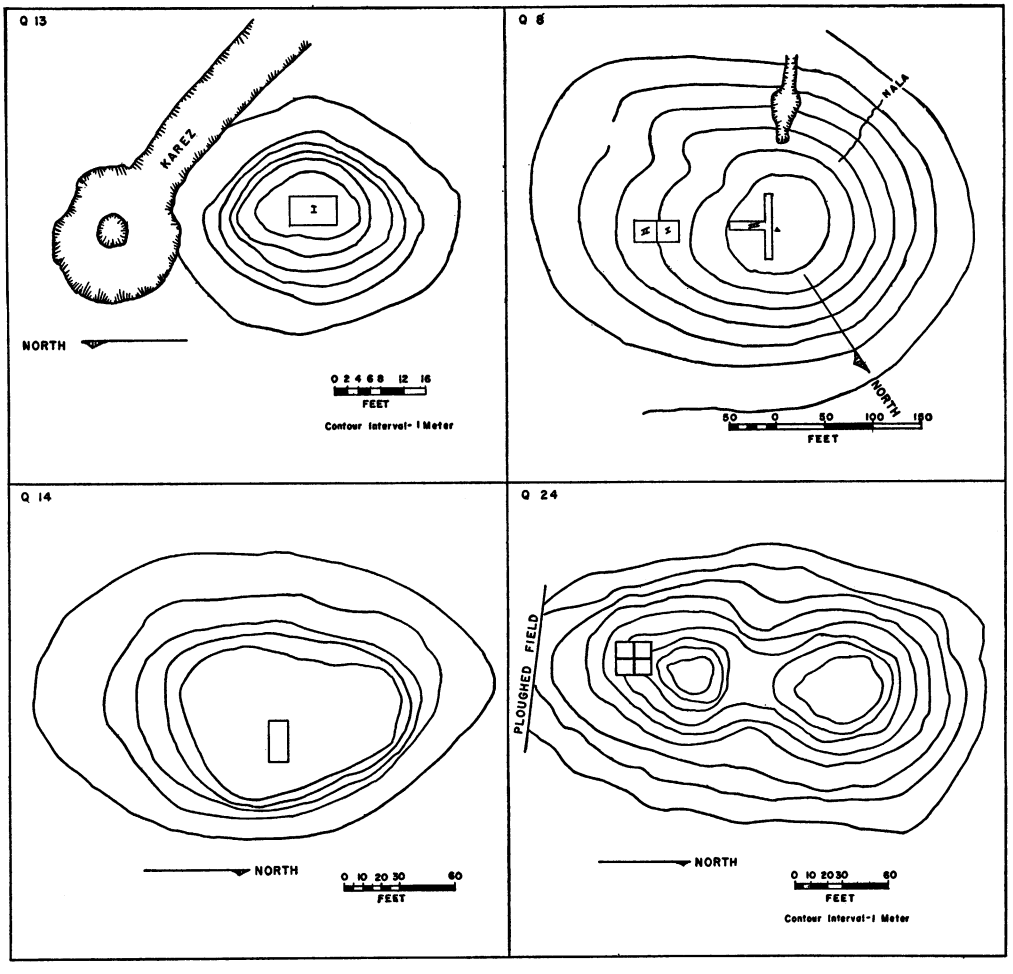

FIG. 2. Sketch plans of excavated sites: Q13, Q8, Q14, Q24.

the lower cuts, 1 and 2 (Fig. 2).

Q13: A cut, 5 by 3 meters, was made into the upper portion of the mound. Virgin soil was reached at 1.95 meters (Fig. 2).

Q14: A cut 8 by 3 meters (later reduced to 6.5 by 3 meters, because a Moslem grave was encountered at the west end) was carried from the highest point of the mound to virgin soil at 2.52 meters (Fig. 2).

Q24: The area available for excavation was limited, because the mound has served as the cemetery for the surrounding villages for a considerable period, and three-quarters of its surface was studded with heaps of stones that marked Moslem graves. An excavation was begun as high on the southern slope as possible. However, because our cut (7 by 7 meters) uncovered a number of old Moslem burials, it was abandoned after a depth of 2 meters was attained. A few weeks later excavation was resumed in the only quadrant that contained no burials (northwest). Eventually virgin soil was reached at a depth of 11.14 meters (nearly 4 meters below the modern surface of the surrounding plain). The cut was reduced, for obvious reasons, from an original 3.5 by 3.5 meters square to a square 1.75 by 1.75 meters, greatly limiting the size of the analysis sample. This qualification must be emphasized in view of the important implications of the material uncovered (Fig. 2).

Q10: Though not a prehistoric site, the peculiar character of the cairn, recalling a Central Asiatic type, warranted its explora-

tion. A trench was cut from east to west along its longitudinal axis. The trench was 1.40 meters wide; virgin soil was reached at 87 cm. No artifacts were uncovered in this excavation except for some heavily calcified sherds (all of them plain except for several sherds of "ring ware"), and the iron and bronze projectile points (Pl. 32) found in the gravels near the surface.

ARCHITECTURE

SITE Q8, CUTS 1 AND 2

THE ARCHITECTURAL REMAINS uncovered in Cuts 1 and 2 at Damb Sadaat may be divided into three groups. (See Fig. 5 for relative stratigraphic relationships.) The first, Group A, consisted of heavily eroded monumental walls that can be associated with the Damb Sadaat III[1] phase of the site; the second, Group B, was a series of small houses, obviously dwelling places, principally associated with the Damb Sadaat II phase, though there is some overlap with the Damb Sadaat III and Damb Sadaat I phases; the third, Group C, was fragmentary, consisting of walls and floors associated with the Damb Sadaat I ware. The last group is known at this site only from remains encountered in our probing to virgin soil during the latter part of the field season.

GROUP A

Wall A is a broad structure (2.80 meters wide) which strikes approximately northwest to southeast. Its southern end was badly eroded so that it was impossible to determine its original length. However, it extended approximately 3.6 meters into the cut. The upper surface of the structure was also heavily eroded, but the wall was clearly defined from *ca.* 60 cm. below the surface of the cut. It terminated 75 cm. below its approximate beginning. An inspection of Fig. 3 reveals that Wall A apparently had three distinct phases. However, as may be seen in the cross-section (Fig. 4), we found the wall to be a consolidated mass. The wall extended from an early phase (A_3), which tapered to the west along both faces, to the sprawling brick mass of the latest phase (A_1). It is interesting to note that the taper towards the west was maintained along the southwestern face in all three phases.

The wall was constructed of mud bricks which measured approximately 16½ by 8 by 4 inches (see Table 1). It was stepped along its southwestern face, probably the result of erosion. The mortar joints varied, ranging in width from 2 to 10 or 20 cm.

We suggest that Wall A, because of its size, its position on the site, and its association with the Damb Sadaat III wares, was perhaps a part of the building complex uncovered by Alcock in Cut 3. It appears likely that this wall was one of the spurs that Alcock (pp. 214, 217) found extending from the Sadaat buildings. The evidence now available provides no hint of its function in terms of the settlement pattern. However, one may conjecture that it was a portion of a compound wall and that it enclosed a ritual building at the top of the mound.

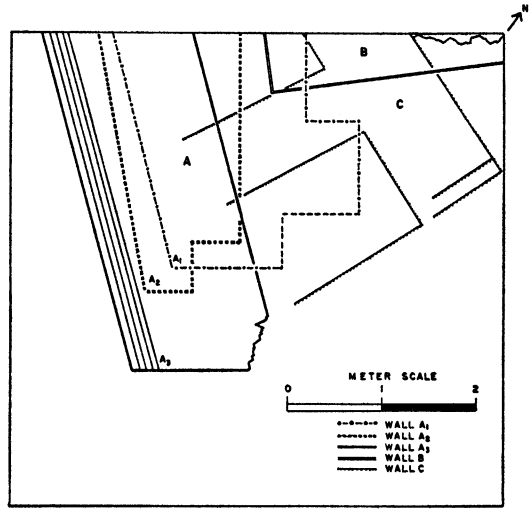

FIG. 3. Structures, Site Q8, Cut 1, Group A.

Wall B was ill defined, and its function was undeterminable. It was not, however, a part of the Wall A complex.

Wall C was in Damb Sadaat III ware association. Its features were difficult to trace, and it may have marked the upper traces of walls belonging to Room 2 of Damb Sadaat II association. Within the wall lines, Quetta ware was intermingled with ware of Damb Sadaat III. Wall C was probably an example of the continuity of the Sadaat-Quetta domestic settlement pattern. The building complex, which was represented in this cut by Wall A, possibly marked the displacement of this settlement pattern.

In the southern corner of Cut 2 (Fig. 5) immediately below the surface of the mound a boulder wall foundation was encountered in association with both Damb Sadaat III and Damb Sadaat II. It followed in general the

[1] The cultural sequences are analyzed on pp. 330–333.

TABLE 1

BRICK MEASUREMENTS (IN INCHES[a])

	Length	Width	Height
Group A			
Wall A	16½	8	4
Group B			
Platforms (floor)	24	12	4¾
Room 1 (wall)	18½	8	*ca.* 3
Room 2 (wall)	20¾	11	6
Room 3 (wall)	14½	4¾	*ca.* 3
Room A (floor)	22	9	4

[a] Read in inches for more ready comparison with data in British reports.

building pattern of a mud-brick wall directly beneath it. This mud-brick wall was in direct association with Quetta ware. It seems likely that the boulders were the foundations for a wall of the Damb Sadaat III phase, because the bulk of the associated wares were of the Sadaat type.

There were indications of walls and floors within the Damb Sadaat III phase of Cuts 1 and 2, but the decay, erosion, and wear of the mud brick were so extensive this close to the surface of the mound that structures proved untraceable. However, it was interesting to note that the upper levels of walls associated with rooms of the Damb Sadaat II phase often projected into the Damb Sadaat III horizons (Fig. 5), implying a continuity of occupation of the two phases. This of course recalls the situation of Wall C.

GROUP B

This group (Fig. 6) consisted of a series of small rooms or compartments connected by a narrow alley which zigzagged between them. The walls of the alley were generally parallel, varying in thickness from 50 to 60 cm. Its floor consisted of stamped rubble composed of broken brick, hard clay, charcoal, and sherds. Occasionally brick, or patches of gravel, appear to have been used in some sections to provide a firm floor for the alley. However, these patches were somewhat less than a meter square. There was no evidence that any attempt had been made to pave the entire passage.

The wall construction of the alley was identical with that of the building walls. Three basic methods seem to have been used interchangeably.

1. Walls were set on stone foundations of which there are two types. The first consisted of boulders, rarely more than a single tier, which may have been as high as 30 cm. Usually single large boulders formed the core, with smaller stones filling in the crevices. This boulder foundation appeared under the northwest wall of Room 1 at approximately 3.35 meters deep. A second, more common tech-

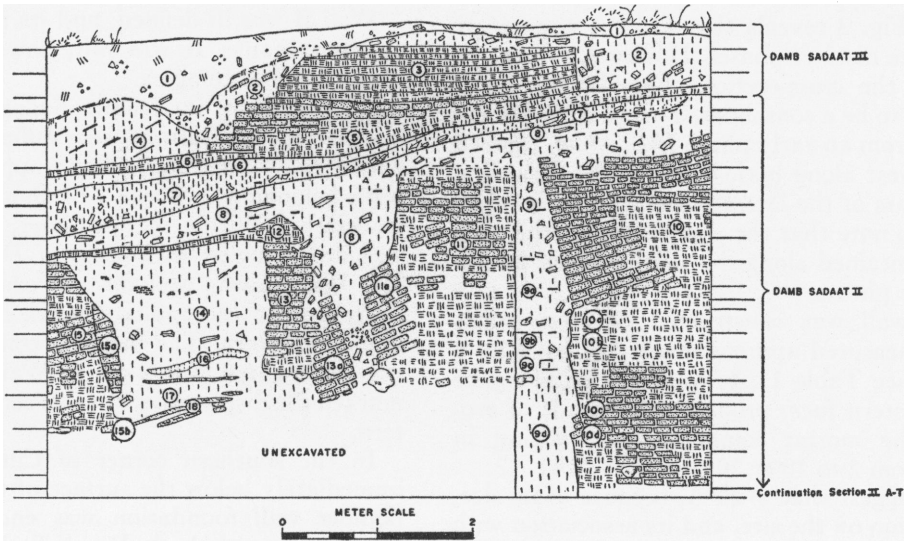

FIG. 4. Site Q8, Cut 1, Section I, northern face.

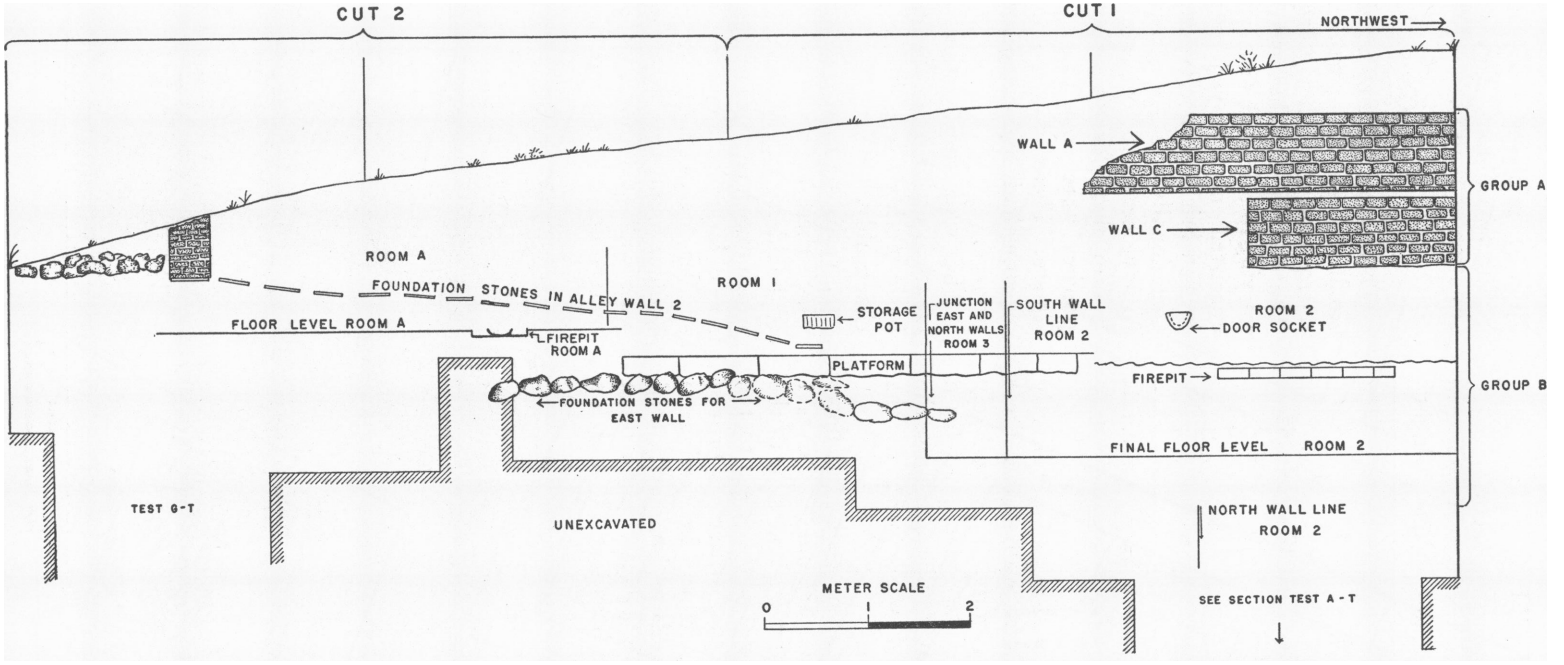

FIG. 5. Idealized northwest-southwest cross-section of Cuts 1 and 2, Site Q8, showing relative stratigraphic order of principal architectural features.

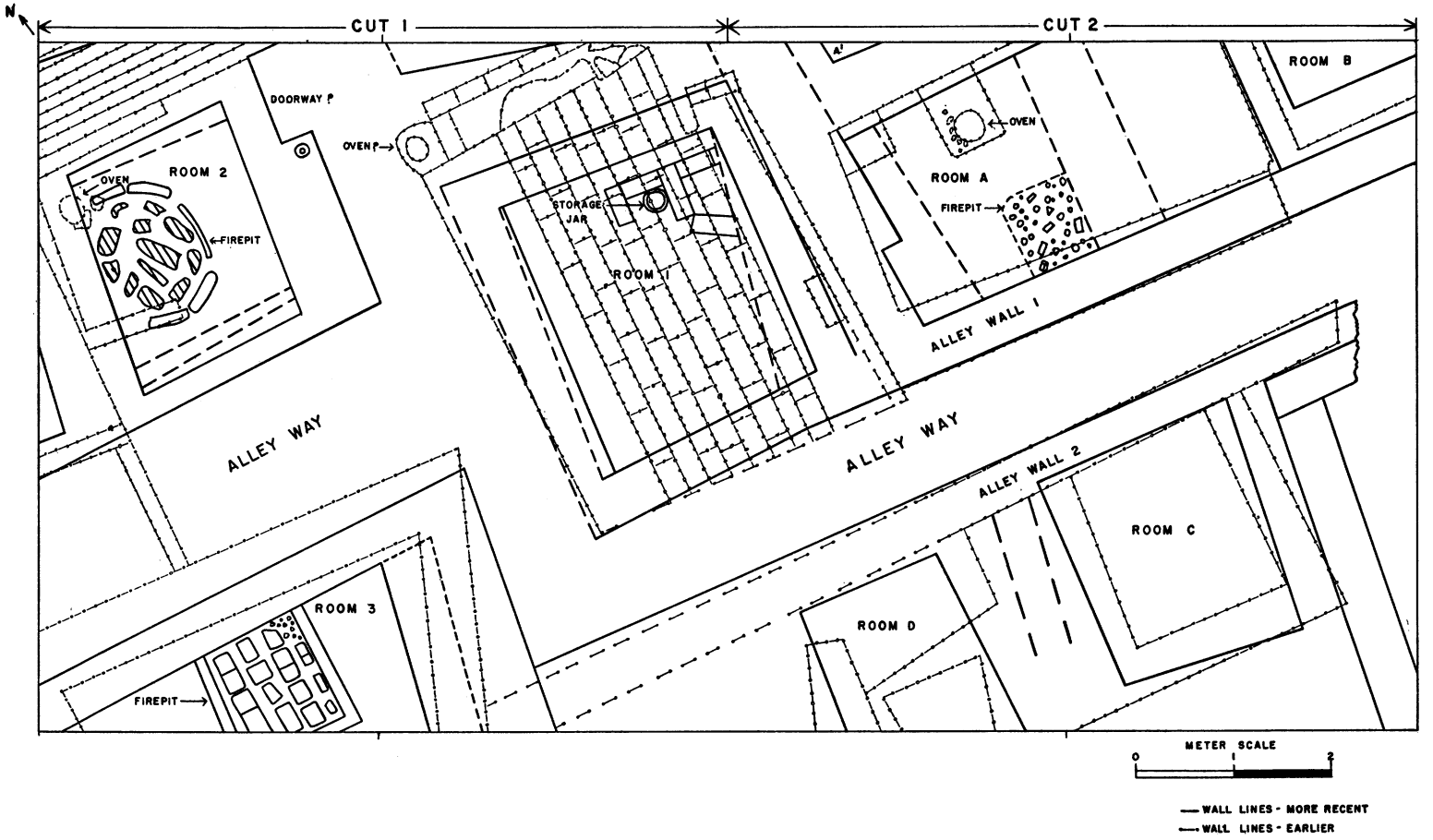

FIG. 6. Structures, Site Q8, Cuts 1 and 2, Group B.

nique in this group was the use of flat, roughly rectangular slabs of stone. These vary from 0.5 meter long to small fragments no broader than a man's hand. They were laid lengthwise with some attempt at fit. This apparently was done to maintain the width of the walls, which was usually between 40 and 50 cm. The best example of the use of such slabs was encountered in the southern wall of the alley (Fig. 5; Pl. 13a, upper right corner).

2. Occasionally walls were set on a thin gravel foundation, a method used in both the alley and some of the rooms.

3. Mud-brick walls were frequently superimposed on the older brick walls (Fig. 6). Occasionally a line of charcoal or dirt indicated that this superimposition was rather carelessly done.

The mud bricks in these walls range from 24 by 12 by $4\frac{3}{4}$ inches to $14\frac{1}{2}$ by $4\frac{3}{4}$ by 3 inches, with the mean at 20 by 9 by 4 inches. Three to four rows of mud brick usually sufficed to make the width of a wall. Mortar joints varied considerably, owing perhaps to stresses caused by attempts to fit new walls onto the old foundations. Mortar lines, 1 cm. or less wide, occurred frequently, though the usual line was somewhat wider. Occasional gaps of 10 to 15 cm. were filled with mortar by the ancient masons. The mortar, of fine texture, was of white-gray lime clay. This type of mortar was common everywhere in the site.

The excavated rooms of Group B were rather small, rarely exceeding 3 meters on the longest side. The interiors are usually rectangular, with a fire pit on the long side or in a corner.

Floors were of the stamped-clay type, though the corners of the rooms frequently contained traces of brick flooring. Whether this brick flooring originally covered the entire room or merely provided a support for some domestic activity in a particular part of the room is not determinable on the present evidence. In view of the presence of the so-called "platform" (see p. 210), it is very possible that brick floors were not uncommon. On the other hand, the fire pits were frequently constructed of bricks in conjunction with stamped earth floors. The floor bricks tend to be larger than wall bricks.

It was generally impossible to determine the location of doorways because both ancient reconstruction and centuries of mud-clay consolidation militated against a definite identification. However, we uncovered a break in the east wall of Room 2 which was apparently a doorway (Fig. 6). Our assumption was reënforced by the discovery of a stone vessel set in the wall just to the south of the opening. This vessel had a deep hole cut into its center and bore evidence of interior smoothing. It may, therefore, have been a door socket. There were also indications of breaks in the original construction of both walls of the alley which may have been the points of entrance to it.

Fire pits were a feature of several of the rooms. These were of two types: the first, and most common, was an area of mud brick surrounded by a single row of bricks at the floor level, but higher than the base bricks of the pit which were perhaps 15 to 25 cm. below the floor. These bricks, owing of course to their proximity to the fire, were usually fired or partly so. Pits of this type were either rectangular (Fig. 6, Room 3) or round (Fig. 6, Room 2). The second, simpler, type consisted of a gravel floor sunk into the room floor to a depth of perhaps 10 to 15 cm. Both types of pits were usually placed against a room wall; none was found in the center of the room, where they are now commonly placed in Baluchistan houses.

Another common feature of Group B houses was the presence of "bread" ovens. These usually consisted of a coarse vessel (Slate Temper ware) with or without a bottom. They were set permanently in the ground. Judging from the location of charcoal, apparently two methods of heating them were used: in one, a fire was built around the vessel; in the second, a fire was built inside it. Hot embers rather than open flame were probably used. Brick often surrounds these ovens. The resemblance to the method of making *nan*, or unleavened bread, in the Middle East today is very striking.

The use of permanent storage jars was indicated by the sherd groups; only one complete vessel was found (Fig. 5).

Below Room 1, a large mud-brick "platform," which later proved to consist of two tiers of brick, was encountered. At its northern end only a single row of brick was found. This extended north of the platform the length of one brick and then turned at right angles and ran into the northeast wall of Cut 1. It is very likely that this brick row made another right-angled turn to join the platform at its eastern

corner. Within this narrow opening between the main platform and this row of bricks, anchored in hard clay, was a single coarse clay vessel similar in every way to the bread ovens found in the rooms. The platform as a whole inclined slightly to the west. However, the hard clay floor of the narrow opening inclined to the northwest, i.e., towards the open vessel (Pl. 13a).

The function of this platform is a matter of conjecture. Its general orientation follows that of Room 1, directly above. Below the platform another series of walls was encountered which was also in general line with Room 1 above.

The presence of the vessel-oven should also be considered. The evidence seems to indicate that the "platform" was actually the floor of a house which existed before Room 1 was constructed. The narrow opening may merely have been an area where the floor has collapsed. Contrary to this theory, however, is the fact that the only walls directly associated with the platform were on the eastern side, where the wall of Room A apparently had a door opening onto the platform (Fig. 6). Thus this wall may have been shared by Room A and the platform. It is also possible that this was an open platform serving as a kind of extension to Room A on which cooking was done as suggested by the vessel. The incline of the narrow opening and the presence of a number of pebbles in it initially led us to speculate that the northern end of the platform was a drain for which the fixed vessel (which was bottomless) acted as a sump. However, its blackened surfaces and the presence of small amounts of charcoal in the interior indicate that it probably did not have such a function.

Group C

This group consists of a series of fragmentary walls encountered in the Cut 1, Test A pit. Our cut was not extensive enough to permit us to outline the structures with which the walls were associated. Most significant was the north wall of Room 2, which continued in the same orientation to a depth of 6.68 meters. Later, five floor levels were encountered, beginning at the 6.68-meter level and continuing to a depth of 7.61 meters. A stone wall in direct association with Damb Sadaat I ware was found in the same orientation as the north wall. The wall was constructed of large boulders (Pl. 13b), one being nearly a meter long. Crevices were filled with small stones. This wall was in direct association with a hard-clay mass extending approximately northwest to southeast. Both the stone wall and its associated mud-brick wall rested on a hard clay floor, the first of a series of five (Fig. 7). Presumably this first floor was associated with the stone-wall phase, while the floors below it belonged to other walls not uncovered by us. In terms of the continuity of construction, the stone wall, because of its orientation, can be regarded as the lowest of the series of walls that constituted the north wall complex. The uniformity of orientation in wall building was striking. The excavations revealed 11 different floor levels that were associated with this series of superimposed walls. The fact that the stone wall was associated with Damb Sadaat I ware, and at the upper portion of the complex the possibility that Wall C, which is of the Damb Sadaat III phase, may also belong to this north wall complex, indicates a rather remarkable continuity of homogeneous building.

Beneath the series of five floors only fragments of mud-brick walls were encountered. One brick measured $16\frac{1}{2}$ by $6\frac{1}{4}$ by 4 inches. No other complete bricks were definable.

Cut 2, Test G, revealed only portions of walls which, because of the restricted size of the cut, we were not able to follow.

Strata Slope

On the southwestern slope of the site, water had carved a channel of considerable size (Fig. 2). Cuts 1 and 2 were excavated rather close to this channel. When the excavation was begun, its proximity to the channel was regarded as of no importance. Later, however, it became clear that the strata and many of the structures had a pronounced incline in the direction of the western corner of the cut. This incline occurred above the lower Damb Sadaat II and in general below the Damb Sadaat III phases. Some walls had an incline of from 7 to 13 degrees from the perpendicular. This deviation was accompanied by evidence that offsets were constructed to restore verticality (Fig. 4). Some walls also sheared off in places (Fig. 4), producing a kind of fault. The flat foundation stones of the west wall of the alley (Fig. 5), for example, were *ca.* 80 cm. lower in Cut 1 than their beginning in Cut 2. Mortar lines on the platform suggest-

ed that buckling may have occurred at about the middle, along its median longitudinal axis.

All these data seem to indicate a weakness in the mound structure in the areas to the west and southwest of Cuts 1 and 2. The channeled ravine found in that quarter may have been originally the result of faulting within the site. Subsequent rainfall would assumedly carve a wider channel, forming a waterway. The faulting may also have caused the slump of the strata in Cuts 1 and 2.

This assumed faulting in the site may have been caused by an earthquake or earthquakes. Its position near the mountain wall (Chiltan), which is an area of maximum shock (see p. 186), emphasizes the possibility that the site may have been subjected to earthquake action. When this postulated seismic action occurred is, of course, a matter of conjecture. From an examination of the section (Figs. 4 and 7), it is clear that the earlier levels of the Damb Sadaat II phase and those of the Damb Sadaat I show no evidence of disturbance. However, there are pronounced divergencies from the vertical throughout the Damb Sadaat II phase above the 4.40-meter mark. The hard clay (Fig. 4, Phase 5) found at the base of Wall A also slumps to the west. This slumping seems to have occurred after the construction of Wall A. It may well be that the other phases of Wall A were constructed to maintain its level plane. However, Walls A_2 and A_1 both bear some evidence of slumping. Therefore it seems reasonable to conclude that earthquake action occurred during the late Damb Sadaat II and Damb Sadaat III phases.

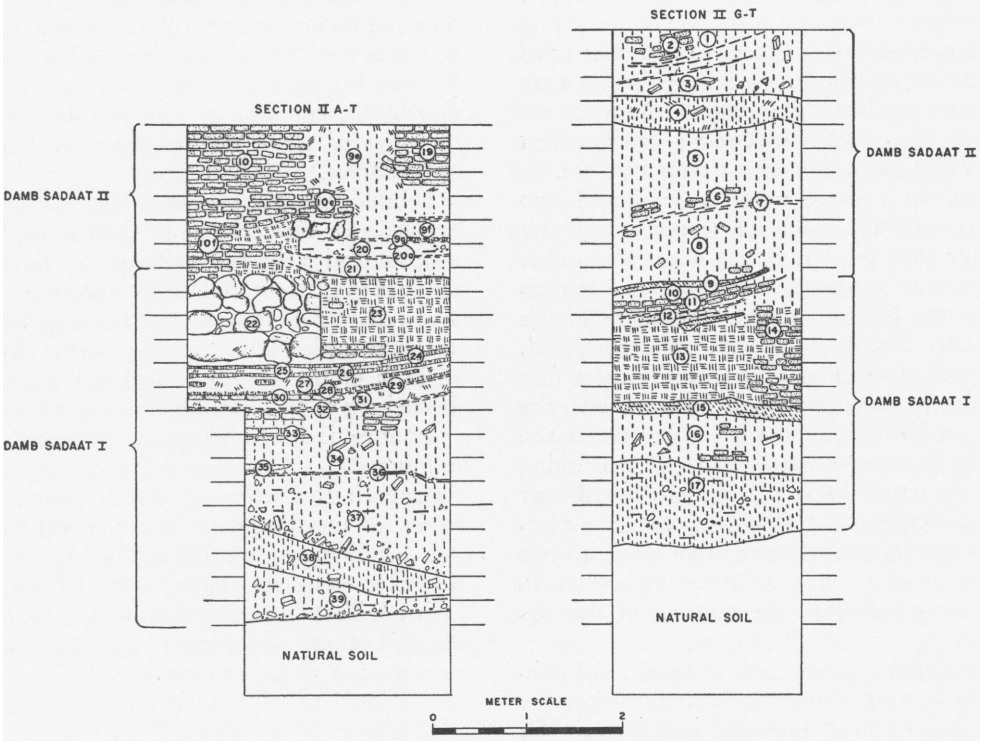

FIG. 7. Site Q8, Cut 1, Section II, A–T; Cut 2, Section II, G–T, eastern faces.

SITE Q8, CUT 3[1]

The initial cut at Damb Sadaat was excavated part way down the southeast spur of the mound to insure that virgin soil was reached. It was hoped, too, that the upper levels of the cut would provide sufficient evidence of the late occupation of the site, but an ex mination of the pottery and of the slope of the strata in the cut did not fulfill this expectation. It was therefore decided to open a small cut just below

[1] The text covered by this heading (pp. 212–217) is by Leslie and Elizabeth Alcock, who also made the excavations.

the summit of the mound and to extend it until undoubted Quetta ware was reached. The excavation of this cut, though under the general direction of Fairservis, was entirely supervised by the staff of the Pakistan Archaeological Survey, and the present writers take full responsibility for the methods used and the results obtained.

Digging was begun in a 7-meter square (Figs. 2, 11); decayed mud brick was found just below the surface over the entire square. When a second square produced the same result, and a wall face was discovered backed by brickwork at least 19 feet thick, it became clear that we had stumbled on a structure of monumental proportions, perhaps a fort or watch tower. The challenge thus presented was accepted, and an attempt was made by selective trenching to uncover the groundplan of this building. The immediate discovery of an apparent right-angled wall face encouraged us to believe that we had uncovered a roughly square building. When we had excavated to a greater depth, however, it became apparent that two "sides" of this structure had, in fact, widely different building levels, but the approach of cold weather, the migration of our labor force, and the termination of the available funds prevented a further search for the explanation of this discrepancy.

Nevertheless, results of primary historical importance were achieved. Fourteen feet below the surface we found a Late Quetta ware with loose, rather florid designs. At 12 feet this ware disappeared abruptly and was replaced by new forms of plain redware vessels and by a new repertory of curvilinear black-on-buff designs, a few examples of which had already appeared along with the Late Quetta sherds. A domestic oven of the Quetta people was now overlain by a public building of massive size, in the foundations of which a human skull had been deposited. The whole scene is one of violent disruption. As copper is found more frequently in the upper levels than in the Quetta levels at Q8, it is possible that the possession of superior copper weapons gave the victors their supremacy.

Beyond this, not enough is known of the cultural content of either the Quetta (Damb Sadaat II) or the succeeding Sadaat levels (Damb Sadaat III) to make comparisons valid. We have uncovered no public architecture of the first period, no domestic buildings from the second. On the whole, the standards of masonry seem to have degenerated, for misshapen and even re-used sun-dried bricks, irregularly laid and often with thick mortar joints, are characteristic of the later period. On the other hand, saddle querns and bread-making ovens (*tandur*) are common to both periods (the latter, indeed, surviving to the present day). More important still, the female figurines, of a type developed in the Quetta Period (Damb Sadaat II) probably from the so-called Zhob figurines, represent a remarkable continuity of religious ideas and imagery in both time and space.

Of the monumental building, too little was uncovered, and that too eroded, to permit any attempt at reconstruction of its form. It is nevertheless permissible to speculate on its purpose. Its most obvious characteristic is its massiveness, in comparison with the small houses of the site. One wall still stands over 12 feet high and extends in one direction for over 50 feet. This and its central and dominating position on the mound at once suggest a fortification, a keep, or watch tower such as Stein found so frequently in Central Asia. But the temples of Sumer and Babylon were frequently as solidly built, and the special, as opposed to the general, features of this building suggest ritual rather than war. Its main wall rested on a ritual cairn containing a fragmentary human skull. Behind the walls was a large platform, in which were set two drains, or water tanks, solidly built of stone faced with hardened mud; both were clearly larger than would be required to drain storm water from a possible enclosed courtyard. Recalling that ceremonial bathing is a perennial feature of Indian religions and that the foremost sacred building of the Indus civilization is the Great Bath at Mohenjo-Daro, one is tempted to attach a religious significance to these larger-than-utility-sized drains at Damb Sadaat. This assumption is probably substantiated by the discovery of eight goddess figurines in the immediate environs of the building; the purely domestic structures of Cuts 1 and 2 produced only two.

The Structures

It must be emphasized at the outset that many problems concerning the structures in Cut 3 remain unsolved and probably will always so remain. Poorly made and irregularly set bricks have been attacked by thousands of

years of frost, sun, and rain. Rats and lizards have burrowed through them; men have sunk graves or dug for supposed treasure and always at crucial points from the point of view of the archaeologist (Figs. 8, 9, 11). All these destructive forces have demolished the superstructure of the main building and, with it, the possibility of reconstructing its form. We must attempt none the less to relate the various structures to one another and to show how they form a key to the chronological study of the pottery.

The structures excavated in Cut 3 (Figs. 8, 9) fall broadly into five phases:

1. Late Quetta is represented by various fragmentary walls and ovens. These are immediately overlain by:

2. Sadaat A: The period of the building of the main wall and its associated drains. In this phase, Sadaat ware, which occurred very rarely in the Late Quetta Period, suddenly and completely replaced Quetta ware.

3. Sadaat B: During this phase, when some 3 feet of occupation fill accumulated and the main wall was twice patched, a subsidiary battered wall was added to the east and south faces of the main structure, with another stepped wall extending at right angles to the east, i.e., down a spur of the mound.

4. Sadaat C: The main building and its features were obliterated by a solid overlay of compact mud and fragments of bricks, apparently the podium of some building of which nothing further is known.

5. Sadaat D: This phase is inferred from the pottery overlying the "podium," but no structural features remain.

These phases may now be considered in detail.

LATE QUETTA

All the remains of the Quetta Period uncovered in Cut 3 belong in this phase. They were exposed in the lowest portion of the trenches; they were not pursued in detail, because the prime objective of the cut was only to reach the Quetta Period, not to examine it.

The earliest feature in Section I is Wall Z (Fig. 8), of rough hewn stones each about a cubic foot. Only a corner of the wall projected into the trench, and its building level was not reached. Over it lay an oven, built in part of regularly coursed bricks, in part of mud and fragments of bricks. This too was not explored down to its building level. Later, the minor Wall Y, part perhaps of a manger or similar enclosure now common in local farmyards, was built against it. In contrast to succeeding architectural features, these were all of a purely domestic character.

Certain walls in Section II also belong to the same period (Fig. 9): Wall R, overlain by the compact mud on which the main wall was built; Walls U, V, W, the building levels of which underlay the Drain II wall of Phase A; and the even earlier Wall X and an apparent oven of brick-revetted mud. It is worth remarking that the alternate header and stretcher courses of Wall V mark the highest architectural achievement of Cut 3.

SADAAT A

The massive main wall on top of the domestic ruins of the Late Quetta Period was constructed during Sadaat Phase A. In Section I, this wall springs from the top of the oven in a vertical face which is still over 12 feet high. On its southern and eastern faces the line of the wall has been determined with some certainty, but there is considerable doubt about the western face; nothing at all is known of the face on the north.

In Section I the platform runs back quite solidly for over 30 feet, until a point where it has been cut by a modern pit which has destroyed most of the evidence on the west. Inset in this wall platform is Drain I, some 3 feet deep, built of rough-dressed limestone blocks faced with hard clay. The bricks of the platform partly overlie the stones of the drain; the latter are set in a thick mortar bed which extends into the platform; drain and platform are, then, a single structure. The pronounced straight joint in the platform is probably a structural feature of no chronological significance. It seems apparent that one gang of laborers must have worked inward from the face, while another built up the brick and stonework around the drain; where the two groups met, as can be seen in the section (Fig. 10), mud and brickbats were tipped into the gap to level off the platform.

Drain I has, it is clear, both a greater capacity and stronger walls than would be required to drain even the heaviest storm water from the largest courtyard which the main wall might have enclosed. As already remarked, its

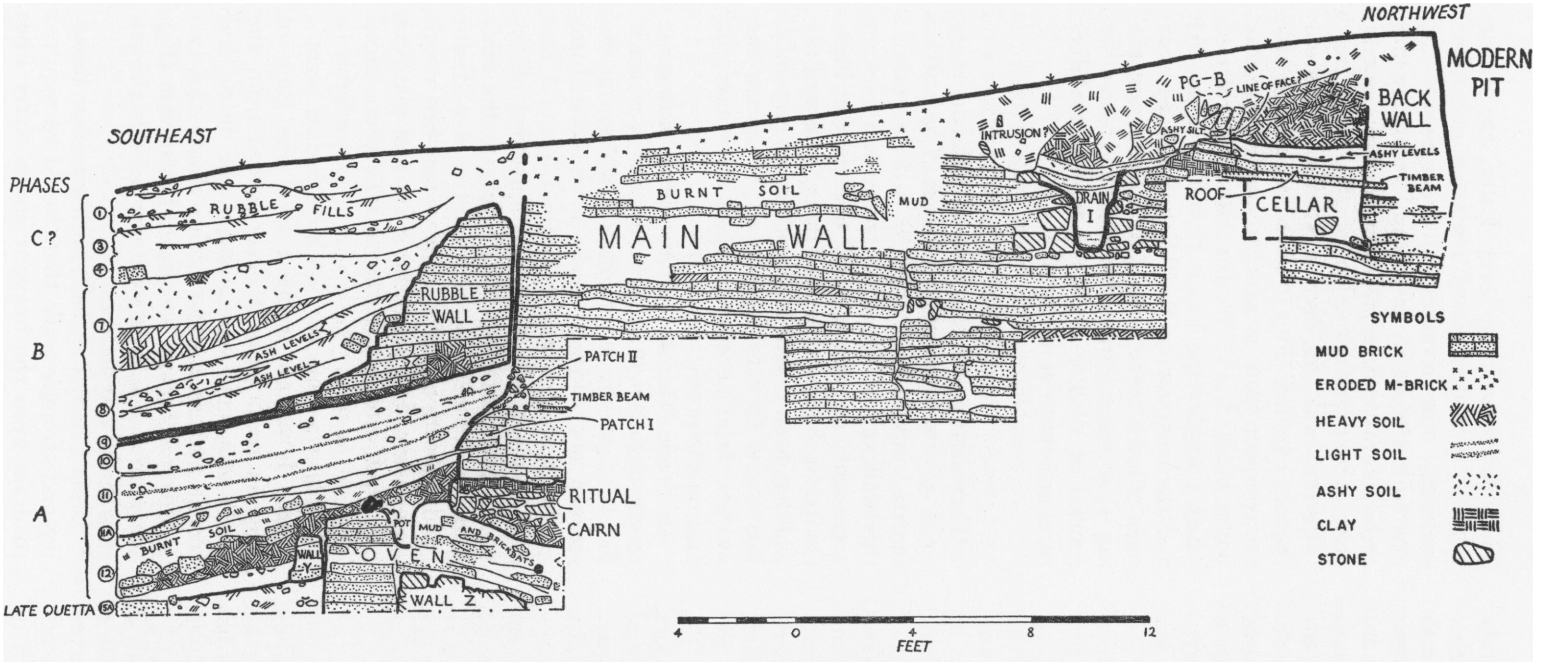

FIG. 8. Site Q8, Cut 3, Section I.

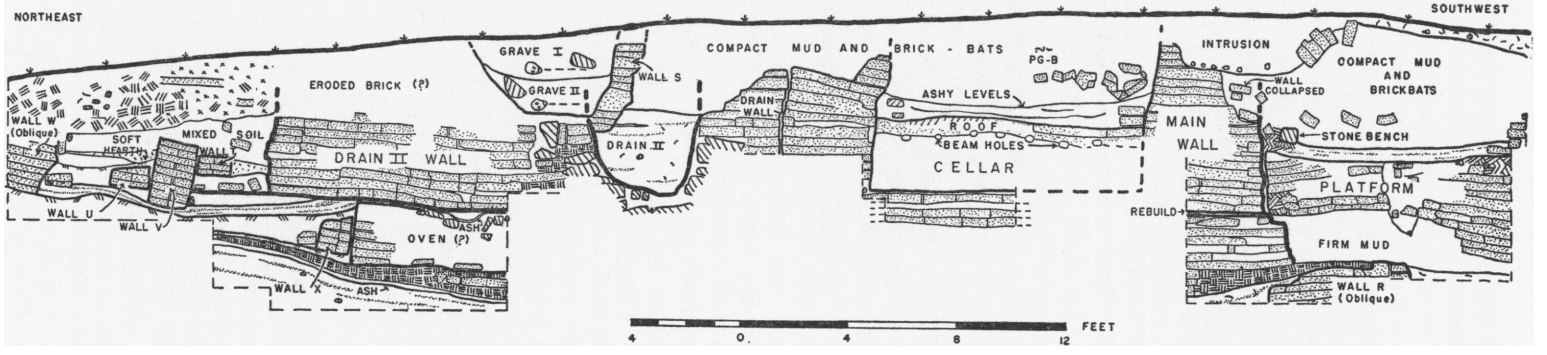

FIG. 9, Site Q8, Cut 3, Section II.

monumental character suggests ritual rather than utility. Its slope, of about two-thirds of an inch per foot, was to the south, where the drain ran out beyond the face of the main wall. Here an additional course of stones was added and the whole backed with a brick structure built out at right angles to the main wall (Section III; Fig. 10). To the north, where the drain terminates, it was roofed over flimsily with branches and mud. Here a second possible drain abuts against Drain I. This is struc-

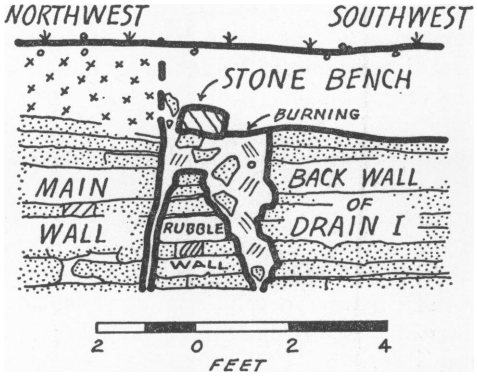

FIG. 10. Site Q8, Cut 3, Section III.

turally later, because its southern wall lines up, but does not bond, with the end stones of Drain I; moreover, the bricks that backed it on the south overlap and, therefore, post-date those of a room which is part of the main wall-Drain I complex (Section II; Fig. 9). The building level of the Drain II[1] wall is considerably higher than that of the main wall, but as both immediately overlie ruins that are shown by the associated pottery to be of Late Quetta date, they should be chronologically (as opposed to structurally) contemporary. This difference in levels (perhaps the result of the main wall's being built on a steep slope) makes it very difficult to envisage what happened in the area behind the face of the main wall and outside the Drain II wall. Nor are the nature and function of this drain much clearer, for in the time available it was only partly explored by a narrow tunnel. Its sides were of limestone blocks; the number of courses decreases, while the area enclosed by them expands, to the west; the bottom was apparently of mud, sloping upward in the same direction. Perhaps we have here a gently shelving tank of a sacred or ornamental nature. It should be noted that water could not flow in any direction between the two drains.

The south face of the main wall extended to the west of Drain I, where the chief evidence for its existence was the line of polished stones which were later laid against it. The wall appears in Section II (Fig. 9), with an offset 2 feet above its foot which may denote reconstruction, but there is no additional evidence for this. Against the wall here, and probably contemporary with it as no occupation debris separated their building levels, was a platform of brick and compact mud which probably ran through on the east to Drain I. To the west, a wall face had apparently been tentatively planned for the main wall, but it is in fact more likely that this is the line of a long rubbish trench cut down into the ruins of the wall, rather than its true face.

The main wall, then, was apparently a high and solid platform, but little remains of its superstructure. The layer of burnt soil in its midst (Section I; Fig. 8) may possibly mark a temporary floor level, later bricked over, but no significant occupation material was found here, so it may possibly be the by-product of shoddy workmanship. A wall to the west of Drain I was too fragmentary to enable us to suggest its function. On the other hand, three walls of a room were found to the west of this drain, and traces of a fourth wall were detected amid its wreckage. The floor of this room was of mud brick and mud laid over a timber framework which consisted of branches some 3 to 4 inches in diameter laid one way, with brushwood across them. Under the floor was a sort of cellar or a cool storage area about 2 feet deep.

At one point the main wall was not laid immediately on the Late Quetta ruins. By a

[1] It is possible that the line that we have shown as the building level of the Drain II wall (Section II; Fig. 9) is in fact another of the laminated occupation fills which were cut into when this wall was built. It is clear, for instance, that the building level of Wall V ran up over the oven, but was shaved off when Drain II was built, presumably so that the bottom of the drain might be low enough. But it is possible that the contemporary ground level is represented by the top of the soft mixed soil over Wall V and that the Drain II wall was built in a trench cut into this soft soil. This would explain, more plausibly than any erosion could, the very ragged face of the wall. It would also account for finding Quetta ware above Wall V. But it implies that the original slope on which the main wall was built was exceedingly steep.

happy chance, where our section cut it, we found a rough stone cairn underlying it. In its center, in a little stone-built cavity, the greater part of a human skull lay, face upward. Both jaws were missing, and it seems that the head had been cut from the body and deposited here to consecrate the wall. One is tempted to see in it a symbol of the conquest of the site and its Quetta inhabitants by the Sadaat people.

Certain minor features of the main wall remain to be mentioned. Against its foot was laid a glacis of brick fragments and mud, material from the destroyed Quetta houses which it replaced. It is only above this glacis that the Sadaat supremacy makes itself evident stratigraphically. This may be seen from the pottery tables. Level 11, which contained little but Sadaat ware, is the first occupation level above the glacis, that is to say, the first fill deposited by those who lived outside or made use of the main wall building. Later, as occupational debris accumulated against the foot of the wall, it was twice necessary to patch it, once with bricks, once with stones and mud. Finally, in Section II (Fig. 9) we found that wooden poles or beams, about 3 inches in diameter, ran in from the face of the wall about 4 feet above its base. These were most likely part of the original building, but their full extent and purpose are unknown.

SADAAT B

During the Sadaat Phase B the rubble and D walls were added to the eastern and southern faces of the main wall. Both these walls were heavily battered. Because they have been confirmed only at the surface in several places, their plan at the base cannot be drawn with any certainty. In particular, Wall D which was not only stepped longitudinally but battered in section may extend much farther to the east than we were able to determine. The rubble wall was built almost entirely of re-used bricks and fragments of bricks, many of which were partly fired through use in fireplaces and ovens.

Some time after the construction of the rubble wall a line of large stones was laid along the southern face of the main wall (Fig. 11). These stones became highly polished on top, and to a lesser degree on their outer faces; the inner and under sides remained unpolished. The polish is such as would occur if the stones had been sat upon by individuals wearing rather voluminous clothes. In fact, they form a bench along the sunny and sheltered wall of the building.

SADAAT C

When the main southwest-northwest trench was excavated, the material overlying the main wall was found to be an extremely compact fill —far more solid than any other debris or occupational deposit on the site. It was, therefore, concluded that this was a planned structure of fragmentary bricks (often from the destroyed walls of the main building), rubbish, and stamped mud, probably the podium of some building of which no other features are extant. No attempt was made to define its limits. The pottery from this fill is still of Sadaat type.

The "podium" structure finally obliterated the main wall complex. The drains, which had already partly silted up, were, at the time of the digging, filled in. The east wall of the cellared room was overturned, and can now only be inferred from the line at which the floors of the room itself cease abruptly. Similar violence was done to other walls. But the very solidity of the podium shows that this destruction was neither due to natural causes (earthquake or decay) nor incidental to a sack, but was done purposefully, to make the foundations for some new building. Pottery Groups A and B probably belong to this phase, but as they lay immediately under the surface their probable stratigraphy had been destroyed by erosion.

SADAAT D

Sadaat Phase D serves chiefly to denote a thick cluster of sherds with both Sadaat and intrusive features, which overlay the podium on the west. Defined stratigraphically, the phase has no structural significance, nor is there the least hope of uncovering Phase D buildings at Damb Sadaat.

SITE Q13

Though careful investigation was carried out at this site, no complete structures were discerned within the limits of our excavations. A number of localized blackened pebble areas or fragments of hearth-fired brick indicated that hearths were once present, but only one of these had survived the exigencies of the long erosion that had also destroyed the mud-brick walls.

Lines of small stones suggest that the conventional method of reënforcing mud-brick foun-

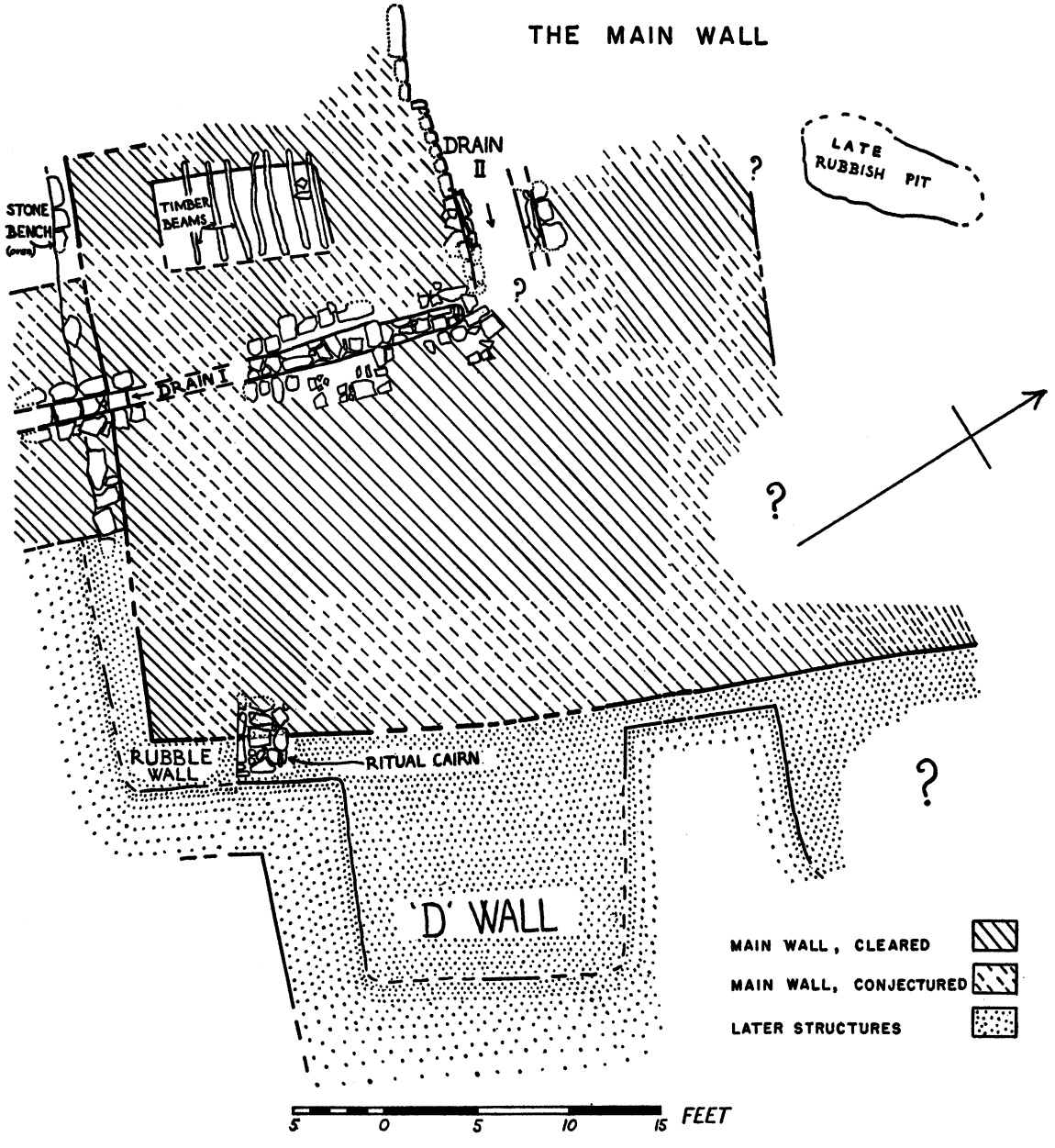

FIG. 11. Site Q8, Cut 3, the main wall.

dations was employed here. In the lower levels (1.10 to 1.95 meters) a number of hard-clay floors were encountered, one of which contained an excellent fire pit.

One pottery group, located at 1.20 meters, consisted of a Quetta Wet ware bowl and Quetta ware jars and bowls. One brick, associated with this pottery group, measured 22 by ?10 by 10 inches.

SITE Q14

There appear to have been two building periods at this site, with traces of a possible third

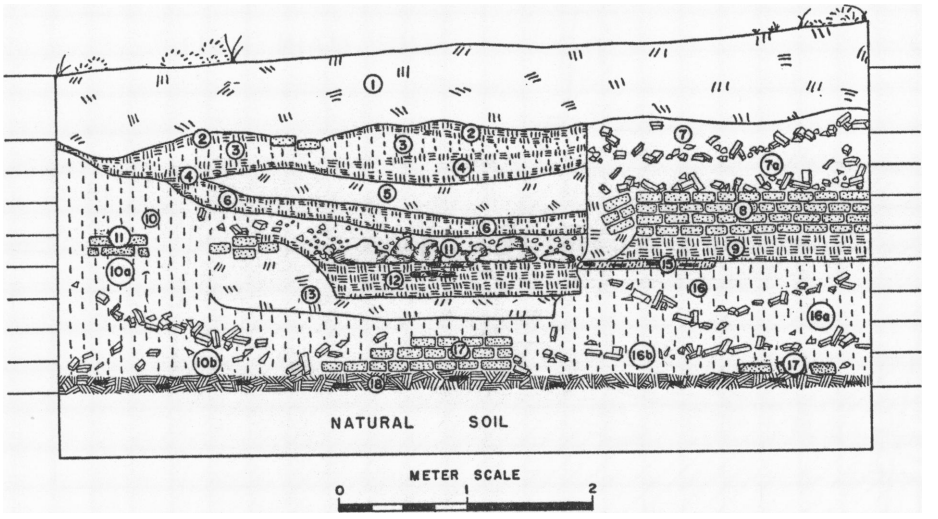

FIG. 12. Site Q14, South Section.

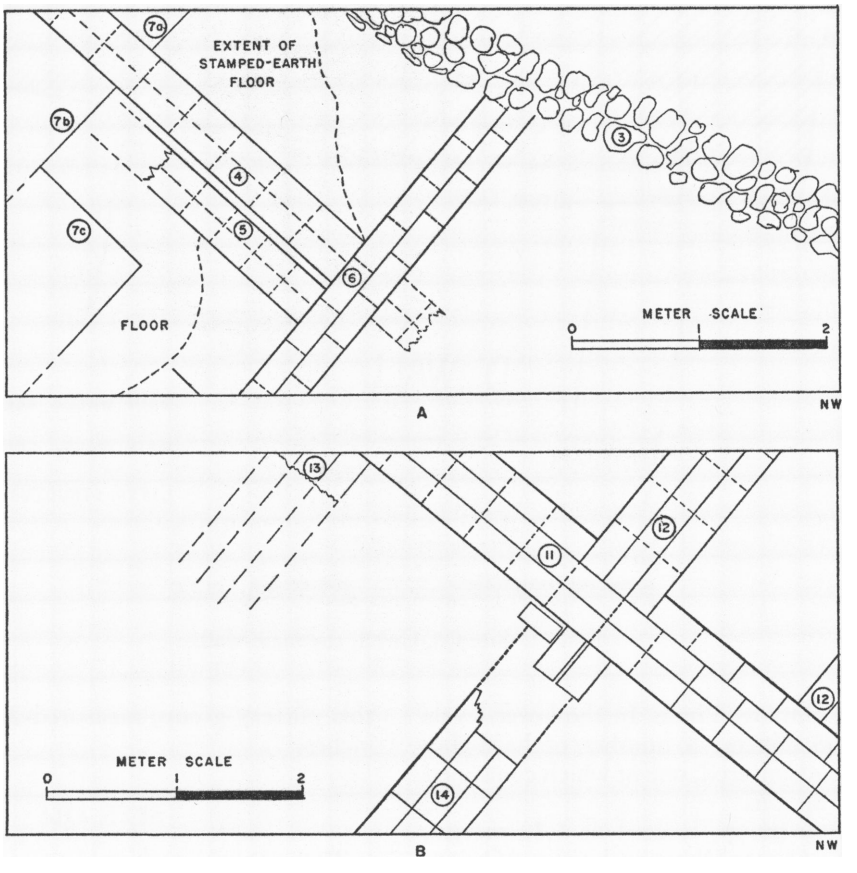

FIG. 13. Site Q14, building levels. a. Period II. b. Period I.

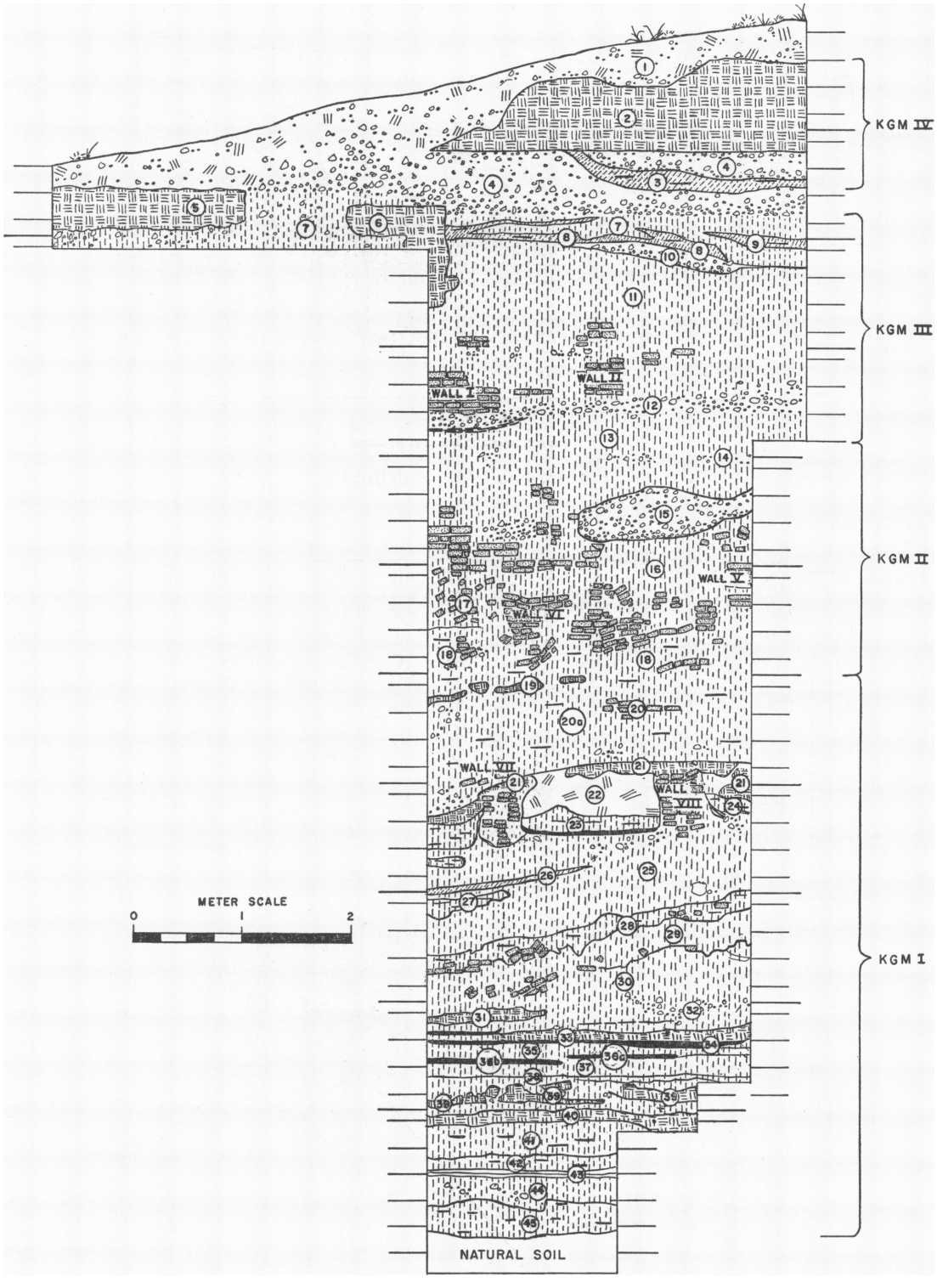

FIG. 14. Site Q24, Section I, west wall.

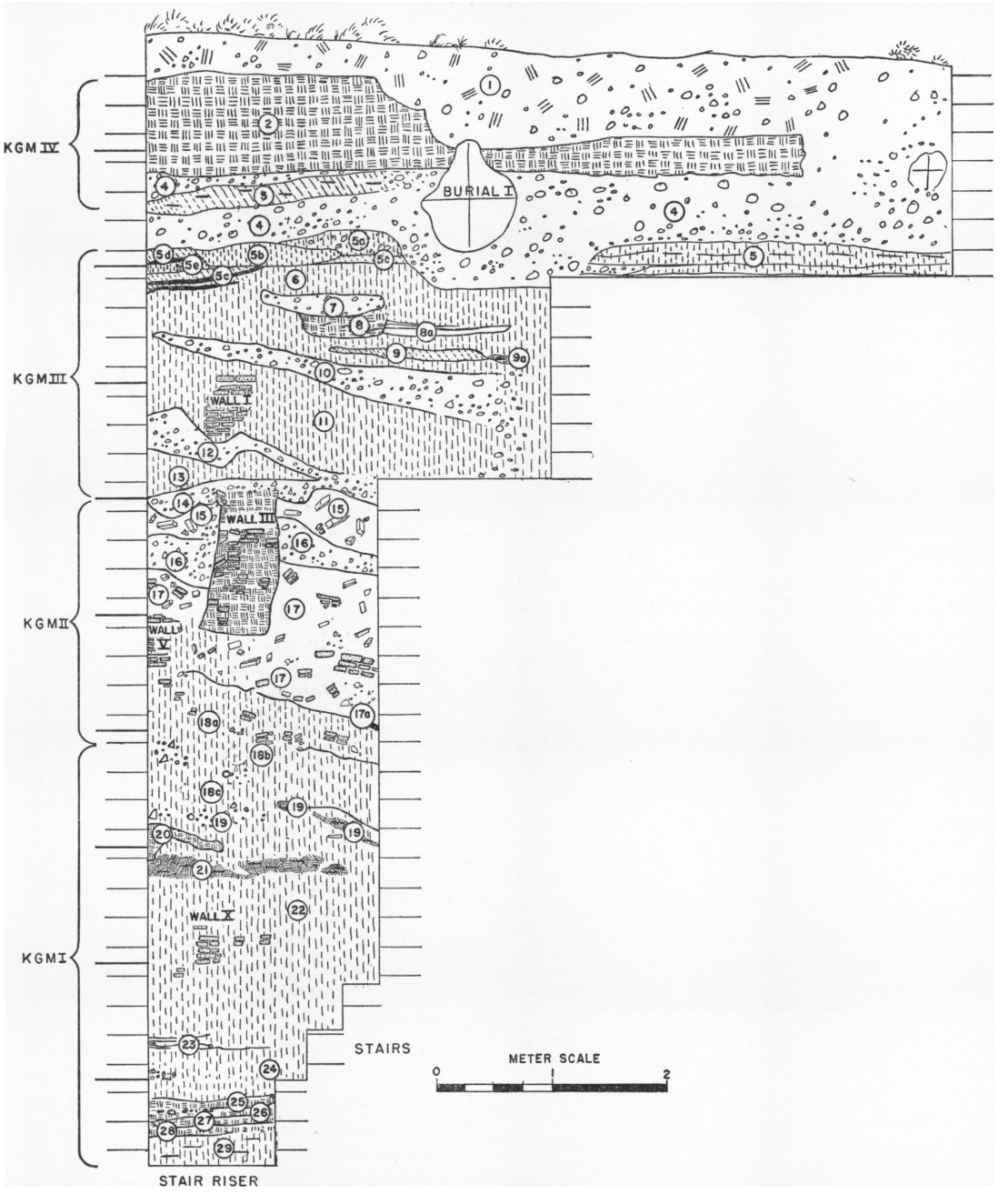

FIG. 15. Site Q24, Section II, north wall.

just below the surface (Fig. 12; Phase 17, Period I; Phases 8, 9, Period II).

Building Period I

Figure 13b

This consisted of a series of brick walls at right angles to each other, enclosing what can be construed as rooms, although no area enclosed by more than three walls was disclosed. A technique of interlocking brick courses was noted at the junction between Walls 12 and 11, the only example of the technique observed at the site.

Building Period II

Figure 13a

The outstanding feature of this building level was the stone "Wall" 3, found in the southwestern portion of the cut. This "wall" was probably the foundation of an unlocated brick wall. Wall 4 extended some 3 to 4 cm. below Wall 6 and apparently extended northwest of it. Wall 4 was probably constructed slightly earlier than Walls 5 and 6. Wall lines were also located at other points.

The relation of Walls 4 and 5 was puzzling. There was no evidence to prove that Wall 4 had been destroyed prior to the construction of Wall 5, even though Wall 4 appeared to have been constructed earlier. It is interesting to note that the walls of Building Period I (*ca.* 67 cm.) were wider than those of Building Period II (*ca.* 40 cm.). Building Period I walls generally were constructed of rows of bricks; Building Period II walls consisted of two rows. In this connection, the wall lines defined at Phases 7b and 7c (Fig. 13) are of interest as they both are approximately 90 cm. long. If these lines mark the termination of walls, they may indicate that Walls 4 and 5 were actually a single wall.

The average size of wall bricks in both building periods was 16 by 8¼ by 4 inches; the odd bricks in the fill measured 10 by 8¼ by 4 inches.

SITE Q24

Wherever walls were encountered in the cut, they were in a fragmentary condition. Nowhere was a wall found that consisted of more than three rows of bricks. Yet there were indications in Walls 2 and 3 (Figs. 14–15) that these were once four or five bricks wide.

We were constantly confronted with the problem of defining brick lines in hard clay or trying to decide whether a small group of bricks was actually a wall *in situ* or a collapsed wall that had fallen into a miscellaneous fill. Nevertheless, the walls as outlined and labeled (Figs. 14–15) were the original walls *in situ* in so far as we were able to define them within the limits of the excavations.

Below the surface-contaminated and disturbed fill of the cut at a depth of about 40 cm. on the average, a mass of compact hard clay was encountered. It was relatively clean and contained comparatively few sherds, some charcoal, and some bone. Occasional brick lines were noted, though these were never continuous enough to define a wall. It is therefore possible that this hard-clay mass probably represented a wall, or a group of walls, and the ambiguous mass was consolidated by seepage of surface moisture.

Below these "walls" was a layer of rock and pebbles with intrusive layers of charcoal and ash. In view of the occurrence, lower in the cut (Figs. 14–15; Walls 1, 2, 3, 4, 7, 8), of pebble layers under or associated with walls as foundations of structural reënforcements, it is possible that at least a portion of this pebble level was the original foundation for the walls represented by the hard-clay levels above. The fact that charcoal and ash layers were intrusive in these pebble layers indicates occupation on the surface of the gravels which therefore might mark the location of a floor level into which fire pits had been cut. The abundance of sherds in these "fire pits" may serve as sufficient evidence to prove that this surmise is correct.

Wall 1 provides an interesting insight into a construction method in which two rows of bricks have an intervening rubble approximately 27 cm. wide. This was the only observed occurrence of this method of construction at the site. Though there was no discernible incline in the wall, it is possible that the rubble fill was actually intrusive in a gap between the bricks following a shift in the masonry. The fragmentary state of the mud brick prevented our arriving at a confirmation of this possibility.

Wall 2 intersects Wall 1 on its western side. It is composed of three rows of bricks.

We noted one example of continuity in wall construction: Wall 3 followed the orientation of

Wall 1 almost exactly; Wall 5 had a similar orientation to Wall 2.

Room 1 lay between north-south Walls 7 and 8. No walls were encountered on its eastern and western ends. The average width of the "room" was 1.20 meters, which leads one to believe that the "room" was actually an alley between houses. On both the south and north sides of Walls 7 and 8, respectively, there were heavy layers of red clay and charcoal (p. 356). Beneath these, especially near Wall 8, were several small stones. It is possible that these areas represented the houses for which "Room 1" served as an alley. Room 1 also had a red-clay "floor" at its lower portion and this was underlain by a layer of charcoal.

A layer of red clay covered the entire complex of Walls 7 and 8 and Room 1, perhaps indicating a conflagration.

Brick measurements in these walls ranged from 18½ by 7½ by ?7 inches to 11 by 4½ by ?7 inches for Kili Ghul Mohammad II. One brick was measurable for Kili Ghul Mohammad I: 12 by 4¼ by 3 inches. Hard-packed clay with no brick lines was frequently encountered below Wall 10. There is some evidence for wattle and daub in some of these clay masses.

DESCRIPTION OF ARTIFACTS

HUMAN FIGURINES OF CLAY

EXCEPT FOR TWO BADLY ERODED leg fragments, found on the surface of Site Q9, and two fragments of animal figurines from the surface of Q24, all the clay figurines are from Damb Sadaat (Site Q8). They were found on the surface of the mound in the area of Cut 3 at the Damb Sadaat III level and in the area of Cuts 1 and 2 in Damb Sadaat III and Damb Sadaat II later levels. None was found in the earlier level, Damb Sadaat I.

The human figurines, in so far as they are identifiable, are all female. They can be divided into three groups. Group A (Fig. 16a–c) is characterized by rather delicate appliqué workmanship. The figurines are distinguished by heavy, somewhat pendulous breasts, narrow waists, broad hips, with legs thrust boldly forward at the knee, almost at right angles to the body. The legs are marked off by an incision which extends from just below the waistline to their lower ends which terminate in a stem. The feet are not indicated. At the back of the figurine, the incision differentiating the legs is carried somewhat higher than the front incision. There is no attempt to depict buttocks by modeling, so that the rear portion of the figurines is quite flat. A multiple strand necklace hangs from the neckline and over the shoulders, either reaching the upper portion of the breasts or covering them almost to the nipple line. In the two figurines with such necklaces, each has a decorated strand at the neck. Secondary decoration consists solely of punctations. One figurine (Fig. 16b) has several strands of hair descending over each shoulder and over the necklace to a position just above each breast. These strands terminate in rather elaborate knots. The breast nipples are indicated by raised areas, each with a single perforation.

The apparent sequence of construction follows: the shoulders were applied to the stem-like upper body. Then breasts were applied to the shoulders, and the necklaces and hair were laid over them. The neck seems to have been cylindrical and rather small. As the head was supported by the neck and no other portion of the body, it was probably quite small.

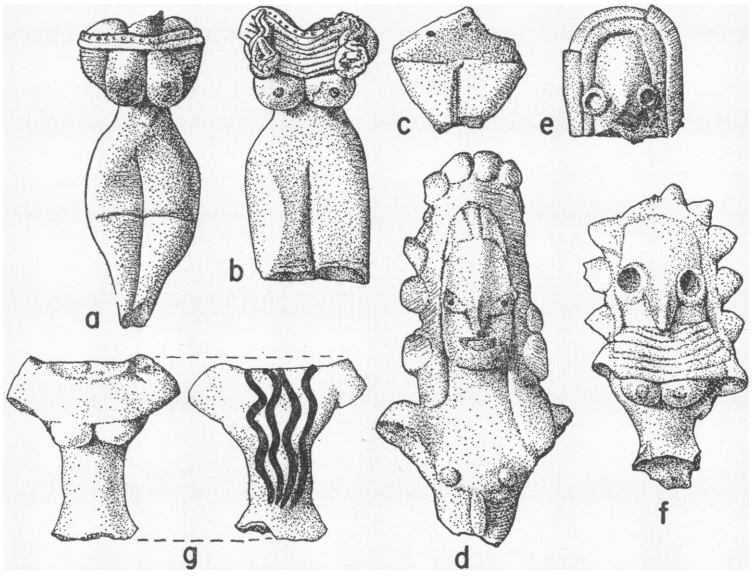

FIG. 16. Human figurines of clay. a, e. Site Q8, surface. b, c. Site Q8, Damb Sadaat II. d, f, g. Site Q8, Damb Sadaat III. *Ca.* ⅔ natural size.

Of the three examples of this group recovered, two (Fig. 16b–c) were found in a Damb Sadaat II level, Cut 1. The third (Fig. 16a) was found on the surface of the same site. Figure 17f illustrates a leg of Group A style found in Damb

TABLE 2

LOCATION OF CLAY FIGURINES, SITE Q8

	Surface	Cut 3	Cut 2	Cut 1	Totals
Human					
Damb Sadaat III	2	11	–	–	13
Damb Sadaat II	1	–	–	2	3
Doubtful	2	–	–	–	2
Totals	5	11	–	2	18
Animals and birds					
Damb Sadaat III	1	13	–	3	17
Damb Sadaat II	–	–	–	4	4
Doubtful	1	–	–	–	1
Totals	2	13	–	7	22

Sadaat III, Cut 3. The leg shown in Fig. 17e was clearly separated from the missing second leg and may be a more elaborate form. The evidence indicates that the stratigraphic location of Group A figurines is principally Damb Sadaat II.

The group B (Fig. 16d–g) figurines have often been called Zhob mother goddesses. They are distinguished by pedestal bases which usually occur just below the waist line, appliquéd goggle eyes, pendent breasts, and a tall headdress. Figure 16f is typical. The figurine illustrated in Fig. 16d is unusual in that it depicts a full face with appliquéd mouth and slanted eyes. The breasts are mere discs applied to a raised portion of the chest which may be a necklace line. A pendant extends from this line to the pedestal base. Apparently a foundation band extends downward from the headdress over the forehead. An interesting feature is the extension of a strand of hair (?) over the left shoulder. The figure illustrated in Fig. 16g is unusual in that hair is indicated by paint. All the figurines of this group were found in the Damb Sadaat III levels of Cut 3 of Site Q8, except that shown in Fig. 16e which was found on the surface of the site.

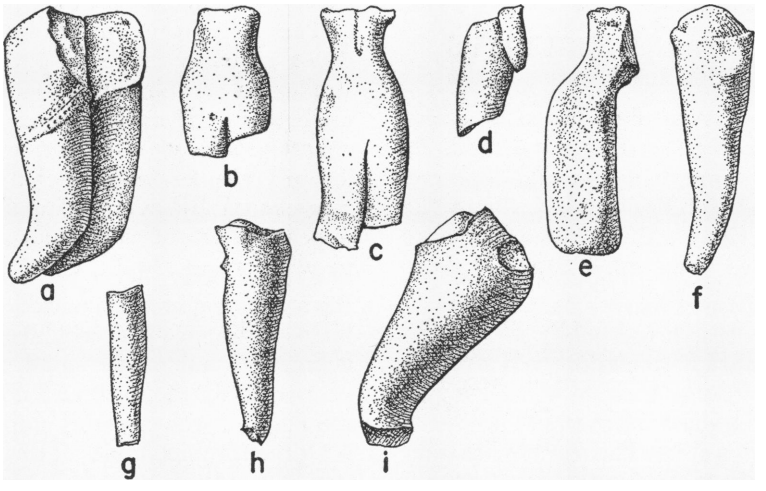

FIG. 17. Parts of human figurines of clay. a, h, i. Site Q8, surface. b–d, f, g. Site Q8, Damb Sadaat III. e. Site Q8, Damb Sadaat III? *Ca.* ⅔ natural size.

Unfortunately we recovered only two fragmentary figurines, classified as Group C (Fig. 17b–c) from Damb Sadaat III levels of Cut 3, Site Q8. Both of these are represented only by the trunk portions. The figurines seem to be female. Apparently a pendant hangs over the chest of one figurine (Fig. 17c). These figurines contrast markedly with the rather rigid formalized figurines of preceding groups which, except for the delicate appliqué treatment, are rather gross and lifeless. The two fragments (Fig. 17b–c) suggest an attempt at life-like modeling. Though there are no pronounced buttocks or a direct indication of musculature, a suggestion of their presence may be observed in the rather delicate modeling. A slight incline across the line of the hips of one figurine (Fig. 17b) has caused the torso to lean somewhat away from the vertical axis of the lower body. This is reminiscent of the sensuous line of the hips in the Yakshī of early historic India. These Baluchistan figurines are of decided interest because they indicate a tendency towards naturalism somewhat comparable to that shown in the limestone torso of Harappa. This resemblance is perhaps of some significance when one is concerned with origins in Indian art.

A number of legs (Fig. 17a, h, i) were found on the surface of Site Q8, Damb Sadaat. These probably belong to figurines of either Group A or Group C. The exception is a pair of legs from a seated figurine that may have been quite large (Fig. 17a). There is a punctate band along the back and side of the left leg.

ANIMAL AND BIRD FIGURINES OF CLAY

The importance of bull figurines as an essential part of daily life is certainly indicated by the number of fragments recovered. With one exception (Fig. 18c), all of these are from the Damb Sadaat III levels. Most remarkable are the two bull heads (Fig. 18a–b). One of these (Fig. 18a) may be theriomorphic. The base of the horns, the eyebrows, and eye outline are painted black. The eyes and ears are incised and perforated. An interesting feature of these bull heads is the ovoid form painted on the top of the head between the horns and extending well down the forehead. On one head this is a concentric tear pattern (Fig. 18a). These forehead patterns are reminiscent of the "yoni" symbols of Sivaism. Symbolic of the female organs and thus of regenerative power, the relation of the yoni symbol to fertility cults is very ancient. It is therefore of great interest to find a symbol so characteristic of Hinduism on these bull figurines. Another painted bull (Fig. 18c) has incised lips and perforated nostrils. Its hanging dewlap is very life-like. Figure 18d presents a good illustration of the use of incision to depict a life-like eye.

Thus far the bodies of cows or bulls recovered are represented by chunky bits of hard clay that are relieved only by appended clay stubs as legs, by the application of a life-like tail (Fig. 19a), and by horizontal and vertical painted stripes on the body (Fig. 19b–c). The horns of these animals are also painted (Fig. 19d–e). Legs that probably belonged to the bodies of rather large bull figurines (Fig. 19f–g) were recovered from the surface of Site Q9, which indicates that bull figurines with definitive legs were made. Except as noted in the captions to Fig. 19, all these fragments of bull figurines are from Damb Sadaat III levels.

A hollow figurine fragment represents the hind quarters of an animal, apparently a horse (or ass) (Fig. 20a) judging from the shape of the tail, the form of the leg, and the height of the back. This figurine is from Damb Sadaat II, Cut 1.

The head of an antelope is perhaps suggested by a figurine found in Damb Sadaat II (Fig. 20b). Its modeling is very simple; the head is triangular, and the features are emphasized by being painted. The neck is elongated.

The series of figurines illustrated in Fig. 20c–e probably represent birds. They are very similar to the bird figurines of the Harappan civilization.[1] The pedestal bases are apparently characteristic of bird figurines in Baluchistan. There is also a possibility that feathers (?) were represented by painting, though most of the upper portions of these figurines have not survived. Two of the bird figurines (Fig. 20c–d) were found in Damb Sadaat III context; the other (Fig. 20e) was from the surface of that site.

HOUSE MODELS IN CLAY

Model or toy houses were commonly found in the excavations at Damb Sadaat. Of 14 fragmentary houses recovered, four were from

[1] Mackay, 1937–1938, Vol. 2, Pl. 77, 4, 5; 1943, Pl. 59, 5, 6; Vats, 1940, Vol. 2, Pl. 78, 3.

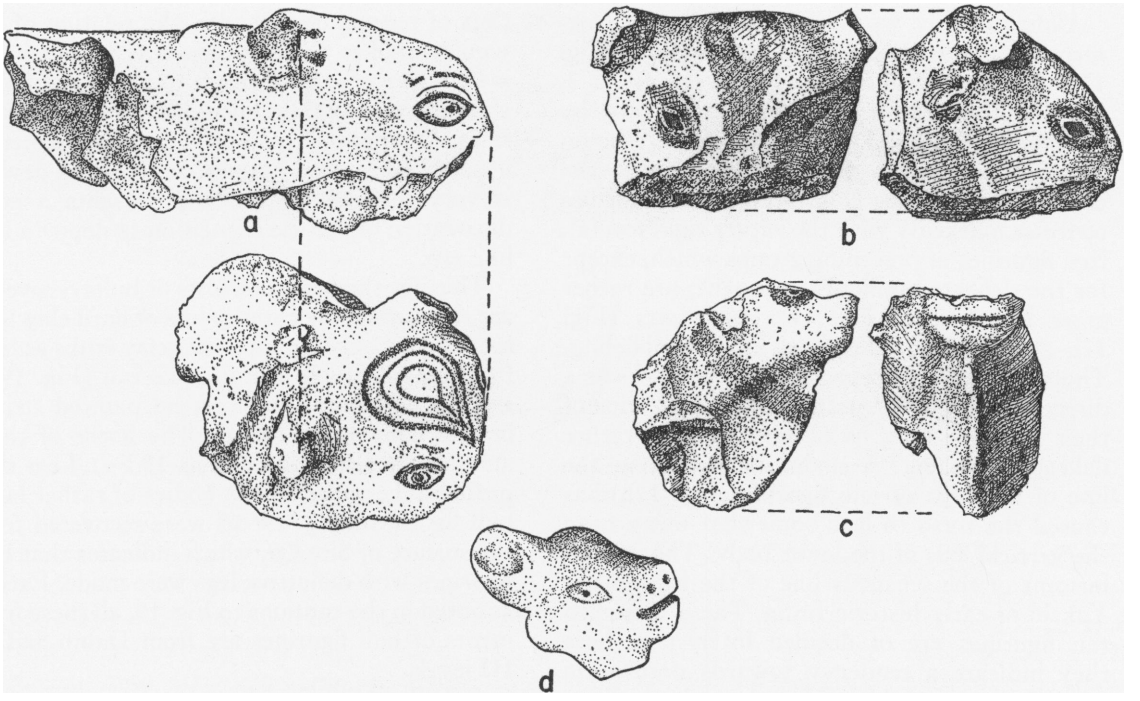

FIG. 18. Parts of animal figurines of clay. a, b, d. Site Q8, Damb Sadaat III. c. Site Q8, Damb Sadaat II. *Ca.* ⅔ natural size.

Damb Sadaat III levels, seven were from Damb Sadaat II levels, two were from lower (probably early Damb Sadaat II) levels, and one was either Damb Sadaat III or Damb Sadaat II. Judging from the rectangular, straight-sided shape, these houses appear to be models of dwellings. Their form is generally consistent with our knowledge of such houses as reconstructed from plans of those we excavated. The models indicate that windows were placed in the upper portions of the walls (Fig. 21a). The walls of the models are painted in black-on-buff slip. The painted designs are typical of Quetta ware (Fig. 21a, c, d). It is also noteworthy that some of these houses are compartmented (Fig. 21b).

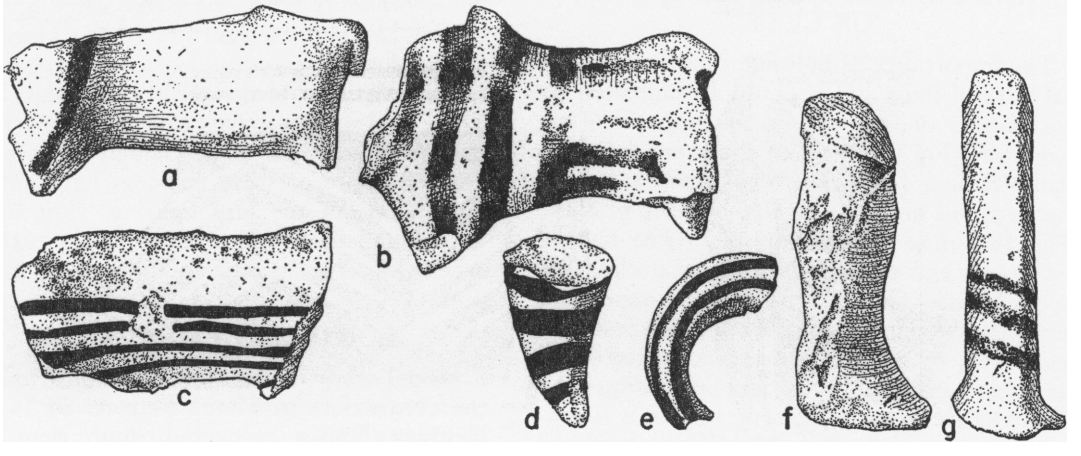

FIG. 19. Parts of animal figurines of clay. a–c, e. Site Q8, Damb Sadaat III. d, f, g. Site Q8, surface. *Ca.* ⅔ natural size.

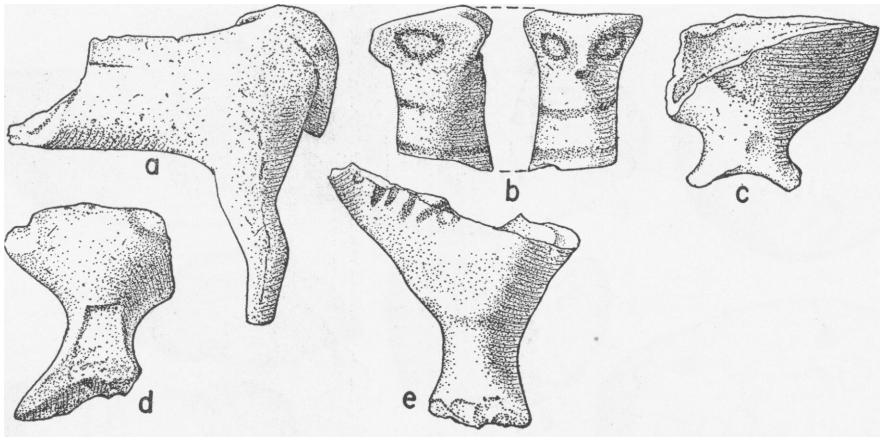

FIG. 20. Parts of animal and bird figurines of clay. a, b. Site Q8, Damb Sadaat II. c, d. Site Q8, Damb Sadaat III. e. Site Q8, surface. *Ca.* ⅔ natural size.

FRAGMENTS OF RATTLES OF CLAY

A number of fragments of clay rattles were recovered at Damb Sadaat, all from Damb Sadaat II and Damb Sadaat III (Fig. 22a–g). A single fragment was found on the surface at Kili Ghul Mohammad. One complete, though undecorated, rattle was recovered (Fig. 22a) in the Damb Sadaat II levels, Cut 1. The rattle obviously contains pellets of clay or light stones. The rattles are decorated with both painting

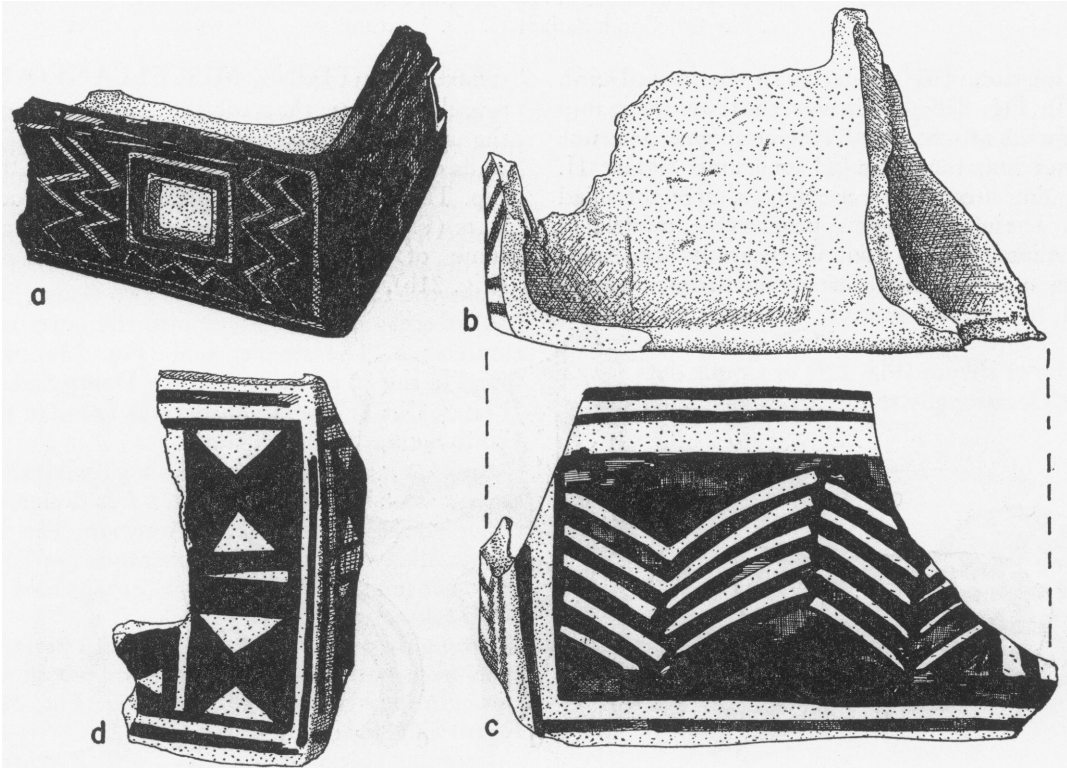

FIG. 21. Fragments of house models in clay. a. Site Q8, Damb Sadaat III. b–d. Site Q8, Damb Sadaat II. *Ca.* ⅔ natural size.

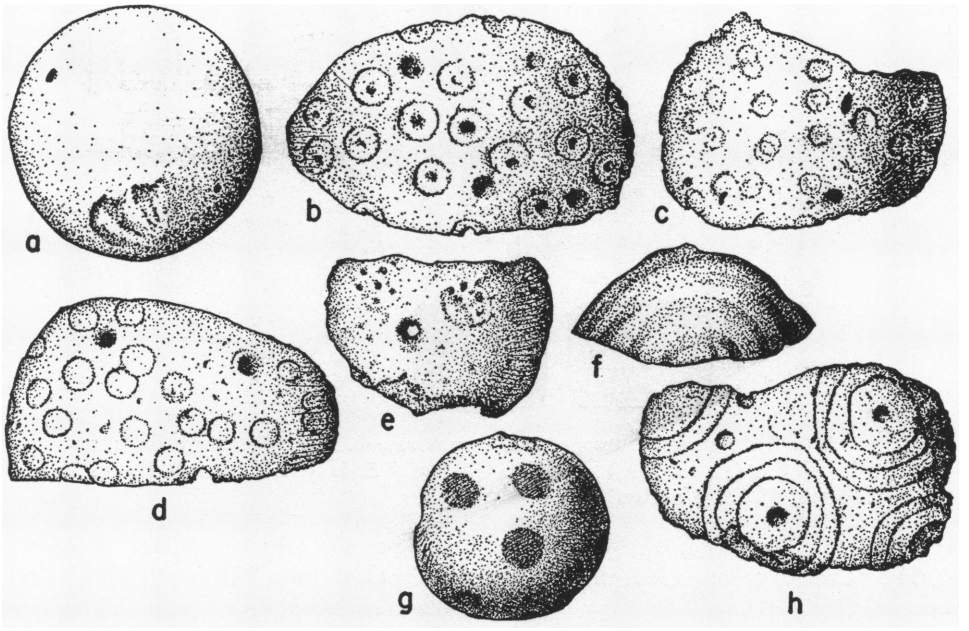

FIG. 22. Fragments of clay rattles. a, c, e. Site Q8, Damb Sadaat II. b, d, f. Site Q8, Damb Sadaat III. g. Site Q8, surface, Damb Sadaat. h. Site Q24, surface. *Ca.* ⅔ natural size.

and incision. The regularity of the incised circles in Fig. 22b–d indicates that stamping instruments of some kind were employed. On the other hand, the irregular concentric circles of Fig. 22h suggest the use of a simple incising tool. These rattles were frequently perforated and a circle design was incised around the perforation (Fig. 22b). The circle design is also used to outline multiple performations (Fig. 22e). Painted designs in black or reddish brown consist of stripes (Fig. 22f) or simple dots (Fig. 22g). Occasionally these rattles have a buff slip.

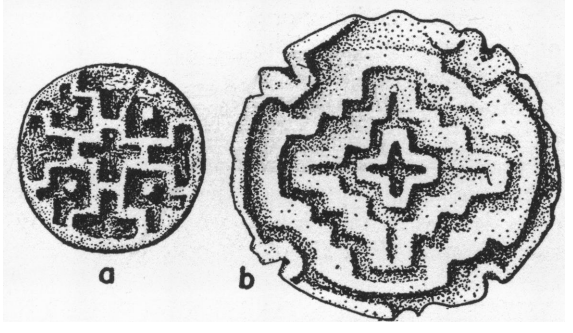

FIG. 23. Clay seals. a. Site Q8, Damb Sadaat II. b. Site Q8, Damb Sadaat III. *Ca.* ⅔ natural size.

SEALS, BUTTONS, MISCELLANEOUS

Only two seals or stampers were recovered from the excavations. Both are of clay, roughly circular, and perforated, probably for fastening to a neck cord. The seals are of the compartmented variety. A simple cross forms the central design, and the remainder of the area is quartered. In the larger of the two seals (Fig. 23b) notches have been cut into the outer circumference. The smaller seal (Fig. 23a) was found in the fill of Room 3 in the Damb Sadaat II level, Cut 1. The larger seal was found in the Damb Sadaat III level, Cut 3.

Another interesting object is a highly polished stone button (?) engraved with a fret design on either side of an elongated perforation. The design is filled with a whitish substance (perhaps only accumulated dirt) which emphasizes it (Fig. 24h).

A roughly rounded piece of clay with perforations from both sides, but which are not bored through, may be an unfinished seal (Fig. 24e; Damb Sadaat II).

Irregular pieces of fine clay, with a central perforation, were frequently found. Aside from the fact that the holes indicate that the objects

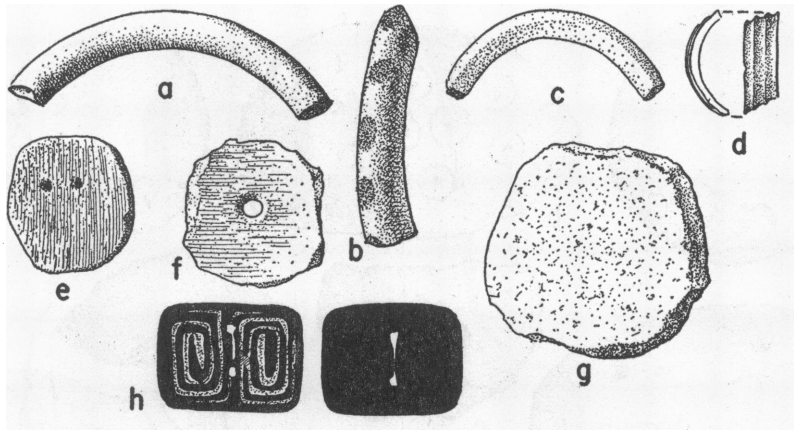

FIG. 24. Bangles, buttons, and stoppers. a–c. Site Q8, Damb Sadaat III. d. Site Q8, surface. e, g, h. Site Q8, Damb Sadaat II. f. Site Q8, Damb Sadaat I. *Ca.* ⅔ natural size.

were probably meant to be threaded, there is no clue to their use (Fig. 24f).

Even more frequently recovered were roughly rounded bits of pottery (Fig. 24g), which may have been either stoppers or gaming-pieces. They occur from Damb Sadaat I to Damb Sadaat III.

BANGLES

Clay bangles, while not so abundant as in Harappan sites such as Dabar Kōt are nevertheless not infrequent at Damb Sadaat. With one exception all these bangles were recovered either in Damb Sadaat III context or on the surface of that site. The bulk of these ornaments are undecorated but smoothed (Fig. 24a). One exception (Fig. 24b) is irregularly dotted with black-brown paint.

An undecorated shell bangle is shown in Fig. 24c. A similar piece was found in early Damb Sadaat II (Period G1). Another object in this same category may, however, judging from its size, be a ring. It is also of shell and has parallel grooving on its outer surface (Fig. 24d).

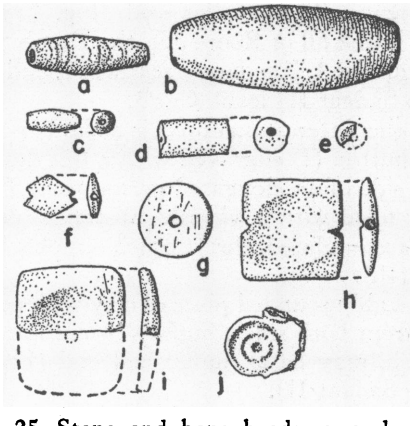

FIG. 25. Stone and bone beads. a, c, d, f. Site Q13, Damb Sadaat II. b, g. Site Q8, Damb Sadaat III. e. Site Q24, Kili Ghul Mohammad III. h–j. Site Q8, Damb Sadaat II. *Ca.* ⅔ natural size.

BEADS

Only 11 beads were recovered in the excavation. A tiny fragment of a flat circular steatite disc (Fig. 25e) was found in a Kili Ghul Mohammad III level at Q24. This is the earliest occurrence of a bead in the Quetta Valley.

Barrel-form beads are usually carved in chalcedony (Fig. 25a), though another example (Fig. 25b) is made of an unidentified stone. The slight taper on a lapis bead from Site Q13 (Fig. 25c) suggests a tendency towards a barrel form.

Cylindrical and disc or flat circular beads are of steatite (Fig. 25d). The latter form is sometimes of bone (Fig. 25g).

An unusual bead is a diamond shape, rather flat in cross-section, and pierced through its long axis. It is of steatite or bone (Fig. 25f).

Square beads of polished bone or ivory with a deep depression in one face are represented by two examples (Fig. 25h–i).

MISCELLANEOUS POTTERY OBJECTS

Additional pottery or terra cotta objects are ladles with either flat or round-based bowls (Fig. 26a–b) and miniature vessels, some of

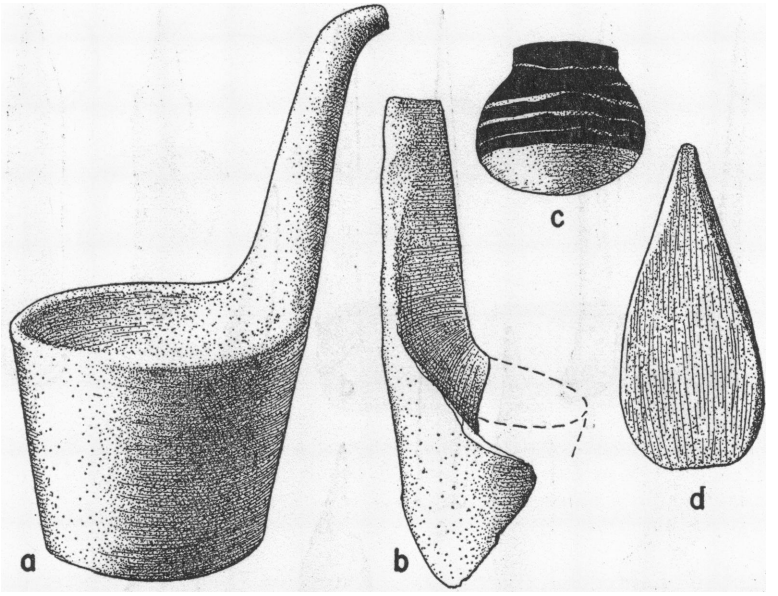

FIG. 26. Miscellaneous pottery objects. a, d. Site Q8, Damb Sadaat II. b. Site Q8, Damb Sadaat III. c. Site Q8, Damb Sadaat II? *Ca.* ⅔ natural size.

which are painted (Fig. 26c). An unclassifiable object may be a pottery spoon or tear-shaped ornament.

METAL OBJECTS

Except for some lead ore and hematite (possibly for ornamentation), copper is the only metal represented in these prehistoric levels. Only a few fragments of copper were found. Most interesting among the copper "artifacts" is a dagger or knife recovered from Room A1 in a Damb Sadaat II level, Cut 2 (Fig. 27a). Unfortunately, the dagger is broken at the butt end where it was probably hafted. Its modified triangular form suggests that the butt end was inserted into a wooden handle. The blade is flat in cross-section. Alcock reports a dagger point from Damb Sadaat III, Cut 3 context (not illustrated).

A provocative copper object, which unfortunately is too fragmentary to be definitely identified, was found in Kili Ghul Mohammad III levels (Fig. 27b). Its quadrangular form, tapering towards one end, suggests a chisel. However, it is possible that one side is only accidentally similar to the other three and that this is actually a broken surface. If this is correct, one side could have been extended into a celt-like form. This is a moot question.

Alcock reports a possible brooch fragment from a Damb Sadaat III, Cut 3, level (not illustrated).

Copper fragments and stains occur in both Damb Sadaat II and III levels at Q8.

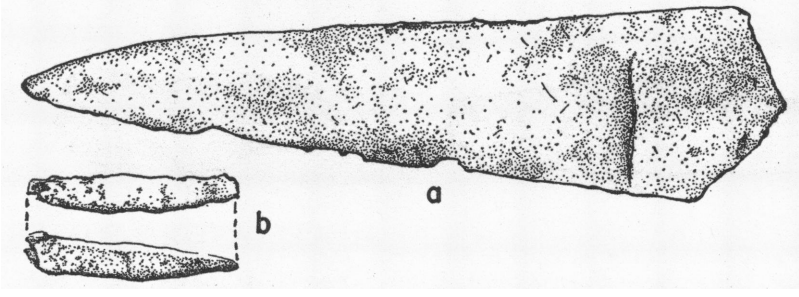

FIG. 27. Copper objects. a. Site Q8, Damb Sadaat II. b. Site Q24, Kili Ghul Mohammad III. *Ca.* ⅔ natural size.

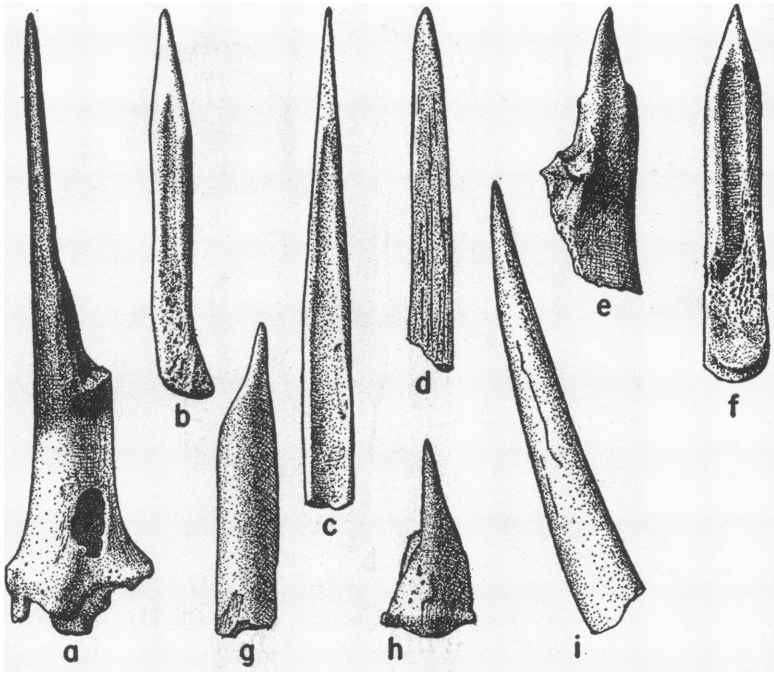

FIG. 28. Bone awls and points. a, e. Site Q8, Damb Sadaat II. b. Site Q8, Damb Sadaat I. c, g. Site Q24, Kili Ghul Mohammad II. d. Site Q24, surface. f, h. Site Q24, Kili Ghul Mohammad I. i. Site Q8, Damb Sadaat III ?. *Ca.* ⅔ natural size.

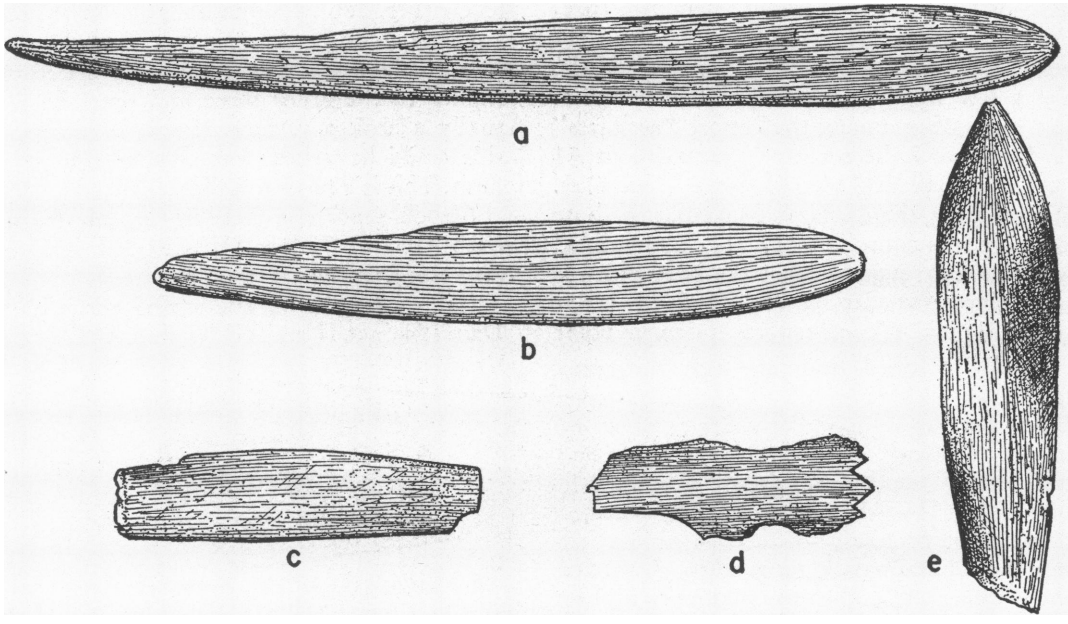

FIG. 29. Bone spatulas. a–c. Site Q8, Damb Sadaat II. d. Site Q8, Damb Sadaat III. e. Site Q8, Damb Sadaat I. *Ca.* ⅔ natural size.

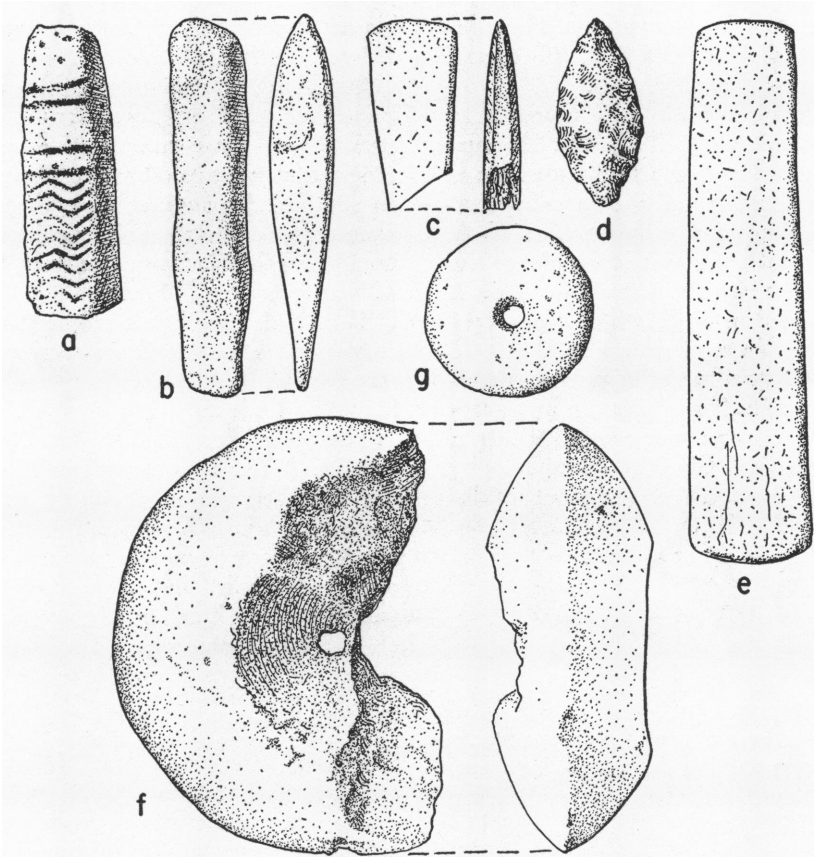

FIG. 30. Miscellaneous stone objects. a. Site Q24, surface, Damb Sadaat I–II? b. Site Q8, Damb Sadaat II. c, e. Site Q8, Damb Sadaat III. d. Site Q8, surface. f. Site Q8, Damb Sadaat I. g. Site Q14, Damb Sadaat I. *Ca.* ⅔ natural size.

BONE OBJECTS

Bone points, or awls, were most abundant in Kili Ghul Mohammad I levels and occur frequently in Kili Ghul Mohammad II–IV and in Damb Sadaat I context at other sites. They are frequent also in Damb Sadaat II. These tools are usually polished from use near the point (Fig. 28a–i).

Bone spatulas are found on all the prehistoric levels of the Quetta Valley, except Kili Ghul Mohammad I, and are especially abundant in Damb Sadaat II levels. They are highly polished and are most probably made from animal rib bones. The characteristic form has one rounded blunt working end and tapers almost to a point at the opposite end (Fig. 29a). In profile there is a slight bowing. The spatulas range in length from about 3 to 8 inches. Their use is of course conjectural; they are quite sturdy and would probably be very effective as clay polishing implements. They could also possibly have been used as weaving implements.[1]

An interesting piece of notched bone, a sort of rasp (Fig. 29d), was recovered in Damb Sadaat III. Its notches, however, show no wear from use.

A large number of animal bones recovered bore the marks of cutting implements as if the bones had been cut in the process of removing the flesh.

MISCELLANEOUS

In addition to the material described by McCann (pp. 234–241), a number of odd stone

[1] Junius Bird notes a striking similarity to those found in Cupisnique context in Peru.

objects were found in the excavations. These include some polished shale celts (Fig. 30b–c) and a rather handsome chisel (Fig. 30e).

A large limestone spindle was found in a Damb Sadaat I level, Cut 1 (Fig. 30f). The surface is quite smooth and the mid-body line is straight. The perforation and the opposing funnels are nicely balanced and bored. The whole piece illustrates an excellent control of the grinding tools with which it was worked. A smooth, well-shaped spindle whorl from Q14 (Fig. 30g) is made of a reddish stone.

A fragment of a quadrangular pottery pendant (?) is slipped in buff and painted in Quetta ware design style on one face (Fig. 30a). It is from the surface at Kili Ghul Mohammad.

An interesting ornamental fragment of incised bone was found in Damb Sadaat II context (Fig. 25j). Its use is not known.

STONE OBJECTS[1]

Kili Ghul Mohammad

Only a small area was excavated at Kili Ghul Mohammad, and the sample of stone artifacts is limited. They have been divided into two groups: those found in the pottery-bearing levels (Kili Ghul Mohammad II, III, and IV) and those from the lower preceramic zone (Kili Ghul Mohammad I). The surface specimens cannot be definitely assigned to either of the foregoing groups. In general, the stone implements are not distinguished by skilful workmanship. Only the blades and pestles seem to indicate a clear idea of what the workman intended to produce and a mastery of the techniques that would achieve his aim. The other implements give the impression of being roughly shaped to do a particular piece of work and then being discarded when the occasion for their use was over.

BLADES

The most numerous stone artifact at Kili Ghul Mohammad is a small, thin blade, trapezoidal to triangular in cross-section, apparently struck from a prepared core, and without retouch. The usual material is a dull tan chert, but a few specimens are of brown or reddish jasper; one is of chalcedony. The length of the blades, except for fragments, ranges from 23 to 58 mm. Probably some are broken; it is often difficult to determine whether the blade is broken or whether it was struck from a short core. (The cores found were usually short, ranging from 38 to 60 mm.) The tapering ends on some blades suggest that they were struck from cores longer than the resultant blade. The breadth of the blades ranges from 10 to 20 mm., with an average of 14 mm.

The blades exhibit a slight to pronounced curvature (Fig. 31). Cross-sections are usually trapezoidal, but some, especially the small blades and rejects, are triangular.

The blade illustrated in Fig. 31a is from the surface. Both edges are marked by very small, irregular serrations, probably resulting from use rather than from intentional retouch. Figure 31b–d are from the pottery-bearing levels of the site (Kili Ghul Mohammad II and III), while Fig. 31f–k are from the preceramic zone (Kili Ghul Mohammad I). The latter group ranges in length from 34 to 58 mm. and in breadth from 10 to 18 mm. The blade found at the greatest depth of any at the site (Fig. 31k) is also the longest (65 mm.). It is trapezoidal in cross-section, and its tapered end probably indicates that it was struck from a core considerably longer than any other found at the site. It differs from the other blades by being blunted, probably intentionally, along the middle of one side.

SCRAPERS

The most common type of scraper is a flake, one side of which has been chipped to an edge. Of the scrapers shown in Fig. 32, Fig. 32a is from the surface; Fig. 32g–h are from Kili Ghul Mohammad I; the others are from Kili Ghul Mohammad III and IV. Two endscrapers found in Kili Ghul Mohammad IV are more carefully made than is usual at the site. One of these, Fig. 32d, is keeled, with steep retouch at the scraping end; the other (Fig. 32c), is a rather well made thumbnail scraper.

"CHOPPERS"

Three chopper-like chert objects, all found on the surface, are shown in Fig. 33a–c. Two of the objects still exhibit part of the original surface of the chert pebble from which they were struck. The third (Fig. 33a) is a flat spall roughly chipped to an edge.

[1] Dr. Catherine McCann classified the stone objects and prepared the descriptive text under this heading.

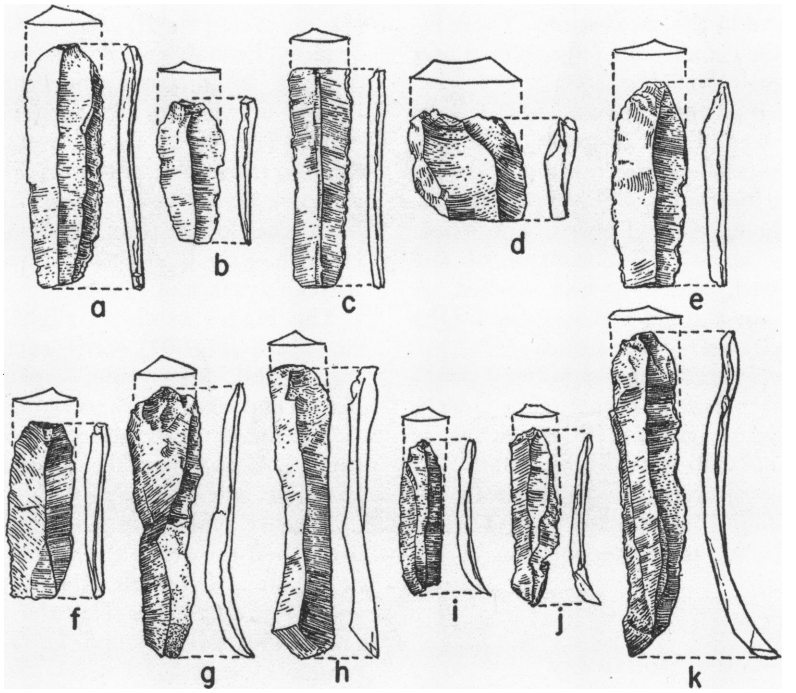

FIG. 31. Stone blades. a. Site Q24, surface. b. Site Q24, Kili Ghul Mohammad III. c. Site Q24, Kili Ghul Mohammad II–III. d. Site Q24, Kili Ghul Mohammad II. e. Site Q24, Kili Ghul Mohammad I–II. f–k. Site Q24, Kili Ghul Mohmmond I. *Ca.* ⅔ natural size.

CORES

Chert cores were found at all levels, but only a few were definitely blade cores. Two of the four cores found on the surface clearly were prepared blade cores. One of them (Fig. 33d) has 10 well-marked parallel blade faces. It is 3.8 cm. long and has diameters ranging from 1.8 to 3.0 cm. A smaller core (Fig. 33e) has nine

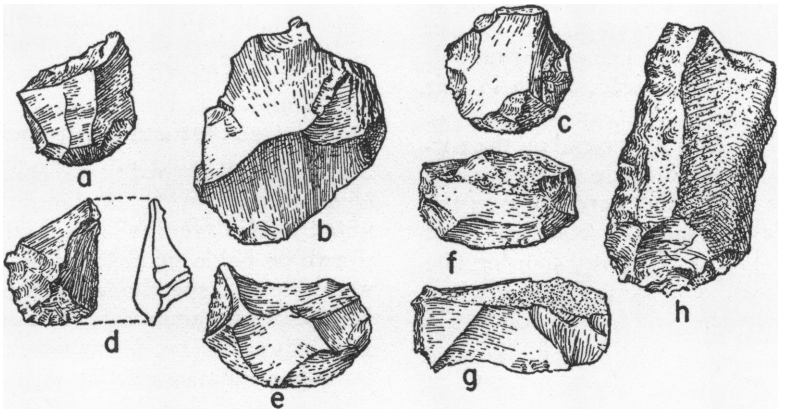

FIG. 32. Stone scrapers. a. Site Q24, surface. b, c. Site Q24, Kili Ghul Mohammad IV. d. Site Q24, Kili Ghul Mohammad III–IV. e. Site Q24, Kili Ghul Mohammad III. f. Site Q24, Kili Ghul Mohammad II. g, h. Site Q24, Kili Ghul Mohammad I. *Ca.* ⅔ natural size.

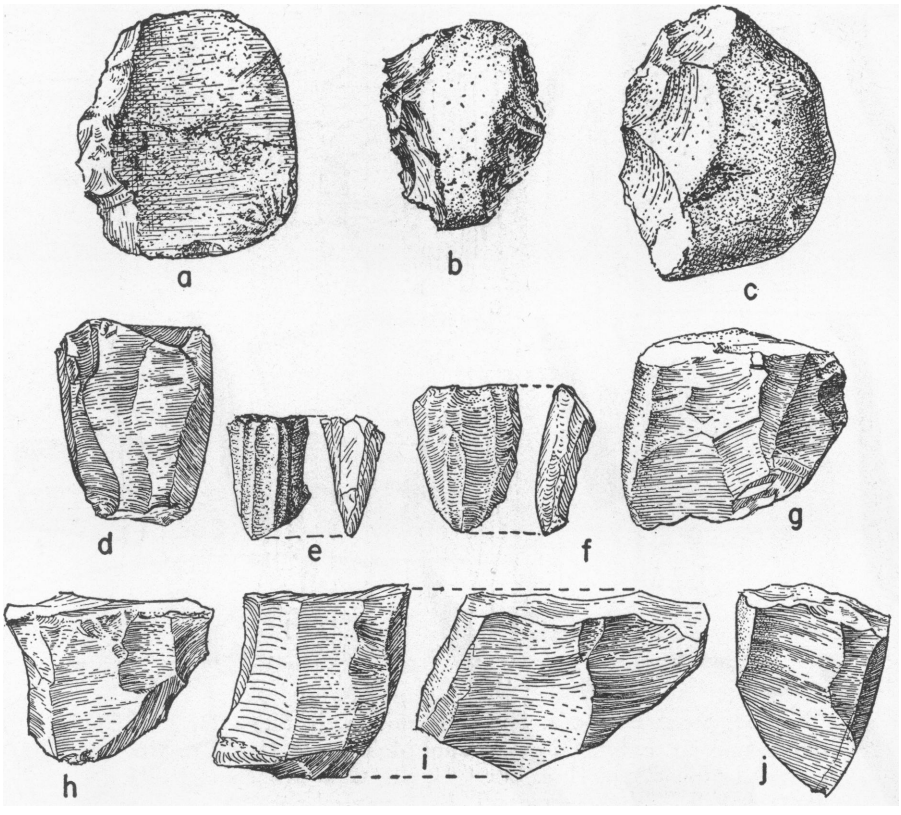

FIG. 33. Stone choppers and cores. a–e, g. Site Q24, surface. f, j. Site Q24, Kili Ghul Mohammad I. h. Site Q24, Kili Ghul Mohammad IV. i. Site Q24, Kili Ghul Mohammad I. *Ca.* $\frac{2}{3}$ natural size.

parallel blade faces. It is 2.5 cm. long and has a maximum diameter of 1.8 cm.

An unusual core is represented in Fig. 33f. It was found in Kili Ghul Mohammad I. It is of red jasper. The beveled striking platform is unique among the stone objects found in this area.

Another core (Fig. 33g) was found on the surface; there are no definite blade scars. Several other cores of the same kind were found in the pottery-bearing levels; one core from Kili Ghul Mohammad IV (Fig. 33h) shows four or five possible blade faces. The cores illustrated in Fig. 33i–j are from the preceramic zone (Kili Ghul Mohammad I). Three or four blades seem to have been struck from the former and at least five from the latter.

ALABASTER SHERDS

Nine sherds, or portions of alabaster vessels, were found at the site: one in Kili Ghul Mohammad III, one in Kili Ghul Mohammad IV, and the others on the surface. They represented small, flat-based vessels with outward-sloping sides. Figure 34b is typical of the form of these vessels, while Fig. 34a shows an unusual rim form.

PECKED AND GROUND STONE

A large bell-shaped pestle (Fig. 35a), 18.5 cm. long and 13 cm. in maximum diameter, was found in Kili Ghul Mohammad IV. The shafts to two probable manos or grinders (Fig. 35b–c) were found, respectively, on the surface and in Kili Ghul Mohammad II. The one illustrated in Fig. 35b is 6.5 cm. in maximum diameter; the other has a maximum diameter of 5.1 cm.

A limestone slab (Fig. 35d), 10.3 cm. in width, with a roughly triangular cross-section, may have been used as a grindstone. It was found in Kili Ghul Mohammad I. The one object that may have been used as a metate was found on

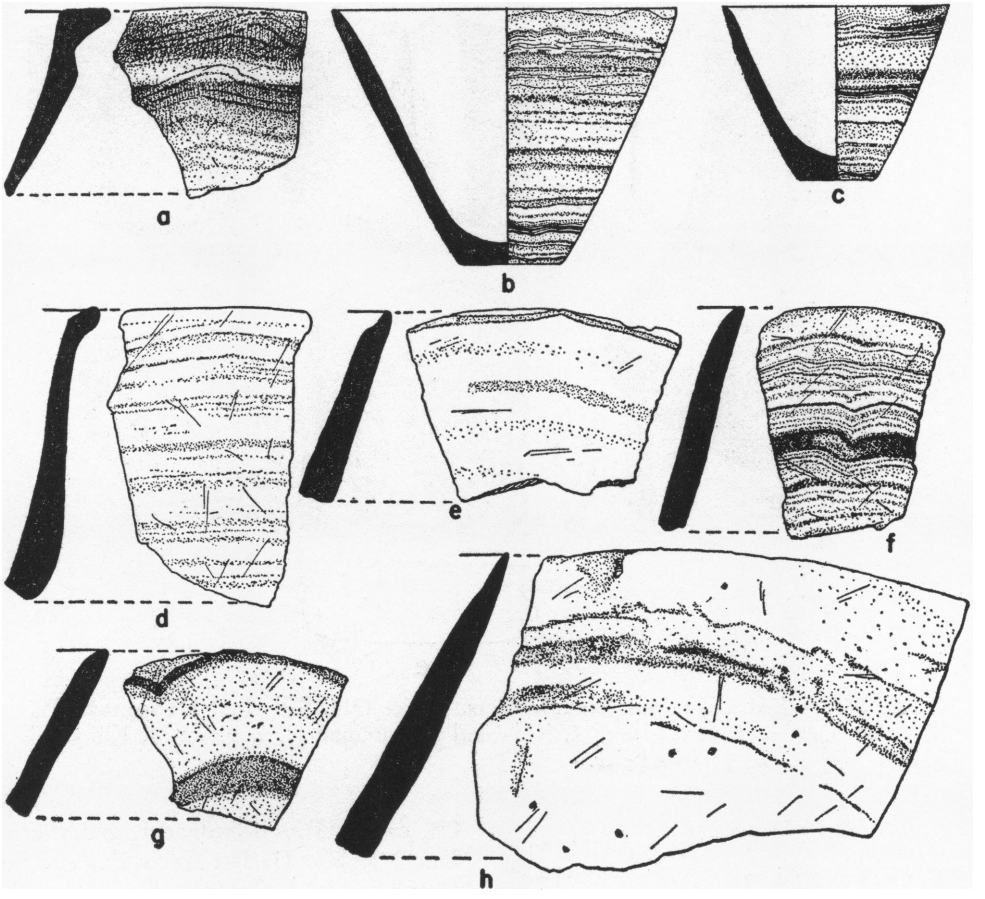

FIG. 34. Alabaster sherds. a, b. Site Q24, surface. c, e, g, h. Site Q8, Damb Sadaat II. d. Site Q8, surface. f. Site Q8, Damb Sadaat III. *Ca.* ½ natural size.

the surface (Fig. 35e). The material is a very porous limestone.

DAMB SADAAT

The stone objects from Damb Sadaat are slightly more numerous than those excavated at Kili Ghul Mohammad. The two groups, the blades and the grinding implements, seem to show some technological advance over those at the older site. In addition, a single arrowhead was found on the surface at this site. It was retained in Pakistan, but is illustrated as Fig. 30d.

BLADES

Eleven blades from Damb Sadaat are shown in Fig. 36; several others were found but in fragmentary condition. The usual material is tan chert, but Fig. 36c is of chalcedony. In general, the Damb Sadaat blades are a little larger than those from Kili Ghul Mohammad. They range in length up to 9 cm., and they are, for the most part, a little broader and thicker than the Kili Ghul Mohammad blades.

On the Kili Ghul Mohammad blades (Fig. 31) the bulb of percussion is at the broader end of the flake; from there the blade tapers, both in width and in thickness, either to a rounded point, if the blade did not reach the opposite end of the core, or to a narrow squared end which is a prism in cross-section if the blade extended the full length of the core. The typical Damb Sadaat blades (Fig. 36a–d), on the other hand, are parallel-sided and almost uniform in thickness from end to end. A few blades (Fig. 36e–g) have the bulb of percussion at the narrow end and are broader and thicker at the opposite end, just the reverse of the usual shape at Kili Ghul Mohammad.

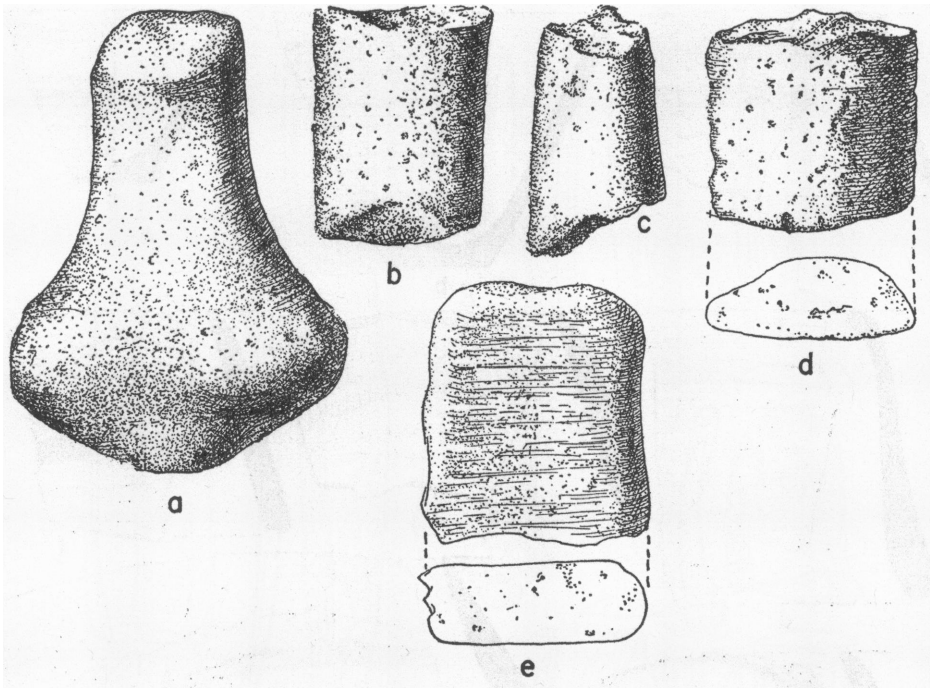

FIG. 35. Pecked and ground stone objects. a. Site Q24, Kili Ghul Mohammad IV. b, d. Site Q24, surface. c. Site Q24, Kili Ghul Mohammad II. e. Site Q24, Kili Ghul Mohammad I. *Ca.* ⅔ natural size.

SCRAPERS

Scrapers found at the site are all very crude (Fig. 37a–b). Figure 37a and b are of chert. Figure 37a is a thick (1.4 cm.) spall from a chert pebble. The convex surface is covered by the old patination of the pebble, but there is no patination on the plane surface or the retouched edges. Steep chipping extends around the whole circumference except for a projecting end which probably served as a handle.

CORES

Some of the blades found at this site must have been struck from long, prepared cores, but no such cores were found. Two small cores with three and four possible blade faces are illustrated in Fig. 37c–d. Figure 37d is from Damb Sadaat I.

STONE BALLS

A number of stone balls, ranging in diameter from 4 to 7.5 cm., were found at Damb Sadaat and another at Kechi Beg, a site equivalent in time to Damb Sadaat I. One of the Damb Sadaat balls was found on the surface of Site Q8, one in Damb Sadaat I, and the others in Damb Sadaat II. The Kechi Beg specimen, i.e., Damb Sadaat I, Site Q14 (Fig. 38a), differs from the other stone balls in that the surface shows some polish, as if from long use. Six of them, including the Kechi Beg ball, are of basalt; the others are of sandstone and limestone. Their function is uncertain. They seem too large to be bolas, and they lack the rubbing facets that might be expected if they were used for grinding. One sandstone ball has such a facet and may have been so used, but certainly this feature would have been commoner if their primary function was grinding. Their battered condition suggests that they were used as hammers.

ALABASTER SHERDS

Twenty-one alabaster sherds were found at the site: two in Damb Sadaat I, 14 in Damb Sadaat II, three in Damb Sadaat III, and two on the surface (Fig. 34c–h). The material was so selected that the colored veins run almost horizontally around the vessel, parallel to the rim. Most of the vessels are small, probably only 6 to 7 cm. in diameter, but one large rim

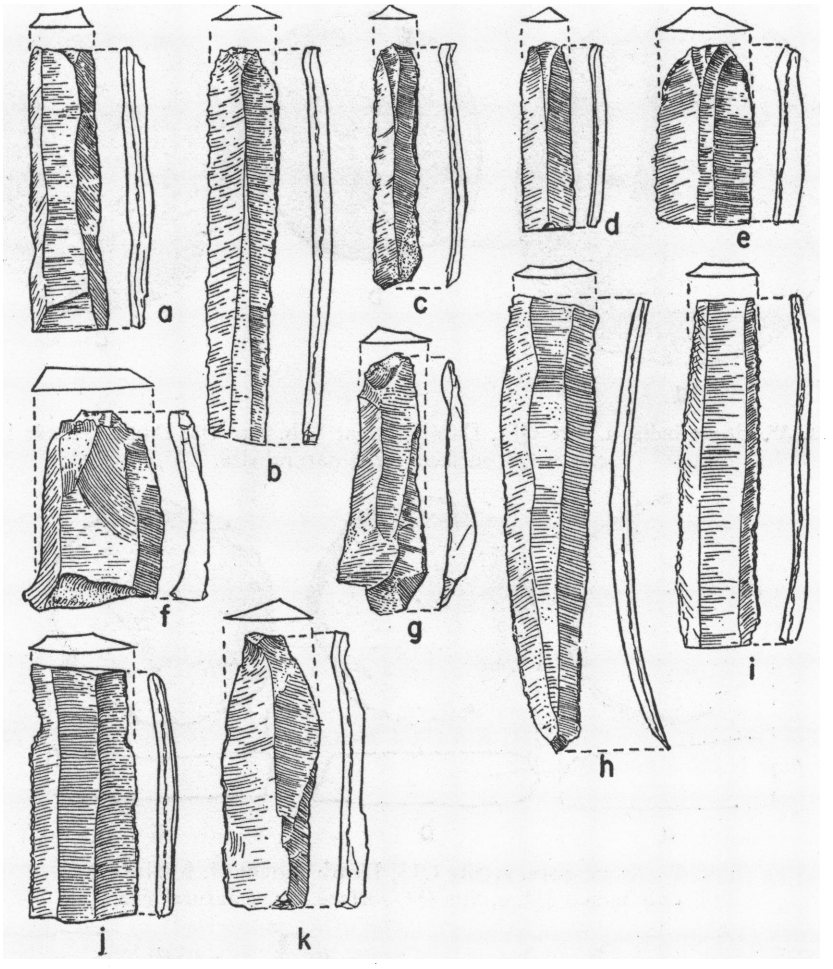

FIG. 36. Stone blades. a, b, d–f, h, j. Site Q8, Damb Sadaat II. c. Site Q8, Damb Sadaat II. g, k. Site Q8, Damb Sadaat I. i. Site Q8, surface. *Ca.* ⅔ natural size.

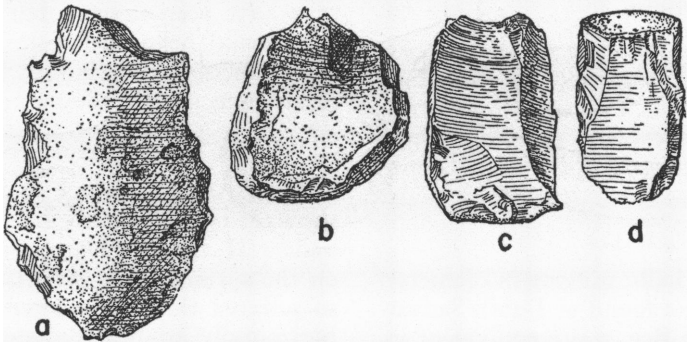

FIG. 37. Stone scrapers and cores. a, c. Site Q8, surface. b, d. Site Q8, Damb Sadaat I. *Ca.* ⅔ natural size.

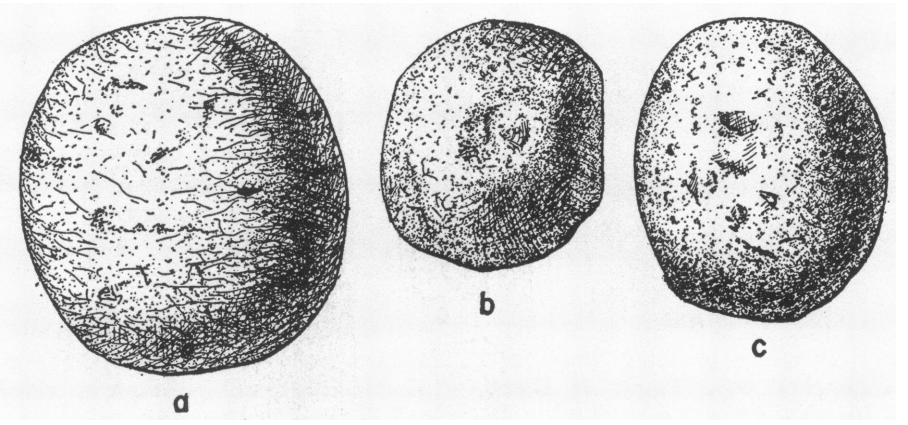

FIG. 38. Stone balls. a. Site Q14, Damb Sadaat I. b. Site Q8, Damb Sadaat III. c. Site Q8, surface. *Ca.* ⅔ natural size.

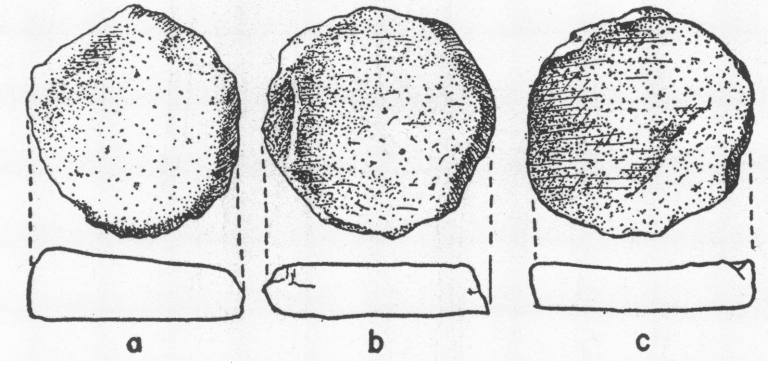

FIG. 39. Stone discs. a. Site Q13, Damb Sadaat II. b. Site Q8, Damb Sadaat III. c. Site Q8, surface. *Ca.* ⅔ natural size.

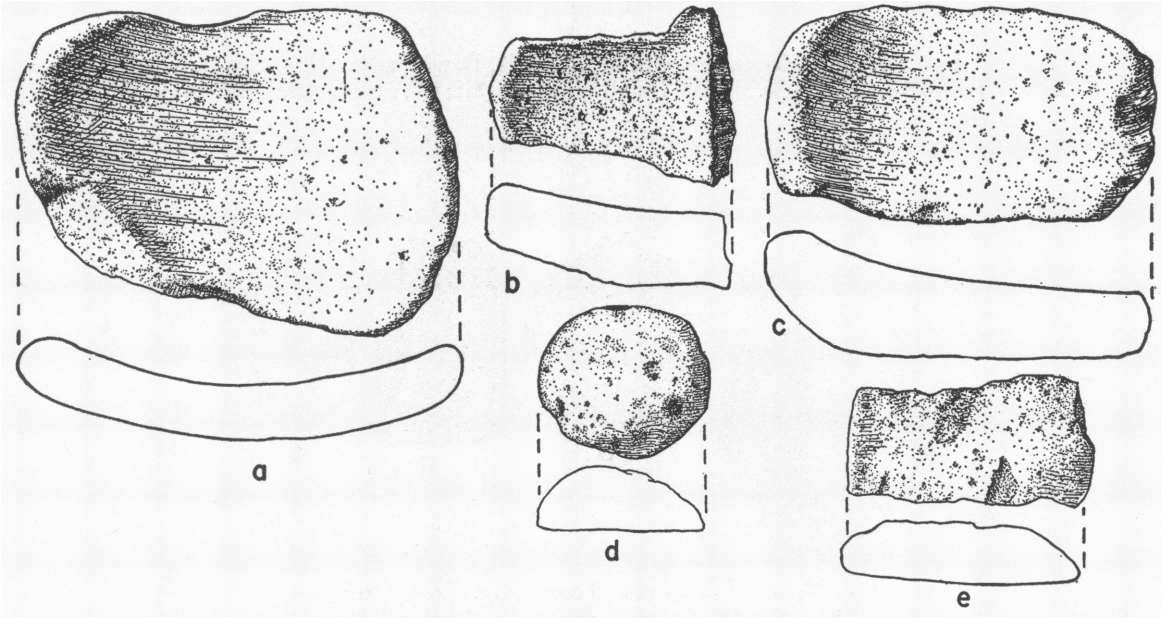

FIG. 40. Grinding slabs. a, b, e. Site Q8, Damb Sadaat II. c. Site Q8, Damb Sadaat I. d. Site Q8, surface. *Ca.* ¼ natural size.

sherd comes from a vessel with a diameter of at least 30 cm. (Fig. 34e). The shapes are similar to those at Kili Ghul Mohammad. In most cases the vessels had a simple tapered lip.

MISCELLANEOUS ROUGH STONE

Three rough limestone discs are illustrated in Fig. 39a–c.

GRINDING SLABS

Ten nearly complete grinding slabs and numerous fragments were found at Damb Sadaat (Fig. 40a–e).

There is a noticeable difference from Kili Ghul Mohammad in the type of grinding implements. At the latter site pounding implements were almost the only type found. Pounding equipment is useful for crushing nuts, seeds, etc., as in the preparation of paint, oil, or medicine, or even for grinding grain in small quantities; but when a large amount of grain is to be ground, as an important article of diet, a grinding slab and hand stone are generally used. The prevalence of the latter implements at Damb Sadaat probably reflects a much greater dependence on grain as a staple article of diet than at Kili Ghul Mohammad.

POTTERY TYPES

THE STRATIGRAPHIC POSITIONS of the pottery types discussed below are shown in Figs. 60 and 61. The stratigraphic order of the types is based on the test excavations made in Sites Q8 (Cut 1) and Q24. The sherds from Sites Q13 and Q14 were treated similarly. However, because part of the collection from these two sites was presented to the Government of Pakistan, it was not possible to make the final count of sherds and thus include them with the sherds from Sites Q8 and Q24 which were analyzed in greater detail at the American Museum.[1] Nevertheless, the collections available, together with the data recorded in the field following the initial typing of the sherds, indicate that the ceramic configurations conform in every way with those of the graph. Figure 64 shows the relative chronological positions of these sites.

The graph, therefore, includes all the ceramic stratigraphy of our excavations. This being so, I use the period designations as outlined in the section on Period Definitions and Chronology (pp. 334 ff.), rather than the individual site stratigraphic designations, to show the range of these ceramic types.

TERMINOLOGY

In the descriptions of the pottery types, an attempt was made to standardize the terminology so that a clear understanding of the characteristics enumerated below can be achieved. The definition of hardness was based on Moh's Scale of Hardness. The Munsell Color Charts were used to attain an objective description of the color. The remainder of the terms are self-explanatory.

The Munsell Color System is based on three factors: hue, value, and chroma. It is the recognition and application of these factors that permit the descriptive designation of color. *Hue* is the initial color word that comes to mind when one observes a potsherd, for instance, for the first time. Thus one may say "brown" or "red." Closer examination and comparisons with similar sherds often reveal wide differences in shading in these "browns" and "reds." Thus the system utilizes *value* to describe the quantity of light in a given color. Value, designated as a numerator in a color fraction, ranges on an ascending scale from 0 (black or dark) to 10 (white or light). *Chroma*, the third factor, represents the strength of a color. For example, among three pale yellow sherds, one may be a stronger pale yellow than the other two, and one of these stronger than the third. In other words, though they are the same in value, they differ in chroma. Chroma is described in numbers from 1 to 8 and set down as the denominator in the color fraction. Number 1 is the nearest to N or neutral gray. Thus the stronger the chroma, the higher the number.[2]

All the colors encountered in describing the pottery are listed in three categories: hue, notation, i.e., value-chroma, and common name.

PLAINWARES

MIAN GHUNDAI BUFF PLAIN

Figure 41a

A fine type of ware, with its climax in Periods G1 and G2. Forms are ring-based jars with flaring rims, cups, and a concave-walled jar with ring base and small mouth.

SITES: Q3, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 Y 7/2–7/3; 2.5 Y 8/0. *Temper:* Fine sand (rarely, bits of hard clay or black temper). *Texture:* Smooth to slightly sandy; chalk-like. *Hardness:* 3.
SURFACE FINISH: Not polished, but smoothed.
SURFACE COLOR: 2.5 YR 8/2–5 Y 7/2; occasionally shades occur towards 2.5 Y 7/4.
THICKNESS: Extremes, 0.25–1.1 cm.; mean, 0.5 cm.
DECORATION: None.

MIAN GHUNDAI FINE PLAIN

Figure 41b

The most common pottery type. It has a range from Period I through Period G3. It is most common in Period G. A large variety of forms, with cups, open bowls, and small-mouthed jars, are typical. There are two variants; no stratigraphic significance is attached

[1] A preliminary, somewhat broadly based typing of the wares excavated was carried out in the field. Thanks to the permission of the Director of Archaeology for Pakistan, Mr. Shamsuddin Ahmad, the collections from the critical Sites Q8 and Q24 were returned intact to New York.

[2] Munsell, 1929; also Soil Color Charts, issued by Munsell Color Company.

TABLE 3

COLOR NOTATIONS

Hue	Notation	Common Name
2.5 YR (reddish Yellow Red)	2/0	
	3/0	
	3/0	
	4/4	Reddish brown
	5/2	Purplish gray
	5/4	Reddish brown
	5/6	Red
	5/8	Red
	8/2	
2.5 Y (reddish Yellow)	3/0	
	4/0	
	5/0	
	6/0	
	6/2	Light brown-gray
	6/8	Olive yellow
	7/0	
	7/2	Light gray
	7/4	Pale yellow
	7/6	Yellow
	8/0	
	8/2	White
	8/4	Pale yellow
	8/6	Yellow
2.5 R (purplish Red)	4/0	
	5/0	
	6/2	
	6/8	
	7/4	
5 YR (Yellow-Red)	3/1	Very dark gray
	3/2	Dark reddish brown
	3/3	Dark reddish brown
	4/1	Dark gray
	4/2	Purplish gray
	5/1	Gray
	5/2	Purplish gray
	5/4	Reddish brown
	5/6	Yellowish red
	6/3	Light reddish brown
	6/4	Light reddish brown
	6/6	Reddish yellow
	6/8	Reddish yellow
	7/3	Pink
	7/4	Pink
	7/6	Reddish yellow
	7/8	Reddish yellow
5 Y (Yellow)	6/1	Gray
	7/2	Light gray
	7/3	Pale yellow
	7/4	Pale yellow
	8/1	White
	8/2	White
	8/3	Pale yellow
7.5 YR (yellowish Yellow-Red)	3/0	
	4/0	
	4/2	Brown
	5/0	
	6/0	
	6/2	Pinkish gray
	6/4	Light brown
	6/6	Reddish yellow
	7/0	
	7/4	Pink
	7/6	Reddish yellow
	7/8	Reddish yellow
	8/4	Pink
	8/6	Reddish yellow
7.5 R (yellowish Red)	3/2	
	3/4	
	3/6	
	4/0	
	4/2	
	4/4	
	4/6	
	4/8	
	5/2	
	5/4	
	5/6	
	5/8	
	6/4	
	6/6	
	6/8	
	7/4	
	7/6	
10 YR (Yellow-Red Yellow)	3/1	Very dark gray
	4/1	Dark gray
	5/1	Gray
	6/2	Light brown-gray
	6/3	Pale brown
	6/4	Light yellowish brown
	7/2	Light gray
	7/3	Very pale brown
	7/4	Very pale brown
	8/1	White
	8/2	White
	8/3	
	8/4	
	8/6	Yellow
10 R (Red Yellow-Red)	3/1	Dark red
	3/2	Dark red
	3/6	Red
	4/1	Purplish red
	4/2	Purplish red
	4/3	Purplish red
	4/4	Purplish red
	4/8	Red
	5/3	Purplish red
	5/4	Purplish red
	5/6	Red
	5/8	Red

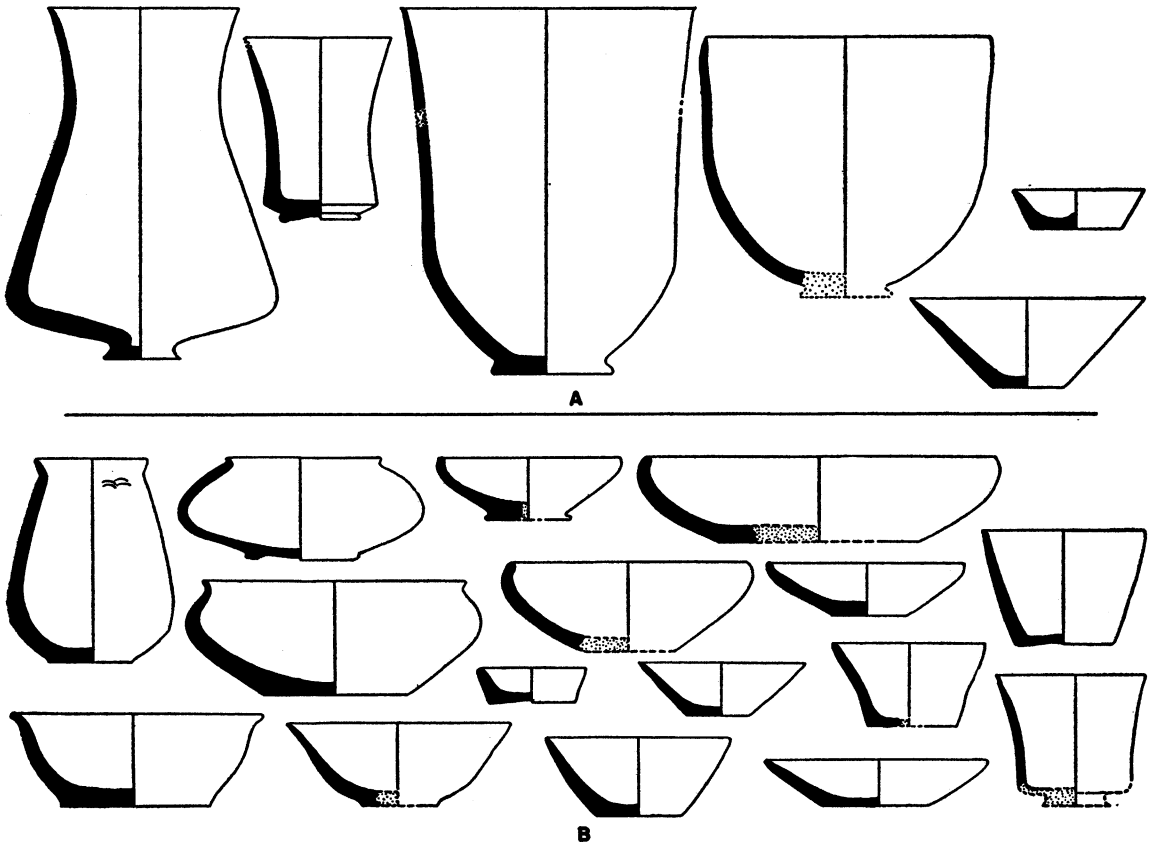

FIG. 41. Vessel shapes, rim profiles, and bases. a. Mian Ghundai Buff Plain. b. Mian Ghundai Fine Plain. *Ca.* ½ natural size.

to either. The variation is in color, owing to firing: Variant 1, Fine Brown; Variant 2, Fine Red.

VARIANT 1, FINE BROWN

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 YR 6/6–5 Y 7/4. *Temper:* Fine sand; occasional traces of other tempers. *Texture:* Smooth to sandy. *Hardness:* 3.
SURFACE FINISH: Smooth; frequent instrument marking; wheel striations frequent.
SURFACE COLOR: 5 YR 7/4; 6/8–5 Y 8/2.
THICKNESS: Extremes, 1.5–0.3 cm.; mean, 0.5–0.6 cm.
DECORATION: None.

VARIANT 2, FINE RED

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 YR 7/6–6/8 when completely fired; otherwise, combination of yellow-red towards black or yellow. *Temper:* Fine sand; other tempers rare; fine ground pottery specks occur occasionally in Period H2 levels. *Texture:* Smooth to sandy. *Hardness:* 3–3.5.
SURFACE FINISH: Smooth; wheel striation.
SURFACE COLOR: 5 YR 7/6–7/8.
THICKNESS: Extremes, 0.3–1.1 cm.; mean, 0.6 cm.
DECORATION: None.

SULTAN PURPLE

Figure 42a

This type is found most frequently in Period H2. In form, it is characterized by deep open bowls and by small-mouthed vases with convex walls. A single pedestal fragment of this type was also found. This ware is characterized by its surface color; a buff or light brown slip was then applied to the paste. When fired this slip assumed a purplish hue. There are two variants without stratigraphic significance: Variant 1, Fine; Variant 2, Coarse.

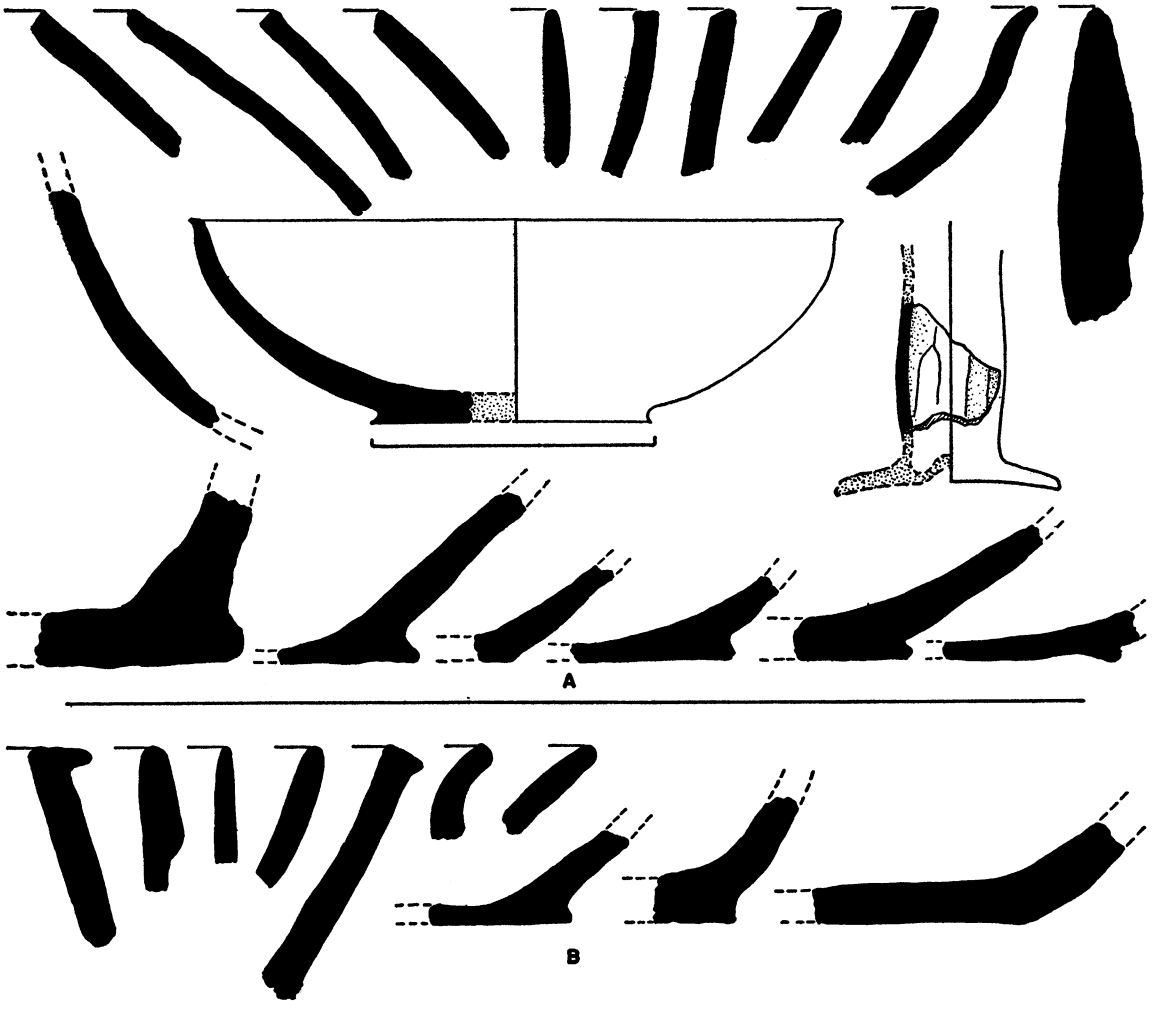

FIG. 42. Vessel shapes, rim profiles, and bases. a. Sultan Purple. b. Sirdar Coarse Buff. *Ca.* ½ natural size; restorations, scale 6 inches.

VARIANT 1, FINE

SITES: Q8, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 2.5 Y 8/4; 5 YR 6/6. *Temper:* Fine sand; occasional hard clay or red, brown, or black temper; size, 1 mm. or less; shape, microscopic angularity; angular for other tempers; amount, moderate to heavy; other tempers sparse. *Texture:* Smooth; some sandiness. *Hardness:* 2.5–3.
SURFACE FINISH: Smooth.
SURFACE COLOR: 2.5 R 6/2; 6/8, 7/4 most common.
THICKNESS: Extremes, 0.4–1.2 cm.; mean, 0.7 cm.
DECORATION: None.

VARIANT 2, COARSE

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade; coiled.
FIRING: Oxidizing.
PASTE: *Color:* 2.5 Y 8/4; 5 YR 6/6. *Temper:* Various; black, brown, red, hard clay, and sandy. *Texture:* Sandy to rough. *Hardness:* 2–3.
SURFACE FINISH: Smooth.
SURFACE COLOR: 2.5 R 6/2, 6/8, 7/4 most common. Slip usually on both surfaces; purple color mostly on exterior.
THICKNESS: Extremes, 0.5–1.7 cm.; mean, 1.0 cm.
DECORATION: None.
MISCELLANEOUS: The purple color is not, as a rule, an all-over color (in both variants); it usually

appears in patches or blocks, especially on the rims and upper body, indicating that the vessel was fired upside down with the upper part of its body close to the oxidizing flame.

The sandy temper sherds are all from Q24 and are somewhat less hard (2–3) than other sherds with other tempers (2.5–3). Sandy temper pastes are thicker on the average than the pastes with other tempers (1.1–1.2 cm.)

Sirdar Coarse Buff

Figure 42b

A type probably characterized by open-bowl forms. It was most popular in Period H2.

Sites: Q8, Q13, Q14, Q24.
Construction: Wheelmade.
Firing: Oxidizing.
Paste: *Color:* 2.5 Y 8/4; 5 Y 8/3, 6/1. *Temper:* Kind, fine hard clay; size, less than 1 mm.; shape, angular; amount, moderate. *Texture:* Sandy. *Hardness:* 2.5–3.
Surface Finish: Smooth to slightly rough.
Surface Color: 5 Y 8/1, 8/3; 10 YR 8/4.
Thickness: Extremes, 0.5–1.6 cm.; mean, 0.9–1.0 cm.
Decoration: None.

Kechi Beg Oxidized

Figure 43

Forms consist primarily of open bowls and small-mouthed globular jars. Though Kechi Beg Oxidized has a long range, its climax appears to have been in Period H2.

Sites: Q8, Q13, Q14, Q24.
Construction: Wheelmade; very rarely coiled (occurs at Q24).
Firing: Oxidizing.
Paste: *Color:* 7.5 YR 7/6, 7/8; 5 YR 6/6. *Temper:* Kind, fine sand; occasional bits of hard clay, black, red, and brown tempers; size, less than 1 mm.; shape, microscopic angularity; amount, heavy. *Texture:* Smooth to sandy. *Hardness:* 3–4.
Surface Finish: Not polished, smooth.
Surface Color: 5 YR 7/6; 7.5 R 6/8; slip very frequent, 10 YR 8/3.
Thickness: Extremes, 0.5–1.6 cm.; mean, 0.9 cm.
Decoration: None.
Miscellaneous: In general the texture of the paste is coarser in the Period H2 levels than in the Period G levels.

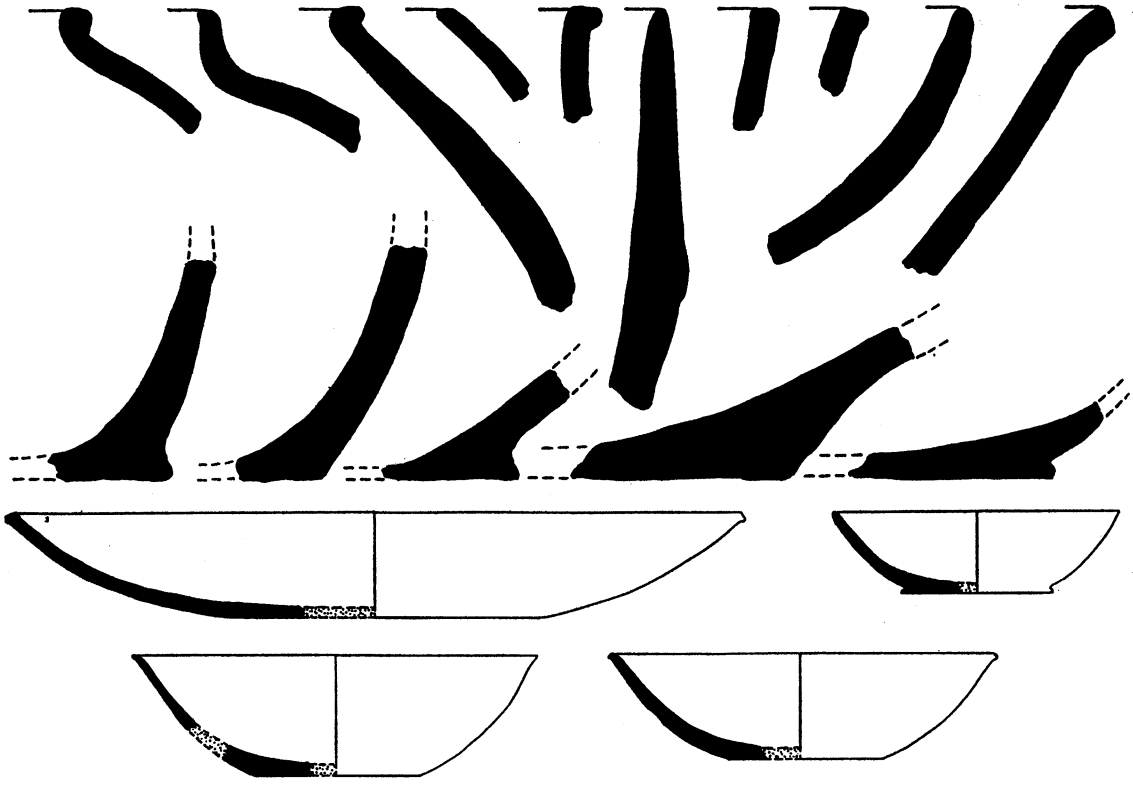

Fig. 43. Vessel shapes, rim profiles, and bases, Kechi Beg Oxidized. *Ca.* ½ natural size; restorations, *ca.* ⅛ natural size.

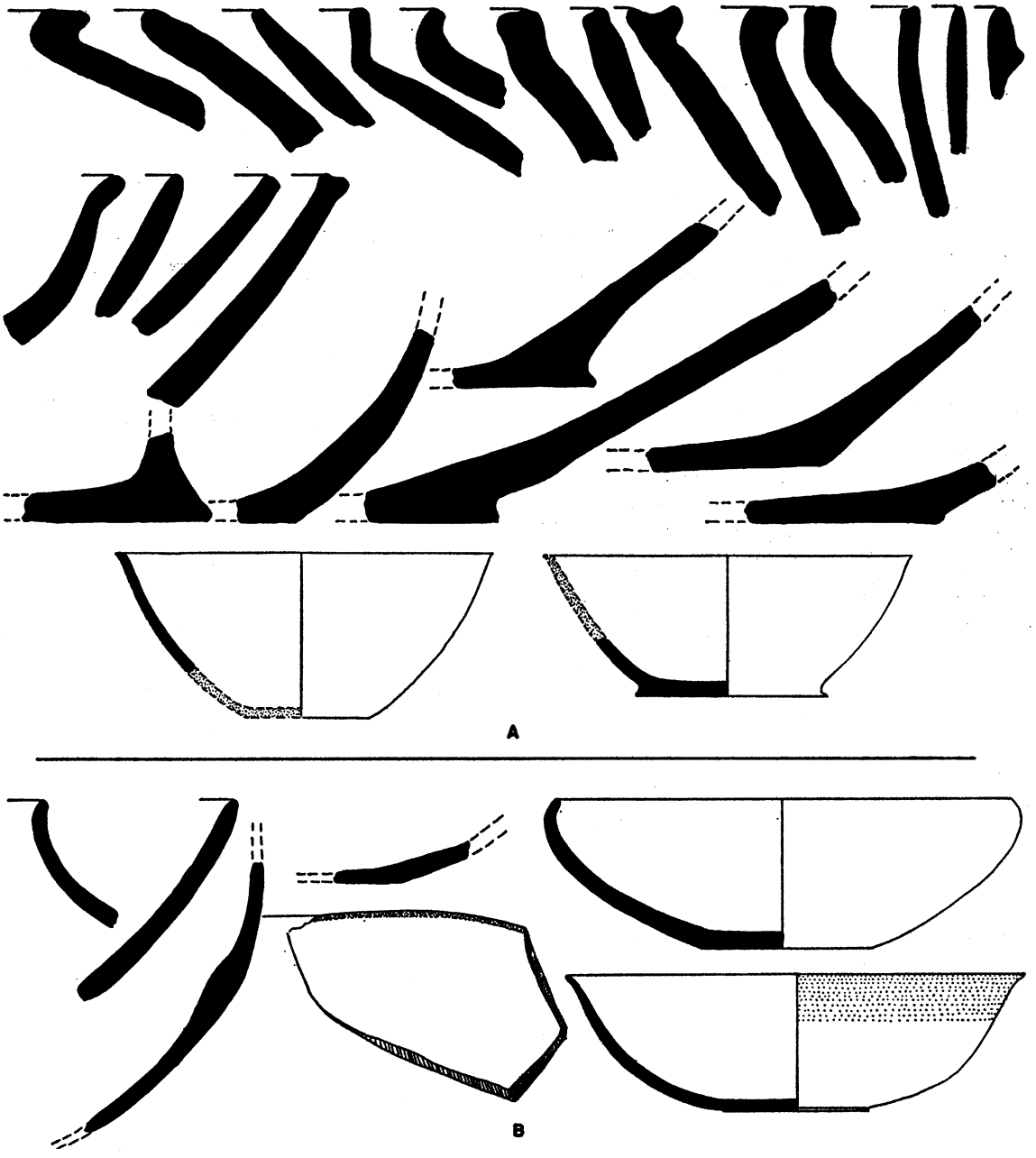

FIG. 44. Vessel shapes, rim profiles, and bases. a. Mustafa Temper. b. Quetta Micaceous. *Ca.* ½ natural size. a. Restorations, *ca.* ⅛ natural size. b. Restorations, *ca.* ¼ natural size.

MUSTAFA TEMPER

Figure 44a

Mustafa Temper is characteristic of the plain, coarse wares of Period H2. The forms are primarily open bowls, though globular jars are common. The type has three variants which result from differences in firing temperature that have affected the color of the temper. There are no stratigraphic differences among these variants: Variant 1, Black Temper; Variant 2, Brown Temper; Variant 3, Red Temper.

VARIANT 1, BLACK TEMPER

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/4–10 YR 7/2; also 5 Y 7/3 (green); 10 YR 7/2 area most common; occasional black reduced ware. *Temper:* Kind, probably an iron compound; black in color; size 1–5 mm.; mean, about 3 mm.; shape, angular; amount, moderate to heavy. *Texture:* Rough. *Hardness:* 4.

SURFACE FINISH: Granular; rarely gritty.

SURFACE COLOR: 10 YR 7/4–8/2; 2.5 Y 7/2–7/0. A slip is frequently applied commonly over a red-fired ware; slip color, 10 YR 8/3–8/4.

THICKNESS: Extremes, 0.5–2.0 cm.; mean, 1.0 cm.

DECORATION: None.

VARIANT 2, BROWN TEMPER

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 7.5 YR 6/4, 6/6; 10 YR 7/3, 8/1; tends towards the lighter browns. *Temper:* Kind, ?; size, 1–4 mm.; mean, *ca.* 2 mm.; shape, angular; amount, sparse to moderate. *Texture:* Sandy; frequently somewhat rough; occasionally smooth. *Hardness:* 3–4.

SURFACE FINISH: Rough, occasionally smooth or granular.

SURFACE COLOR: 2.5 Y 8/2; 5 YR 7/4; 10 YR 7/4. Interior of vessels tends towards red; occasional slip color towards 10 YR 7/4.

THICKNESS: Extremes, 0.6–1.6 cm.; mean, 0.9 cm.

DECORATION: None.

MISCELLANEOUS: This type illustrates the technique of constructing a vessel in two parts and joining them when still wet. The joint is tightened by roughening the rim surfaces of the opposing halves by incisions.

VARIANT 3, RED TEMPER

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade; only occasionally handmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/8, 7/4–7/6; 10 YR 7/3. *Temper:* Kind, ?; size, 1–5 mm.; mean, 3 mm.; shape, angular; amount, sparse to moderate. *Texture:* Sandy, frequently somewhat rough; occasionally smooth. *Hardness:* 3.5–4.

SURFACE FINISH: Occasionally smoothed; but most often granular.

SURFACE COLOR: 10 YR 7/4; 5 YR 7/3; 2.5 Y 8/4; interior of vessels tends towards red (example, 5 YR 7/4–7/6); surfaces often in shades towards 2.5 Y 8/4.

THICKNESS: Extremes, 0.5–1.6 cm.; mean, 0.9–1.0 cm.

DECORATION: None.

MISCELLANEOUS: Black or brown temper is frequently associated with the red. Occasionally, a piece of temper will be half red and half black, suggesting that the composition of the two tempers is identical. The difference lies in the kind of firing.

The technique of making a vessel in two separate pieces and then joining them seems to have been used occasionally by the makers of this ware.

QUETTA MICACEOUS

Figure 44b

A rather ambiguous type, with open bowls as the principal form, only sparsely found. Its greatest frequency is in Period H2.

SITES: Q8, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 10 R 4/4, 5/8; 5 YR 7/8. *Temper:* Kind, micaceous; size, microscopic; shape, angular; amount, sparse to moderate. *Texture:* Smooth and sandy. *Hardness:* 4.

SURFACE FINISH: Smooth; slightly rough.

SURFACE COLOR: Surface; 10 R 5/6. Slip (when it occurs): 2.5 Y 6/8, 7/6, 8/2.

THICKNESS: Extremes, 0.4–0.8 cm.; mean, 0.55 cm.

DECORATION: None; one sherd bears the remnants of a black slip (Damb Sadaat III); another is painted with a black rim on red slip (Damb Sadaat II)

MISCELLANEOUS: Slightly more than half the sherds of this type are slipped. One sherd (Damb Sadaat II) has striations suggesting painted Quetta design.

WALI SAND AND GRAVEL TEMPER

Figure 45a

A coarse plainware found most frequently in Period H2. The common form is the straight or slightly expanded flat-bottomed jar. Heavy built-out rims occur frequently.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Handmade; coiling involved; basket marking.

FIRING: Oxidizing.

PASTE: *Color:* 10 YR 5/1–7/3; 5 YR 6/6. Organic material in paste causes blackish core, i.e., 10 YR 5/1; occurs in about one-third of the sherds. *Temper:* Kind, coarse sand and gravel; size, 2–14 mm.; mean, 4 mm.; shape, rounded pebbles (?water-worn); amount, sparse to moderate. *Texture:* Coarse sandy; rough. *Hardness:* 2.5–3.

SURFACE FINISH: Roughly smoothed; frequently granular.

SURFACE COLOR: 10 YR 7/3, 8/2, 8/3. Surface often fire-blackened; reddish hues on interior of vessel common; slip rare.

THICKNESS: Extremes, 0.5–1.5 cm.; mean, 0.8–0.9 cm.

DECORATION: None.

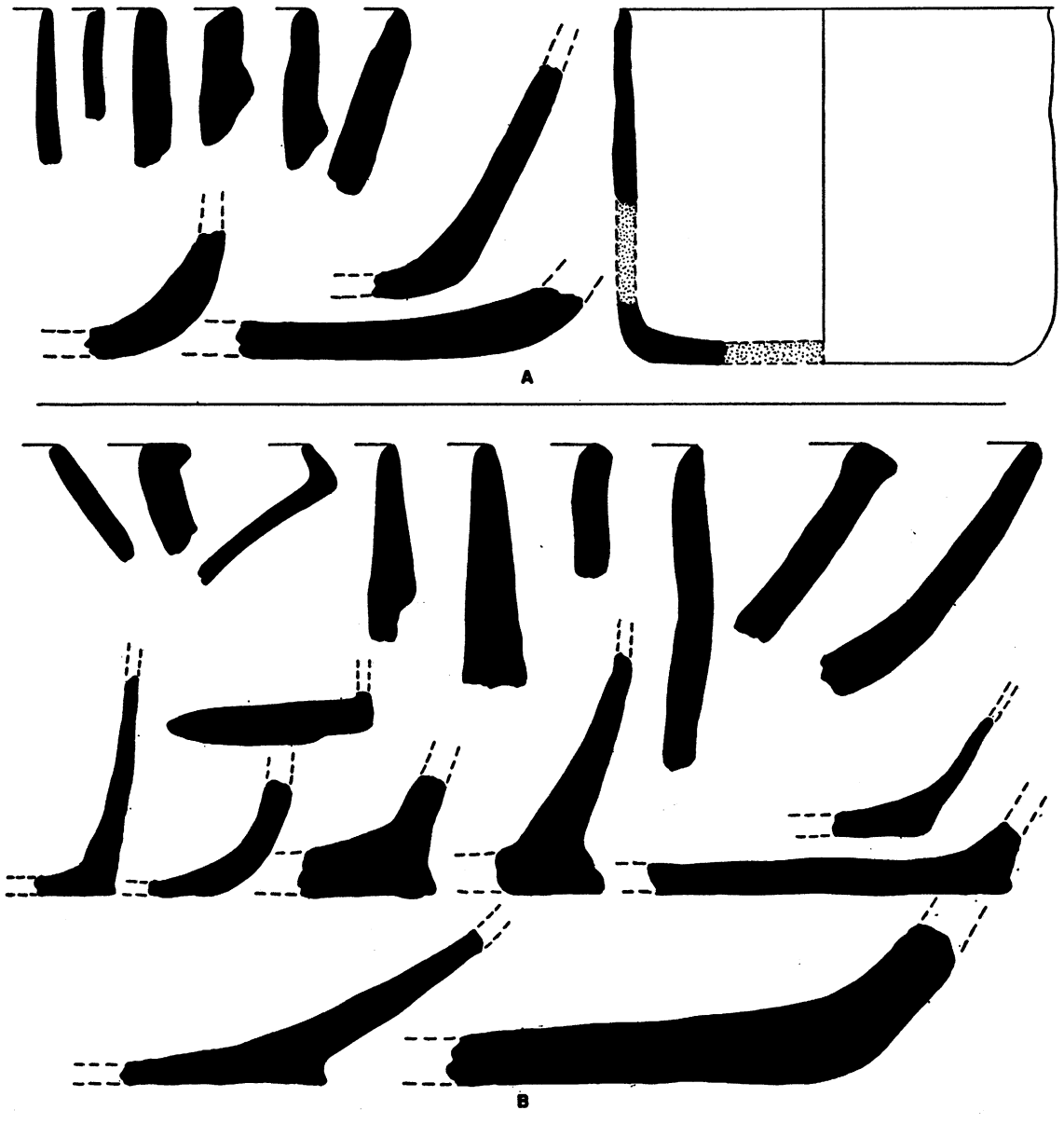

FIG. 45. Vessel shapes, rim profiles, and bases. a. Wali Sand and Gravel Temper. b. Nazim Hard-Clay Temper. *Ca.* ½ natural size.

NAZIM HARD-CLAY TEMPER

Figure 45b

A plain coarse ware which appears to be among the first made by the ceramic-making occupants of the Quetta Valley during Period I. Though it survives apparently during the long range of prehistoric periods, it is of very minor importance in Period G. Open bowls appear to be characteristic. Variant 1, Fine; Variant 2, Coarse. There is no stratigraphic differentiation in the variants after Period I.

VARIANT 1, FINE

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 YR 6/4, 6/6; 2.5 YR 5/6; 2.5 Y 7/2. *Temper:* Kind, probably hard clay or possibly shell (dissolves in hydrochloric acid); size, 0.5–8 mm.;

mean, 1 mm.; shape, angular; amount, sparse to moderate. *Texture:* Smooth, slightly rough. *Hardness:* 3–4; probably 3.5.

SURFACE FINISH: Smooth.

SURFACE COLOR: 5 YR 7/3, 7/4; 10 R 5/8; occasional slip, 2.5 Y 8/2.

THICKNESS: Extremes, 0.5–1.2 cm.; mean, 0.8 cm.

DECORATION: None.

MISCELLANEOUS: The hard-clay tempers also occur frequently in other ceramic types, especially in the Mustafa Temper group. When two different tempers are involved, it is difficult to make a clear differentiation as to kinds. It should be noted that hard-clay tempers are most frequent in Period H and I context and least so in the Period G assemblage.

VARIANT 2, COARSE

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Handmade, probably molded in a basket; some coiling likely; also indications of a slow wheel.

FIRING: Oxidizing.

PASTE: *Color:* 10 YR 7/4; 10 R 5/3, 5/4; 5 YR 6/6, tending towards light reds and purple-reds. *Temper:* Kind, probably hard clay or possibly shell; size, 0.5–6 mm.; mean, 2 mm.; shape, angular; amount, moderate. *Texture:* Coarse sandy. *Hardness:* 3–4.

SURFACE FINISH: Smooth.

SURFACE COLOR: 5 YR 7/4; frequently slipped in 2.5 Y 8/4.

THICKNESS: Extremes, 0.7–2.0 cm.; mean, 1.1 cm.

DECORATION: None.

ADAM SANDY

Figure 46a

The most common coarse plainware of Period I and Period H1 is Adam Sandy. This rather crude ware is characterized by varieties of high-walled open bowls, sometimes with broad heavy rims built out from the walls.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Handmade; basket-coiled.

FIRING: Oxidizing-reducing (central core often dark brown).

PASTE: *Color:* 5 YR 5/4, 5/6, 6/6; 10 R 5/6. *Temper:* Kind, coarse-grained sand; size, less than 1 mm.; shape, microscopic angularity; amount, heavy. *Texture:* Sandy. *Hardness:* 2–3.

SURFACE FINISH: Smooth and granular.

SURFACE COLOR: 5 YR 7/6; 7/5 YR 8/4; 10 YR 7/4; slipped frequently, 2.5 Y 8/4.

THICKNESS: Extremes, 0.7–2.2 cm.; mean, 1.1–1.2 cm.

DECORATION: None.

QUETTA SLATE TEMPER

Figure 46b

A heavy coarse ware common in Period G2. It is distinguished by small open bowls and high-walled vessels with flaring rims, with or without bottoms.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Handmade, coiled; rarely, slow wheel.

FIRING: Oxidizing; occasionally reduced.

PASTE: *Color:* 5 YR 6/3, 7/4; 2.5 Y 7/4. *Temper:* Kind, probably slate; size, 2–30 mm.; mean, 6–10 mm.; shape, long prismatic; amount, moderate to heavy. *Texture:* Rough. *Hardness:* 3–4.

SURFACE FINISH: Rough, granular; slip applied and smoothed, but surface generally rough, with temper protruding.

SURFACE COLOR: Exterior and interior commonly slipped in 10 YR 8/2–8/4; unslipped surface 10 YR 7/3, 7/4; 5 YR 7/6 (rare); often fire-blackened.

THICKNESS: Extremes, 0.5–1.5 cm.; mean, 1.0–1.1 cm.

DECORATION: None.

MISCELLANEOUS: It is apparent that a frequent procedure in the manufacture of this ware was the use of a kind of double paste, i.e., the vessel was completed, allowed to dry partially, and then coated with another layer of the same paste material. The vessel was then fired.

DECORATED WARES

MIAN GHUNDAI PLAIN BUFF SLIP

Figure 47a

A common type, with its maximum popularity in Period G2. It is very probable that a number of base sherds of Quetta Black-on-Buff are classified under this type. Open bowls are characteristic.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/6; 7.5 YR 7/4. *Temper:* Kind, very fine sand (if any); occasional very fine hard clay; size, microscopic; shape, angular; amount, moderate to heavy. *Texture:* Smooth. *Hardness:* 3–4.

SURFACE FINISH: Smooth.

SURFACE COLOR: 10 YR 8/4.

THICKNESS: Extremes, 0.35–1.4 cm.; mean, 0.5–0.6 cm.

DECORATION: Slipped.

MISCELLANEOUS: This ware is usually slipped over the exterior surface, though open vessels are commonly slipped on the interior. The slip is of very fine texture, usually very thinly applied, i.e., less than 1 mm. thick.

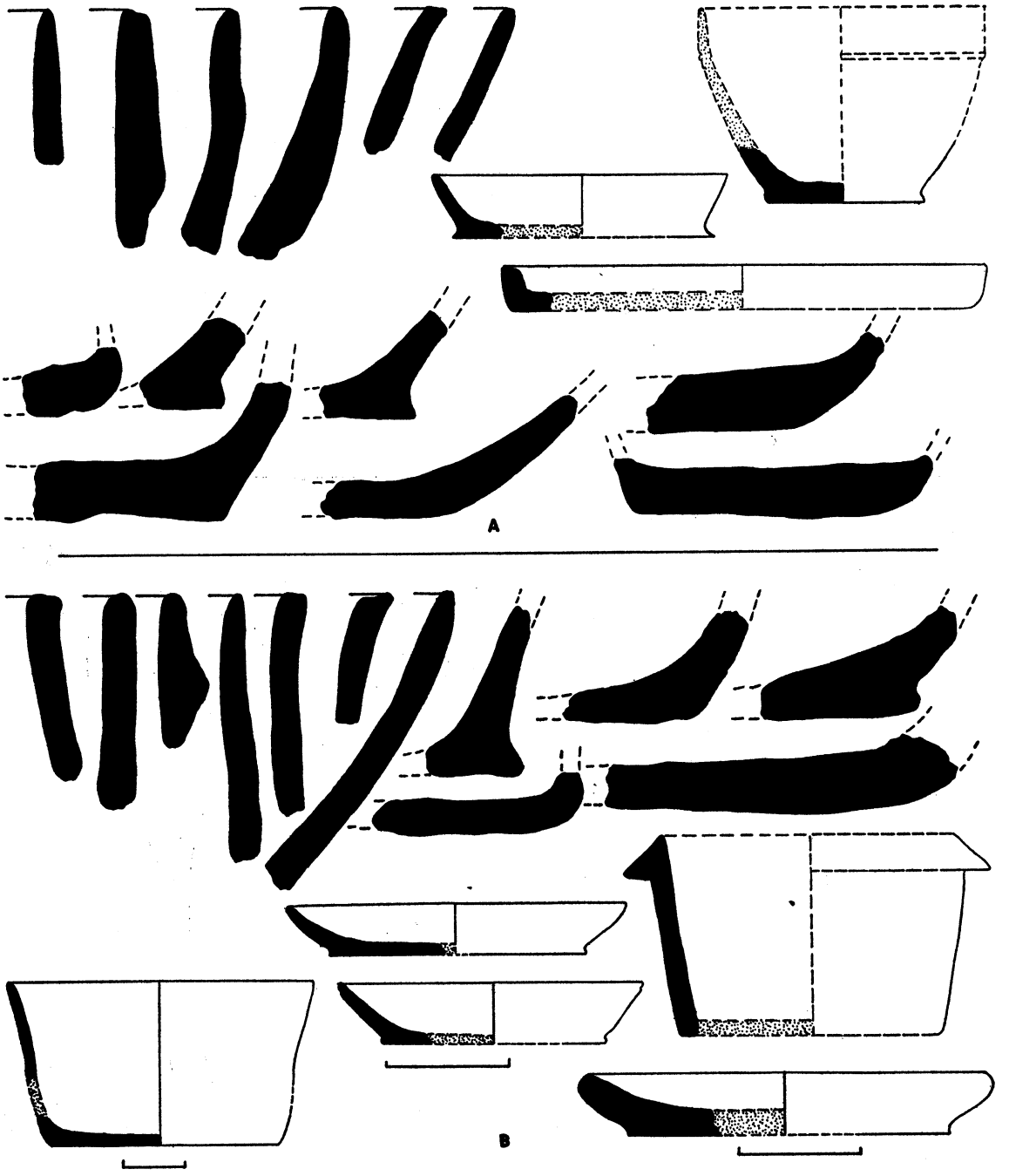

FIG. 46. Vessel shapes, rim profiles, and bases. a. Adam Sandy. b. Quetta Slate Temper. a. *Ca.* ½ natural size. a. Restorations, *ca.* ¼ natural size. b. Restorations, scale 3 inches.

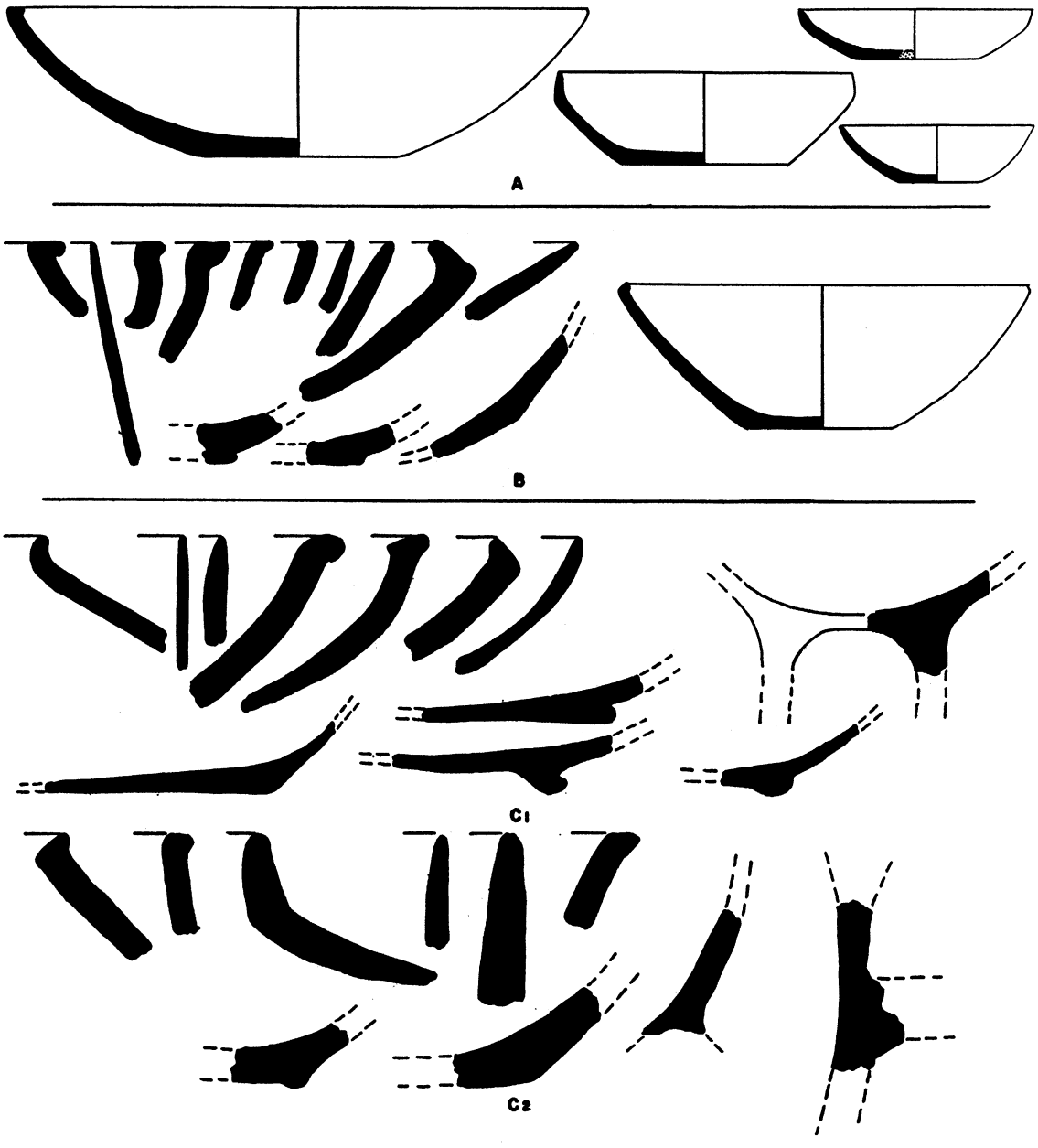

FIG. 47. Vessel shapes, rim profiles, and bases. a. Mian Ghundai Plain Buff Slip. b. Charikar Red Slip. c1. Malik Dark Slip, Fine. c2. Malik Dark Slip, Coarse. a. *Ca.* ¼ natural size. b. *Ca.* ½ natural size. b. Restorations, *ca.* ⅛ natural size. c1, c2. *Ca.* ½ natural size.

CHARIKAR RED SLIP

Figure 47b

This type has two variants. Variant 2 is coarser in paste and somewhat thicker than Variant 1. Variant 2 is frequently handmade. Variant 1 has its climax in Period H2, while Variant 2 is most popular in Period H1. Open bowls and occasional inward-tapered walled jars are typical forms.

VARIANT 1

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 YR 7/4; 7.5 YR 6/6. *Temper:*

Kind, very fine sand, occasionally fine hard clay; size, less than 1 mm. to microscopic; shape, angular; amount, sparse to moderate. *Texture:* Smooth. *Hardness:* 2–3; occasionally, 3.5.

SURFACE FINISH: Smooth; occasionally polished.

SURFACE COLOR: 10 R 3/6, 4/4, 5/6, 5/8; 7.5 R 5/6, 7/6.

THICKNESS: Extremes, 0.3–0.9 cm.; mean, 0.5–0.6 cm.

DECORATION: Slipped; slip less than 0.5 mm. thick, occurs on exterior of vessel; occasionally in Damb Sadaat II slipping occurs in the interior as well as on the exterior of the vessel (usually open bowls).

VARIANT 2

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Handmade; coiling; slow wheel; wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/4, 6/6, 7/6; 7.5 YR 7/6; 2.5 Y 8/4. *Temper:* Kind, red, hard clay, sandy; size, red temper, 1–3 mm.; hard clay, 1 mm. and less, sandy, similar to Adam Sandy; shape, angular; amount, moderate. *Texture:* Rough. *Hardness:* 3.

SURFACE FINISH: Smooth to slightly rough.

SURFACE COLOR: 10 R 5/4, 5/6, 5/8.

THICKNESS: Extremes, 0.6–2.1 cm.; mean, 0.9–1.0 cm.

DECORATION: Slipped.

MISCELLANEOUS: Slip is thin (i.e., less than 0.5 mm.), spread evenly over the paste.

Handmade wares are almost entirely confined to the ceramic levels of Q24.

MALIK DARK SLIP

Figure 47c1, c2

A type with four variants: 1, Fine Dark Slip; 2, Coarse Dark Slip; 3, Fine Black Slip; 4, Coarse Black Slip. There is no stratigraphic differentiation among these variants; the climax for all occurs in Period H2. Forms include open bowls, rounded small-mouthed jars, and straight-sided jars. A single example of a pedestal sherd occurs in this type.

VARIANT 1, FINE DARK SLIP

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/4–6/6, 7/4, 7/6; 10 YR 6/3. *Temper:* Kind, fine hard clay; fine sand; size, hard clay less than 1 mm.; fine sand, microscopic; shape, angular; amount, sparse. *Texture:* Smooth. *Hardness:* 3–4.

SURFACE FINISH: Smooth.

SURFACE COLOR: 5 YR 5/1, 5/2, 6/3; 7.5 YR 6/2.

THICKNESS: Extremes, 0.2–0.85 cm.; mean, 0.5 cm.

DECORATION: Slipped.

MISCELLANEOUS: Slip is usually on exterior though it also occurs on interiors of open vessels; rarely are both surfaces slipped. Slip is less than 0.5 mm. thick. One sherd with brown slip over-slipped by Quetta wetware slip.

VARIANT 2, COARSE DARK SLIP

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade; occasionally handmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/6, 7/6; 2.5 Y 8/4; 5 Y 8/2. *Temper:* Kind, various; Mustafa tempers, hard clay, sandy; size, 1–3 mm.; shape, angular; amount, moderate. *Texture:* Sandy to rough. *Hardness:* 3–4.

SURFACE FINISH: Smooth; slightly rough.

SURFACE COLOR: 10 R 3/1, 3/2, 4/4; 10 YR 7/4.

THICKNESS: Extremes, 0.65–1.5 cm.; mean, 0.8–0.9 cm.

DECORATION: Slipped.

MISCELLANEOUS: Slip on exterior usually; interior slipping on open vessels common. Slip thin, i.e., less than 0.33 mm.

VARIANT 3, FINE BLACK SLIP

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 2.5 YR 5/8; 5 YR 6/6, 7/6; 10 YR 7/4. *Temper:* Kind, fine hard clay; size, 1 mm. to microscopic; shape, angular; amount, sparse. *Texture:* Smooth. *Hardness:* 3.5–4.

SURFACE FINISH: Smooth.

SURFACE COLOR: 2.5 YR 3/0; 2.5 Y 4/0; 10 YR 5/1 towards brown.

THICKNESS: Extremes, 0.3–1.0 cm.; mean, 0.6 cm.

DECORATION: Slipped.

MISCELLANEOUS: Interior slip on open bowls; exterior slip on most vessels. Thin slip, i.e., less than 0.33 mm.

VARIANT 4, COARSE BLACK SLIP

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 7.5 YR 7/6; 5 YR 6/6; 2.5 YR 5/6; 10 R 5/8 (unusual). *Temper:* Kind, hard clay, black; hard clay most common; frequently occurs together with black temper; size, 1–4 mm.; shape, angular; amount, moderate. *Texture:* Rough. *Hardness:* 3.5–4.

SURFACE FINISH: Smooth to slightly rough.

SURFACE COLOR: 2.5 Y 4/0; 2.5 YR 3/0; 10 YR 5/1.

THICKNESS: Extremes, 0.6–1.1 cm.; mean, 0.8–0.9 cm.

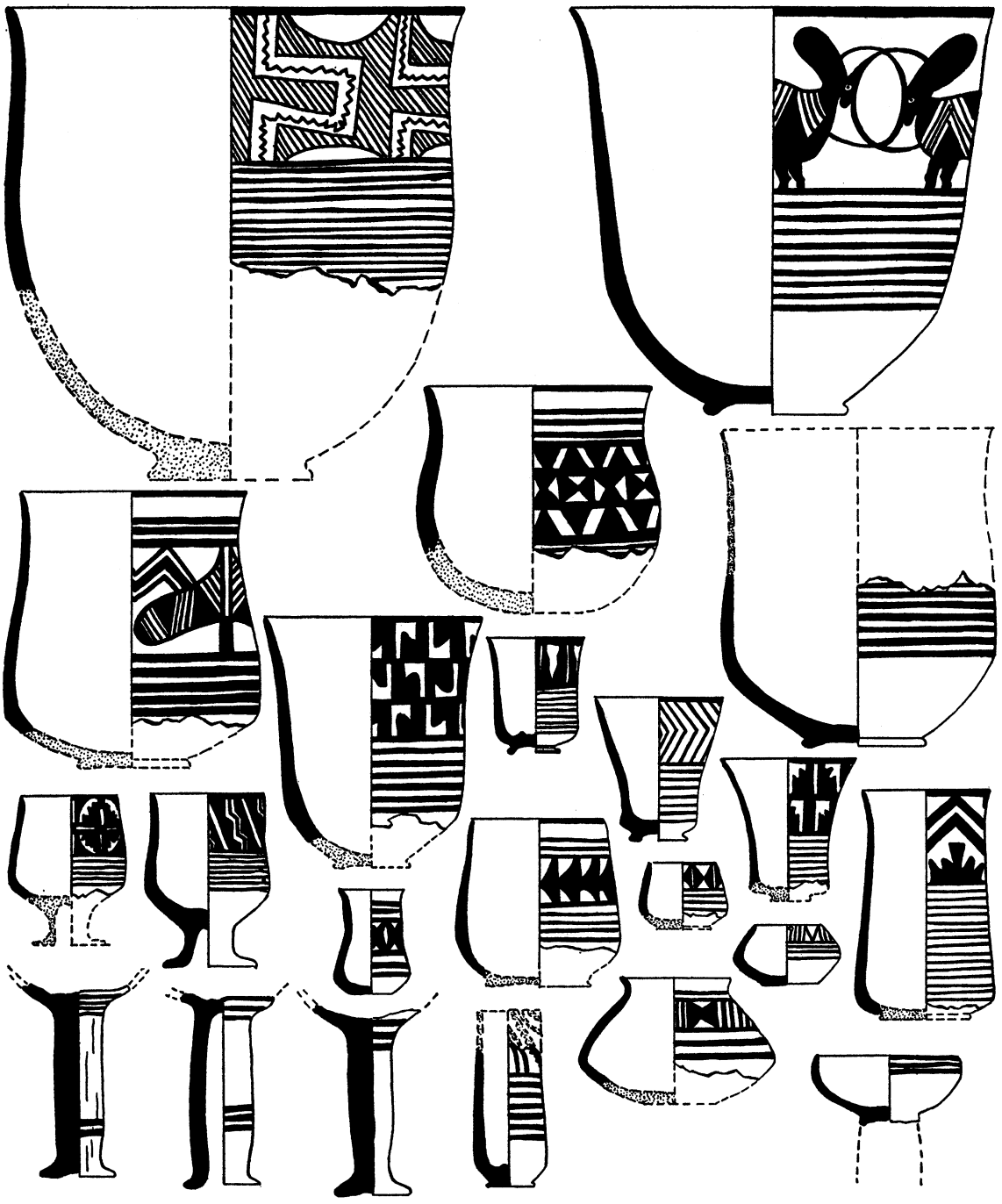

FIG. 48. Vessel shapes, rim profiles, and bases. Quetta ware. *Ca.* ¼ natural size.

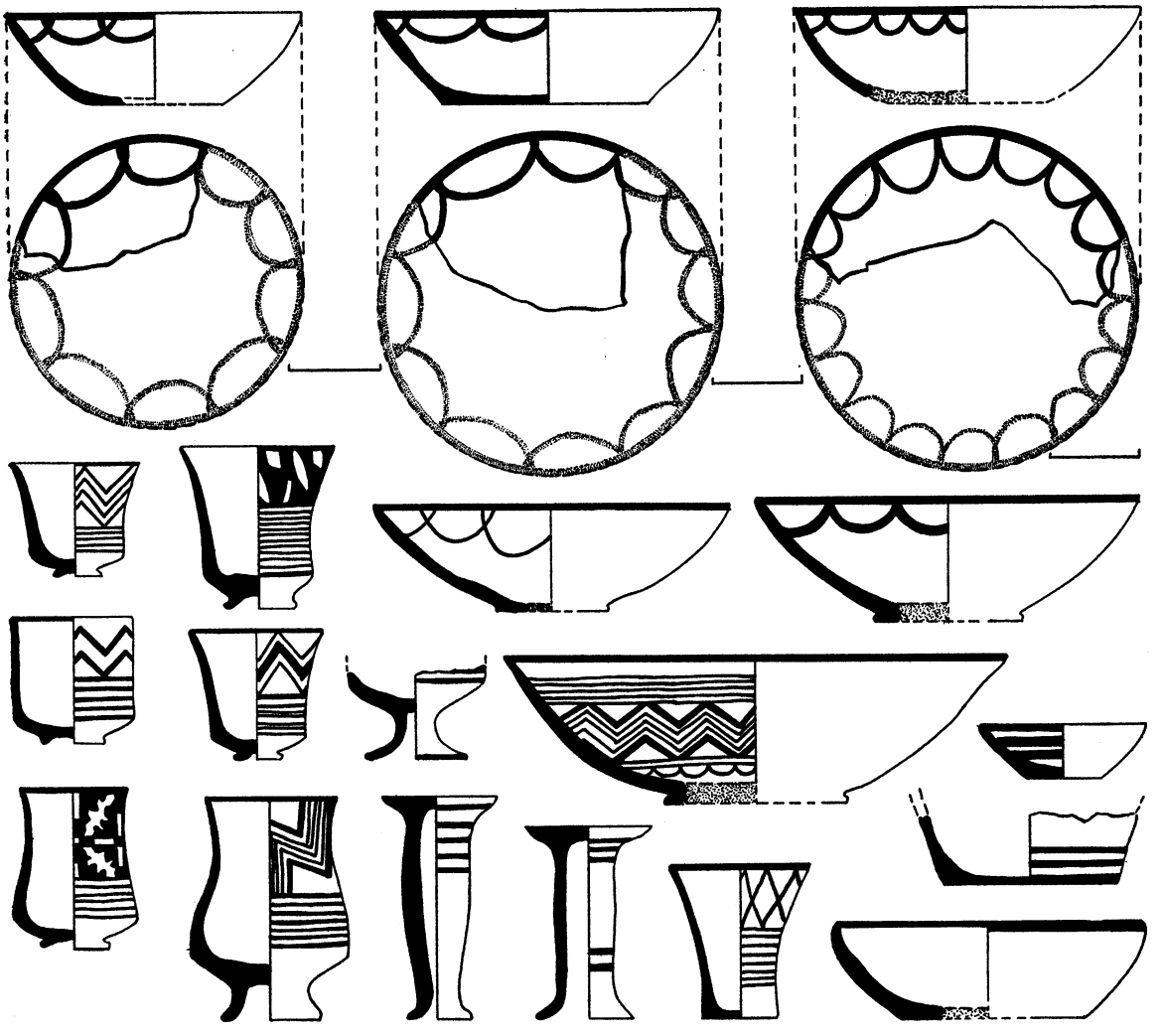

FIG. 49. Vessel shapes, rim profiles, and bases, Quetta ware.
Ca. ½ natural size; restoration, upper left, scale 2 inches.

DECORATION: Slipped.

MISCELLANEOUS: Interior slipping on open bowls. Slip thin, i.e., less than 0.33 mm.

QUETTA BLACK-ON-BUFF
Figures 48, 49

When the term "Quetta ware" is used, this type and the Quetta Black-on-Surface ware are usually included. Characteristically, Quetta ware is decorated with black painted designs in the areas between multiple rows of horizontal lines. Most of the design motifs are arranged so as to maintain this horizontal direction.

Quetta Black-on-Buff has two variants: Variant 1, Buff-slipped; Variant 2 is identical in paste with Mian Ghundai Buff Plain. There is no stratigraphic differentiation between these variants. Typical forms are jars with flaring or straight rims, small-mouthed bowls with a sharp angle between shoulders and bases, and pedestal jars. The pedestals are short and stubby or long and rather slender. Quetta Black-on-Buff has its climax in Period G2. The type is common in Period G3, but there is a notable diminution in number and variety of Period G2 (Quetta) designs and an increase of the characteristic Period G3 (Sadaat) designs.[1]

[1] In spite of Alcock's statement to the contrary, I am not

Variant 1, Buff Slip

Sites: Q8, Q13, Q14, Q24.

Construction: Wheelmade.

Firing: Oxidizing.

Paste: *Color:* 5 YR 6/6, 7/6; 7.5 YR 7/4; 10 YR 7/3. *Temper:* Kind, none apparent though possibly fine sand; size, microscopic; shape, not determinable; amount, not determinable. *Texture:* Smooth. *Hardness:* 2.5–3.5

Surface Finish: Smooth.

Surface Color: Slip: 2.5 Y 8/4; 10 YR 8/4. Paint: 7.5 R 3/2; 10 YR 3/1.

Thickness: Extremes, 0.25–0.75 cm.; mean, 0.5 cm.

Decoration: Bold geometric designs in black paint on light slip; occasional stylized animal or floral elements.

Variant 2, Black-on-Buff Surface

Sites: Q8, Q13, Q14, Q24.

Construction: Wheelmade.

Firing: Oxidizing.

Paste: *Color:* 2.5 Y 8/2, 8/4; 5 Y 8/2, 8/3; 10 YR 8/6. *Temper:* Kind, hard clay; size, 1 mm. to microscopic; shape, angular; amount, sparse. *Texture:* Smooth, slightly sandy. *Hardness:* 3.

Surface Finish: Smooth.

Surface Color: Surface: 2.5 Y 8/4, 8/6; 10 YR 8/4. Paint: 2.5 Y 3/0; 10 YR 3/1.

Thickness: Extremes, 0.35–0.9 cm.; mean, 0.5 cm.

Decoration: Bold geometric patterns in black paint on a buff or green-buff surface.

Kechi Beg Black-on-Buff Slip

Figure 50a

The Kechi Beg Black-on-Buff Slip type, on the basis of design, presents a kind of prototype for Quetta ware. It has its climax in Period H2. Only a few rim sherds were recovered. These indicate that small open bowls, small-mouthed bowls with turned rims, and small-mouthed jars were among the forms belonging to this type. The impression gained from the sherds is that the decorated vessels are much smaller than those of the Quetta ware.

Sites: Q8, Q14, Q24.

Construction: Wheelmade.

Firing: Oxidizing.

Paste: *Color:* 5 YR 7/8; 7.5 YR 7/6; 2.5 Y 8/2. *Temper:* Kind, none apparent; occasional flakes of fine hard clay. *Texture:* Smooth. *Hardness:* 2.5–3.

Surface Finish: Smooth.

Surface Color: Slip: 10 YR 8/4; 2.5 Y 8/4. Paint: 7.5 YR 4/2; 10 R 4/3; 2.5 Y 4/0.

Thickness: Extremes, 0.35–0.8 cm.; mean, 0.5–0.6 cm.

Decoration: Usually delicate line drawing of geometric designs in black on a buff or yellow-brown slip.

Kili Ghul Mohammad Black-on-Red Slip

Figure 50b

This type has two variants. Variant 1 is wheelmade of fine paste; Variant 2 is a coarse, mostly handmade ware. No decorative or stratigraphic difference is apparent. Forms are characteristically open bowls with curved or expanding sides. Large small-mouthed jars occur, and there is a single example of a pedestal. The type is most common in Period H1.

Variant 1, Fine Paste

Sites: Q8, Q24.

Construction: Wheelmade.

Firing: Oxidizing.

Paste: *Color:* 10 YR 8/4, 8/6; 5 YR 6/6. *Temper:* Kind, very fine hard clay; size, microscopic; shape, angular; amount, sparse to moderate. *Texture:* Smooth. *Hardness:* 2.5–3.

Surface Finish: Smooth; occasionally polished.

Surface Color: Slip: 5 YR 6/6; 7.5 R 4/4–4/6, 5/4, 5/6. Paint: 5 YR 3/2, 4/1, 4/2; 2.5 YR 3/0–4/0.

Thickness: Extremes, 0.3–0.8 cm.; mean, 0.5 cm.

Decoration: Simple geometric designs in black paint over a red slip.

Miscellaneous: Some examples of this type had been buff-slipped and then red-slipped (wash) before the design was painted on.

Variant 2, Coarse Paste

Site: Q24.

Construction: Handmade; coiled; occasional wheelmade.

Firing: Oxidizing.

Paste: *Color:* 5 YR 6/6; 7.5 YR 7/6–8/6; 10 YR 8/4; 10 R 5/6–5/8. *Temper:* Various, hard clay; rarely, red; size, microscopic to 2 mm.; shape, angular; amount, sparse to moderate. *Texture:* Sandy to rough. *Hardness:* 2.5–3.5.

Surface Finish: Smooth, but not so smooth as in Variant 1.

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convinced that we can differentiate a Sadaat Black-on-Buff from a Quetta Black-on-Buff because the so-called Sadaat designs are all found in Period G2 context. The fact that they persist into Period G3 is, to my mind, evidence of a continuation of the Quetta ware. Nevertheless, Alcock's differentiation is important as it outlines a definitive design repertory (the Sadaat) which has stratigraphic value. I refer to Alcock's definition when I use "Sadaat ware" (p. 362).

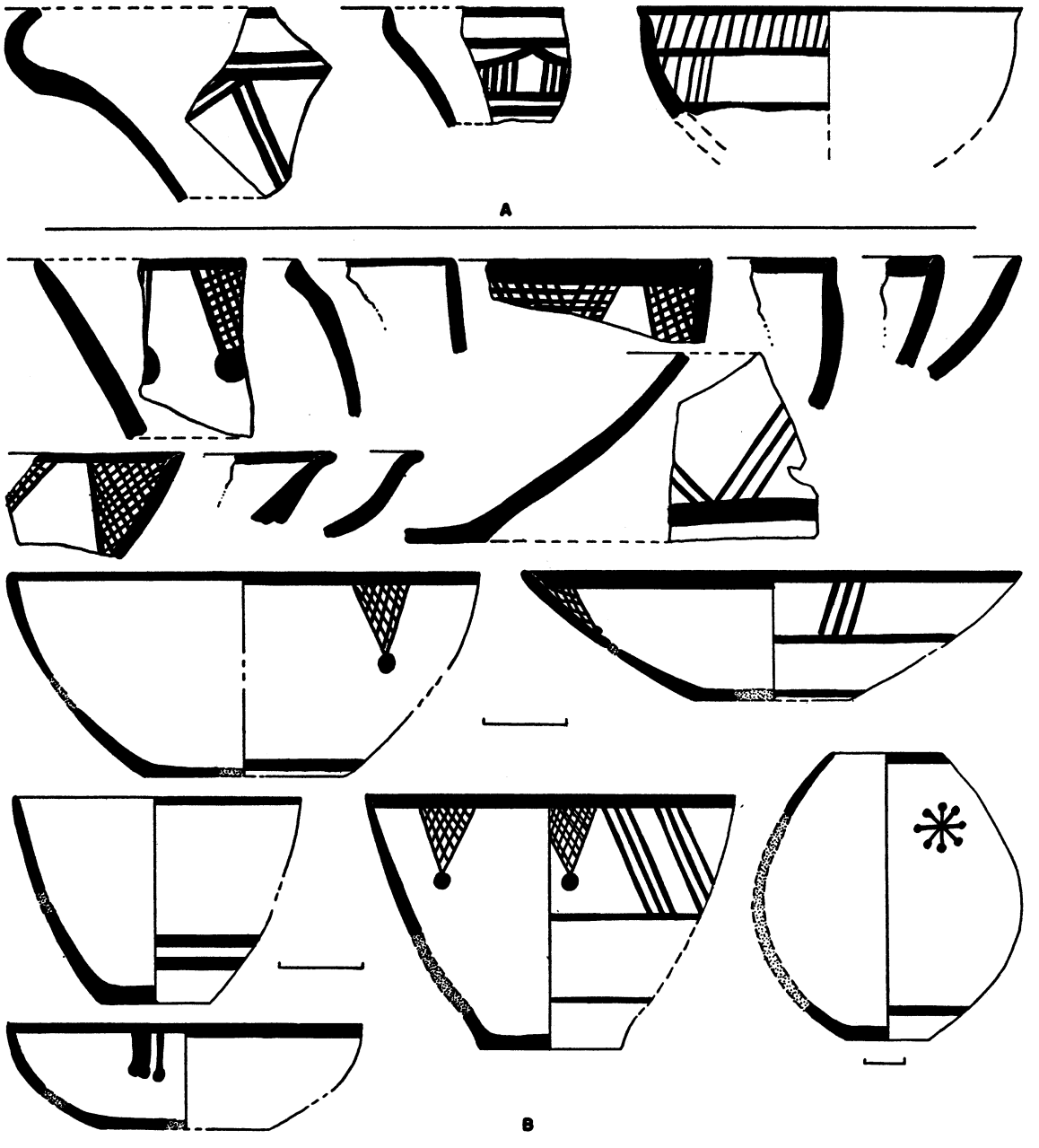


FIG. 50. Vessel shapes, rim profiles, and bases. a. Kechi Beg Black-on-Buff Slip. b. Kili Ghul Mohammad Black-on-Red Slip. *Ca.* ½ natural size. b. Restorations, scale 2 inches.

SURFACE COLOR: Slip: 10 R 4/8, 5/6; 7.5 R 4/4, 5/2; 5 YR 6/4. Paint: 5 YR 3/1, 4/1.

THICKNESS: Extremes, 0.6–1.4 cm.; mean, 0.8–0.9 cm.

DECORATION: Geometric designs in black paint on red slip.

KECHI BEG WHITE-ON-DARK SLIP

Figure 51

This type is most characteristic of Period H2. It has two variants based on slip color: a white-on-reddish slip (Variant 1), and a white-on-

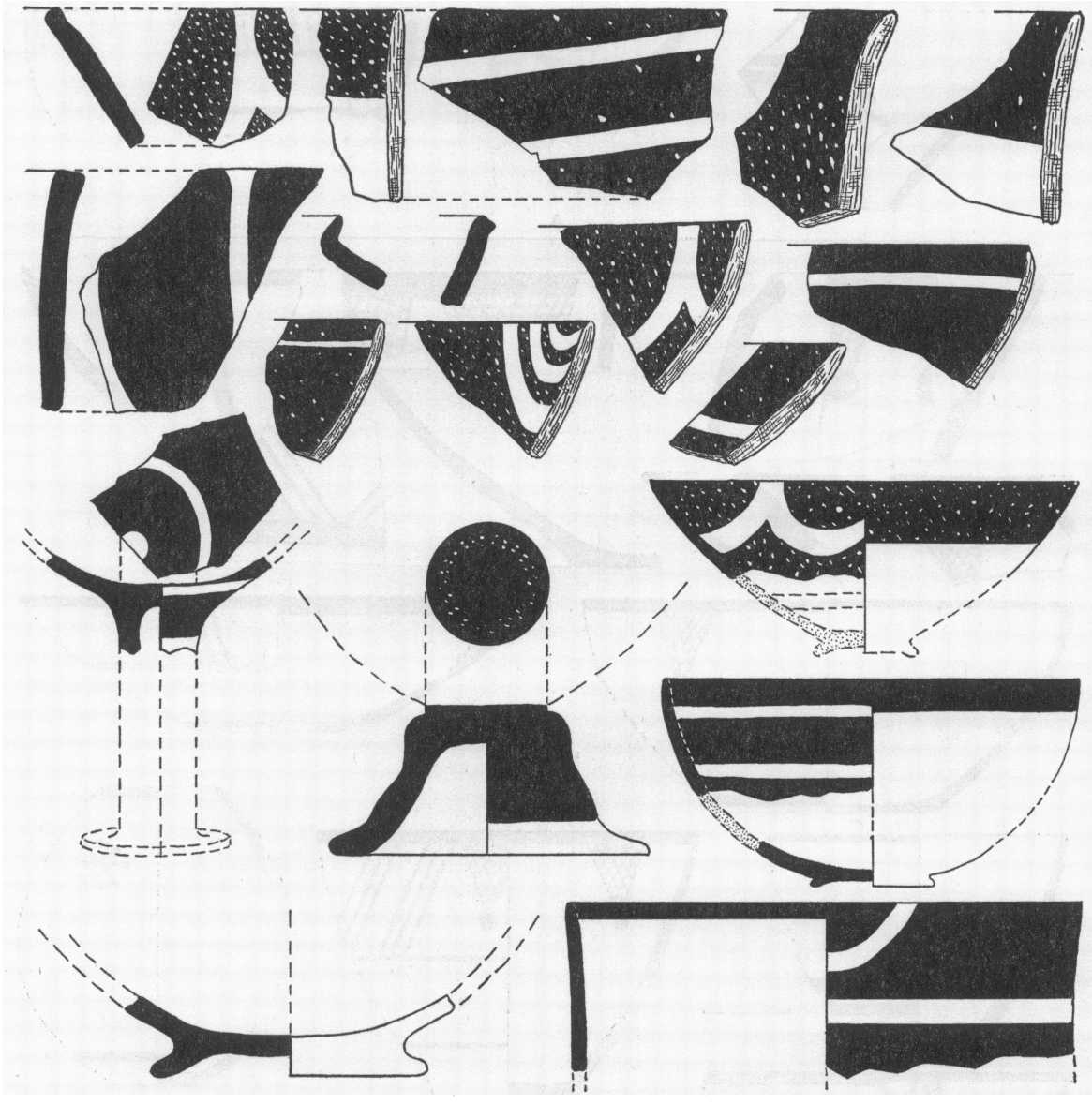


FIG. 51. Vessel shapes, rim profiles, and bases, Kechi Beg White-on-Dark Slip. *Ca.* ½ natural size; restorations, *ca.* ¼ natural size.

blackish slip (Variant 2). These slip colors are most probably due to firing action. Forms include open bowls with straight or curving sides, straight-walled jars with flaring rims, and a single example of a pedestal.

VARIANT 1, WHITE-ON-REDDISH SLIP

SITES: Q8, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.

PASTE: *Color:* 10 YR 7/3, 7/4, 8/4; 5 YR 6/0, 7/6, 7/8. *Temper:* Kind, hard clay, occasional brown or red temper; size, 1 mm. or less; shape, angular; amount, sparse. *Texture:* Usually smooth; occasionally somewhat rough. *Hardness:* Fine, 3–3.5; coarse, 3.5–4.

SURFACE FINISH: Smooth.

SURFACE COLOR: Slip: 10 R 5/4; 7.5 R 5/6. Paint: 10 YR 8/1–8/4.

THICKNESS: Extremes, 0.45–0.85 cm.; mean, 0.6 cm.

DECORATION: Linear design consisting of straight lines, loops, and occasional simple combinations of horizontals and verticals with loops, usually on the interior of the vessels; exterior decoration, as far as is known, occurs only in the form of parallel horizontals.

Light paint is applied directly to the red slip.

Lines vary in width from 2 to 12 mm., the usual width ranging between 5 and 10 mm.

VARIANT 2, WHITE-ON-BLACK SLIP

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 5/4, 5/6; 10 YR 6/1; 7.5 R 5/2. *Temper:* Fine; kind, hard clay; size, 0.5 mm. to microscopic; shape, angular; amount, sparse. The coarse variation in temper is usually black, about 1 mm., sparse to moderate. *Texture:* Fine, smooth; coarse, slightly rough. *Hardness:* 3.

SURFACE FINISH: Fine, smooth; coarse, smooth and granular.

SURFACE COLOR: Slip: 10 R 3/1, 4/1, 5/2; 2.5 Y 3/0. Paint: 10 YR 8/1, 8/4.

THICKNESS: Fine, extremes, 0.4–0.75 cm.; mean, 0.6 cm.; coarse, extremes, 0.6–1.1 cm.; mean, 0.8–0.85 cm.

DECORATION: Horizontal white lines (usually); most frequently found on the interior of bowls or platters. On high-walled vessels the paint occurs on the exterior.

White lines vary from 4 mm. to 1 cm. in width, usually in the fine wares; from 8 mm. to 1.5 cm. in coarse wares.

BURJ BASKET-MARKED

Figure 52

Though properly a plainware, this type is included here because of its characteristic surface. The forms are rather squat open vessels, with straight or slightly sloping sides and flat bottoms. Rims are frequently heavy and raised from the line of the body. This type is characteristic of Period I.

SITE: Q24.

CONSTRUCTION: Handmade; basket-coiled.

FIRING: Oxidizing; rarely reducing.

PASTE: *Color:* 2.5 Y 8/4; 2.5 YR 3/0 (rare), 4/4, 5/4, 5/6; wide range of colors. *Temper:* Kind, hard clay; size, microscopic to 2 mm.; shape, angular; amount, sparse to moderate. *Texture:* Coarse sandy. *Hardness:* 2.5–3.

SURFACE FINISH: Surface is almost completely basket-marked; the basketry coils horizontally in thick parallel folds. The basket impressions between folds are frequently obliterated or otherwise hidden by the flattening out of the horizontal folds. There appears to have been a deliberate attempt to smooth the vessel surface by flattening the protruding surface of the folds.

Unmarked basket surfaces smoothed.

SURFACE COLOR: 7.5 R 5/2, 6/4, 7/4; 10 YR 7/2, 8/3; wide variety of colors.

Rarely is red paint or slip (7.5 R 5/6–5/8) found on the exterior of a sherd or on the interior close to the rim.

Buff slipping occurs rarely (10 YR 8/2–8/4).

THICKNESS: Extremes, 0.8–1.9 cm.; mean, 1.2–1.3 cm.

KECHI BEG POLYCHROME

Figure 53

A very striking decorated type, characterized by fine-line drawing and red-paint interlinear banding. The vessels tend to be small. The sherds recovered indicate a variety of forms, including simple open bowls, straight-walled bowls with flaring rims, small-mouthed jars with pinched necks, and large straight-walled vases. This type is common to Period H2.

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 2.5 Y 8/4; 5 YR 6/6, 7/6. *Temper:* Kind, fine hard clay; size, 0.5 mm. to microscopic; shape, angular; amount, sparse. *Texture:* Smooth. *Hardness:* 2.5–3.5.

SURFACE FINISH: Smooth, somewhat polished.

SURFACE COLOR: Slip: 10 YR 8/4; 2.5 Y 8/4; unslipped areas, 5 YR 7/4; 10 YR 7/3. Red paint: 7.5 R 5/6; 10 R 5/3, 5/4. Black paint: 7.5 YR 3/0; 5 YR 3/3.

THICKNESS: Extremes, 0.3–0.65 cm.; 0.45 cm.

DECORATION: The basic pattern consists of parallel horizontal bands of two colors, red and black.

Design elements are both geometric and floral.

The thin walls and the fine-line decoration produce an unusually delicate ware.

QUETTA BLACK-ON-SURFACE

Figures 48, 49

This type and Quetta Black-on-Buff are included in the term "Quetta ware."[1] There are three variants, based on the differences in the surface color of the vessel after firing: Variant 1, Black-on-Brown; Variant 2, Black-on-Red; Variant 3, Coarse Black-on-Brown (Kili Ghul Mohammad Coarse Black-on-Brown). There is

[1] However, Kili Ghul Mohammad Black-on-Brown ware (Variant 3), coarse in paste and decoration, is the apparent prototype for Quetta Black-on-Surface, whereas Kechi Beg Black-on-Buff Slip is the prototype for Quetta Black-on-Buff Slip.

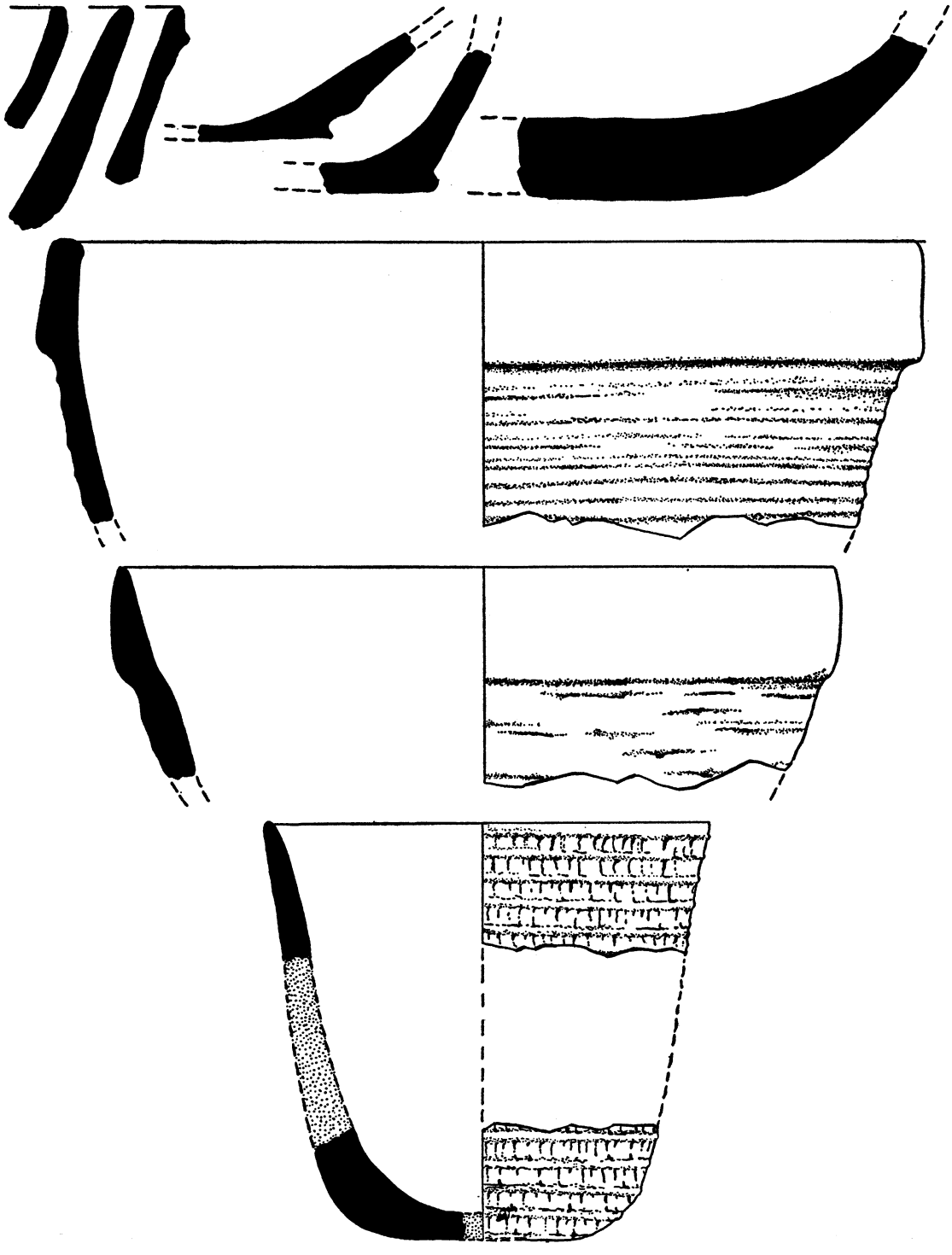


FIG. 52. Vessel shapes, rim profiles, and bases, Burj Basket-marked. *Ca.* ½ natural size; restorations, *ca.* ¼ natural size.

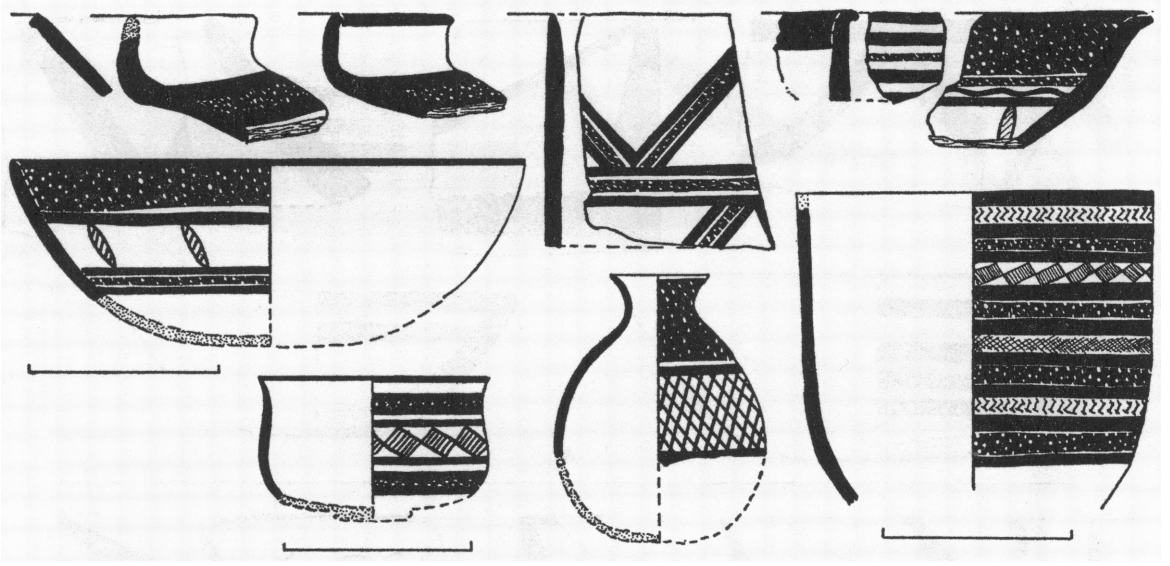


FIG. 53. Vessel shapes, rim profiles, and bases, Kechi Beg Polychrome. *Ca.* ½ natural size; restorations, scale 2 inches.

no decorative or stratigraphic differentiation between Variants 1 and 2; Variant 3 tends to cluster in Period H2. Forms include small, flaring-sided jars with ring bases, small-mouthed jars, pedestal jars, and small-mouthed bowls. Open bowls and platters with interior painted decoration are characteristic forms of this type, not usually found in the buff-slipped Quetta ware. Quetta Black-on-Surface was found from Period I through Period G3. It had the longest range of all the decorated types. Its climax begins in Period G1 and runs through G2.

VARIANT 1, BLACK-ON-BROWN

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 7.5 YR 7/4, 7/6. *Temper:* Kind, possibly fine sand; size, microscopic; shape, angular; amount, indeterminable. *Texture:* Smooth. *Hardness:* 2.5–3.5.
SURFACE FINISH: Smooth.
SURFACE COLOR: Surface: 7.5 YR 7/6; 10 YR 7/4, 8/4. Paint: 10 YR 3/1, 4/1.
THICKNESS: Extremes, 0.3–0.9 cm.; mean, 0.5 cm.
DECORATION: Bold geometric designs in black on light to medium brown surface of vessel.

VARIANT 2, BLACK-ON-RED

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 YR 7/6, 7/8. *Temper:* Kind, none usually apparent; occasionally fine, hard clay. *Texture:* Smooth. *Hardness:* 3–3.5.
SURFACE FINISH: Smooth.
SURFACE COLOR: Surface: 10 R 5/6, 5/8; 2.5 YR 5/6. Paint: 2.5 YR 2/0, 3/0.
THICKNESS: Extremes, 0.3–1.0 cm.; mean, 0.5–0.6 cm.
DECORATION: Bold geometric designs in black-on-red surface. Occasional floral or faunistic elements.

VARIANT 3, COARSE BLACK-ON-BROWN

SITE: Q24.
CONSTRUCTION: Slow wheel; some coiling.
FIRING: Oxidizing.
PASTE: *Color:* 5 YR 6/4; 7.5 YR 7/6, 8/4; 10 YR 7/3. *Temper:* Kind, hard clay; size, microscopic to 2 mm.; shape, angular; amount, moderate. *Texture:* Sandy. *Hardness:* 3–3.5.
SURFACE FINISH: Smooth to slightly rough.
SURFACE COLOR: Surface: 10 YR 7/3; 7.5 YR 7/6. Paint: 2.5 Y 4/0, 5 YR 4/1.
THICKNESS: Extremes, 0.65–1.35 cm.; mean, 0.9 cm.
DECORATION: Linear decoration in designs consisting of parallels, intersections, and loops.

KILI GHUL MOHAMMAD RED PAINT

Figure 54a

A type confined principally to Period I. It consists of flat-bottomed open bowls, and, infrequently, a small-mouthed vase. The thick protruding rims found in Period I occur in this as well as in other types.

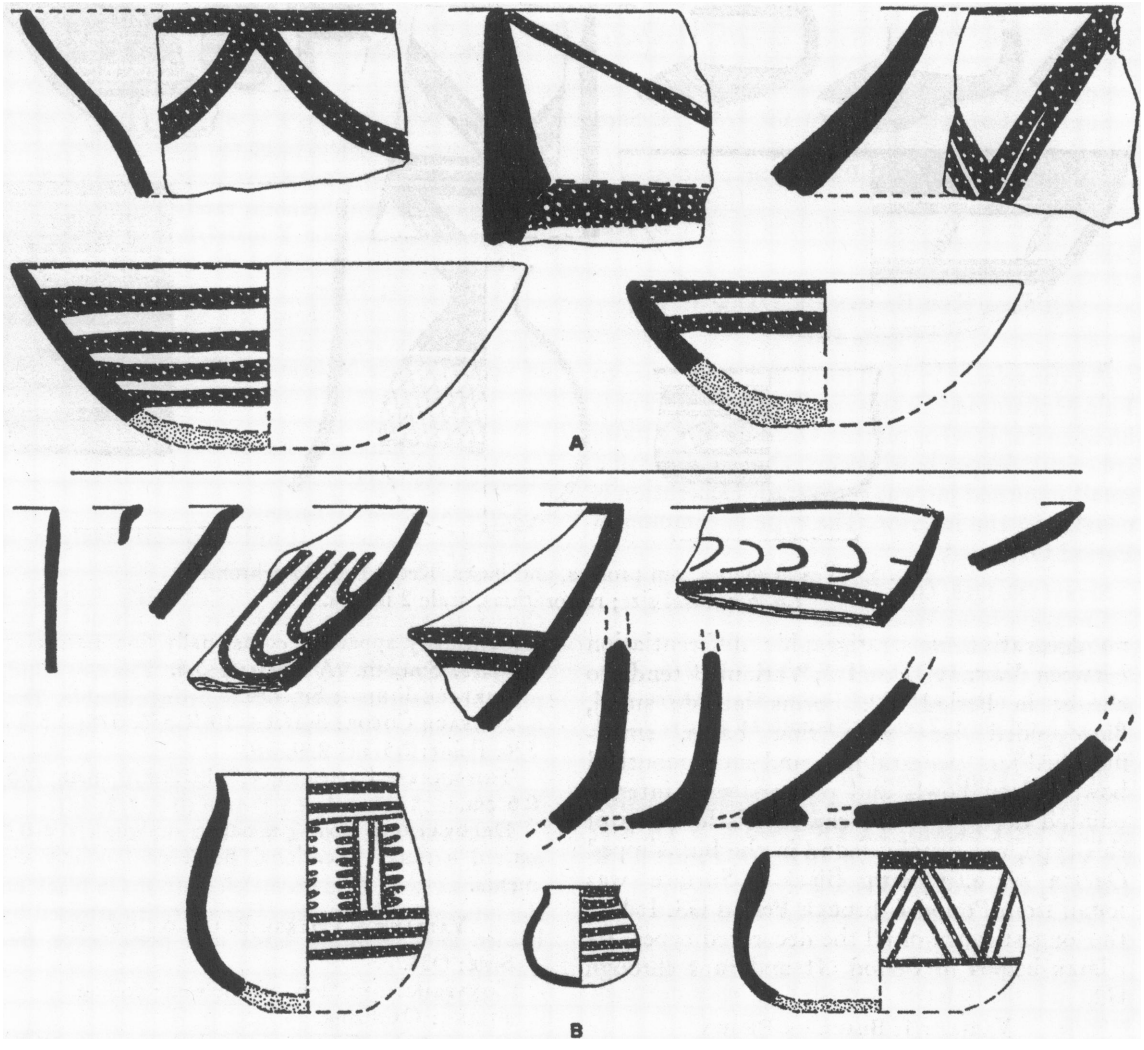


FIG. 54. Vessel shapes, rim profiles, and bases. a. Kili Ghul Mohammad Red Paint. b. Kechi Beg Red Paint. *Ca.* ½ natural size; a. restorations, ¼ natural size.

SITE: Q24.
CONSTRUCTION: Handmade; coiled.
FIRING: Oxidizing.
PASTE: *Color:* 2.5 YR 5/6; 7.5 YR 7/4; 10 YR 7/3–6/3. *Temper:* Kind, hard clay; size, microscopic to 3 mm.; shape, angular; amount, moderate. *Texture:* Rough; sandy. *Hardness:* 2–2.5.
SURFACE FINISH: Smooth to slightly rough.
SURFACE COLOR: Surface: 5 YR 7/6; 10 YR 8/4. Slip (when used): 2.5 Y 8/4. Paint: 7.5 R 3/4–3/6; 4/4, 4/6–4/8.
THICKNESS: Extremes, 0.5–1.6 cm.; mean, 1.0 cm.
DECORATION: Crudely drawn red paint lines on interiors and exteriors of vessels.

KECHI BEG RED PAINT

Figure 54b

A rather delicate ware, with open bowl or platter forms a characteristic. Occasionally small-mouthed jars occur in Period G. The type is most common in Period H2. Decoration is principally on the interior of the vessel.

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 10 YR 7/4, 8/3–8/4; 7.5 YR 8/6; 5 YR 7/6. *Temper:* Kind, very fine sand, occasional

fine hard clay; size, microscopic; shape, angular; amount, sparse. *Texture:* Sandy smooth. *Hardness:* 2.5–3.

SURFACE FINISH: Smooth.

SURFACE COLOR: Surface: 10 YR 7/3, 7/4. Slip: 10 YR 8/4. Paint: 7.5 R 4/4.

THICKNESS: Extremes, 0.3–0.9 cm.; mean, 0.5–0.6 cm.

DECORATION: Geometric designs in red or red-brown.

QUETTA RED-BROWN-ON-DARK SLIP

Figure 55b

A type related in both form and decoration to Faiz Mohammad Grayware. The typical form is an open flat bowl or platter. Occasionally a more spherical, deeper bowl occurs. One example of a small-mouthed jar was recovered. Decoration is usually on the interior. The type is common in Period G2.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 10 YR 6/4; 7.5 YR 7/4, 7/6. *Temper:* Kind, none apparent; occasional microscopic bits of hard clay. *Texture:* Smooth to sandy. *Hardness:* 2.5–3.

SURFACE FINISH: Smooth.

SURFACE COLOR: Slip (wide range from red-brown to dark black-brown); 2.5 YR 5/4–5/6; 5 YR 6/6; 7.5 YR 4/0, 5/0; 7.5 R 5/6; 10 R 5/8. Paint: 7.5 R 4/0, 4/2, 4/4, 4/6; 2.5 YR 5/2.

THICKNESS: Extremes, 0.25–1.1 cm.; mean, 0.5–0.6 cm.

DECORATION: Geometric designs in red-brown paint on the interior (usually) of open-mouthed vessels.

Pipal leaf design frequent.

Slip has a wide variation from black-brown to red; on the same vessel, slip color, as the result of firing variation, can extend over the entire stated range of color.

MISCELLANEOUS: Design treatment very similar to that of the Faiz Mohammad graywares.

FAIZ MOHAMMAD GRAYWARE

Figure 55a

A fine type of ware with three variants: 1, Fine Gray, Undecorated; 2, Black-on-Gray; 3, Red-on-Gray. There is no stratigraphic differentiation among these variants. The forms are almost invariably platters or plates with ring bases and interior decoration. The type occurs most commonly in Period G2.

VARIANT 1, FINE GRAY, UNDECORATED

SITES: Q8, Q13, Q14.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 7.5 YR 6/0, 7/0; 10 YR 6/2. *Temper:* Indistinguishable; probably fine sand. *Texture:* Smooth. *Hardness:* 3–3.5.

SURFACE FINISH: Smooth; rarely polished.

SURFACE COLOR: 2.5 Y 6/0–7/0.

THICKNESS: Extremes, 0.3–0.6 cm.; mean, 0.4 cm.

DECORATION: None.

MISCELLANEOUS: Sherds are so sparse that this ware probably represents the undecorated portions of vessels of Faiz Mohammad Black-on-Gray.

VARIANT 2, BLACK-ON-GRAY

SITES: Q8, Q13.

CONSTRUCTION: Wheelmade.

FIRING: Reduced. (Until chemical analysis is made, this ware must be regarded as reduced. However, its hardness and texture perhaps indicate a change in the iron molecule brought about by oxidation.)

PASTE: *Color:* 2.5 Y 6/0, 6/2, 7/0. *Temper:* Kind, probably very fine sand, but indistinguishable. *Texture:* Smooth. *Hardness:* 3.5–4.5.

SURFACE FINISH: Smooth.

SURFACE COLOR: Surface: 2.5 Y 5/0, 6/0, 7/0, 7/2. Paint: 5 YR 3/1; 2.5 Y 4/0; 10 R 3/1, 4/1.

THICKNESS: Extremes, 0.3–0.6 cm.; mean, 0.4–0.5 cm.

DECORATION: Bold geometric patterns in black on the interior of the vessels. Horizontality stressed by border lines. Stylized birds and flora occur frequently.

Unslipped.

VARIANT 3, RED-ON-GRAY

SITES: Q8, Q13.

CONSTRUCTION: Wheelmade.

FIRING: Reducing; see Black-on-Gray.

PASTE: *Color:* 2.5 Y 6/0, 6/2. *Temper:* Kind, probably very fine sand; occasional hard clay. *Texture:* Smooth. *Hardness:* 3.5–4.5.

SURFACE FINISH: Smooth.

SURFACE COLOR: Surface: 2.5 Y 6/0, 7/0, 7/2. Paint: 2.5 YR 5/6; 5 YR 6/4–7/4; 7.5 R 5/6.

THICKNESS: Extremes, 0.3–0.65 cm.; mean, 0.4 cm.

DECORATION: Geometric and floral designs painted on the interiors of open vessels in dull red or brown-red.

Fine-line drawing typical.

Unslipped.

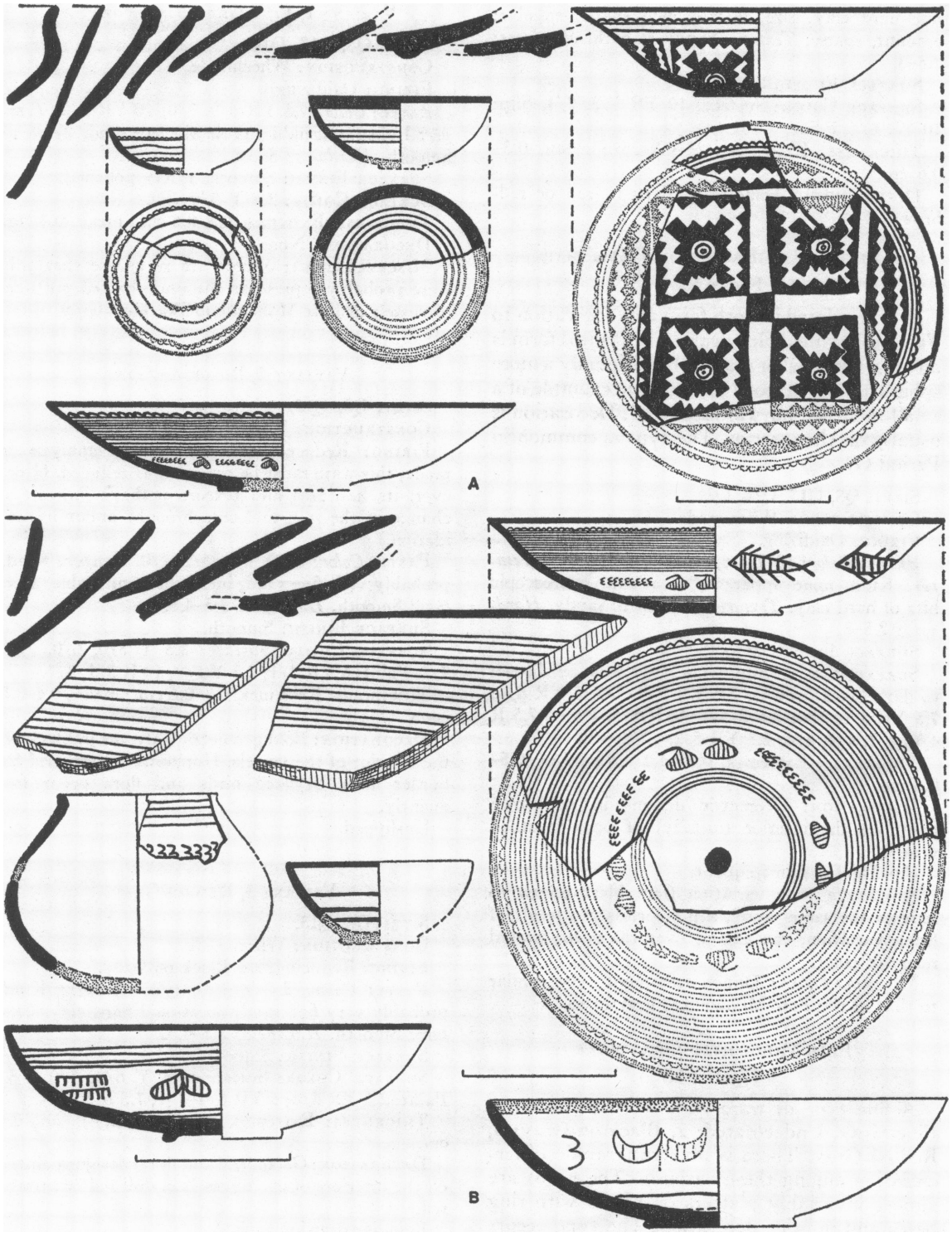


FIG. 55. Vessel shapes, rim profiles, and bases. a. Faiz Mohammad Grayware. b. Quetta Red-Brown-on-Dark Slip. *Ca.* ½ natural size; restorations, scale 4 inches.

Sadaat Single-Line

Figure 56a

A type that attained its greatest popularity in Period G3. Its form is characteristically that of rather large, small-mouthed jars with curving rims.

Sites: Q8, Q13, Q14.
Construction: Wheelmade.
Firing: Oxidizing.
Paste: *Color:* 5 YR 5/6, 7/6. *Temper:* Kind, probably very fine sand, occasionally fine hard clay; size, microscopic; shape, angular; amount, sparse. *Texture:* Sandy. *Hardness:* 3.
Surface Finish: Smooth.
Surface Color: Surface: 5 YR 7/4–7/6; 10 YR 7/4–8/4. When slipped: 10 YR 8/4, 8/6. Paint: 5 YR 3/1; 7.5 YR 4/0; 10 YR 4/1; 10 R 4/4 (rare).
Thickness: Extremes, 0.3–0.85 cm.; mean, 0.5–0.6 cm.
Decoration: Narrow horizontal bands (usually 5 to 10 mm. wide) around the shoulder and reverse shoulder of the vessel. Occasionally these are double lines a few millimeters apart. Horizontally running waves occur.

Paint is black on a red or brown surface or on a buff-like slip.

Spezand Black-and-Red Rim

Figure 56b

A handsome polychrome ware; typical forms are open bowls and platters. Rim decoration primarily on the interior of the vessel; on open bowls it occurs on the exterior of the rim below. The type is virtually confined to Period H2.

Sites: Q8, Q14, Q24.
Construction: Wheelmade.
Firing: Oxidizing.
Paste: *Color:* 5 YR 6/8; 7.5 YR 7/6; 10 YR 8/4.

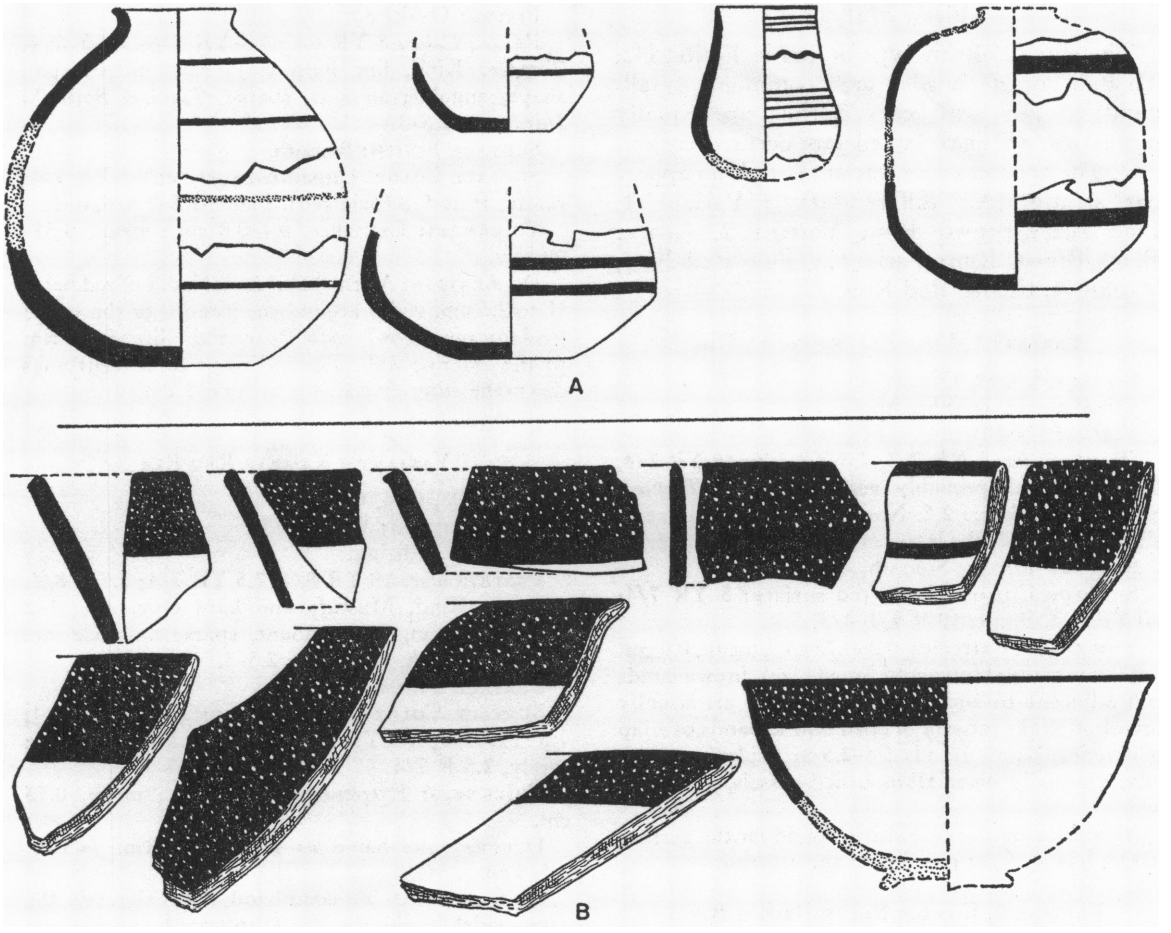


Fig. 56. Vessel shapes, rim profiles, and bases. a. Sadaat Single-Line. b. Spezand Black-and-Red Rim. a. Restorations, *ca.* ⅛ natural size. b. *Ca.* ½ natural size; restorations, *ca.* ⅛ natural size.

Temper: Kind, very fine hard clay; size, microscopic; shape, angular; amount, sparse. *Texture:* Smooth. *Hardness:* 2.5–3.

SURFACE FINISH: Smooth.

SURFACE COLOR: Unpainted surface: 5 YR 7/6; 7.5 YR 7/6; 10 YR 8/3. Red paint: 7.5 R 5/4; 2.5 Y 7/2 (an exception probably produced by weathering). Black paint: 10 R 5/3; 5 YR 4/1, 4/2.

THICKNESS: Extremes, 0.4–0.7 cm.; mean, 0.55–0.6 cm.

DECORATION: Usually broad horizontal red-painted bands (1.5–2 cm.) bordered by narrow black lines (0.2–0.4 cm. wide) around the interior of an open vessel close to and intruding upon the rim. Some red or black is usually found marginal to the rim along the exterior of the vessel.

This decorative element rarely occurs on the exterior of the vessel; when it does, it is on a buff or white-slipped ware.

MIAN GHUNDAI DARK RIM

Figure 57a1, a2

The climax of this type occurs in Period H2. Though open bowls are common, small-mouthed jars with curved rims are equally numerous. Straight-walled jars occur occasionally. The type has four variants, with no apparent stratigraphic differentiation: Variant 1, Fine Black-Brown Rim; Variant 2, Coarse Black-Brown Rim; Variant 3, Fine Red Rim; Variant 4, Coarse Red Rim.

VARIANT 1, FINE BLACK-BROWN RIM

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 7/3; 7.5 YR 7/6; 10 YR 7/4. *Temper:* Kind, probably very fine sand. *Texture:* Smooth. *Hardness:* 2.5. Note that Damb Sadaat II sherds are 3.5–4; the latter are denser and heavier.

SURFACE FINISH: Smooth.

SURFACE COLOR: Unpainted surface: 5 YR 7/4; 10 YR 8/4. Paint: 10 R 4/1–4/3, 5/4.

THICKNESS: Extremes, 0.3–0.75 cm.; mean, 0.6 cm.

DECORATION: Horizontal broad black-brown bands run adjacent to and on the rim; these are usually broadest on the interior of open bowls; bands overlap to exterior. Bands usually 1.5–2.5 cm. wide; occasionally, especially on small-mouthed vessels, 4–5.5 cm. wide.

MISCELLANEOUS: One sherd, found on the surface of Q8, has a bright red slip on the exterior.

VARIANT 2, COARSE BLACK-BROWN RIM

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/4, 6/6; 10 YR 6/2. *Temper:* Kind, black temper and hard clay; size, microscopic to 5 mm.; shape, angular; amount, sparse to moderate. *Texture:* Rough. *Hardness:* 3–4; one sherd, 4.5.

SURFACE FINISH: Smoothed but granular.

SURFACE COLOR: Unpainted surface: 10 YR 7/2–7/3; 5 YR 7/4; 2.5 Y 8/2. Paint: 10 R 4/1; 2.5 Y 5/0.

THICKNESS: Extremes, 0.5–1.3 cm.; mean, 0.7 cm.

DECORATION: Horizontal broad black-brown band at and adjacent to the rim occurs on the interior of open bowls, tending, in all cases, to overlap to the opposite side (band 1.5–5.5 cm. wide).

A diagonal stripe extending perhaps to a lower band occurs occasionally.

VARIANT 3, FINE RED RIM

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/6; 7.5 YR 7/6; 2.5 Y 7/4. *Temper:* Kind, fine hard clay; size, microscopic; shape, angular; amount, sparse. *Texture:* Smooth. *Hardness:* 2.5–3.

SURFACE FINISH: Smooth.

SURFACE COLOR: Unpainted surface: 7.5 YR 7/4; rarely, 10 R 5/8 (oxidized). Paint: 7.5 R 5/6, 6/4.

THICKNESS: Extremes, 0.4–0.8 cm.; mean, 0.55–0.6 cm.

DECORATION: A broad horizontal band of red paint (1 to 2.5 cm. wide) around the interior of the vessel (usually open bowl) extends over the lip of the rim to the exterior wall. The red paint often continues down the exterior wall for at least 1 cm.

VARIANT 4, COARSE RED RIM

SITES: Q8, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 10 YR 8/4; 7.5 YR 7/4; 2.5 Y 8/4. *Temper:* Kind, Mustafa and hard clay; size, 1–2 cm.; shape, angular; amount, sparse to moderate. *Texture:* Rough. *Hardness:* 2.5–3.

SURFACE FINISH: Granular.

SURFACE COLOR: Unpainted surface: 2.5 Y 8/4; 7.5 YR 7/6; 10 YR 7/4. Paint: 7.5 R 6/4, 6/6; rarely, 2.5 R 7/4.

THICKNESS: Extremes, 0.6–1.2 cm.; mean, 0.75 cm.

DECORATION: Same as Fine Red Rim (width, 1.5–4 cm.).

On some sherds a second band, approximately the same width as the rim band, appears below the rim on the body of the vessel.

MISCELLANEOUS: White slip rare.

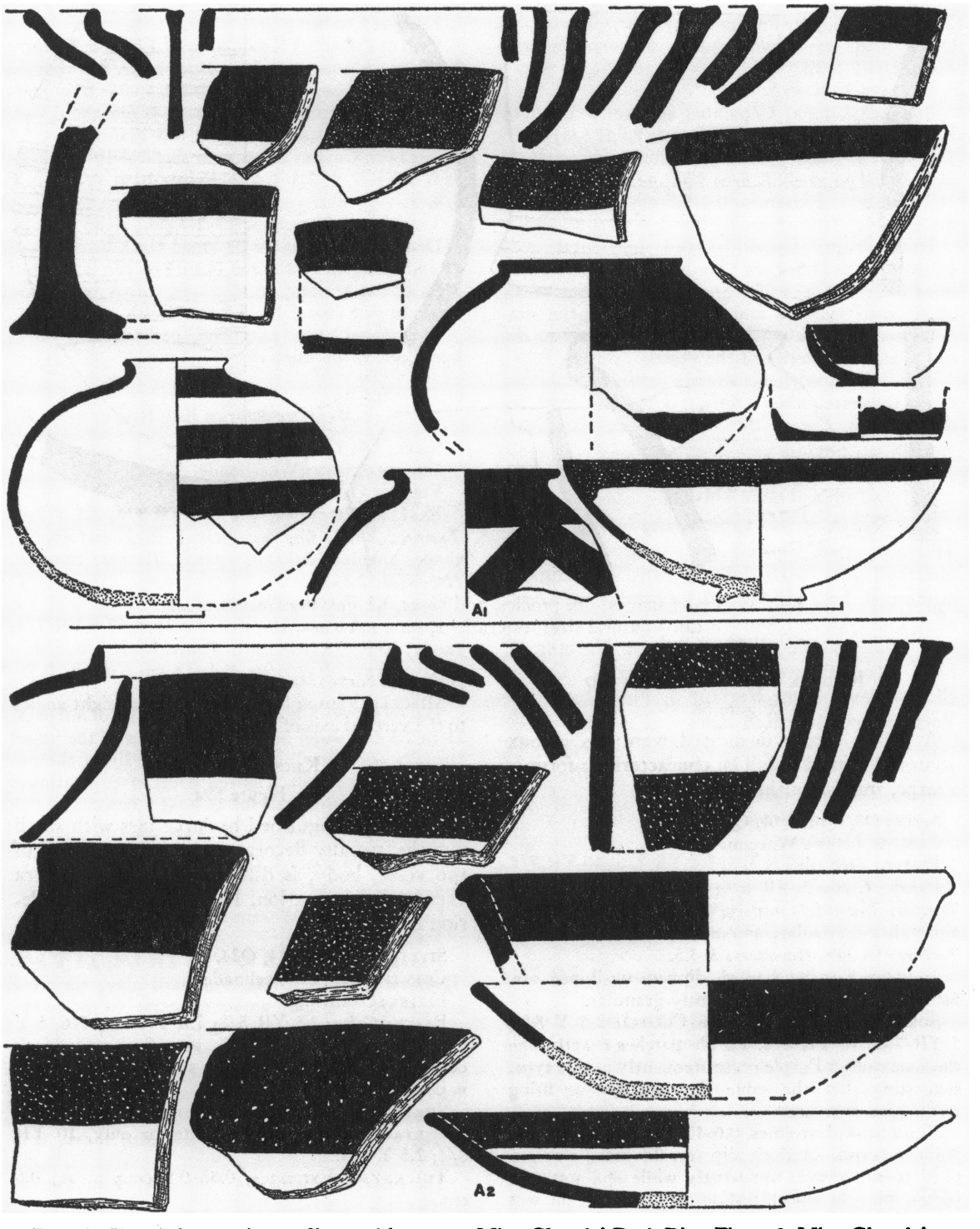


FIG. 57. Vessel shapes, rim profiles, and bases. a1. Mian Ghundai Dark Rim, Fine. a2. Mian Ghundai Dark Rim, Coarse. *Ca.* ½ natural size. a1. Restorations, scale 4 inches. a2. Restorations, *ca.* ½ natural size.

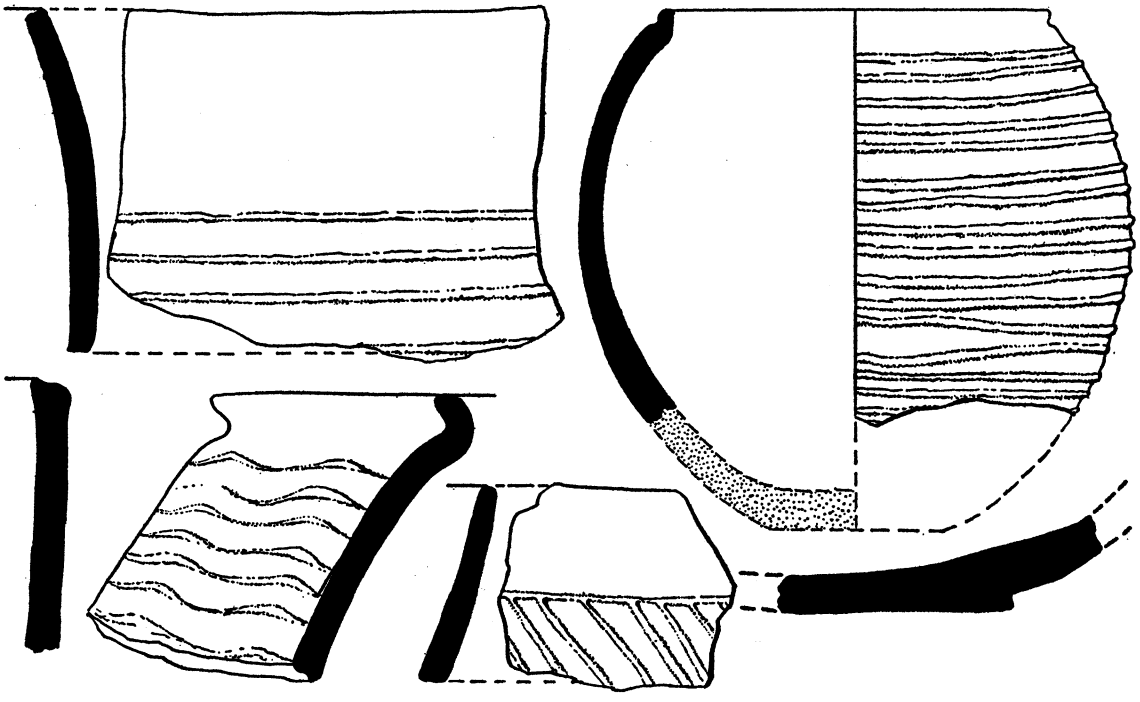


FIG. 58. Vessel shapes, rim profiles, and bases, Khojak Parallel Striated. *Ca.* ½ natural size; restorations, *ca.* ¼ natural size.

KHOJAK PARALLEL STRIATED

Figure 58

A rather coarse decorated ware; its climax occurs in Period H2. The characteristic form is a large, small-mouthed jar.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 5 YR 6/6; 7.5 YR 6/6; 5 Y 8/2. *Temper:* Mustafa tempers; hard clay; size, 1 to 4 mm.; shape, angular; amount, sparse to moderate. *Texture:* Rough. *Hardness:* 3–3.5.

SURFACE FINISH: Smooth slipped; unslipped surfaces roughly smooth, frequently granular.

SURFACE COLOR (I.E., SLIP COLOR): 2.5 Y 8/4; 5 YR 7/6; 10 YR 8/4. Purple patches exactly like those on Sultan Purple occur frequently in this type, suggesting that the same slip and similar firing techniques were used.

THICKNESS: Extremes, 0.6–1.5 cm.; mean, 1.0 cm.

DECORATION: A thick slip (*ca.* 0.5 mm.) was applied to the vessel. Apparently while still wet, the potter spun the wheel, resting his fingers on the wet clay. The result is a series of parallel depressions and ridges. Occasionally these rise into peaks and curves as if the potter moved his hand as the vessel was spinning. A deliberate attempt to make these peaks and curves seems obvious.

MISCELLANEOUS: Parallel lines run at right angles to the vertical axis of the vessel.

KECHI BEG WET

Figure 59a

A type distinguished by large jars with small mouths, usually decorated on the upper half of the vessel body, is differentiated from Quetta Wet by its decoration. It had its climax in Period H2.

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 2.5 YR 5/8; 7.5 YR 7/4, 7/6; 5 Y 8/2. *Temper:* Kind, possibly very fine sand, black occasionally. *Texture:* Smooth; slightly rough. *Hardness:* 2.5–3.

SURFACE FINISH: Smooth where not decorated.

SURFACE COLOR: Slip on exterior only, 10 YR 8/4; 2.5 Y 8/4.

THICKNESS: Extremes, 0.35–0.9 cm.; mean, 0.6 cm.

DECORATION: An ambiguous network of ridges scattered thickly and at random over the surface. Technique: some kind of fabric was probably used to form the ridges.

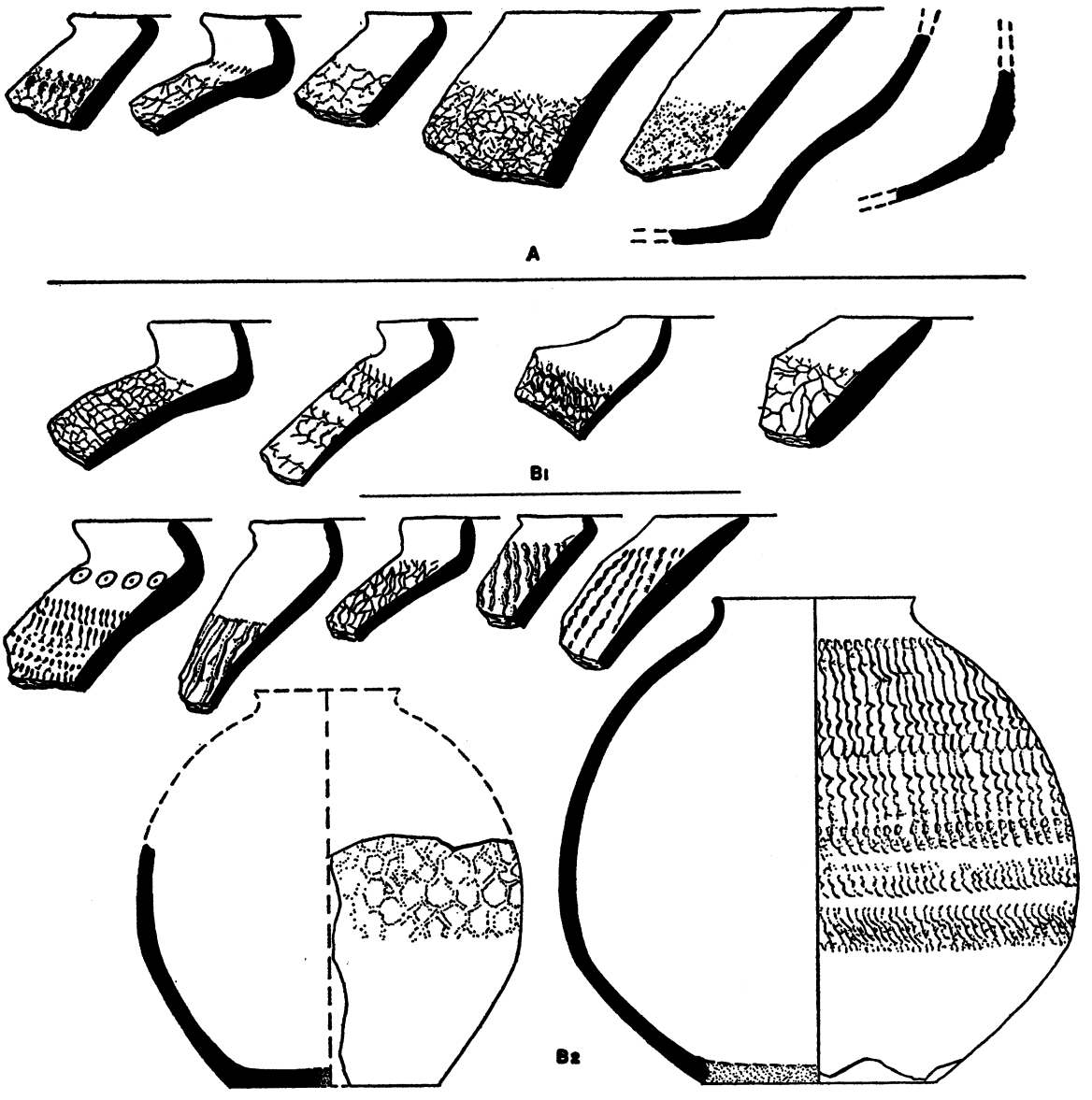


FIG. 59. Vessel shapes, rim profiles, and bases. a. Kechi Beg Wet. b1. Quetta Wet Dendritic. b2. Quetta Wet Variegated. *Ca.* ½ natural size; restorations, *ca.* ¼ natural size.

MISCELLANEOUS: Slip can be as thick as 0.5 mm., though it tends to be thinner.

Unusual and somewhat rare are sherds which have layers of different colors. Thus the paste may be a light brown; the surface of the paste, red or bright pink; and the slip, cream or buff.

QUETTA WET

Figure 59b1, b2

A type with forms similar to those of Kechi Beg Wet can be differentiated from the latter by its more formal, controlled decoration. Its climax is in Period G2. Its two variants (Variant 1, Variegated Wet; Variant 2, Dendritic Wet) have no stratigraphic differentiation.

VARIANT 1, VARIEGATED WET

SITES: Q8, Q13, Q14, Q24.
CONSTRUCTION: Wheelmade.
FIRING: Oxidizing.
PASTE: *Color:* 5 Y 8/2; 2.5 YR 5/8; 7.5 YR 6/2, 7/4, 7/6. *Temper:* Kind, possibly very fine sand. *Tex-*

ture: Smooth. *Hardness:* 2.5–3.

SURFACE FINISH: (See decoration). Ware slipped, base area slipped and plain; surface smooth.

SURFACE COLOR: Slip on exterior only; 10 YR 8/4; 2.5 Y 8/4.

THICKNESS: Extremes, 0.3–0.9 cm.; mean, 0.5 cm.

DECORATION: A series of wavy, raised ridges or partial ridges, parallel to one another, are arranged perpendicularly or obliquely to the horizontal plane of the vessel. Ridges are often up to 1 mm. high. Connecting ridges are frequently at right angles to the main rows. These decorative ridges were formed with a flat tool, with clay adhering to its edge, applied to the wet surface of the slip clay. When the tool was raised, the ridges were formed.

Variants on the ridges occur in the form of parallel raised lines, broken at intervals by horizontal flat areas. Another variant is a series of broken C-shaped ridges running over the surface horizontally.

MISCELLANEOUS: This decorative element is invariably applied from an area close to the lip of the vessel down to the demarcation line where the slope towards the base begins.

Slip thin, i.e., less than 0.33 mm.

VARIANT 2, DENDRITIC WET

SITES: Q8, Q13, Q14, Q24.

CONSTRUCTION: Wheelmade.

FIRING: Oxidizing.

PASTE: *Color:* 2.5 YR 5/8; 7.5 YR 7/4, 7/6; 5 Y 8/2. *Temper:* Kind, possibly very fine sand; occasionally a sherd with red. *Texture:* Smooth. *Hardness:* 2.5–3.

SURFACE FINISH: Smooth.

SURFACE COLOR: Slip on exterior only, 10 YR 8/4; 2.5 Y 8/4.

THICKNESS: Extremes, 0.25–0.8 cm.; mean, 0.5 cm.

DECORATION: A series of ridges with numerous branch-like ramifications suggesting a leafless tree. The "trunks" are wavy; the "branches" usually interlace with other branches on neighboring "trees." In some sherds the branches are only "twigs" extending from the trunk. Technique: probably cloth applications.

MISCELLANEOUS: Design arranged as in Variegated Wet. Slip thin, i.e., usually less than 0.33 mm.

QUETTA CIRCLE STAMPED

Figure 59b2

This variant of the Quetta Wet always occurs with the Quetta Wet wares. In every case the circle stamping on wet ware, i.e., either Plain Wet or Variegated Wet, occurs between the upper edge of the decorated area and the rim. Almost without exception a small hole appears in the center of the circle. The circles are evenly spaced, rarely more than 5 mm. apart, and continue around the upper part of the body of the vessel.

MISCELLANEOUS

A number of decorated sherds, probably representing foreign importations, did not fit into the types described above. However, a group of black-on-red slip sherds (Designs 505–530) with designs similar to those on both Faiz Mohammad Gray and Quetta Red-Brown-on Dark Slip are probably indigenous to Period G2. Polychrome designs (531–547) are alien to the prehistoric Quetta Valley and therefore are of great interest as probable importations from the south and east. Designs 527–530 are black-on-red slip and are most certainly importations from the Zhob-Loralai Area.

POTTERY DESIGNS[1]

PERIOD H1[2]

THREE DECORATED WARES appear in this period: Kili Ghul Mohammad Black-on-Red Slip, Red Paint, and Coarse Black-on-Brown. The first is the most numerous and has the largest and most variable group of designs.

KILI GHUL MOHAMMAD BLACK-ON-RED SLIP

Designs 1–32

Basically the arrangement of designs involves decoration of the rim area and its immediate vicinity. The rim is painted with a single, rather broad black band from which are suspended verticals (1); verticals which extend to horizontal lines on the vessel body (2), or diagonals which intersect these horizontals (3), or continue to a horizontal band at the bottom of the vessel (4). A variant is composed of opposed diagonal lines drawn from the rim (5) or through horizontals (6) to the vessel bottom (7). Rows of diagonally hatched triangles are frequently suspended from the rim band (8). The apices of these triangles usually terminate in a disc (9). A painted triangle suspended from the rim band also occurs (10).

Body designs below the rim consist of horizontal bands (11), sigmas in horizontal sequence (12) and, occasionally, in vertical sequence (13). A single sherd recovered in stratigraphic context (14) indicates that rows of stylized animals, such as Design 15 (also Designs 442–444), which was found on the surface of Q24, were also used as body decoration (cf. Designs 442–444). Wavy line horizontals (16), as well as zigzags and triangles filled with vertical lines (17), are found in this group. A common element consists of lines radiating from a center point, each radius in turn terminating in a disc (18). Parallel horizontal bands are crossed by parallel diagonals with the upper left corner of the resulting diamond form painted (19). A closely related design is composed of similar parallel horizontal bands crossed by parallel diagonals in two directions; the triangles formed by these crossing elements are painted (20). The latter example was found on the surface at Q24. Short parallel horizontal strokes (21), indeterminate brush blobs (22), and an example of diagonal hatching between verticals (23) complete the roster of body designs recovered in stratigraphic context.

It was common practice to define the base of a vessel with a horizontal band (24).[3]

A number of sherds of this type from the surface of Q24, though not recovered in context, have designs that most probably belong with this design type. Among these are a design composed of horizontal bands crossed by verticals, resulting in a pattern of alternating painted and unpainted squares (25–26), the saw-tooth (27), and the stylized antler known as the *togau* antler (28–31).

The design on a single sherd among the coarse Black-on-Red Slip wares recovered at Q24 consists of crossed parallel diagonals on the body (32). This is especially noteworthy because of the implied relation to the Zhob cultures.

KILI GHUL MOHAMMAD RED PAINT

Designs 33–36

The few sherds recovered under this category exhibit the same preoccupation with the rim area as does the Kili Ghul Mohammad Black-on-Red Slip. The rim is defined by a band from which diagonals are drawn on the body of the vessel; parallel diagonals running from right to left meet similar diagonals running from left to right. These diagonals are either narrow (33) or quite broad (34). Festoons suspended from the rim band also occur (35). Finally, the *togau* antler motif, directly below the rim band, on the interior of an open vessel is found in this type (36). The latter is found on a fine ware.

KILI GHUL MOHAMMAD COARSE BLACK-ON-BROWN

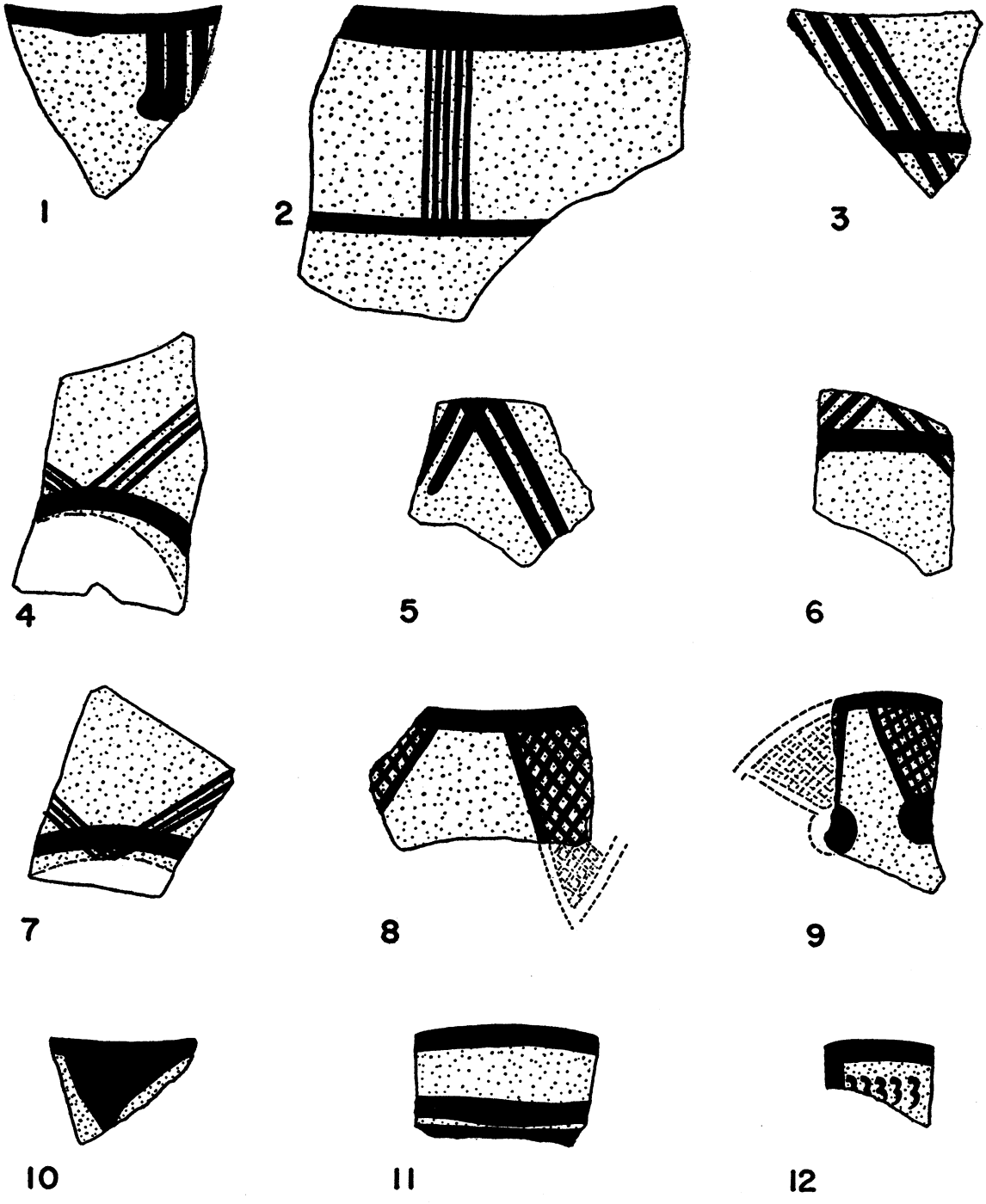
Design 37

No additional design elements are found in this type (p. 259). Crossed parallel diagonals (32) and diagonals stemming from the rim (5) are common. An indistinguishable decorative form may be an attempt at a floral pattern (37).

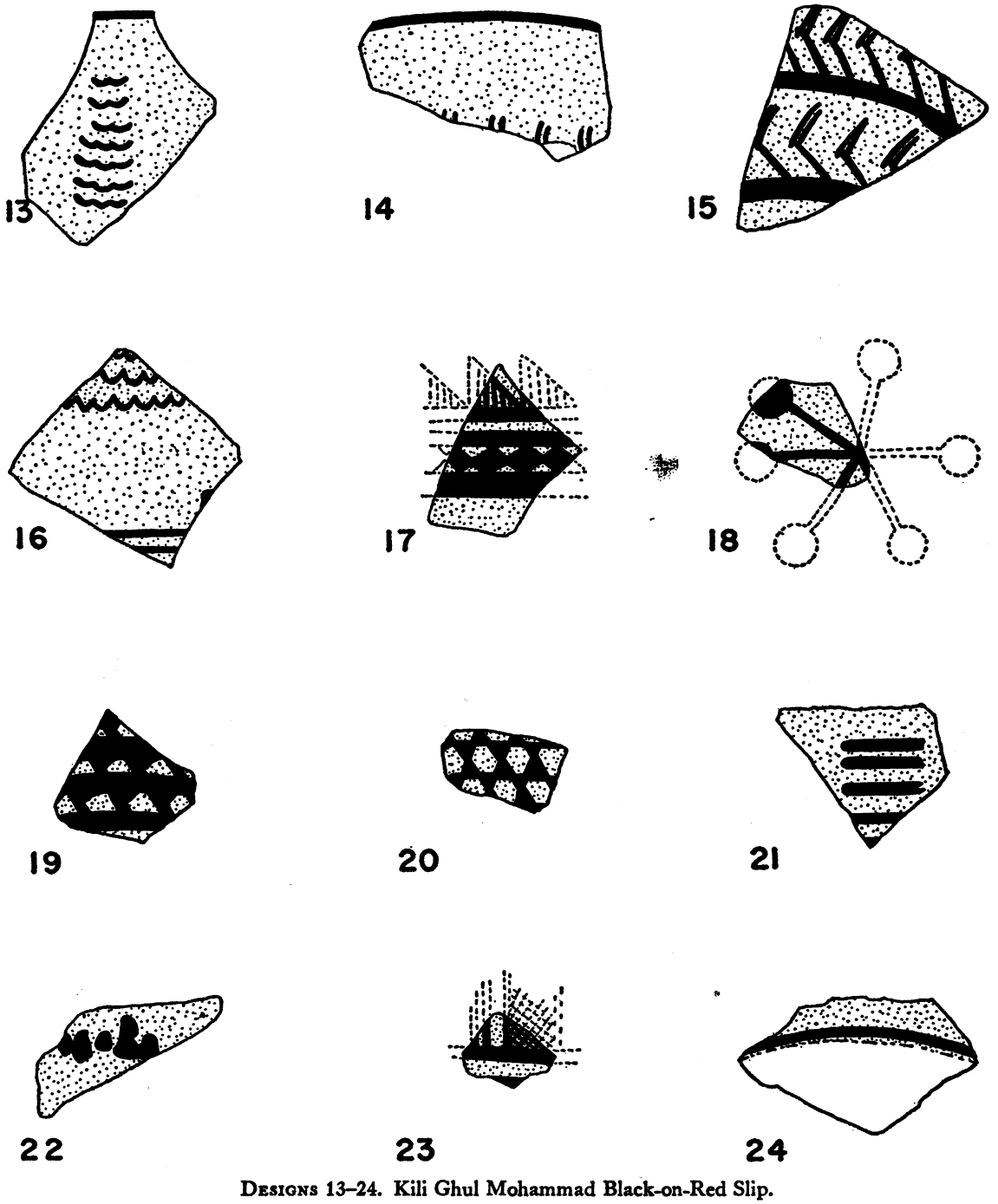
[1] For stratigraphic location of examples depicted, see Catalogue Data for Certain Illustrations (pp. 396–402).

[2] Though some of these decorated wares occur in Period I (see Fig. 61), it is felt that the designs should be described from the period in which they occur most widely and in greatest variety.

[3] See Design 7.



DESIGNS 1–12. Kili Ghul Mohammad Black-on-Red Slip.



DESIGNS 13–24. Kili Ghul Mohammad Black-on-Red Slip.

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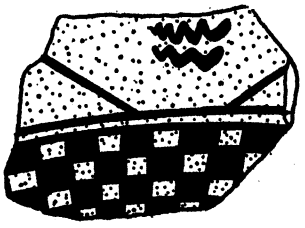

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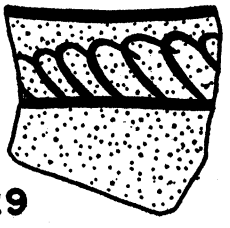

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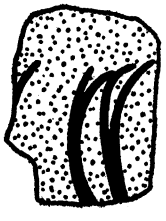

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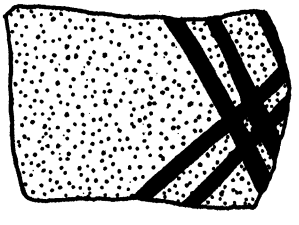

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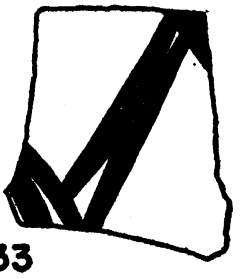

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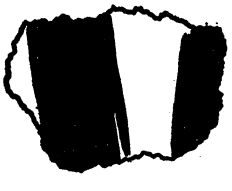

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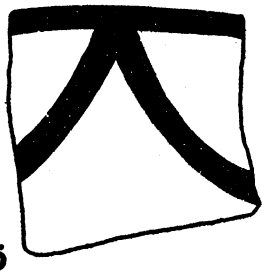

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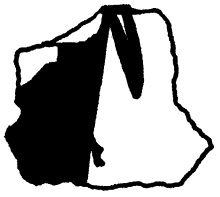
DESIGNS 25–32. Kili Ghul Mohammad Black-on-Red Slip.
DESIGNS 33–36. Kili Ghul Mohammad Red Paint.



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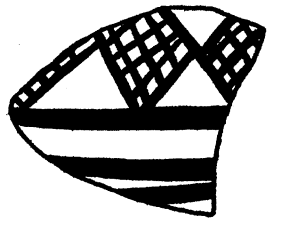

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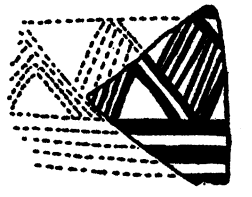

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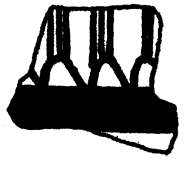

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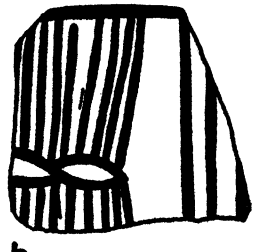

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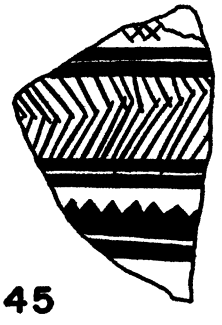

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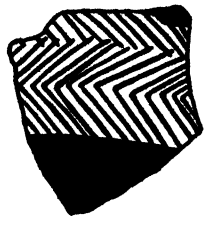

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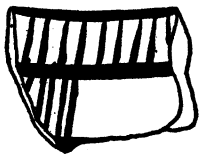
DESIGN 37. Kili Ghul Mohammad Coarse Black-on-Brown.
DESIGNS 38–46b. Kechi Beg Black-on-Buff Slip; Brown-on-Buff Surface.



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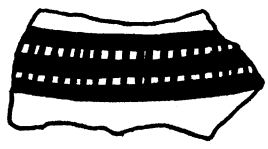

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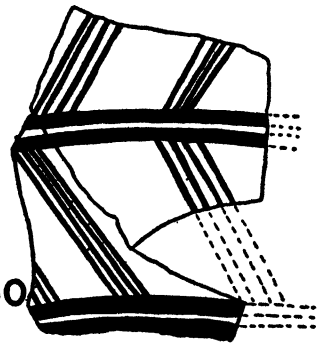

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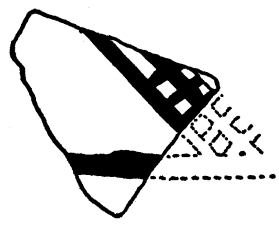

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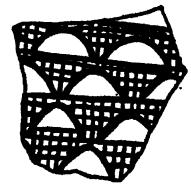

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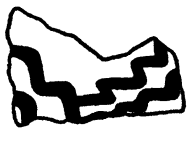

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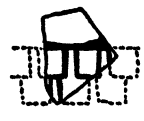

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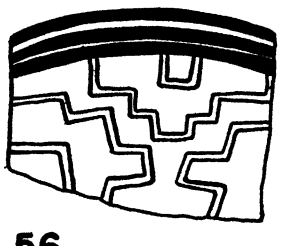

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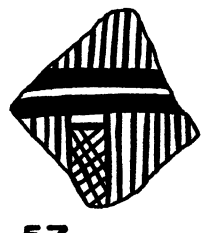

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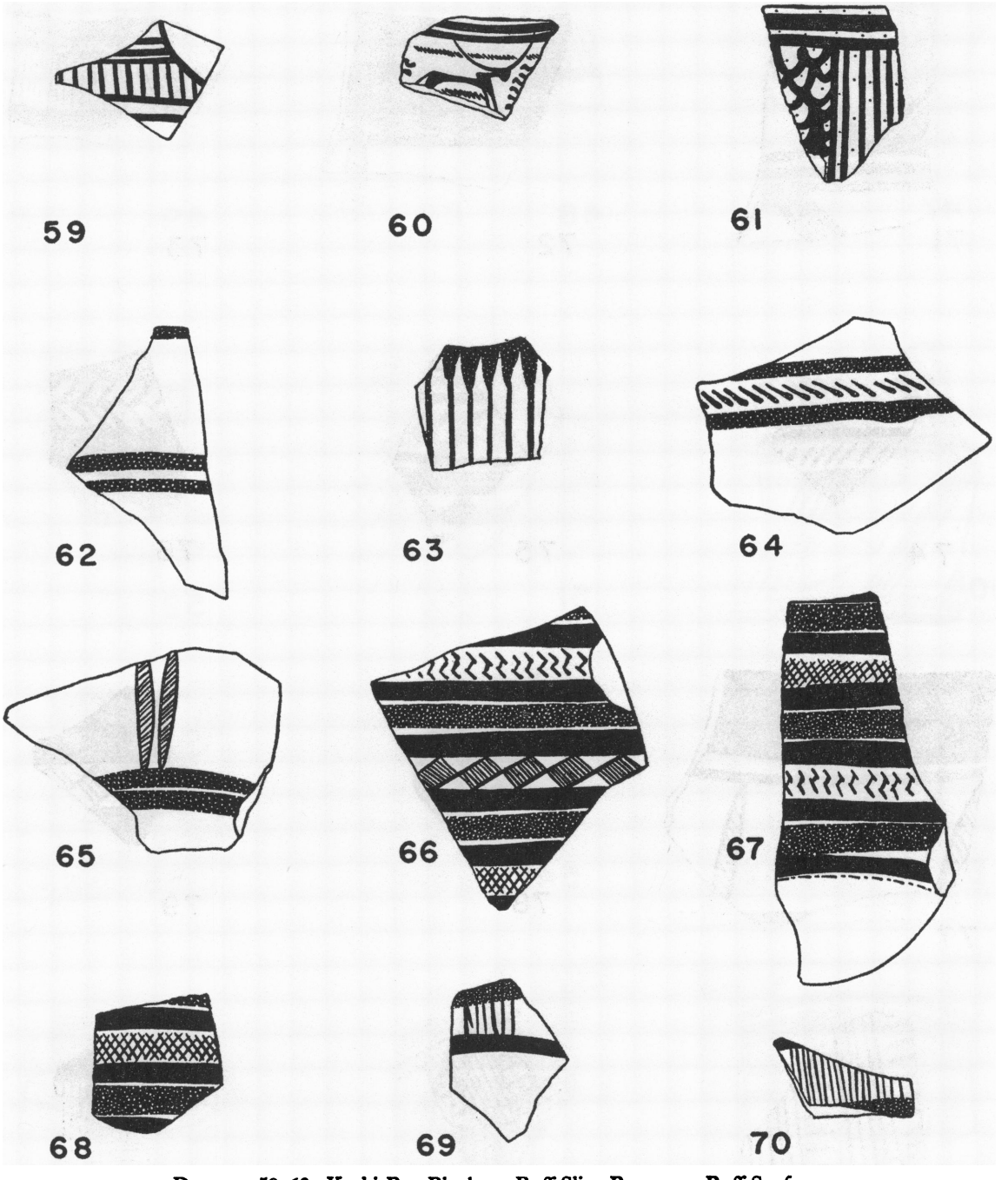
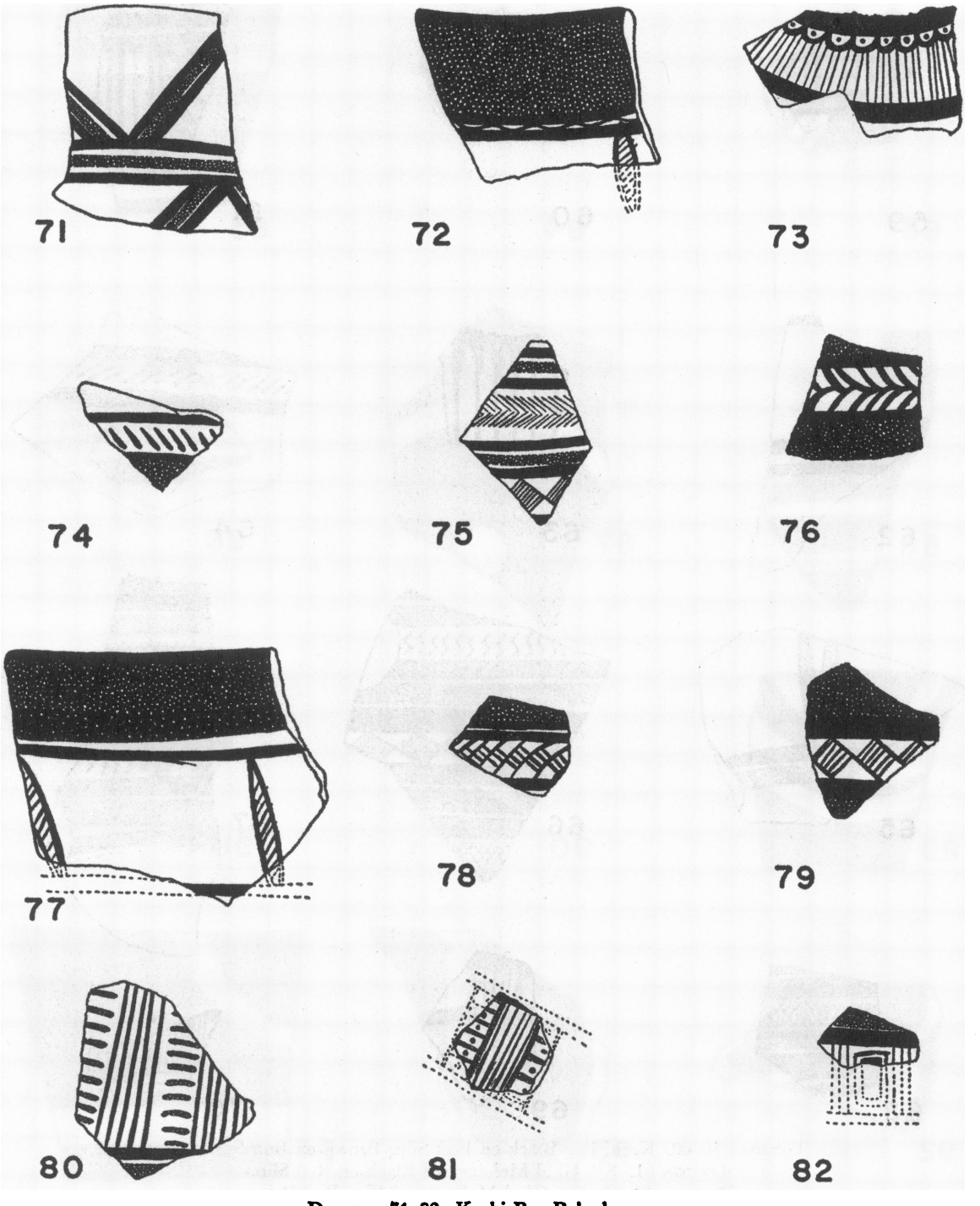
58

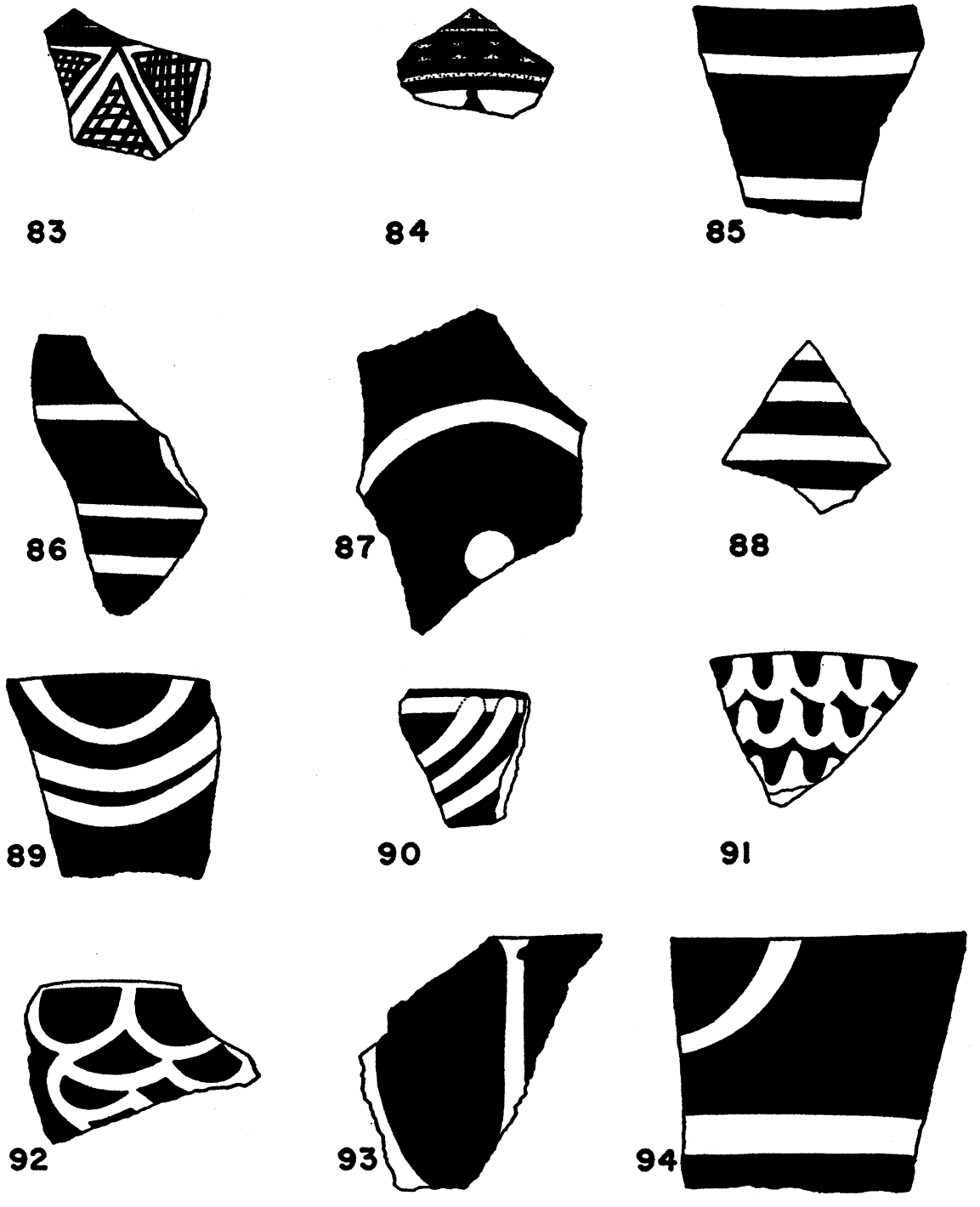
DESIGNS 47–58. Kechi Beg Black-on-Buff Slip; Brown-on-Buff Surface.



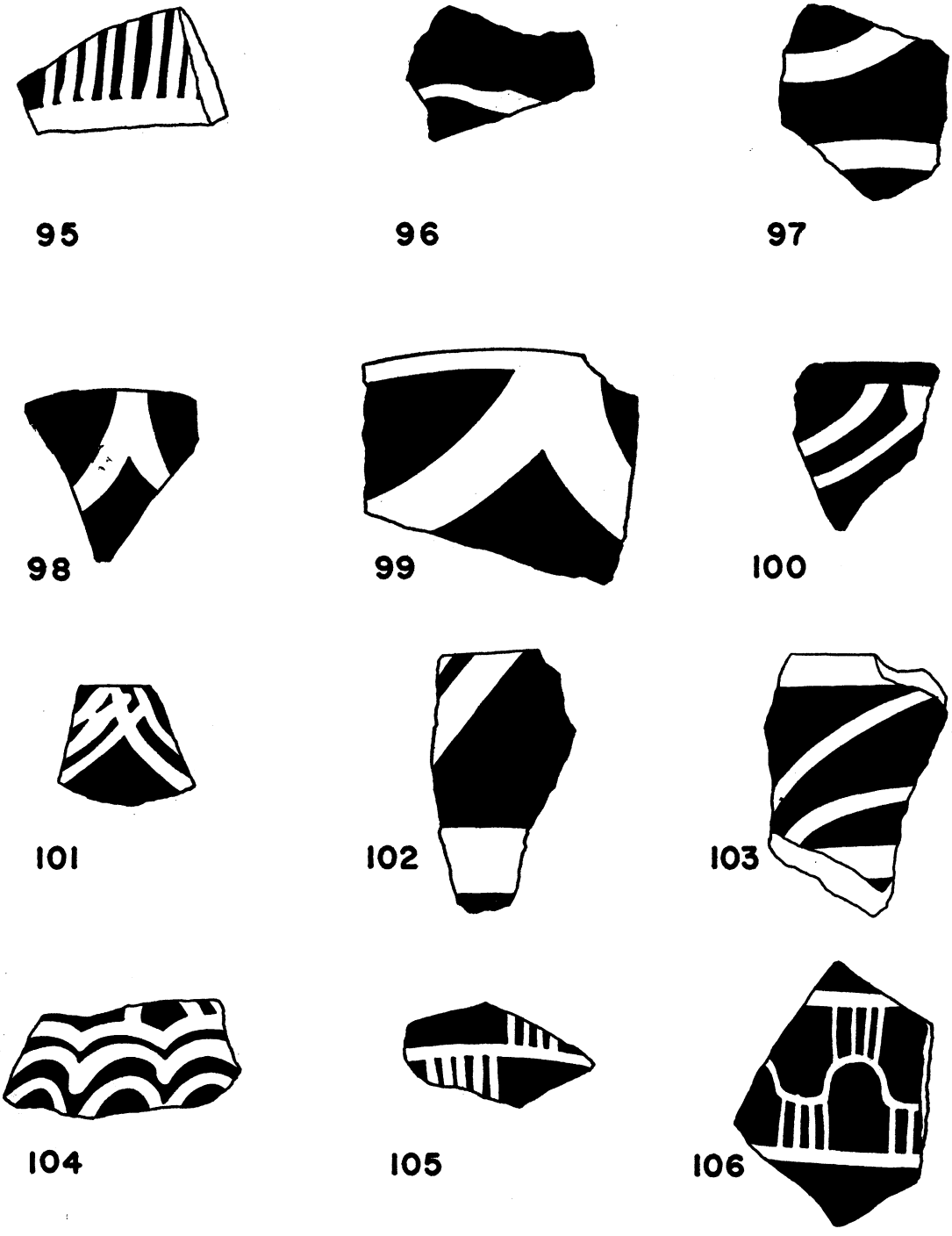
DESIGNS 59–60. Kechi Beg Black-on-Buff Slip; Brown-on-Buff Surface.
DESIGN 61. Kili Ghul Mohammad Black-on-Red Slip.
DESIGNS 62–65. Kili Ghul Mohammad Fine Red Paint.
DESIGNS 66–70. Kechi Beg Polychrome.



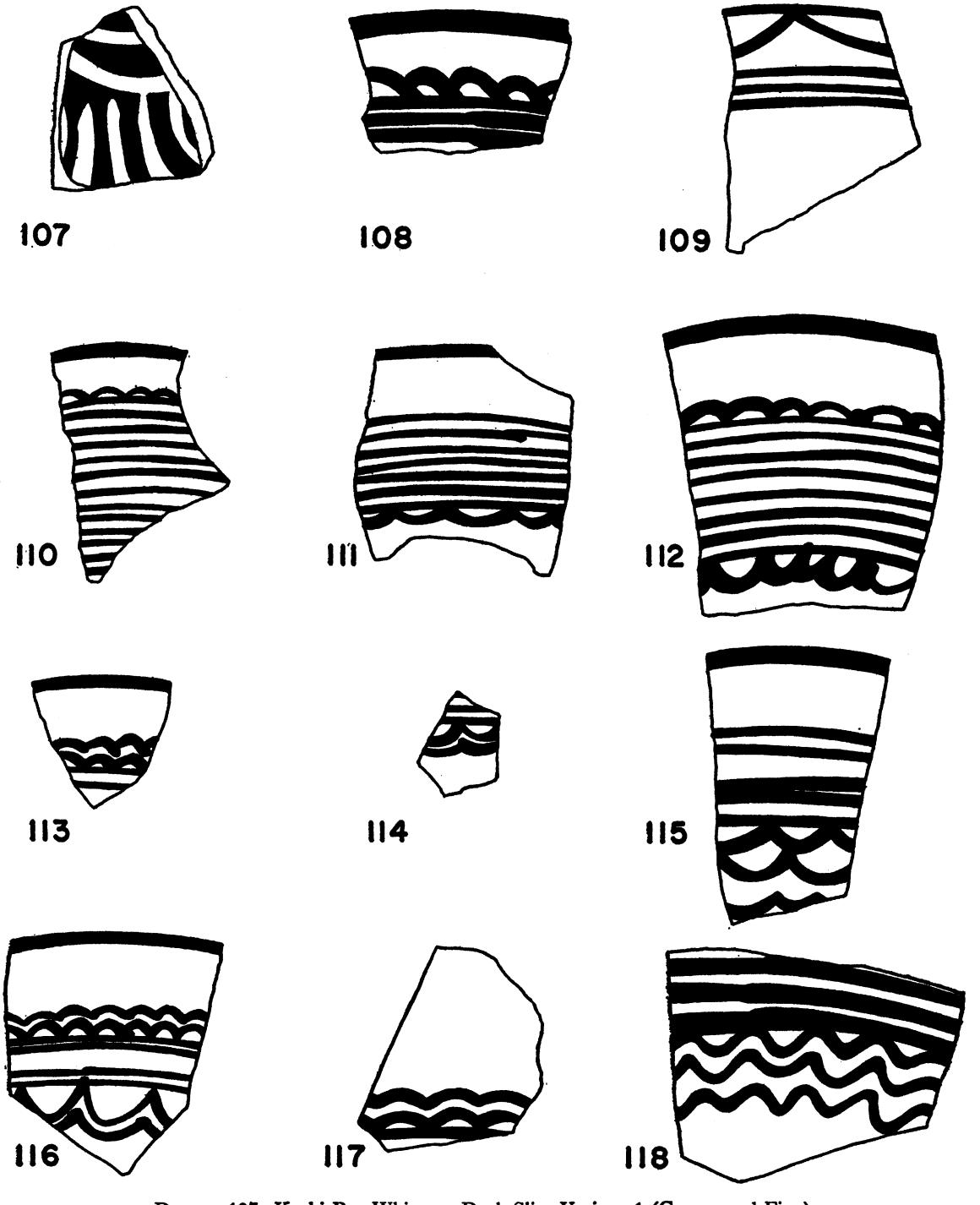
DESIGNS 71–82. Kechi Beg Polychrome.



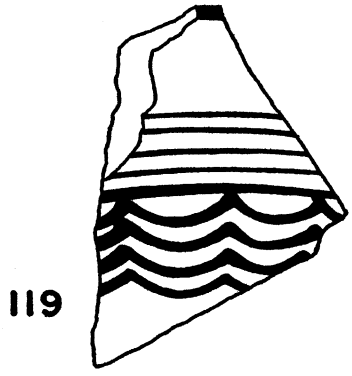
DESIGNS 83–84. Kechi Beg Polychrome.
DESIGNS 85–94. Kechi Beg White-on-Dark Slip, Variant 2 (Coarse and Fine).



DESIGNS 95–97. Kechi Beg White-on-Dark Slip, Variant 2 (Coarse and Fine).
DESIGNS 98–106. Kechi Beg White-on-Dark Slip, Variant 1 (Coarse and Fine).



DESIGN 107. Kechi Beg White-on-Dark Slip, Variant 1 (Coarse and Fine).
DESIGNS 108–118. Quetta ware.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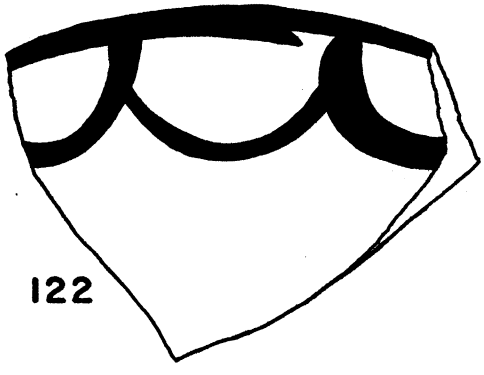
120

121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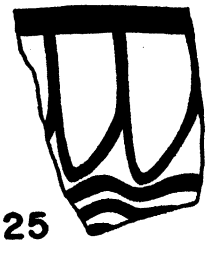
124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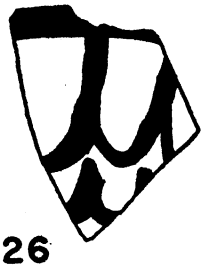
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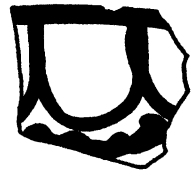
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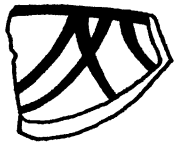
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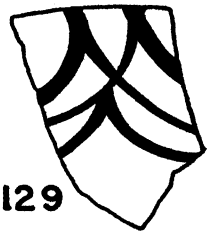
129

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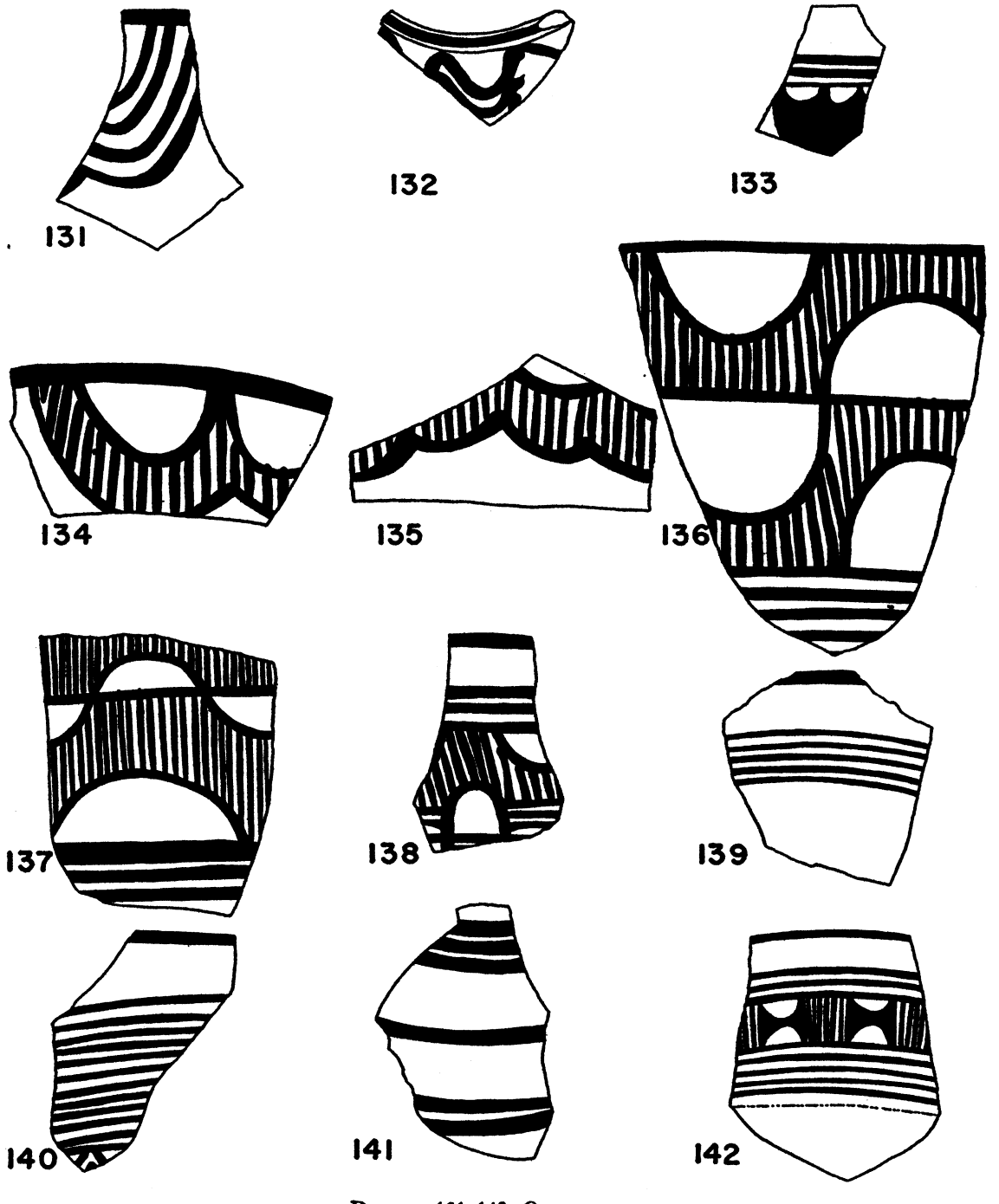
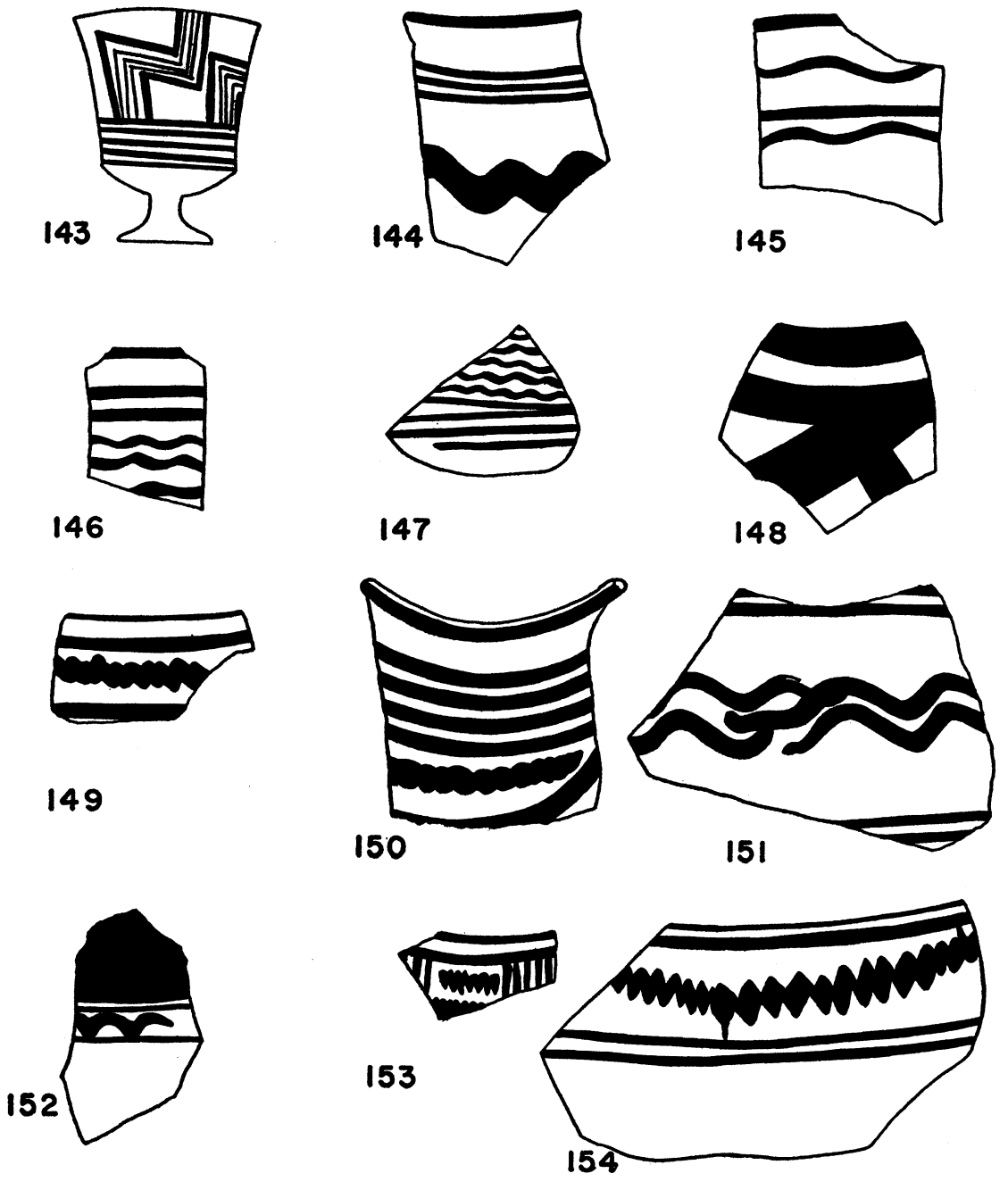
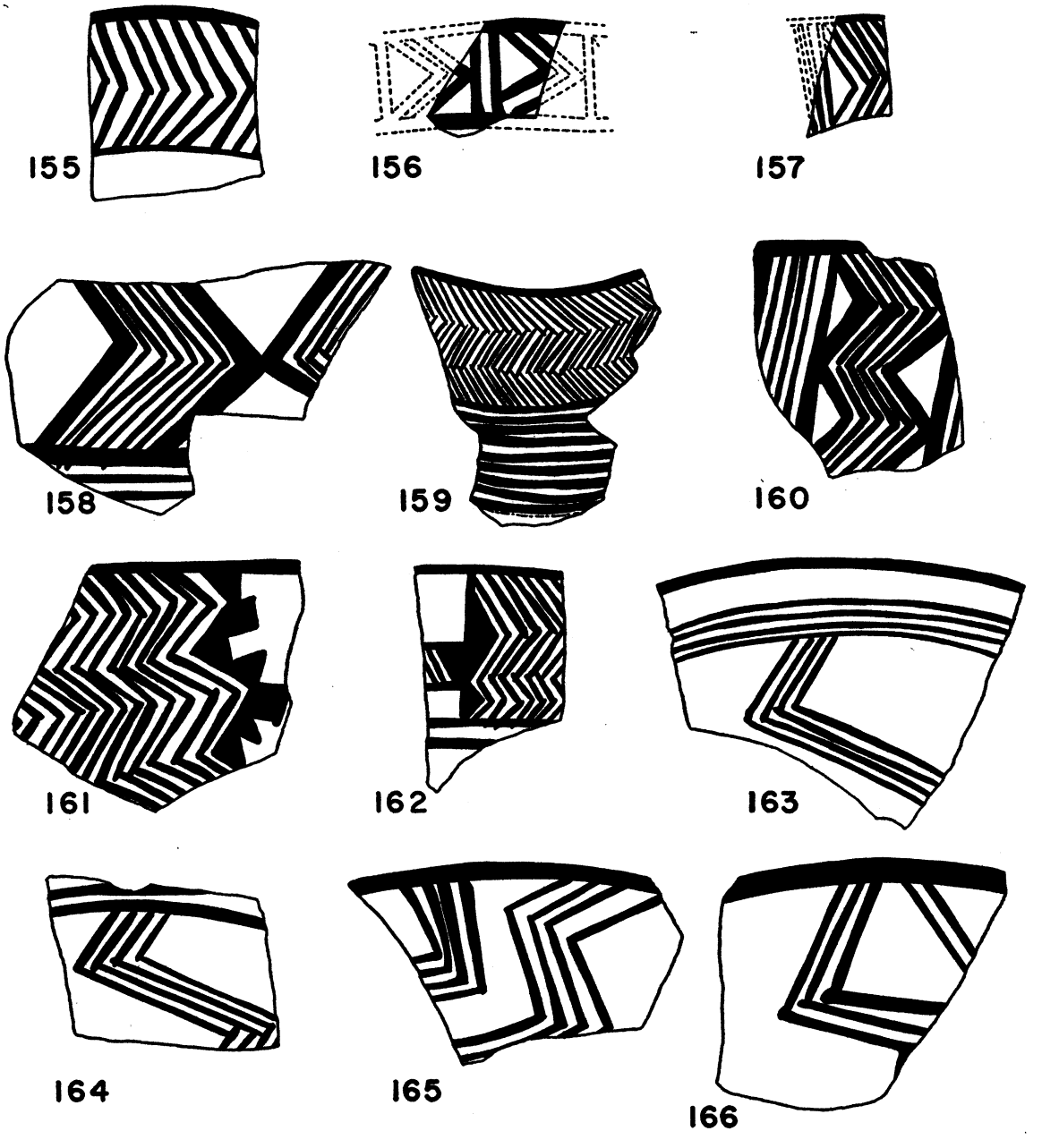
DESIGNS 119–130. Quetta ware.



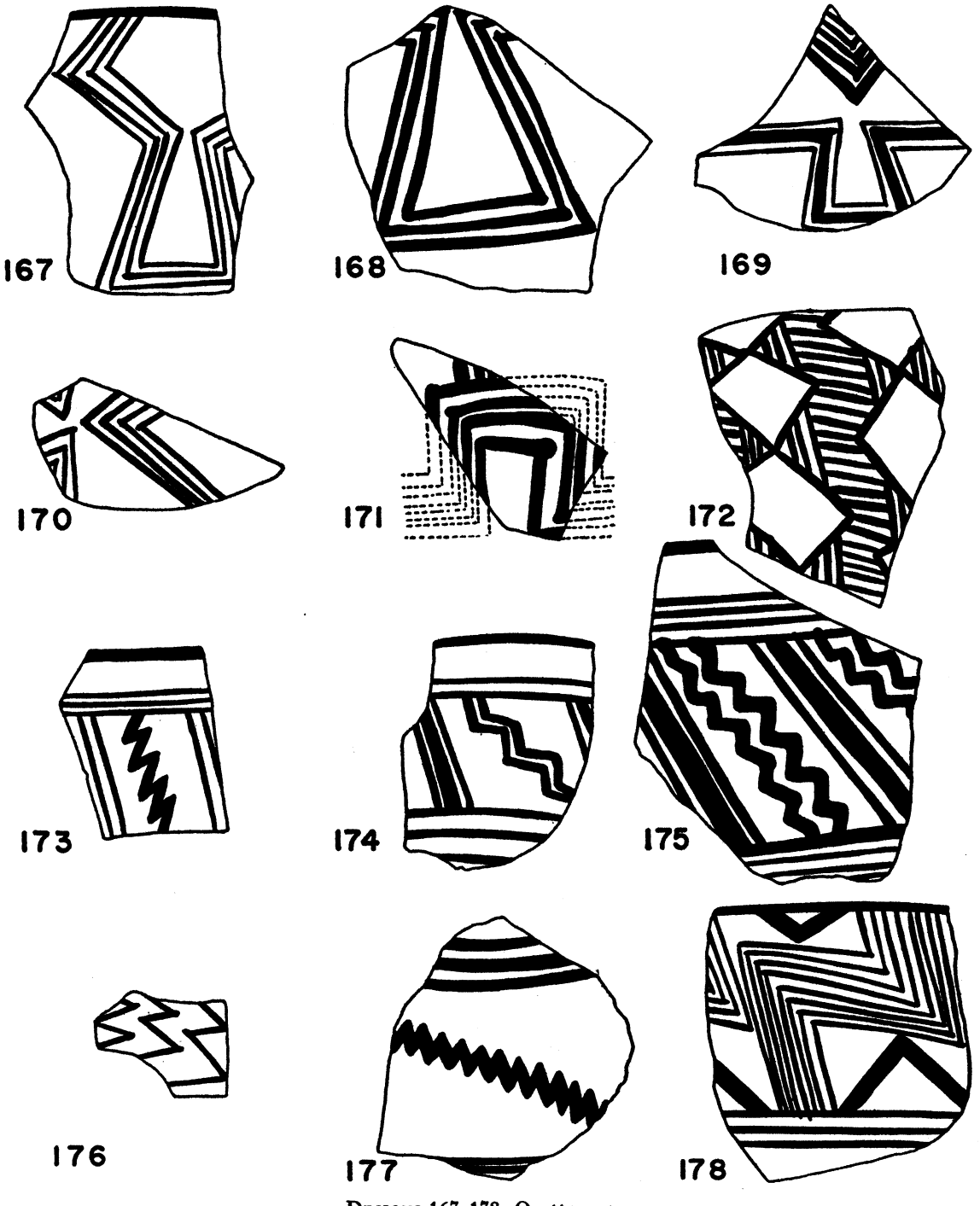
DESIGNS 131–142. Quetta ware.



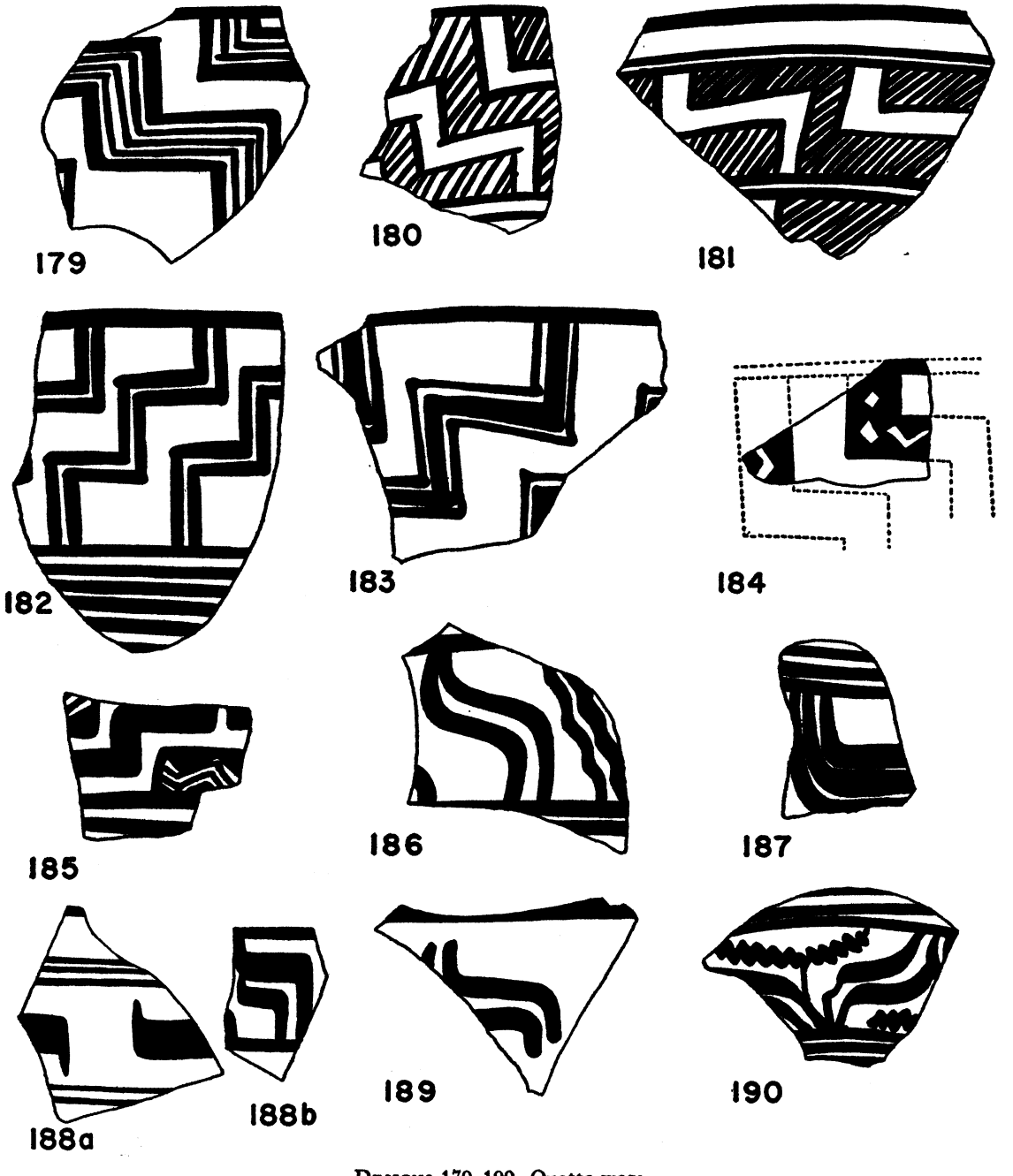
DESIGNS 143–154. Quetta ware.



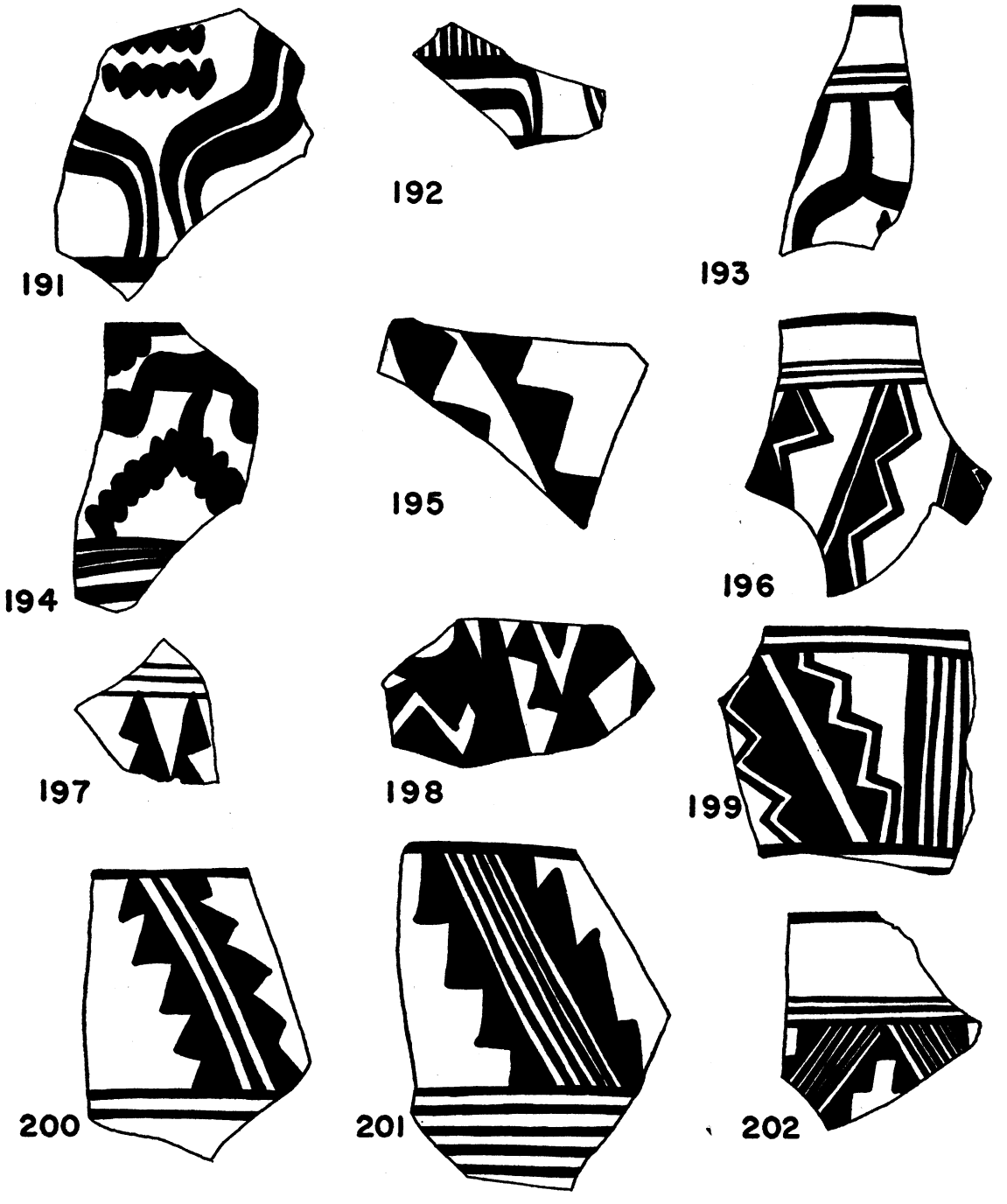
DESIGNS 155–166. Quetta ware.



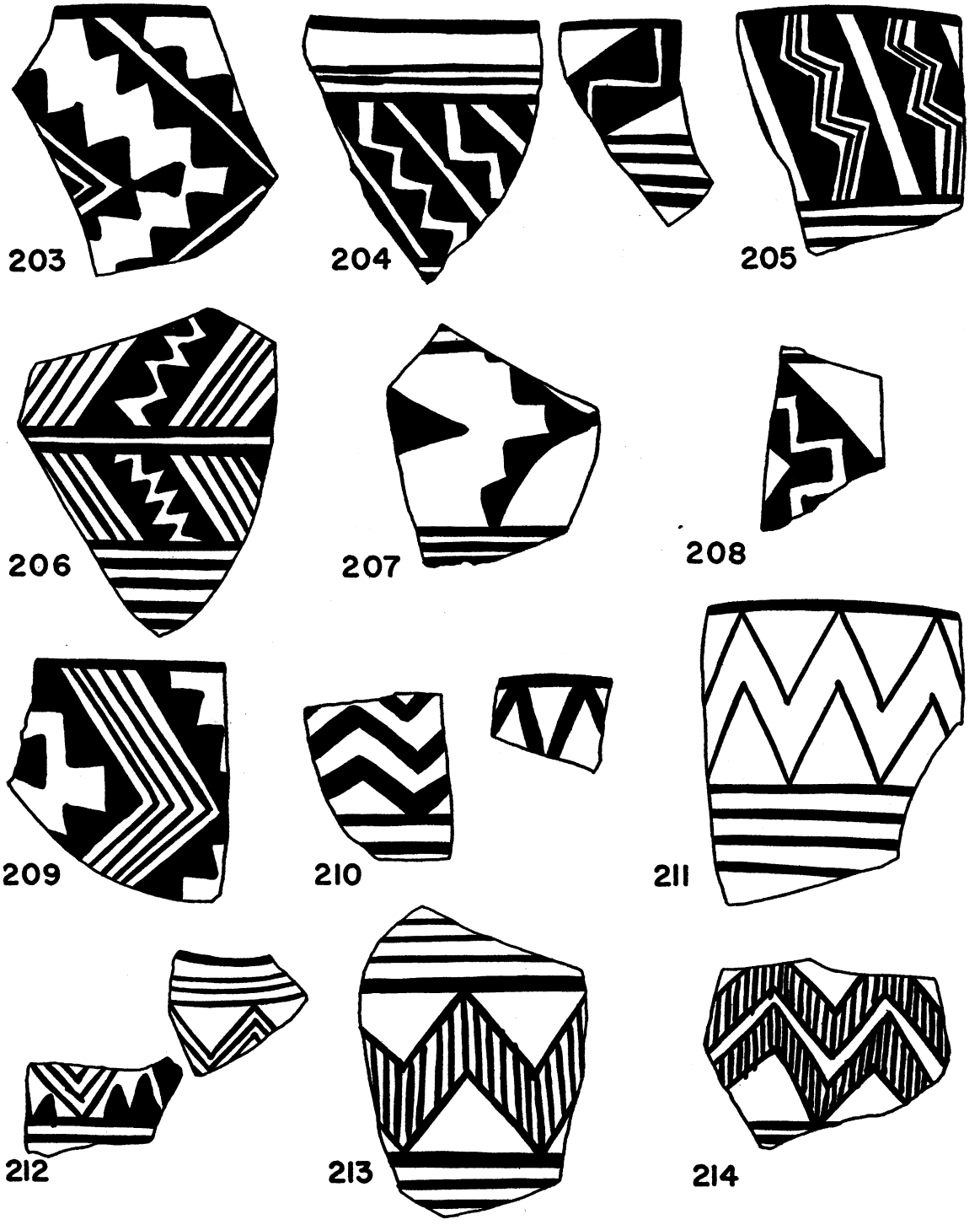
DESIGNS 167–178. Quetta ware.



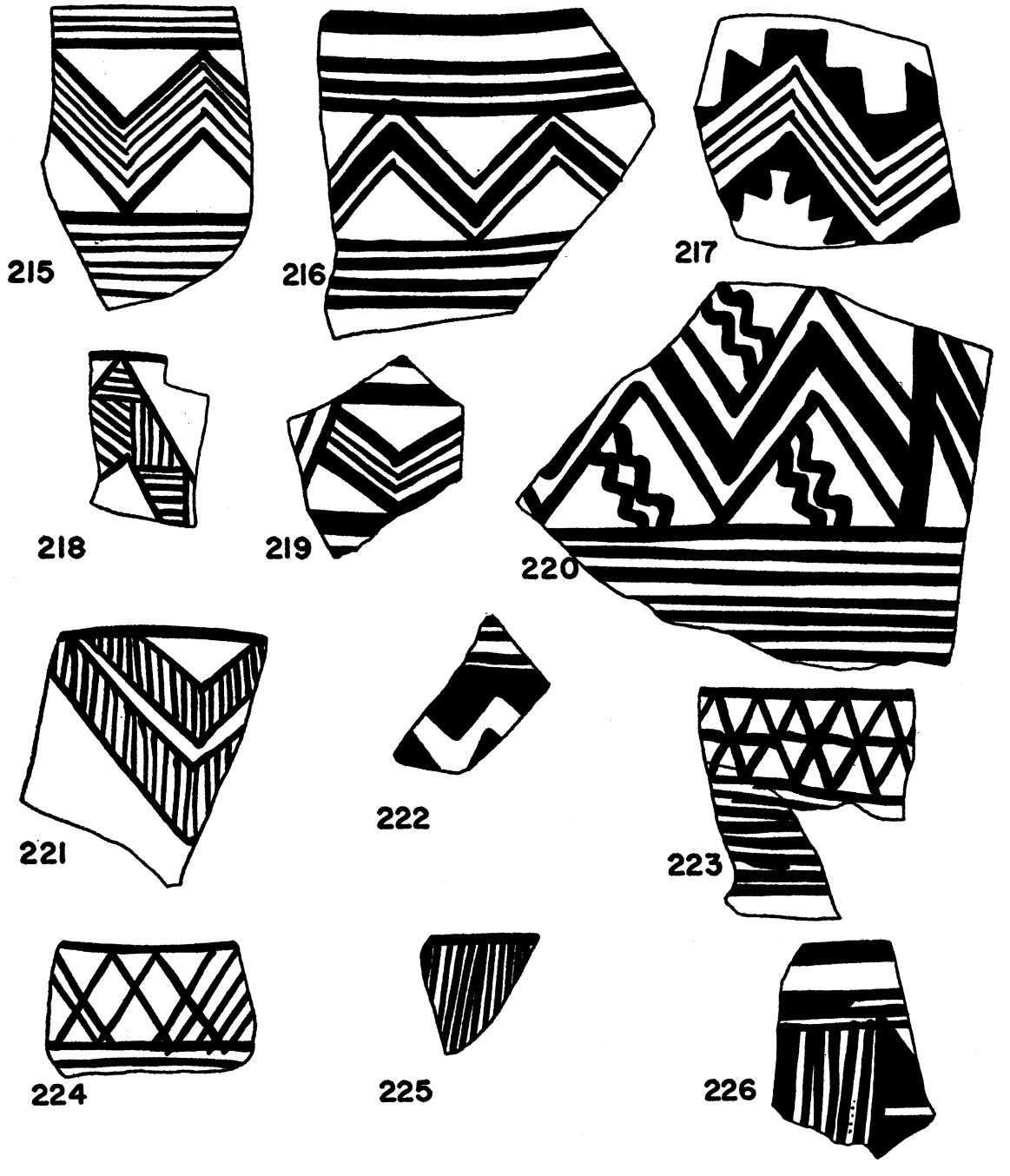
DESIGNS 179–190. Quetta ware.



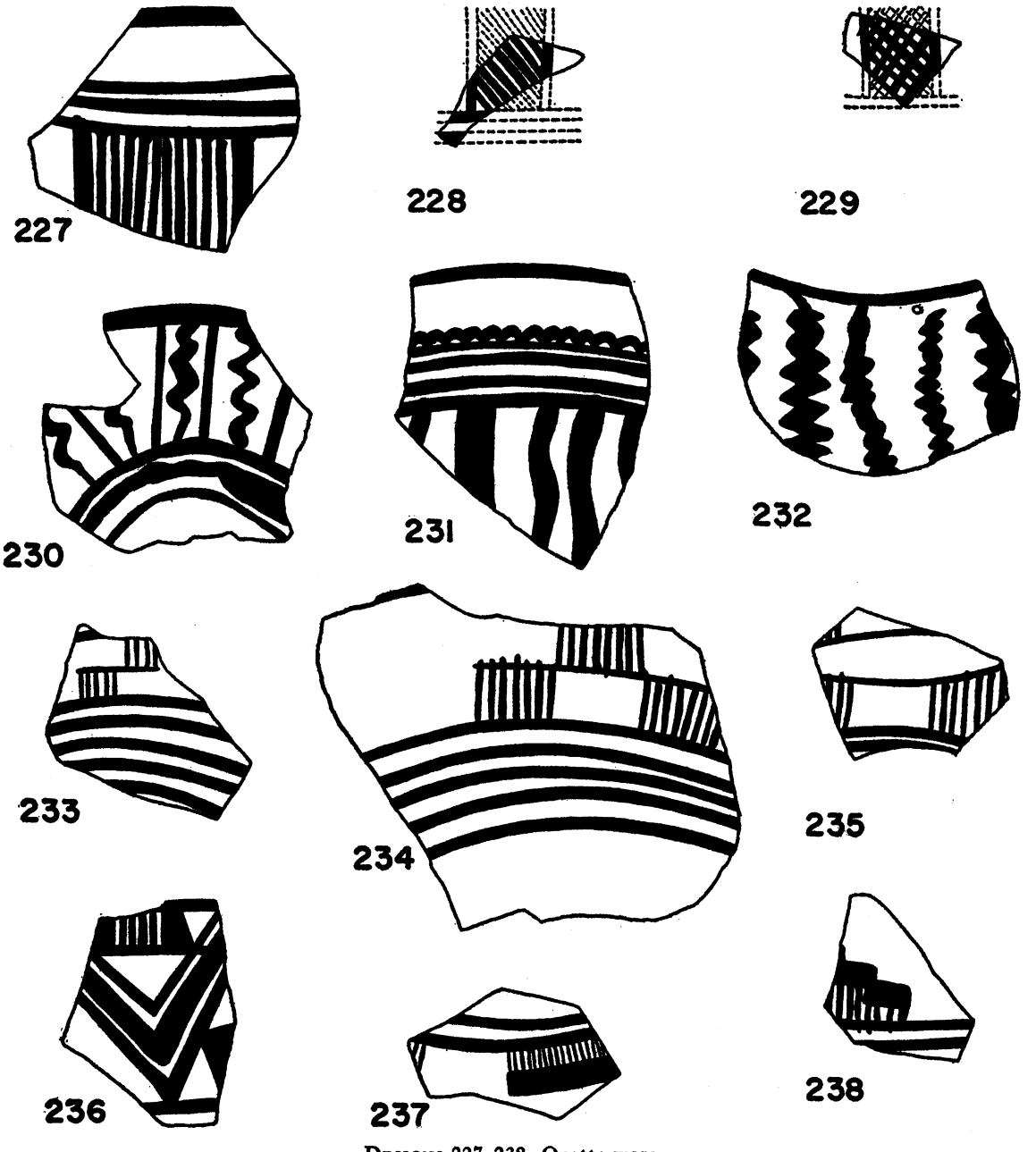
DESIGNS 191–202. Quetta ware.



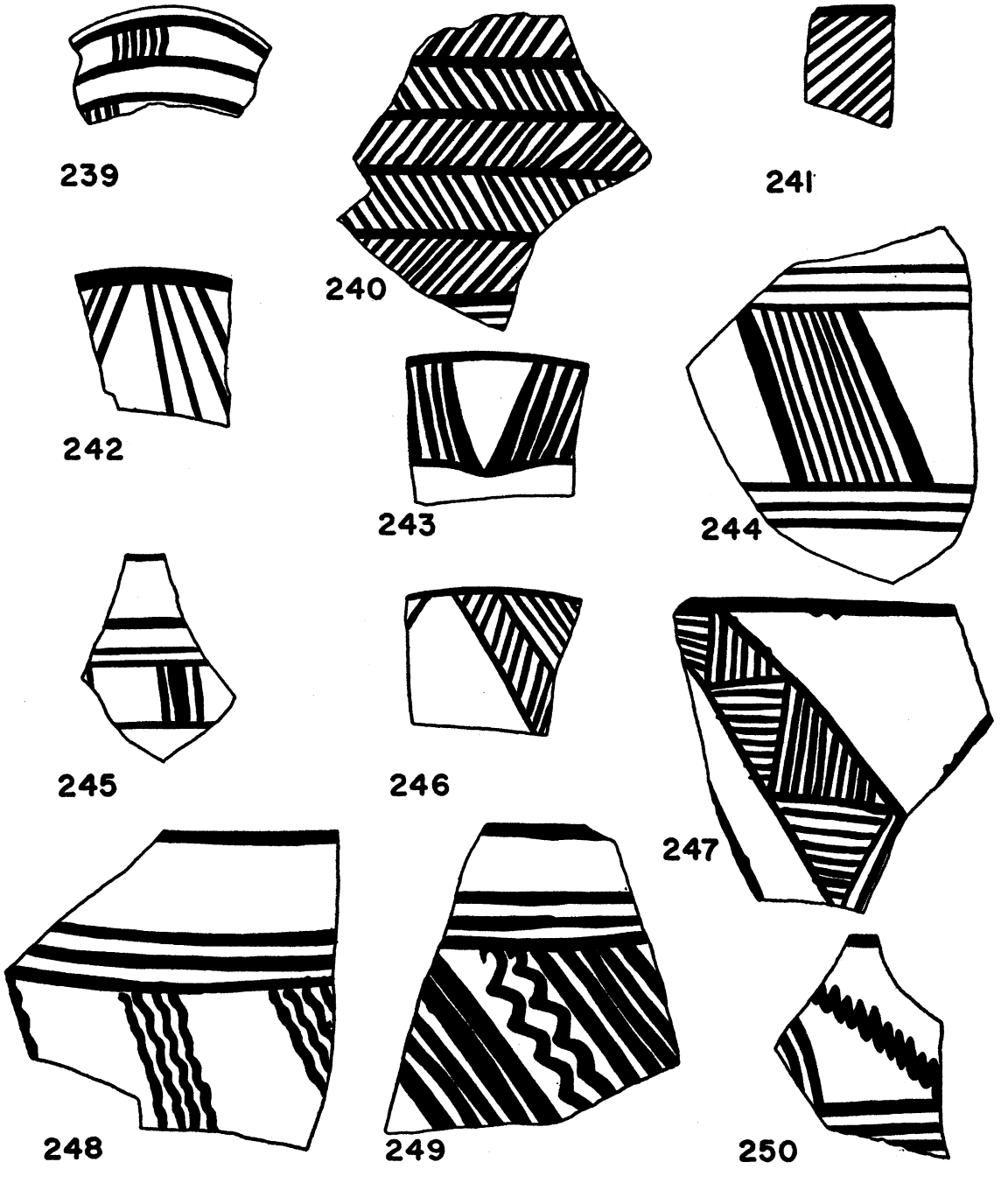
DESIGNS 203–214. Quetta ware.



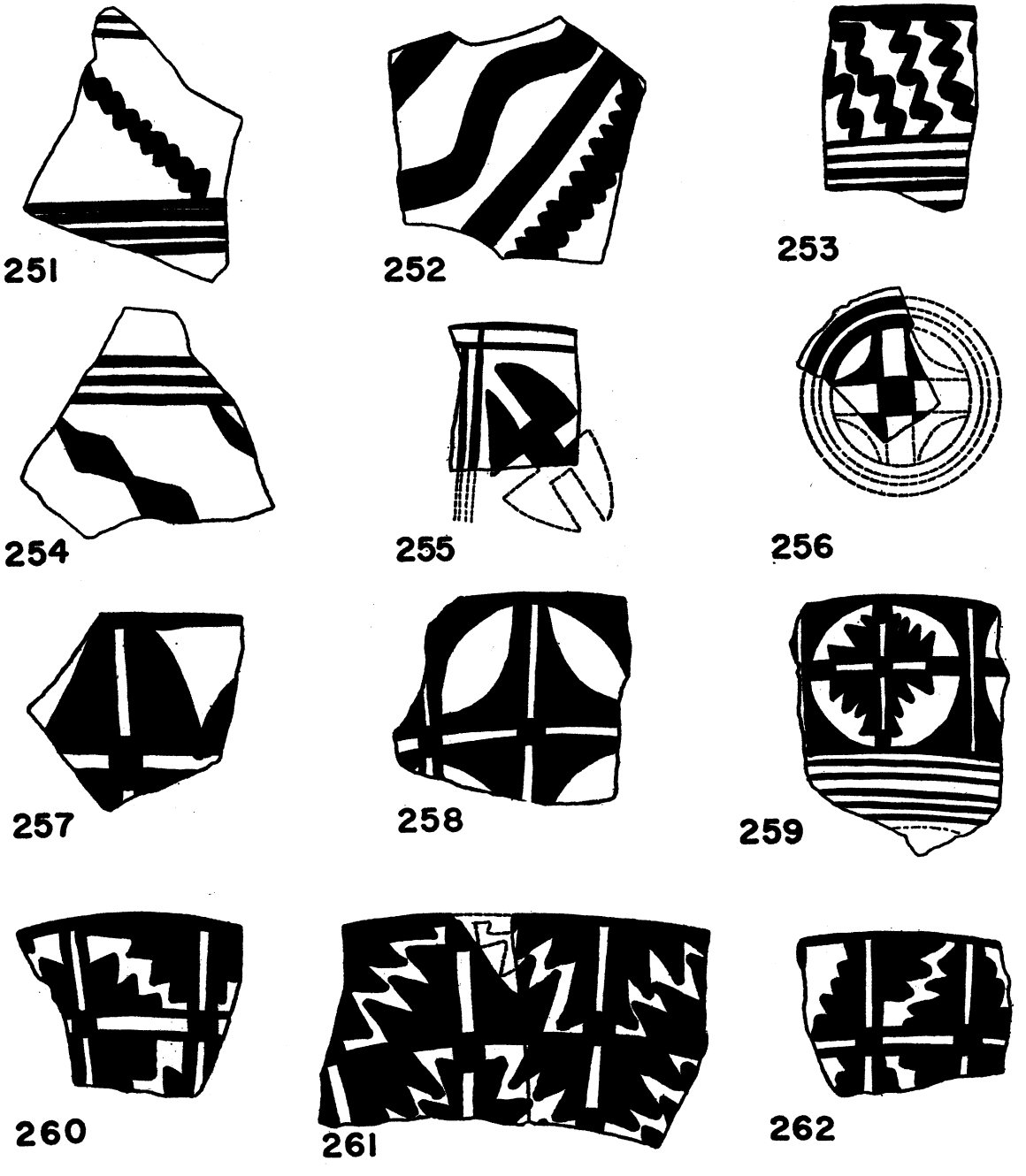
DESIGNS 215–226. Quetta ware.



DESIGNS 227–238. Quetta ware.

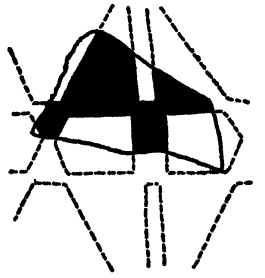


DESIGNS 239–250. Quetta ware.



DESIGNS 251–262. Quetta ware.

263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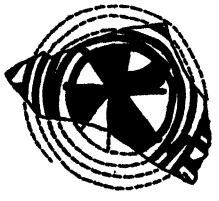
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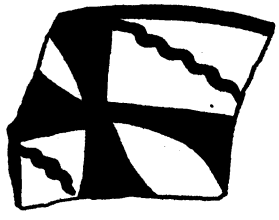
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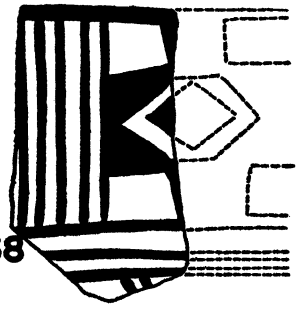
268

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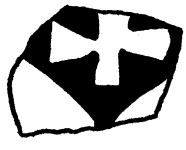
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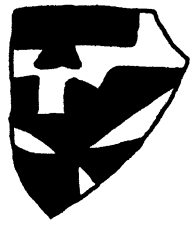
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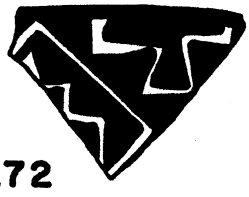
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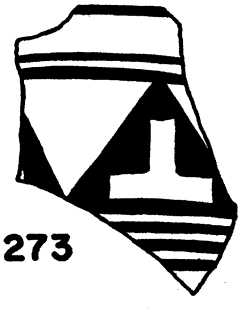
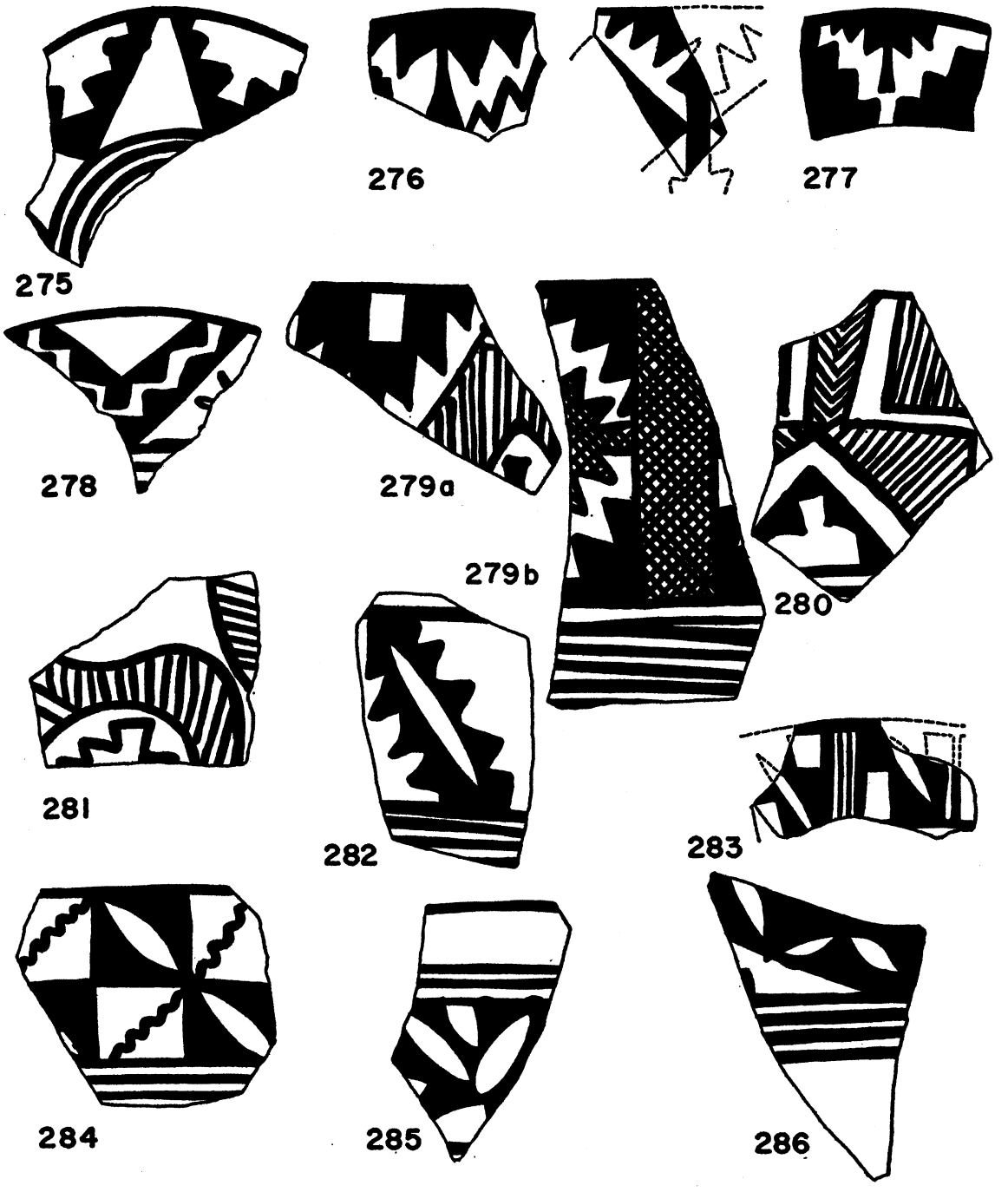
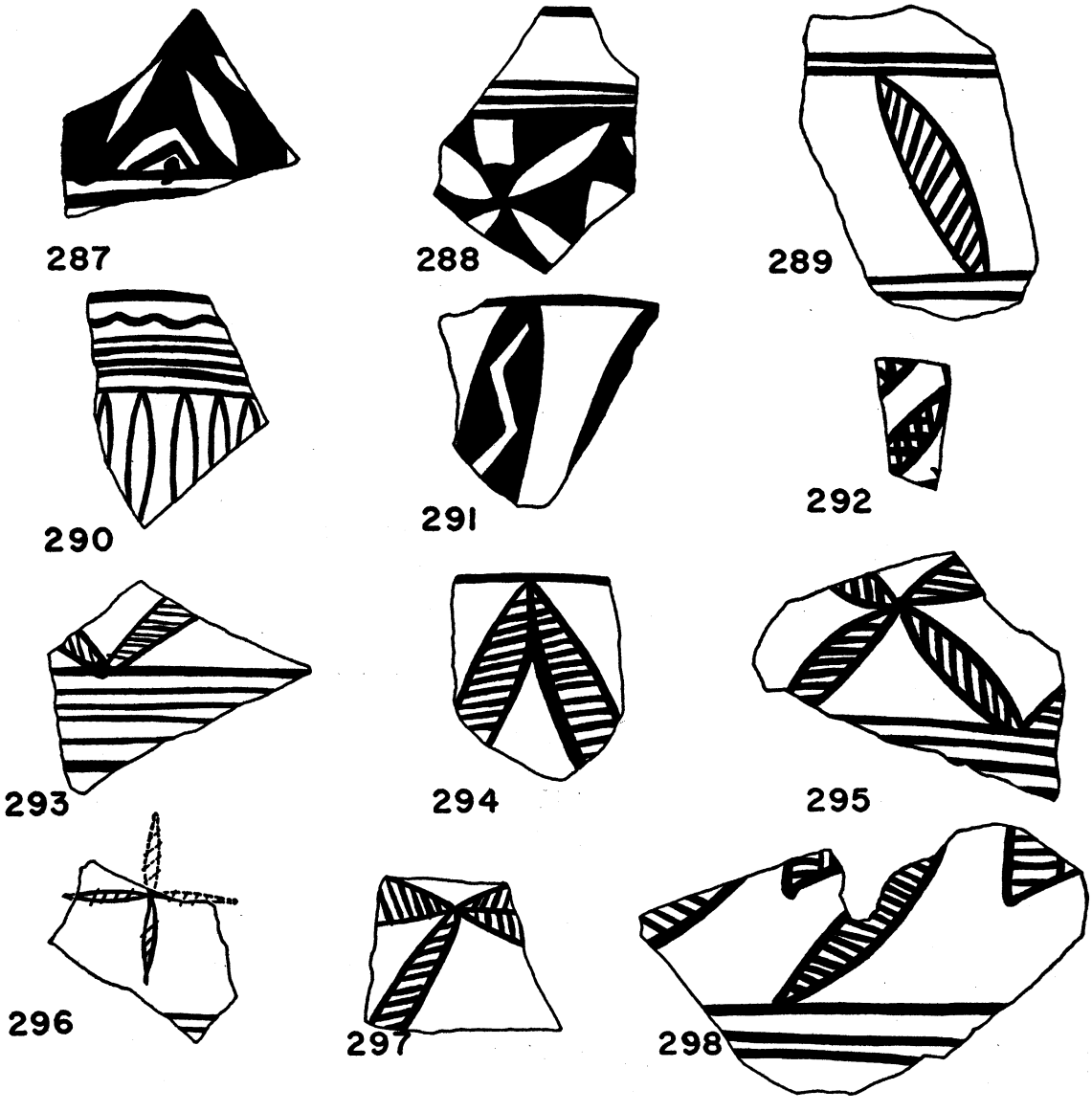

273

274

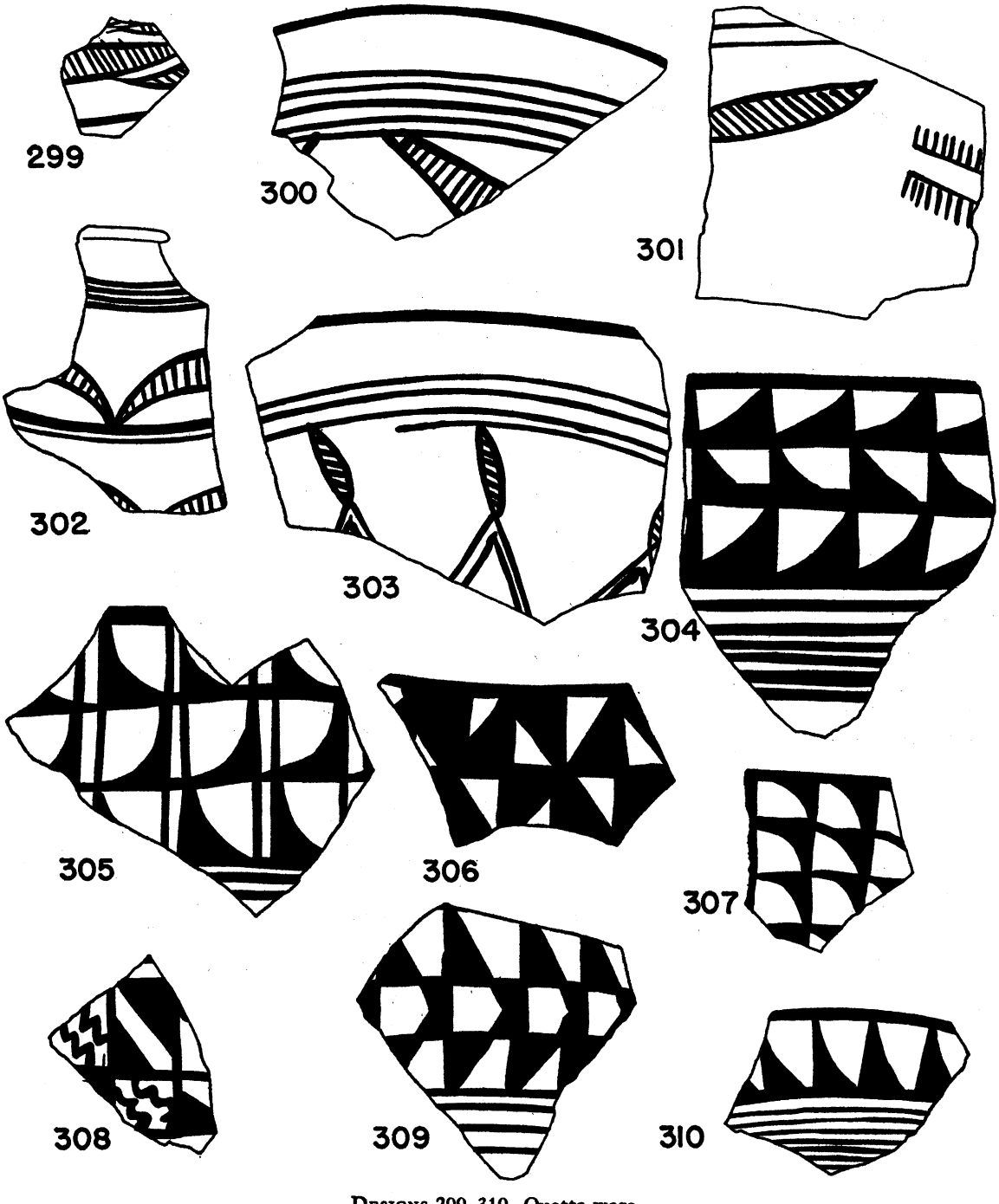
DESIGNS 263–274. Quetta ware.



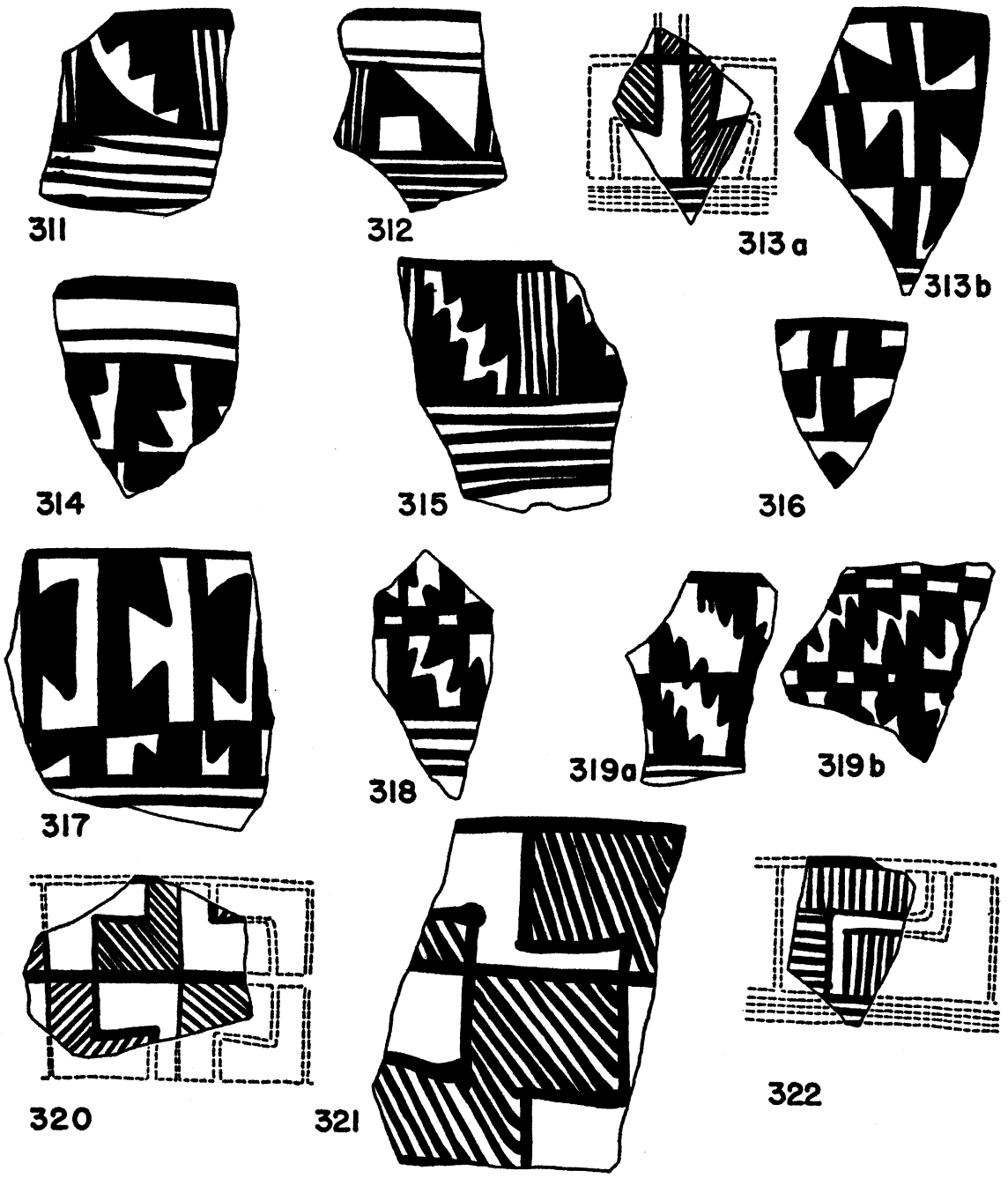
DESIGNS 275–286. Quetta ware.



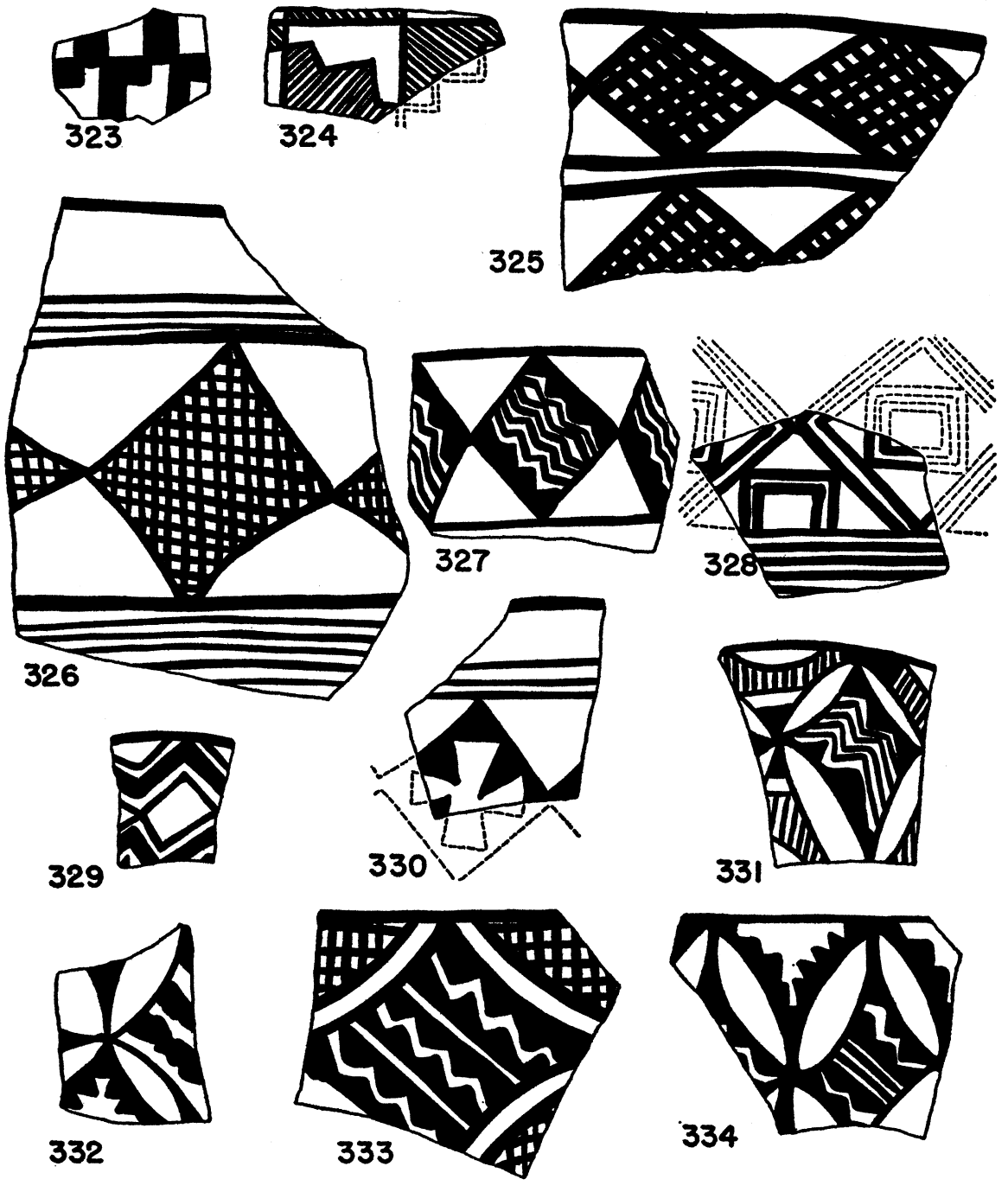
DESIGNS 287–298. Quetta ware.



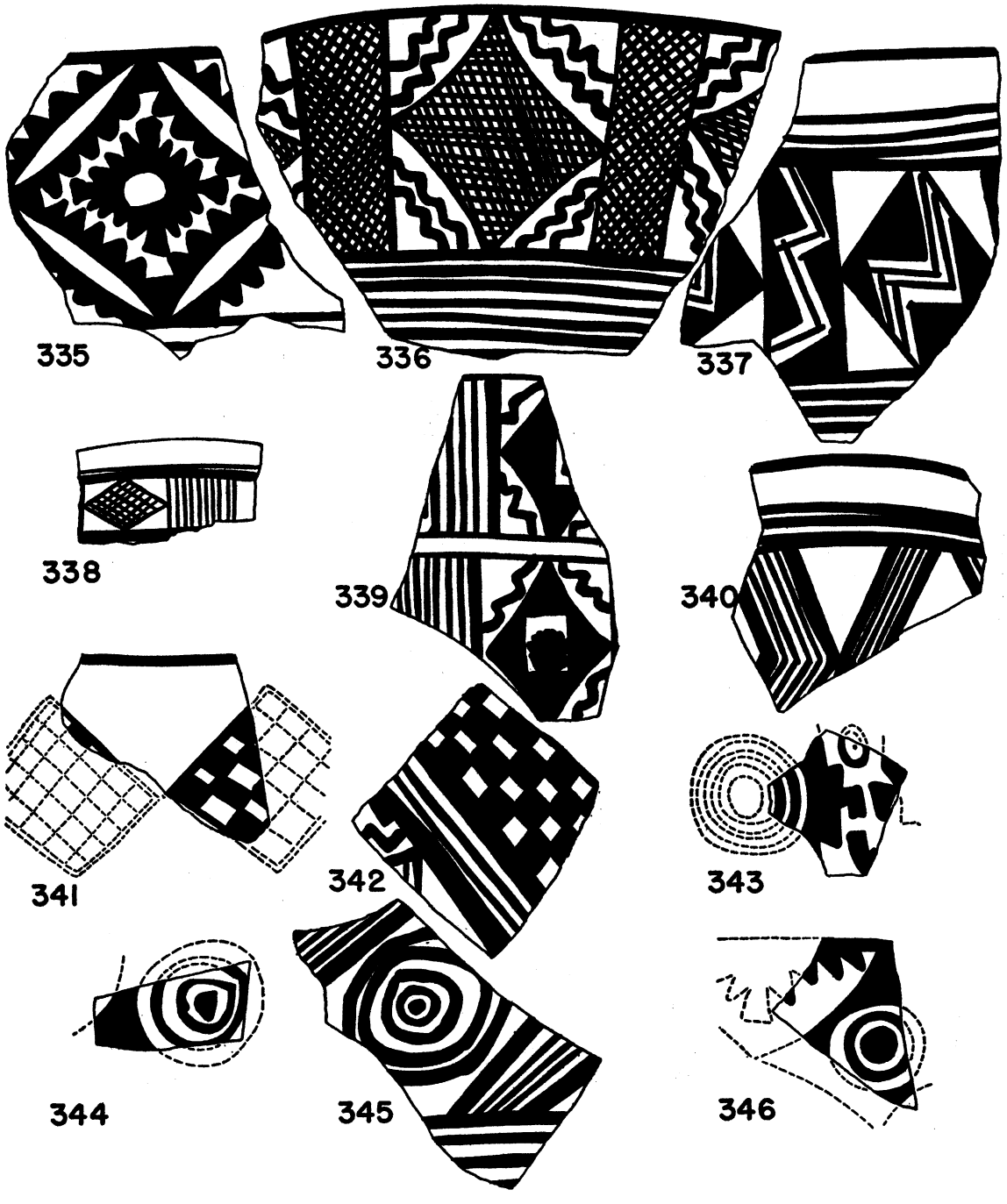
DESIGNS 299–310. Quetta ware.



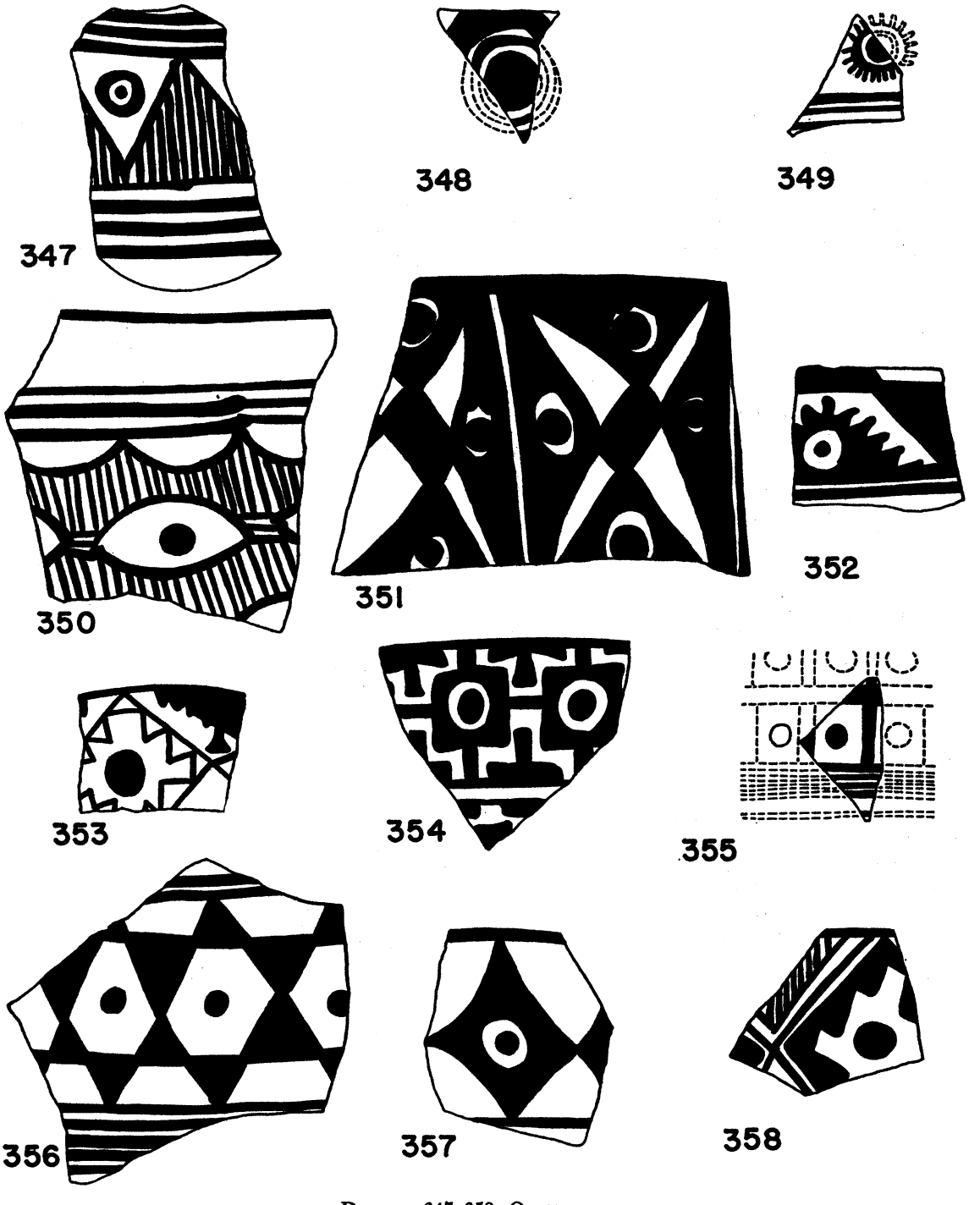
DESIGNS 311–322. Quetta ware.



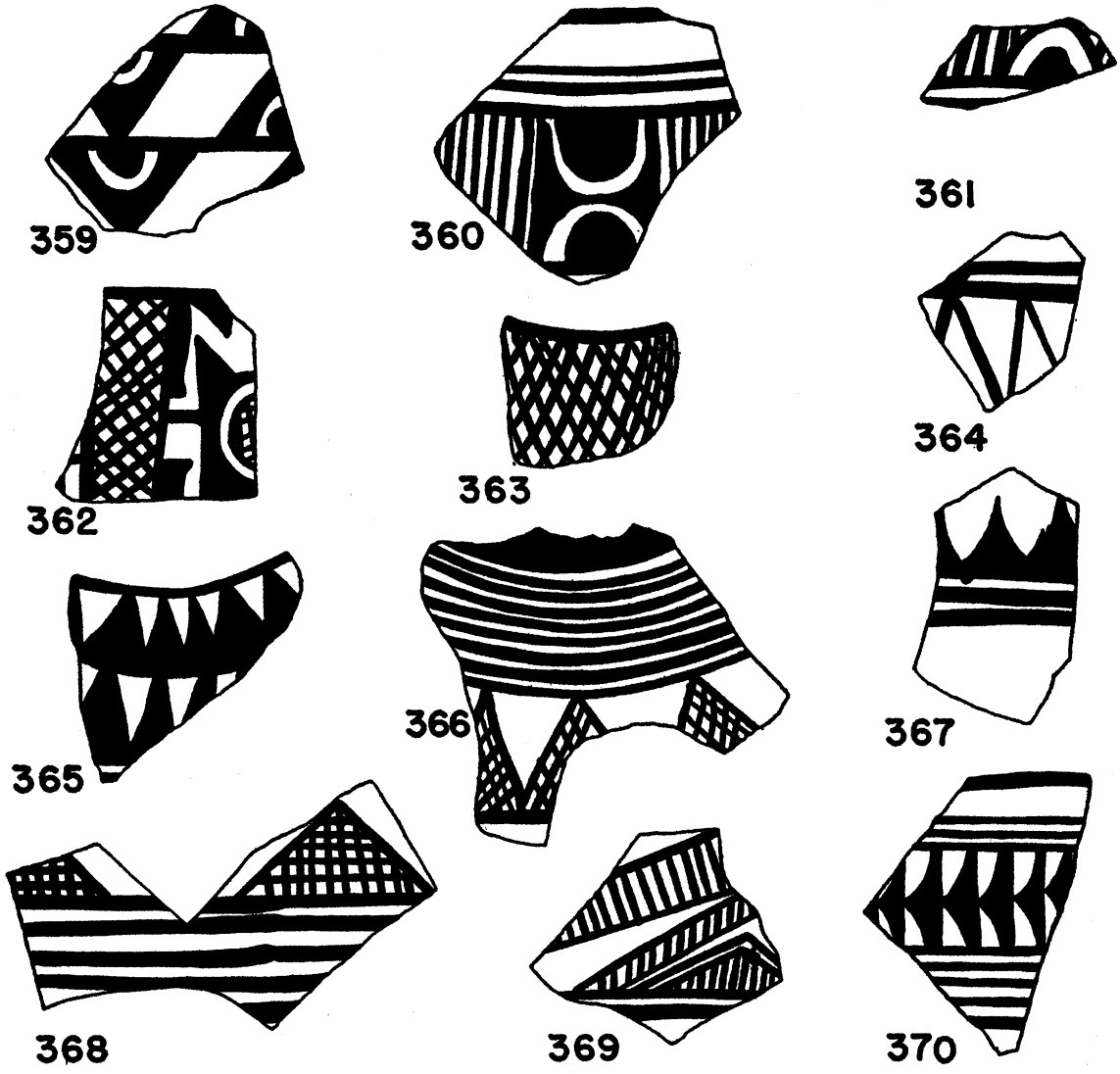
DESIGNS 323–334. Quetta ware.



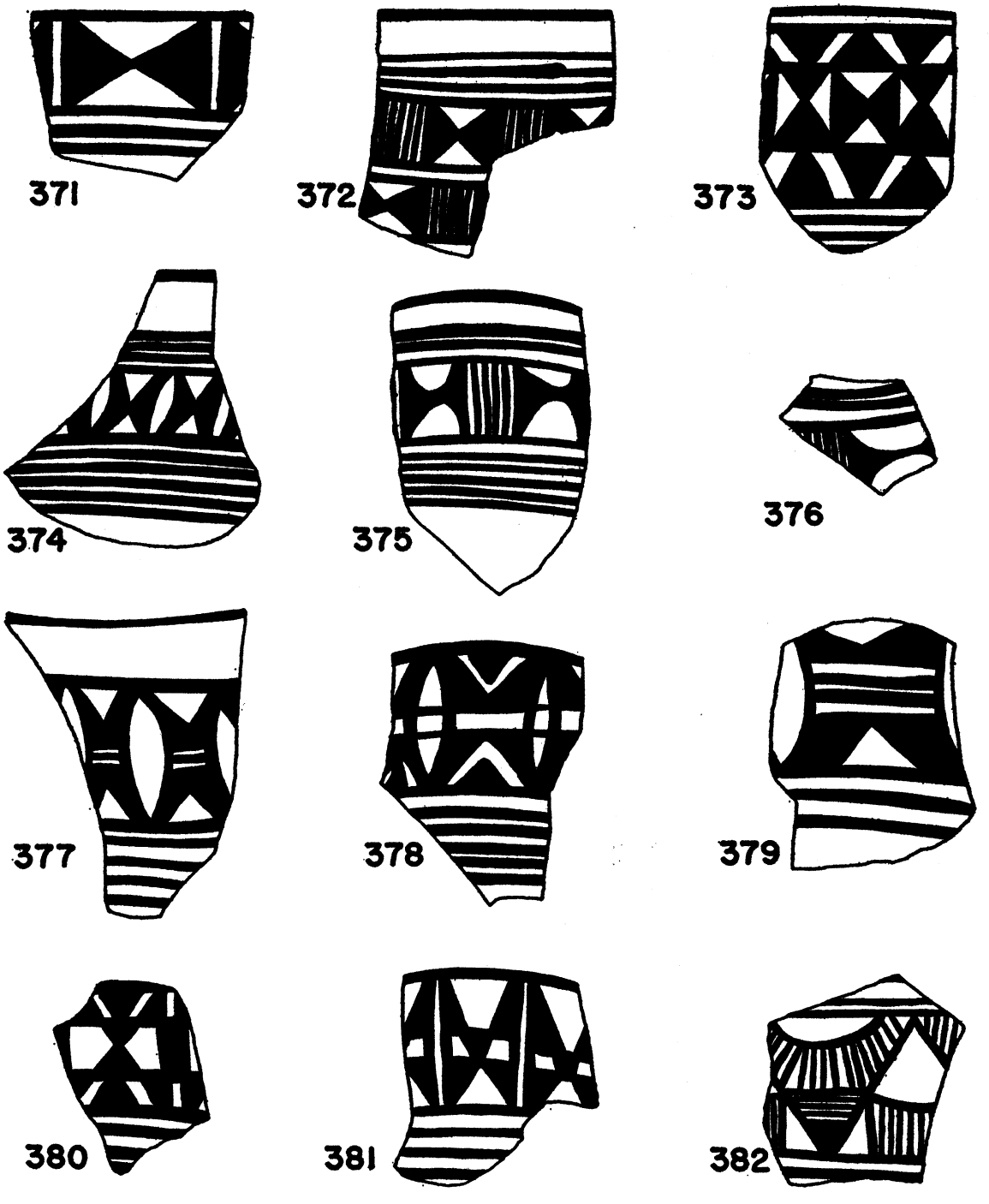
DESIGNS 335–346. Quetta ware.



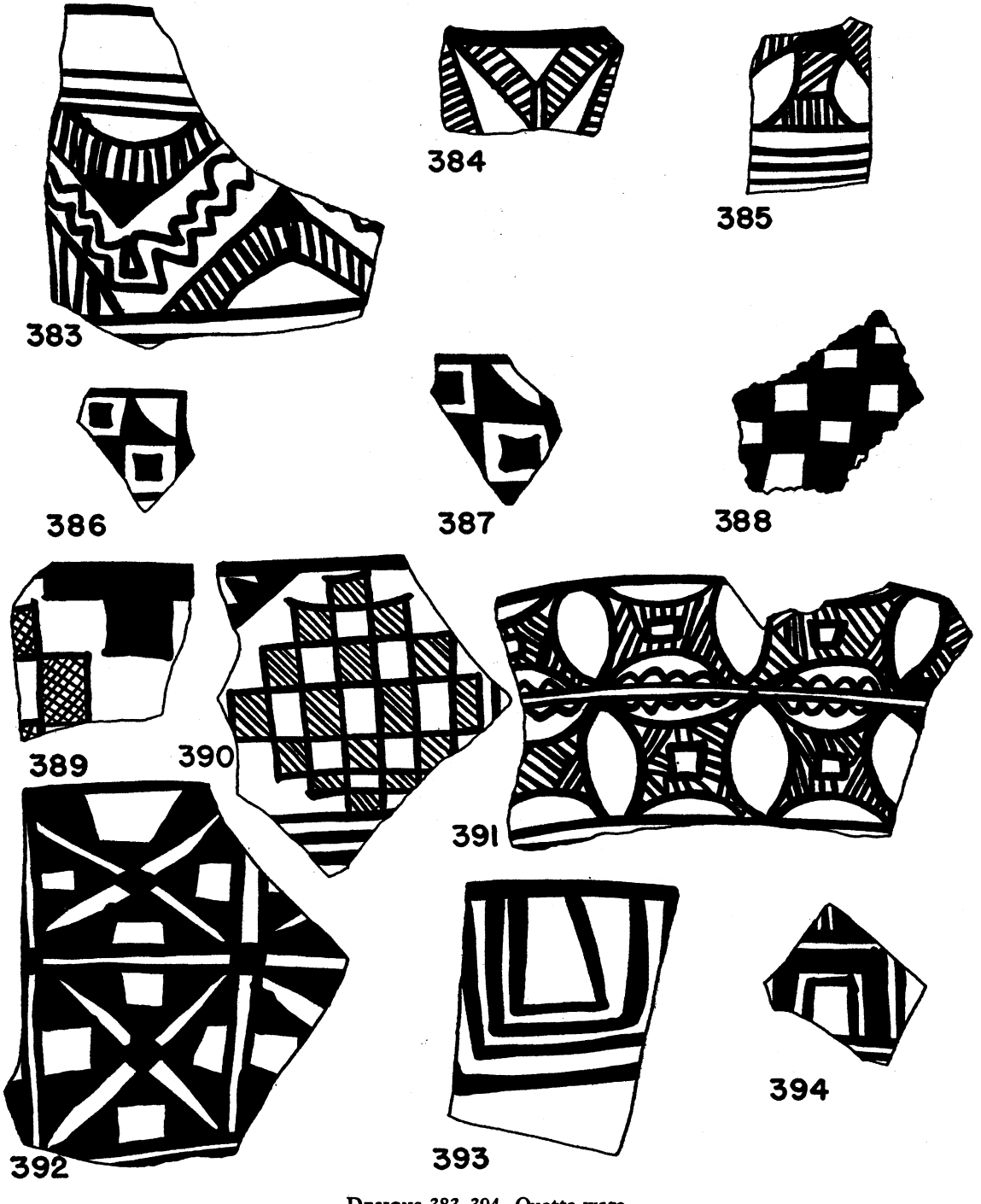
DESIGNS 347–358. Quetta ware.



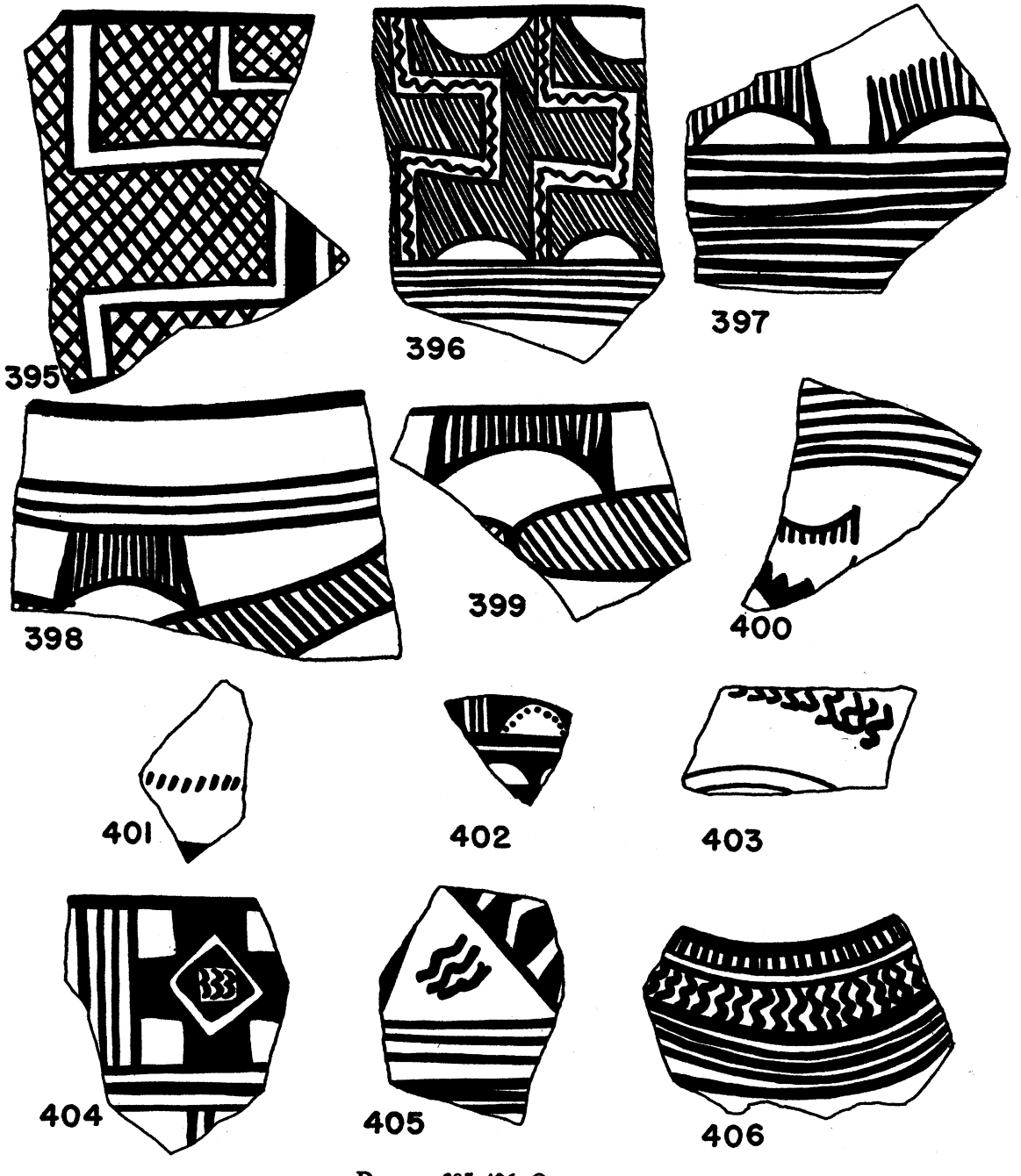
DESIGNS 359–370. Quetta ware.



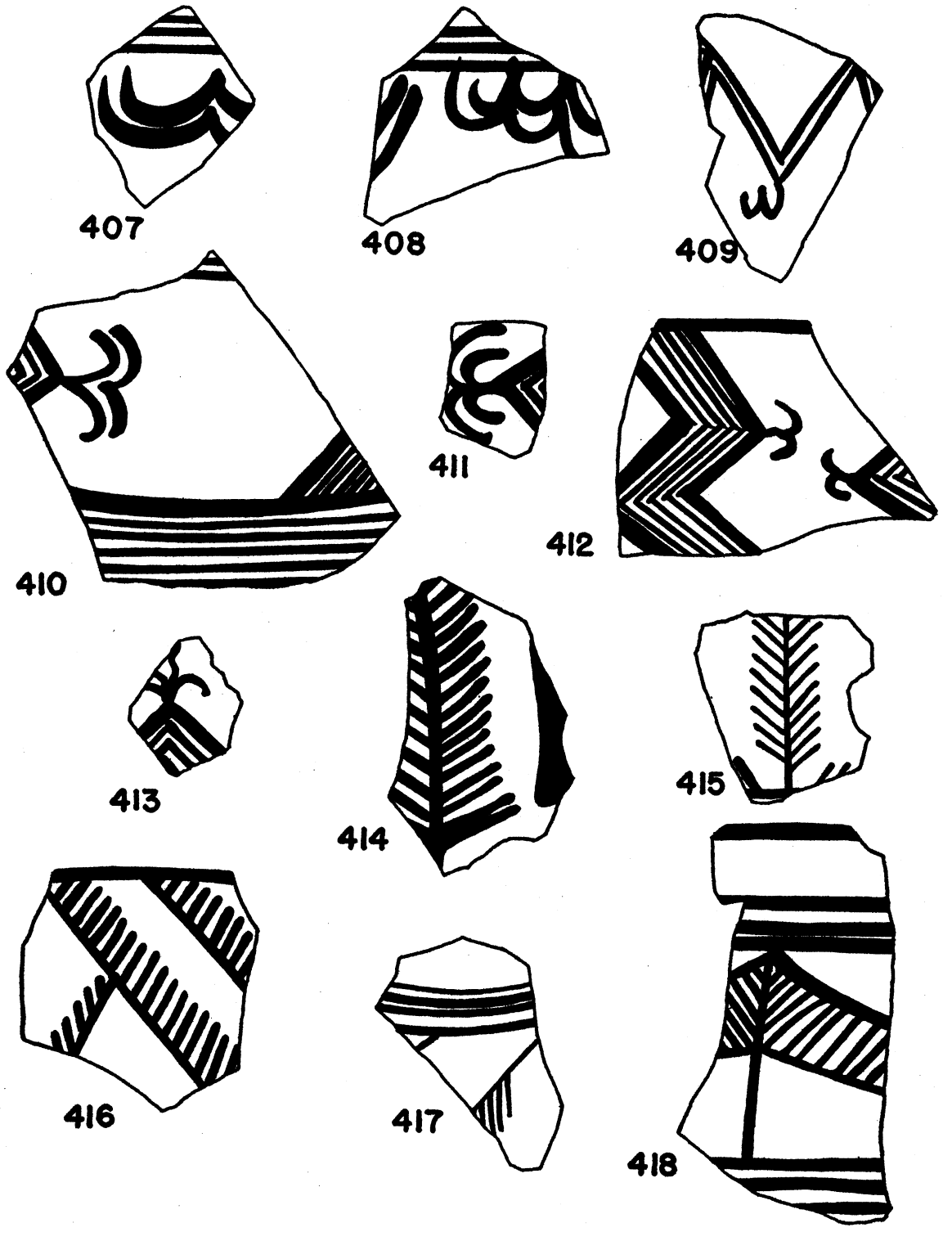
DESIGNS 371–382. Quetta ware.



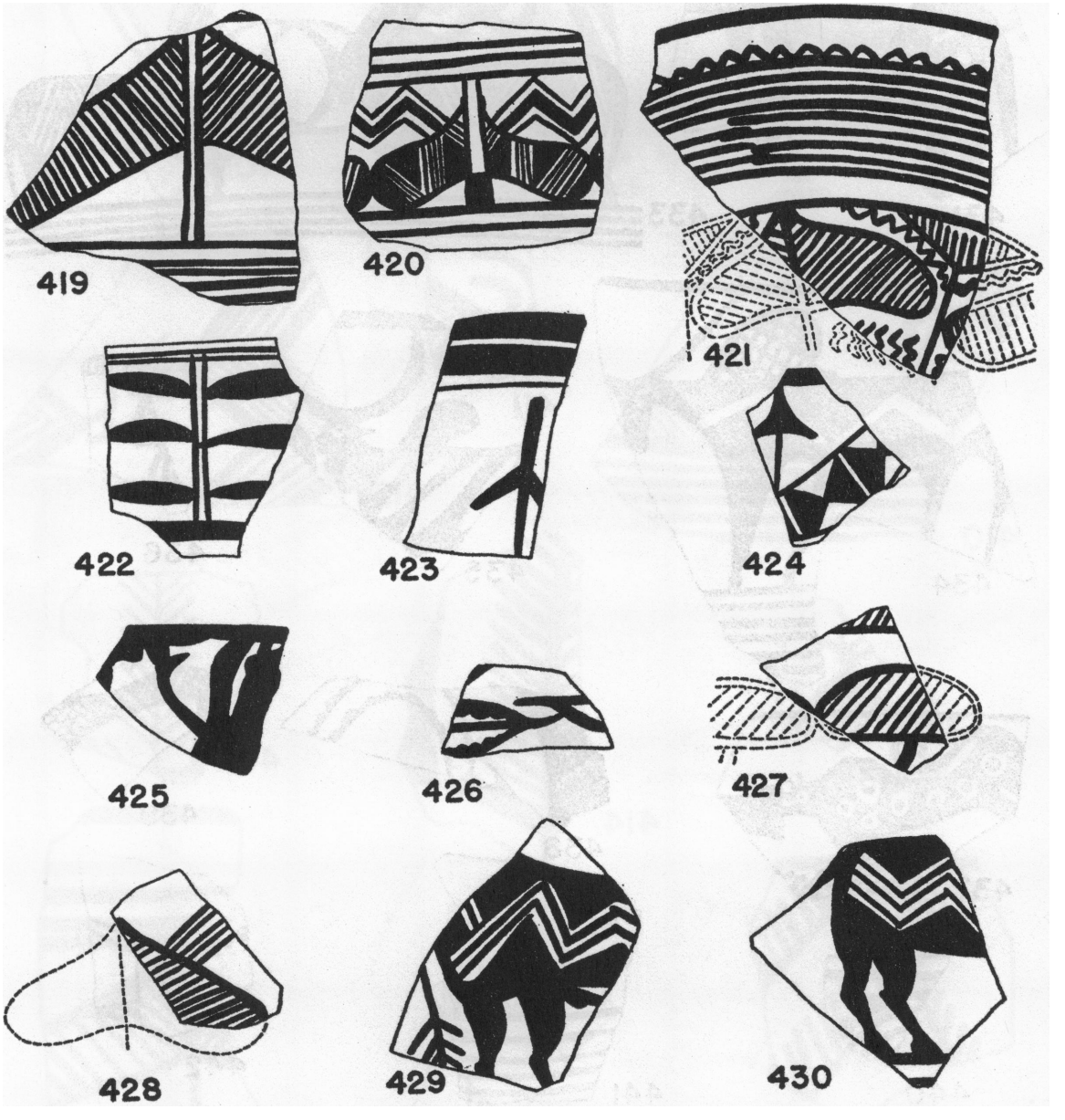
DESIGNS 383–394. Quetta ware.



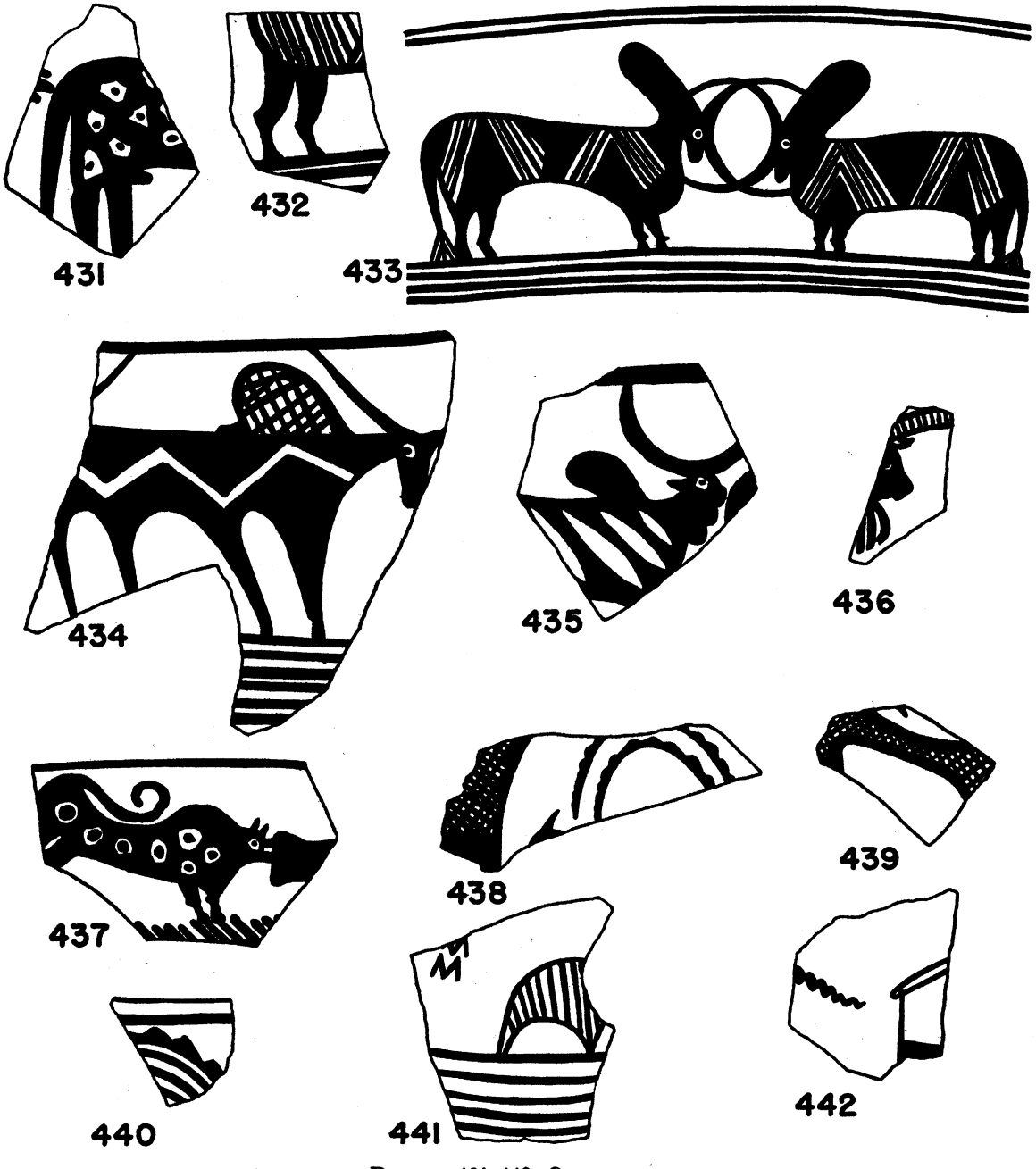
DESIGNS 395–406. Quetta ware.



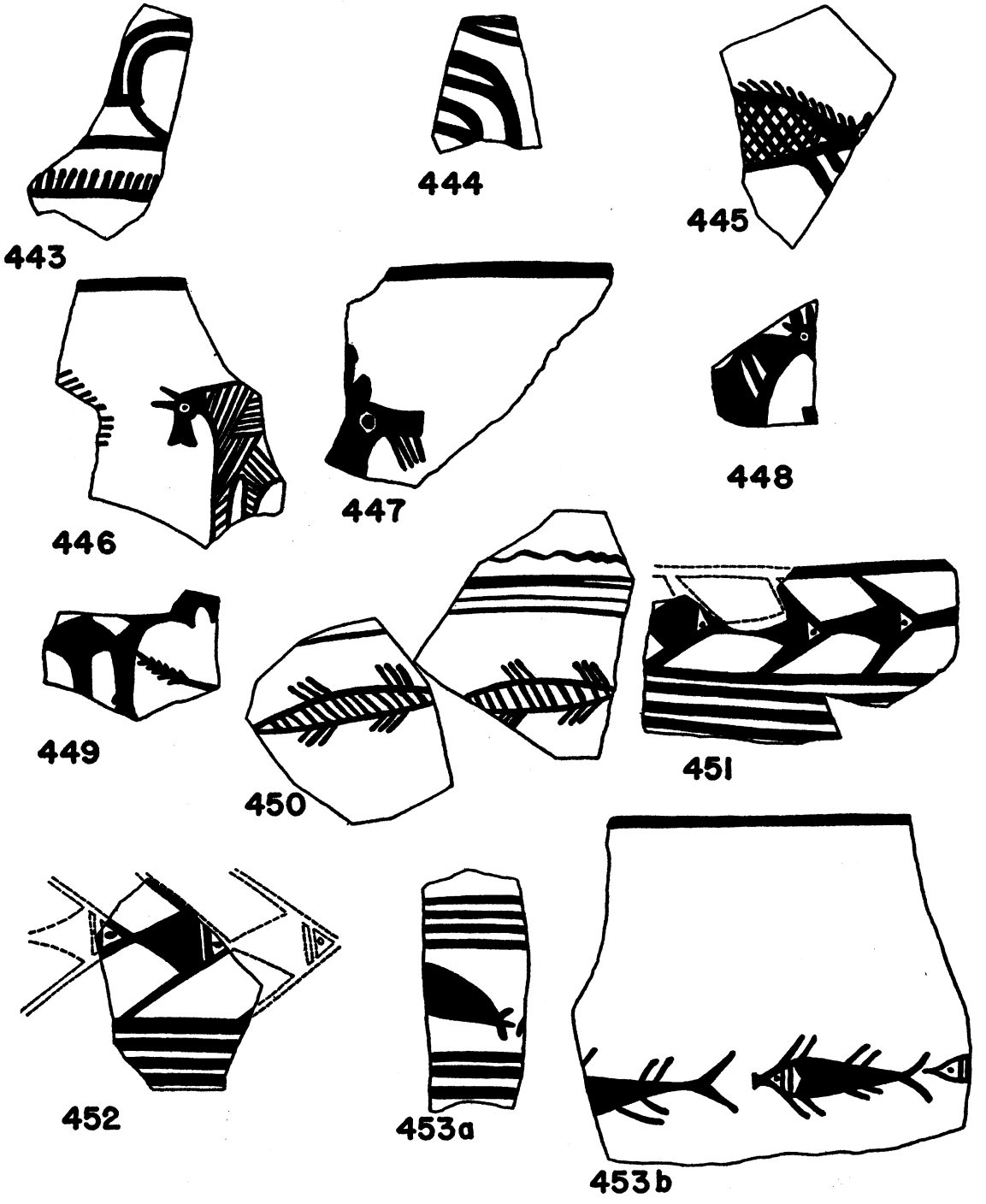
DESIGNS 407–418. Quetta ware.



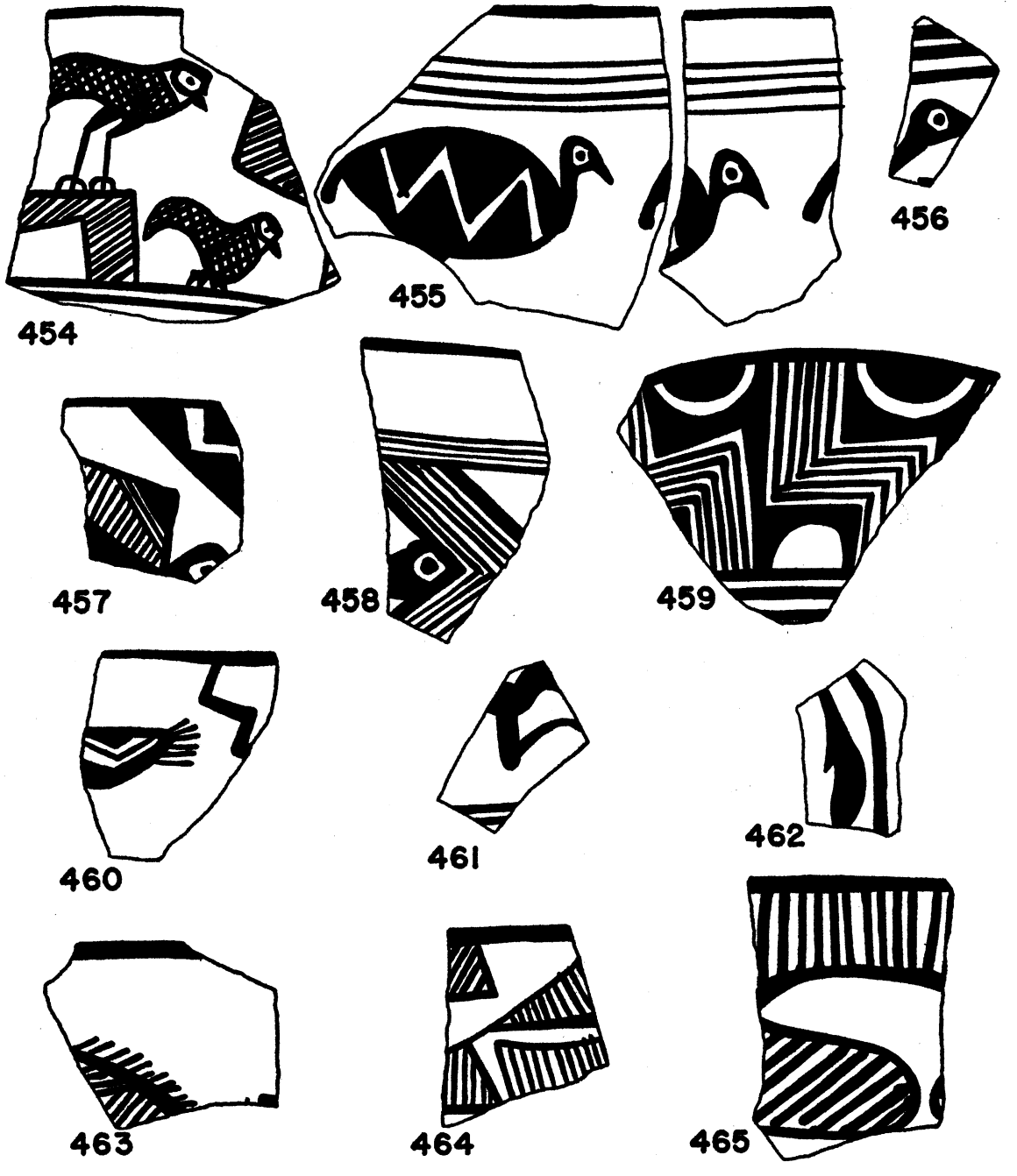
DESIGNS 419–430. Quetta ware.



DESIGNS 431–442. Quetta ware.

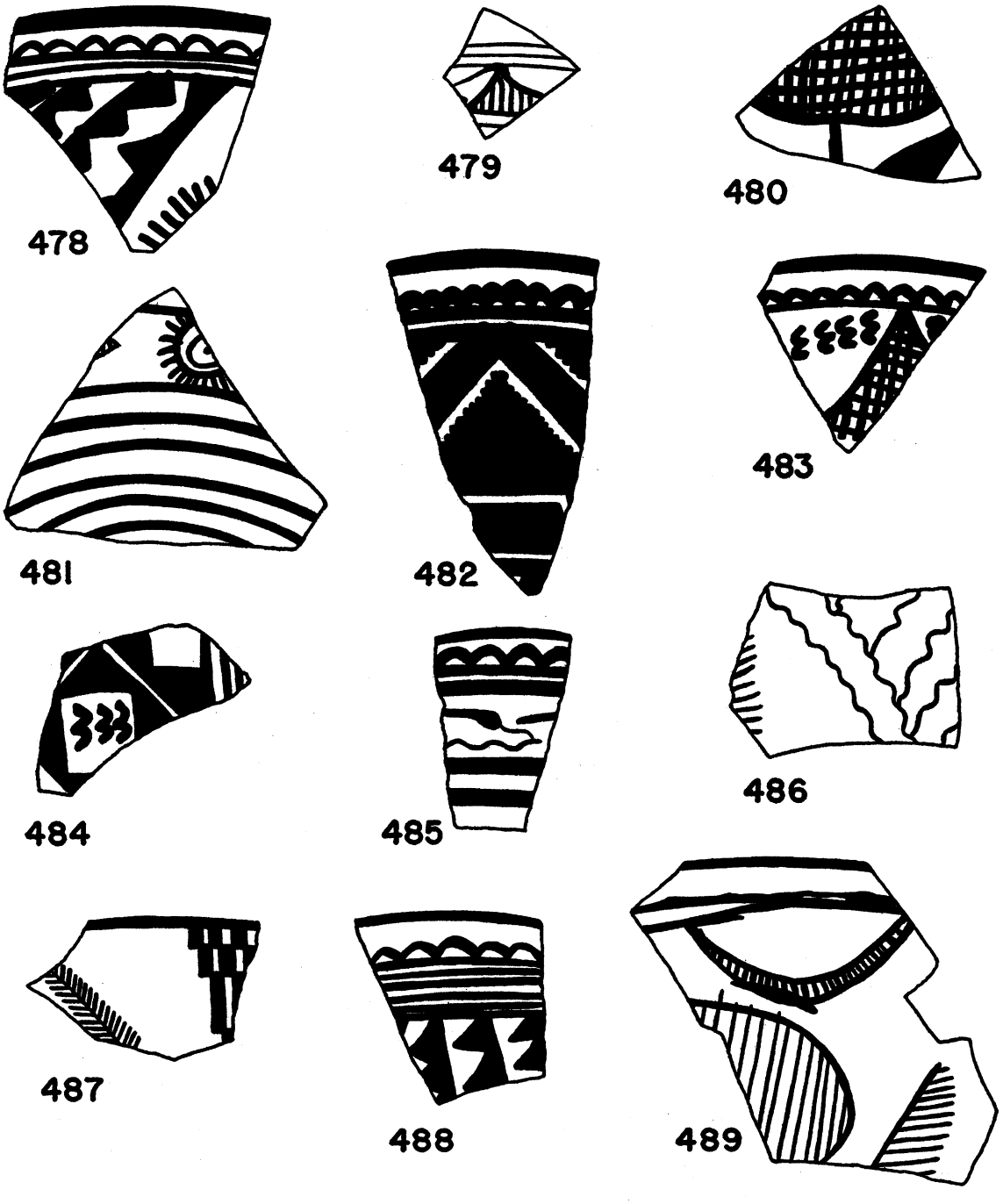


DESIGNS 443–453b. Quetta ware.

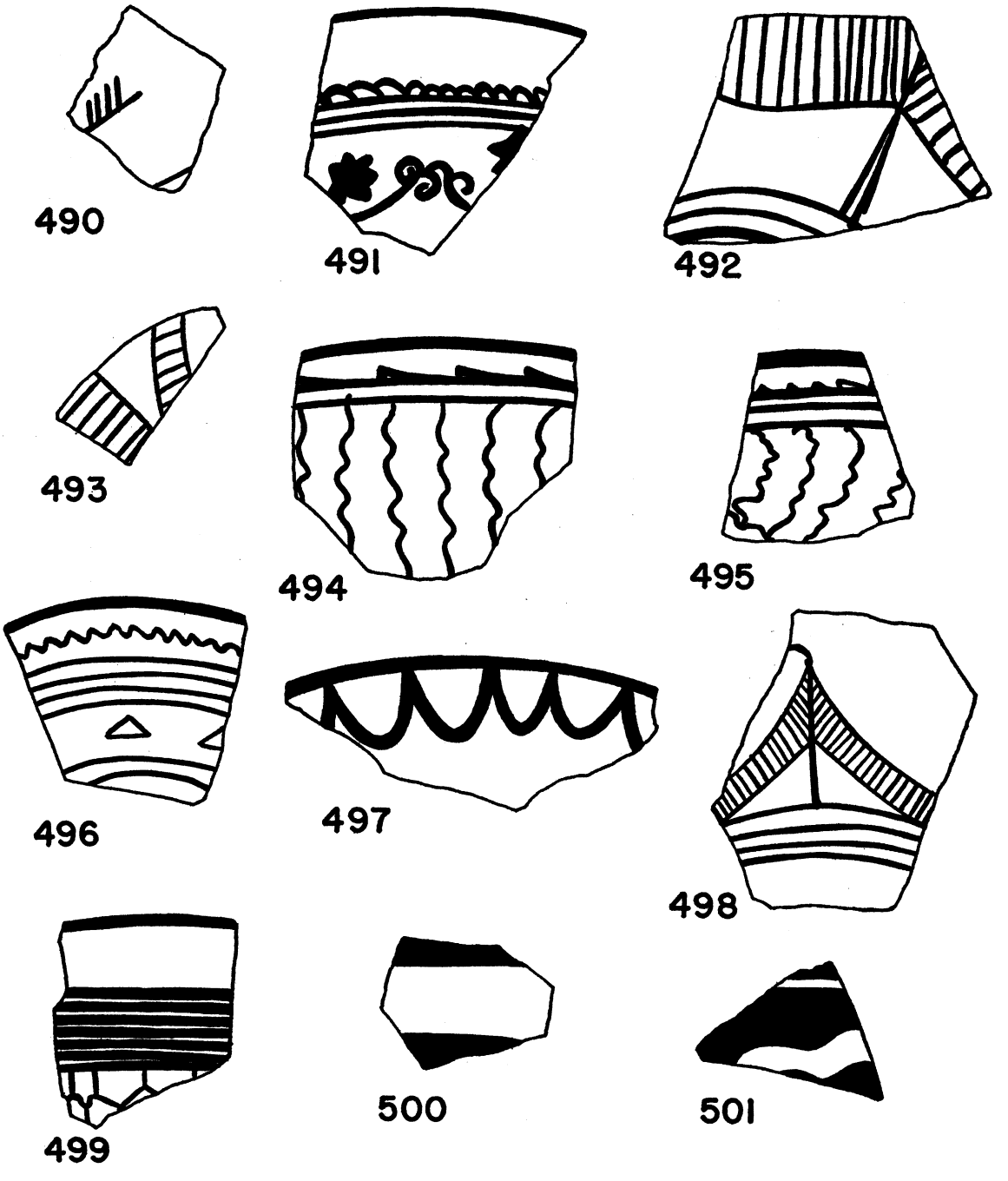


DESIGNS 454–465. Quetta ware.

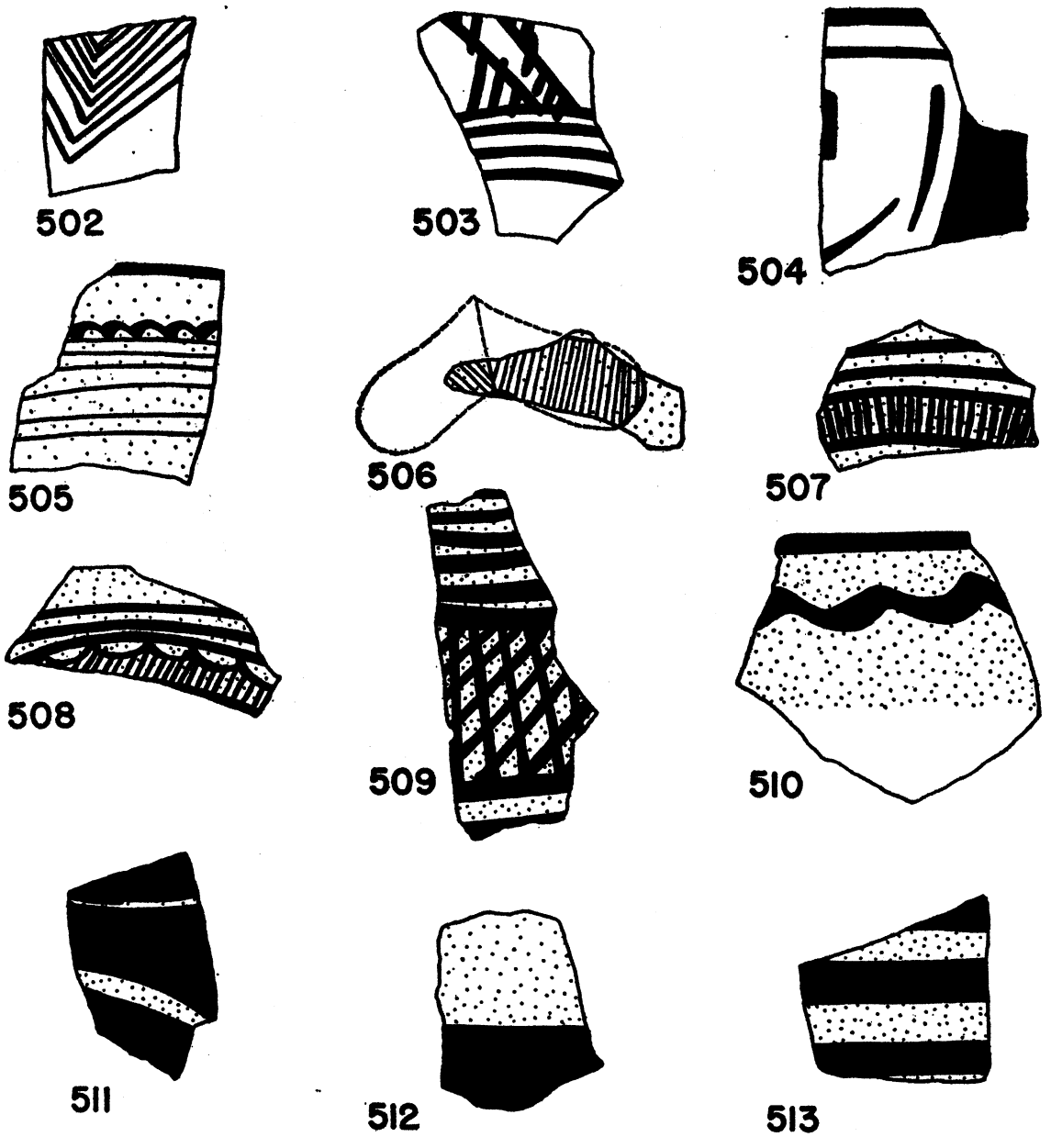
DESIGNS 466–469. Quetta ware.
DESIGNS 470–477. Faiz Mohammad Grayware, Black-on-Gray.



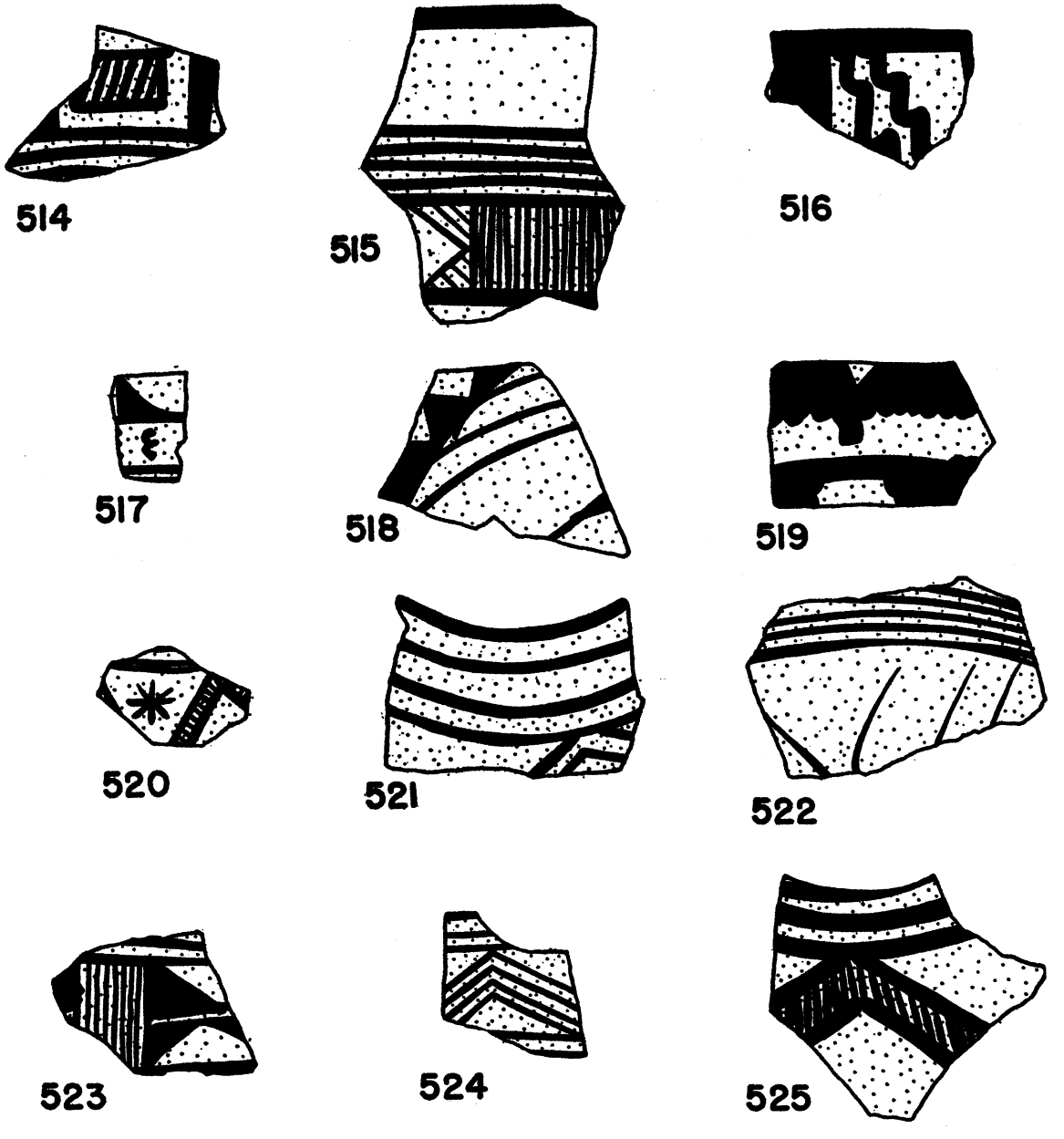
DESIGNS 478–485. Faiz Mohammad Grayware, Black-on-Gray.
DESIGNS 486–489. Faiz Mohammad Grayware, Red-on-Gray.



DESIGNS 490–495. Faiz Mohammad Grayware, Red-on-Gray.
DESIGNS 496–501. Quetta Red-Brown-on-Dark Slip.

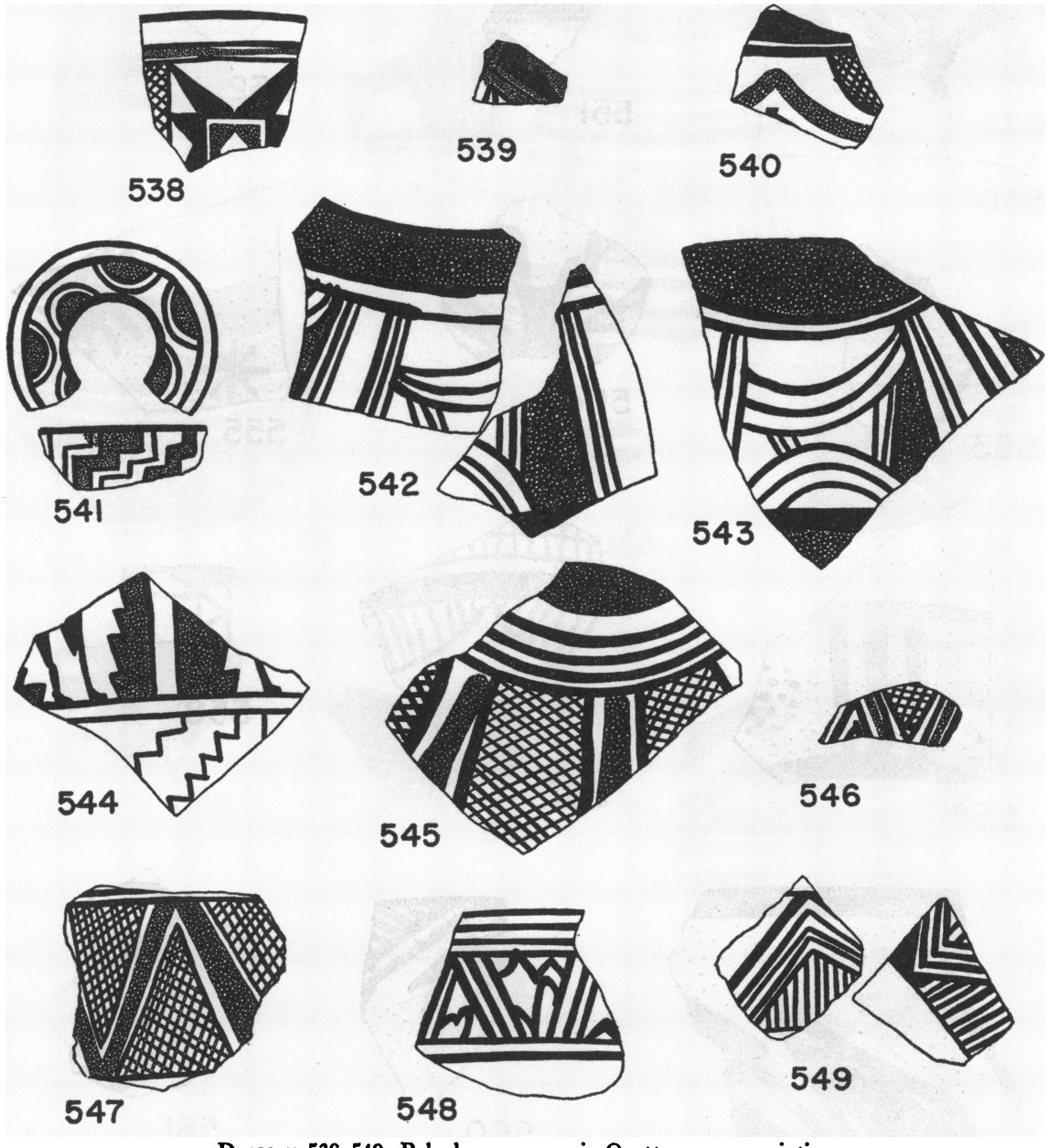


DESIGNS 502–504. Quetta Red-Brown-on-Dark Slip.
DESIGNS 505–513. Black-on-Red Slip (Quetta ware associated).

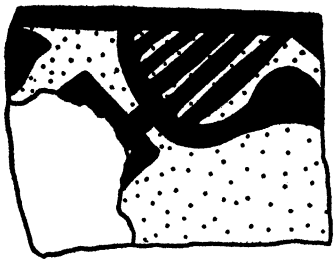


DESIGNS 514–525. Black-on-Red Slip (Quetta ware associated).

DESIGNS 526–530. Black-on-Red Slip (Quetta ware associated).
DESIGNS 531–537. Polychrome wares in Quetta ware association.



DESIGNS 538–549. Polychrome wares in Quetta ware association.



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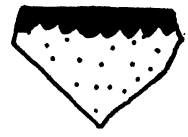

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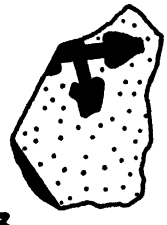

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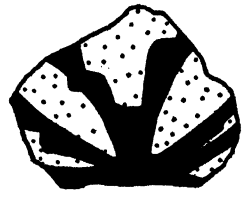

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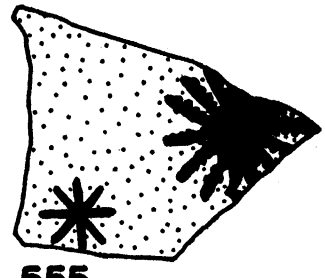

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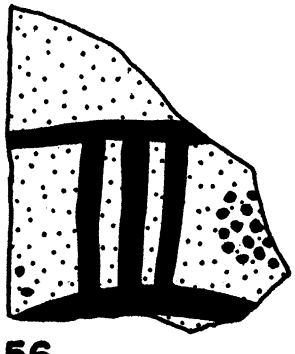

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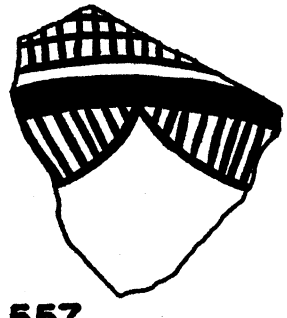

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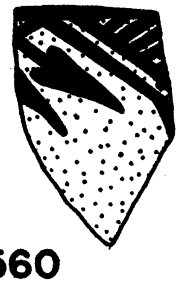

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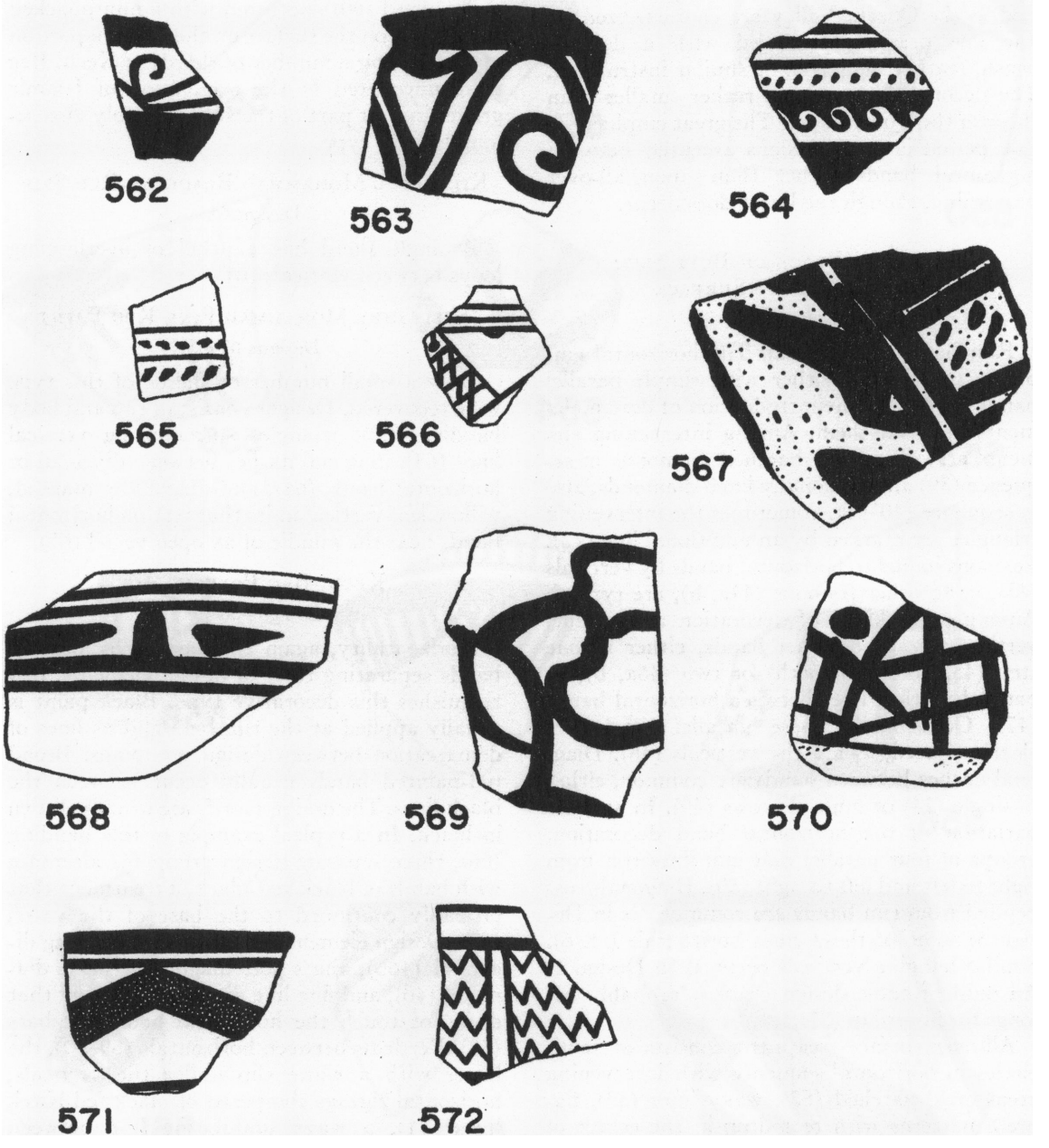
DESIGNS 550–561. Miscellaneous wares in Quetta ware association.



DESIGNS 562–572. Miscellaneous wares in Quetta ware association.

PERIOD H2

The Kechi Beg wares pertaining to this period in the Quetta Valley are characterized by fine line drawing produced with a delicate brush, feather, hair pen, or similar instrument. The decorated vessels are rather smaller than those of the Quetta ware. The great emphasis in this period is upon designs executed between horizontal bands rather than upon all-over patterning, though the latter does occur.

Kechi Beg Black-on-Buff Slip; Brown-on-Buff Surface

Designs 38–60

Rim banding is typical. The horizontal emphasis is achieved either with simple parallel bands (38) or by the introduction of design elements between them. Among intervening elements are: diagonally hatched diamonds in sequence (39) and diagonally lined diamonds, also in sequence (40–41). Sometimes the intervening triangles are marked by an additional line (42). Festoons joined to horizontal bands by verticals (43), or to other festoons (44a, b), are typical. Among other kinds of decoration are parallel vertical zigzags between bands, either in one step (45, note saw-tooth) or two (46a, b), or parallel vertical lines between horizontal bands (47). Occasionally these parallel bands are closely spaced, as are the verticals (48). Diagonal dashes between bands are common, either in single (74) or multiple rows (49). In another variation of the horizontal band decoration, groups of four parallel diagonal lines run from right to left and left to right (50). Diagonals suspended from rim bands are common, as in Design 5; some of these cross horizontals (cf. 6). Similar hanging verticals occur as in Design 1. An unidentifiable design element probably belongs to this group (51).

All-over surface treatment consists of semicircles in horizontal sequence with intervening areas cross-hatched (52), wavy lines (53), figure-8 patterns with tear drop in the center of each loop (54), a shingle pattern (55), and interlocking double outlined steps (56). The last-mentioned cannot be precisely located because it was removed from the southern steps at Q8. Paneling is represented by one example: diagonal hatching between verticals (57).

A number of miscellaneous designs were recovered in Period H2 context which are assignable to the preceding series: a simple leaf (58), and a kind of "Eiffel-Tower" motif (59). A single sherd (60) decorated with a humpbacked bull, found on the surface on the western portion of Q24 among a number of sherds of Kechi Beg ware uncovered in the excavation of Islamic graves in that part of the site, probably also belongs to this type.

Kili Ghul Mohammad Black-on-Red Slip

Design 61

A single sherd has a panel of overlapping loops between verticals (61).

Kili Ghul Mohammad Fine Red Paint

Designs 62–65

Only a small number of sherds of this type were recovered. Designs consist of rim and body banding (62), triangles surmounting vertical lines (63), diagonal dashes between diagonal or horizontal bands (64), and diagonally marked, willow-leaf vertical units that rest on horizontal bands near the middle of an open vessel (65).

Kechi Beg Polychrome

Designs 66–84

Horizontality, again emphasized by parallel bands separating rows of design elements, distinguishes this decorative type. Black paint is usually applied at the rim line[1] and as lines of demarcation between design groupings. Broad red-painted bands usually occur between the black lines. The design motifs are usually drawn in black. In a typical example of this banding (66), three separate design groupings alternate with bands of black-red-black, a treatment that probably continued to the base of the vessel (67). Design elements are: the double zigzag diagonal (46b), the squat diagonally lined diamond (40), and fine line diagonal hatching that does not touch the horizontal boundary bars (68). Verticals between horizontals (69–70), the latter with a white slip under the verticals, horizontal zigzags composed of black-red-black lines (71), a wavy undulating line between horizontal bands (72), below a wide red band, festoons with central dots joined to horizontal bands by delicate vertical lines (73), diagonal dashes (74), fine line herringbone zigzags (75), or alternating arcs (76) are all common. Diagonally lined willow-leaf forms occur on the inte-

[1] Note that Design 68 has a red paint rim.

riors of open vessels (77). An interesting variation of the diagonally lined diamond is found in the drawing of simple diagonals that are joined by hatching at right angles to them (78–79).

Paneling is represented by groups of verticals that set off horizontal dashes (80), by verticals or diagonals marking off groups of squares or rectangles enclosing dots (81), and verticals setting off a possible red-outlined rectangle (82).

Cross-hatched triangles with spaces alternating as elements of a horizontal zigzag are also found among the design elements of this type (83).

A single sherd, with a horizontal band of painted diamonds, found on the surface of Q24, probably also belongs in this design group (84).

Kechi Beg White-on-Dark Slip, Variant 2 (Coarse and Fine)

Designs 85–97

This decorative style is most frequently found on the interior of vessels. The most popular design consists of single or multiple white bands, widely spaced (85), which also occurs on the exterior (86). At the center of an open vessel a white disc is often encircled by this kind of banding (87). Multiple banding, more regularly spaced than the examples cited above, also occurs on both the interior and exterior surfaces of sherds of this type (88).

A popular element is a simple festoon that often begins at the rim without banding (89), though it is occasionally drawn from a band near the rim (90). Multiple rows of loops are not uncommon (91); these are sometimes varied in their drawing (92); occasionally these are elongated (93). Horizontality has not been much emphasized in the use of design motifs in this series (94). Horizontal bands interspersed by groups of verticals occur in this type (95). Wavy line horizontals are recorded only once (96); opposing curved lines may result from elongated festooning and banding (97).

Kechi Beg White-on-Dark Slip, Variant 1 (Coarse and Fine)

Designs 98–107

This type is identical in decorative scheme with White-on-Black Slip. The commonest designs are shown in 85–86, 88–91, and 95. The festoons were apparently drawn with a broader brush than those on the White-on-Black type (98). Though rim banding is rare, it does occur (99). A combination of festoons and interior banding is illustrated (100). The junction of multiple festoons is rather clumsy in view of the crispness of other Kechi Beg decorative techniques (101). Two additional methods of interior treatment occur: diagonals extending from the rim to a wide horizontal band and areas between a rim band and a horizontal band (102, 103). This type also includes a good example of interior scalloping (104). Verticals between bands are varied by echeloning groupings (105). An interesting decorative scheme occurs in the use of a meander between horizontal bands, with spaces between curves emphasized by verticals (106). Finally, curvilinear verticals are recorded (107).

PERIOD G1, G2, G3

Quetta Ware

Included in this group are Quetta-Black-on-Buff Slip and Quetta Black-on-Surface ware.

Scallops, Loops, and Festoons

This group is composed of curvilinear motifs consisting of scallops, arching above a horizontal line, loops hanging below a line, and festoons or arcs suspended in wide curves. These horizontals may define the rims or may occur in parallel groupings on the body of the vessel. They commonly occur on the interior surface of the vessel. Frequently the festoons have a diagonal accent (108) and may be closely spaced. Scallops are widely spaced (109).

Scallops (110), loops (111), and combinations of these (112) are simple forms of these motifs. Their use is varied: the scallops are used in the form of parallel or alternating rows (113–117). Meandering lines are used in the same horizontal parallel sequence (118). Loops, like scallops, may be drawn in open (119) or tight curves (120, 121).

Open festooning is represented (122). Variants of this treatment are Designs 123 and 124. Elongated open festooning is common. These elongated festoons are frequently accompanied by horizontal curvilinear motifs (125–127).

Parallel or alternate festooning is not frequent in this group (128–132). Festoons appear in the negative (133). The intervening spaces between parallel festoons are vertically lined (134–135). A very interesting and characteristic design results from the horizontal bisection of

the meander, suggesting festoons alternating above and below the horizontal. Again, the intervening spaces are vertically lined (136–137). This treatment is occasionally varied by the introduction of multiple horizontals (138).

HORIZONTALS

Multiple horizontal lines or bands are by far the most frequent treatment found in Period G in the Quetta Valley. These are employed in two distinct ways: on the interior of open vessels, with or without accompanying design motifs (139, 140), or on the exterior of closed or semi-open vessels individually (141), and as a frame or support for other motifs (142, 143). In the latter category it may also occur in bands, separate from, but accompanied by, an additional motif (144). Additional horizontals are in the form of shallow meanders (145–147), broad bands (148), wavy line stripes (149–152), and jagged line stripes (153–154).

ZIGZAGS

This group of motifs, based on the zigzag, appears to have been a favorite with the Quetta ware potters. The motifs can be divided into three basic groups according to horizontal, vertical, or diagonal orientation on the vessel.

The simplest zigzag (vertical) is drawn as a single line forming a chevron (155). These lines are arranged in horizontal rows (155), or as alternates with verticals (156, 157). A common treatment is to make the outer line of the zigzag heavier than the inner and then to oppose the motifs (158). The variants are numerous (159–162).

The vertical zigzag is frequently used as the design motif in open vessels such as plates or platters where it appears on the interior surface (163–166). These interior zigzags frequently form a pattern that extends to the center of the vessel (167–170). The junction areas often have hanging vertical dashes at their lower margins (171). An unusual treatment of the vertical zigzag is found in Design 172.

DIAGONAL: The diagonal zigzag is most common in this group. Single line multiple alternation is typical (173–176) and may even attain a kind of saw-toothed jaggedness (177). Multiple parallel grouping (178), heavy marginal outlining (179), diagonal lining (180–181), double parallels (182), light outline and heavy band (183), the basis for a negative design (184–185) are typical methods of treating diagonal zigzags.

Zigzags so modified as to form a curvilinear pattern may be grouped with these diagonal zigzags. Typical is a curvilinear zigzag (186), though multiple zigzags of this variety do occur (187). In some examples some angularity is not uncommon (188a and 188b). The free-standing, curvilinear-angular zigzag is very frequent (189). Sometimes these curvilinear motifs, apparently developed from a true zigzag, are drawn in opposite directions (190–191). Occasionally they are treated in combination with verticals (192). A variant of the standard curvilinear zigzag stems from one point and splits in opposite directions (193–194).

A popular design motif within the group of diagonal zigzags is that of the so-called saw-tooth. It is composed of three parts: 1, a diagonal zigzag outline; 2, parallel straight line; and 3, the intervening space painted black, as are the outlines. This motif is used in a number of characteristic ways: single (195); with additional parallel outline (196); joined (197); as an element of an all-over pattern (198); with two units of the saw-tooth motif with additional parallel outline opposing the straight line side or back of the saw-tooth (199–203); and an interlocking saw-tooth (204–206). Chevron-like saw-tooth motifs also occur, though rarely (207–209).

HORIZONTAL: A horizontal zigzag, very common in the Quetta ware, is usually placed between horizontal bands. This design motif, which serves so well to emphasize horizontality, occurs in the form of simple multiple heavy lines (210, twice); simple fine double lines (211), or in triplicate (212, twice). These zigzags may be treated with vertical lines (213–214), with multiple light parallel lines heavily outlined (215), or light outlines on a heavy zigzag band (216). Frequently the saw-tooth motif is used as an outline (217). Less common is a zigzag treated with alternating horizontal, vertical, and diagonal parallel lines (218).

Occasionally the horizontal is interrupted by a vertical or sloping line (219–220) or occurs as a single unit (221). The use of the painted saw-tooth motif in interlocking position, to create a negative horizontal zigzag, is a good example of the Quetta potter's awareness of negative treatment (222).

Rows of zigzags broken by a horizontal line

form a series of diamonds (223). Parallel opposing diagonals are sometimes combined to form a zigzag pattern (224).

VERTICAL: The simplest vertical motif is the multiple straight line that descends from a horizontal band at the rim (225) or on the body (226). The outer margin of this vertical-band grouping is frequently drawn with a heavy line (227); variants of the vertical-line motifs include diagonal lining (228) and diagonal hatching (229).

Though very close to the zigzag motifs, the wavy or meander vertical (230–231) and the jagged-line vertical (232) may more properly be included in this category.

Groups of verticals alternating above and below a horizontal line are not infrequent (233–234). A single example of verticals connecting to loops, as in Design 44, occurs in this type (235). The use of verticals in connection with, or as part of, other motifs is noted under each group. However, we call attention to additional variations (236–238).

A single illustration of verticals between bands may be seen in Design 239.

DIAGONALS

Rows of simple diagonal lines running in opposite directions, usually between parallel horizontals, occur in this type (240–241). The treatment of these components varies: groups of parallel diagonals, each group running alternately in opposite directions, form a horizontal border at the rim (242–243); groups of parallel diagonal lines have heavy marginal borders (244); the pattern is reversed (245); diagonal lining (246) or diagonal zigzag lining alternates with horizontal lining of triangles (247). Broad, painted diagonal bands occur sporadically as in Design 249.

Wavy line diagonals are used extensively (248) and between parallel multiple diagonals (249). The so-called saw-tooth also appears as a diagonal (250–251), and broad flowing diagonal meanders are common (252–253). An interesting design motif (254) was apparently drawn in outline and then filled in.

CROSSES

The Maltese cross, found in this type, occurs free standing (255), encircled (256), and in sequence as a rim band (257). Crosses alternating with a motif constructed as are the crosses but with intervening areas centered on a solid square, like that found at the center of the cross, characterizes their use (258). A terrace outline on a cross produces a rather spectacular design (259) which is developed to considerable complexity (260–263). The shape of the cross is modified by the opening of a space between its horizontal arms (264).

Another characteristic variant of the cross is the so-called pinwheel, formed by combining crossing verticals, diagonals, and horizontals, and filling in the resulting triangles (265–267). Other simple cross forms are composed of verticals and horizontals (268) and crossed diagonals (269). Finally, a cross in negative occurs, but rarely (270).

TERRACES

The terrace, a popular and characteristic Quetta ware motif, occurs in both negative and positive form. As a positive motif, it may be either free standing or an integral part of a specific design. Terraces are single step (271–273) or multiple step (274–275).

A popular form is a terrace with an elongated apex and inward-sloping sides (276–277). Commonly the positive terrace occurs as the outline for a triangle (278), and, rarely, such a terrace surrounds an open rectangle (279a). Extreme modification of the terrace is illustrated by Design 279b. An additional motif may occur within this triangular space (280), or the terrace itself may be negative (278).

A possible outline terrace form occurs once in the collection (281). Associated forms occur under diamonds and zigzags (Design 238).

WILLOW LEAF

The willow-leaf motif, especially in its negative form, is very characteristic of the Quetta ware. In the latter form it has many aspects: it is found between pairs of saw-teeth (282–283); in a grid (284); and as an integral feature of another motif (285–288). In its positive form, it appears most frequently as a motif between horizontals (289). Diagonal lining is the commonest method of supplementary treatment (289); a willow leaf in outline (290), one with interlocking saw-tooth (291), and cross-hatching (292) all occur. Positive willow-leaf motifs are often paired, or occur as multiples, where they are arranged in floral-like patterns (293–

300). The arrangement in Design 301 is interesting in that it emphasizes the floral association of the willow-leaf motif. Design 302 is a relatively common variant of this motif. The willow leaf rarely appears as an appendage (303).

GRID WORK

The grid and its use in design composition demonstrate the degree of control of this particular technique by the creators of this ware. Initially variation was achieved by modification of the horizontals and verticals of the grid (304–305). The resulting squares and rectangles were treated in several ways. A very common method was to bisect the square diagonally and fill one of the two triangles, resulting in many variations, depending on the direction of the diagonal or the area to be painted (304–309). It is very interesting that the negative willow leaf that occurs in this group is formed by the opposing arcs of the diagonals (284). It is also noteworthy that banding and paneling (310–312) are in all probability based on the same kind of division of space (304–305).

A peculiarly characteristic use of the grid was to draw diagonals, zigzags, or saw-tooth lines in the unpainted spaces. This results in patterns such as are shown in Designs 313 to 316. The motif resembling an ax-head (317) is drawn in the same way as Design 313. Interlocking saw-tooth motifs are also classified in this category (318–319ab).

Horizontal stepping usually is diagonally or vertically lined (320–322; see also 181), though painting is very common (323). Occasionally the directions of the diagonal lining of this horizontal stepping are alternated (324).

DIAMONDS

This group can be roughly divided into three variants:

DIAMONDS IN SEQUENCE: The commonest variety of this group is the diagonally and vertically hatched diamond (325–326). Zigzag treatment is not common (327). Simple outline diamonds (328), a form suggesting a series of diamonds (329), and painted diamonds containing negative Maltese crosses (330) also occur.

DIAMONDS WITH ALTERNATES: These alternates consist of zigzags, festoons, or triangles (331), triangles with negative designs (332), and cross-hatched festoons (333). There are some interesting variations of diamonds and their accompanying triangles with similar treatment of both motifs (334–335).

DIAMONDS IN PANELS: The paneling consists of vertical units between horizontals. There is some tendency for both the diamonds and verticals to be treated in a similar manner (336–339). For example, where diagonal hatching fills the diamond space this technique is also applied to the horizontal areas.

MISCELLANEOUS: An interesting diamond pattern with diamonds outlined by multiple lining may be seen in Design 340. A number of sherds are so badly shattered that the motif is not completely defined, but the designs suggest variants of the diamond motif (341–342).

DOTS, CIRCLES, DISCS, AND EYES

Circles usually surround a central painted dot which also frequently forms the center of a series of concentric circles (343). These motifs occur also in Faiz Mohammad Grayware. Dots or painted discs frequently form the center of a series of concentric circles (344–345), though in some variants a single circle surrounds the dot (346–347). The enlarged disc is rare (348), as is the radiating sun motif (349). Dots or discs occur at the center of a number of motifs (350–355). Characteristically, they appear inside a negative polygonal form (356) or inside diamonds (357–358).

The "eye" motif occurs sporadically in this ware (359–361).

A probable cross-hatched circle is shown in Design 362.

DIAGONAL HATCHING

Although this technique is usually applied to a basic motif in the form of supplementary decoration, as in Design 362, it also occurs independently as an all-over design (363).

TRIANGLES

Isosceles triangles treated in various ways occur sporadically (364–367). One example has the disc on its apex as in Design 9. Equilateral triangles are quite common (368–369; also 280). Rows of equilateral triangles with two curving sides (370) and an hourglass motif made by the joining of two such triangles at their apices are characteristic (371–373), as is a curvilinear

hourglass (374–376). The latter motif, however, undergoes considerable variation (377–379). The hourglass motif seems to be a favorite, for it is apparently attempted in such forms as Design 380. Design 381 is an interesting variant of Design 371.

A kind of "Eiffel-Tower" motif is a variant of the horizontal zigzag and festoon (382–383). Design 384 is an unusual, apparently free-standing form.

A rather ambiguous form (385), with curved sides, may be remotely related to the isosceles triangle.

SQUARES AND RECTANGLES

The simple square is not very common in the Quetta ware. However, it does occur occasionally; it appears rarely as a floating motif within a grid (386–387). More frequently it is merely a component of a checkerboard (388–390). The potter's technique of curving the sides of a square motif carries through in this group as well (391). In addition, a rectangular paneling effect is achieved (392).

Finally, three sides of a square are outlined on the inside of a vessel by parallel horizontals and verticals (393–394).

INTERLOCKING KEY

An unusual but very characteristic motif has been named rather unsatisfactorily "interlocking key." It has two forms: a combination of simple linear verticals and horizontals closely interlocked (395), and a similar form with a festoon element at both top and bottom (396).

COMB

The comb motif occurs resting on horizontals (397–398). It occurs frequently in combination with floral forms (399), and also unattached to any other motif (400).

DOTS AND DASHES

This group is represented by only a few examples in the Quetta ware. These are free floating (401) or may be used as an accent to another line (402).

SIGMAS AND CHEVRONS

The sigma motif occurs in several aspects: in free-floating rows (403), as the central feature of another motif (404–405), or between horizontal bands (406). A variation of the sigma form is shown in Designs 407 and 408. Sigmas are also attached to the apexes of zigzags (409) or to other linear motifs (410–413).

FLORA

The floral motifs can be classified in three main divisions: 1, needles (i.e., like evergreens); 2, leaves; and 3, other elements of plants. The willow-leaf group of motifs should also be taken into consideration in this frame of reference.

NEEDLES: This division has two essential parts: design motifs showing a double row of needles (usually found on the interior of the vessel on the base, 414–415); design motifs based on a single row of needles (416–417; see also 301).

LEAVES: Variations of the pipal leaf are the most striking forms in this division. The differences lie generally in the treatment of the leaf or stem (418–421; see also 427–428).

PLANT ELEMENTS: These are the stem forms (422–423), the leaf form of Design 424, and ambiguities possibly intended to represent forms of vegetation (425–426).

FAUNA

In general, the Quetta potter used faunal motifs as decorative units rather than as an emphasis of horizontality. The exceptions to this generalization are observable in the use of fish and bird motifs. The most striking animal motif is the bull, which seems to have been a favorite subject. One of the most remarkable features about these bulls is the use of treatment on the body similar to that in geometric motifs (429–435). The realistic bull head (436), however, furnishes a direct contrast to this stylization. The bulls (433–435) vary in gross form, apparently indicating a pronounced individuality in the techniques employed by the painters when depicting these and other animals.

An unidentifiable animal (437), possibly a dog, is extraordinarily lively and is one of the more attractive motifs in the faunal group.

The ibex or gazelle is represented in an interesting series (438–440). Design 441 may be a variation of the ibex design. Although Designs 442–444 belong to Period H (see Design 15), they are inserted here for comparison. Other animals (445–449) are of interest, as they show the variety of faunal forms depicted by the artists.

Possible fish or reptiles are represented in Design 450. Fish are broadly stylized, giving a pleasing horizontal unidirectional aspect to the gross design (451–452). Other types of fish motifs are shown in Designs 453a and 453b. Design 453b occurs on the back of a black-on-brown open bowl similar in form to those of Faiz Mohammad Black-on-Gray or Quetta Red-Brown-on-Dark Slip.

Birds are represented by some rather delightful examples, such as the long-tailed pair interposed in a zigzag (454) and the line of strutting partridges (?) (455). Possible parts of birds indicate that the bird motif was not uncommon (456–458).

A geometric motif of festoons and zigzags suggests an animal form (459).

Probable parts of animals are also represented by Designs 460 to 463.

MISCELLANEOUS

Some designs suggest motifs not included in the preceding categories and may possibly be variants of motifs described above.

All-over designs are shown in Designs 464 to 469.

Faiz Mohammad Grayware, Black-on-Gray, Variant 2

Designs on this pottery type are usually confined to the interior of open vessels. On rims, and the immediately adjacent areas, the motifs emphasize horizontality. Multiple bands occur around the center of the interior of the vessel. Characteristically, motifs form all-over patterns between the rim bands and the lower bands around the center (see whole pot, Fig. 55).

The motifs on this wear include: the terrace (470–471), hanging loops (472), wavy verticals (473), zigzag horizontals (474–475), interlocking zigzags (476–478), pipal and other leaves (479–480), sun-ray circle and dot (481), sawtooth triangles and simple diagonals (482), floating sigmas (483, 484 exterior), and probably snakes (485).

Faiz Mohammad Grayware, Red-on-Gray, Variant 3

The design arrangement in this pottery type is similar in every way to that on Black-on Gray ware. In addition to Designs 470 to 484 the small wavy line pattern (486), a combination of a pine-needle motif and a checker motif (487), parallel painted saw-teeth (488), an unusual motif which resembles a set of expanded horns (489), single-row needles (490), a tendril and leaf pattern (491), the double-stem pipal leaf (492), and the probable positive willow-leaf (493) are all found on this type.

An interesting eccentricity of the potter can be seen in the irregular markings along the rim area band of Designs 494 and 495.

Quetta Red-Brown-on-Dark Slip

The design pattern and the motifs on this ware are similar in every way to those of the Faiz Mohammad Grayware. There are, however, additional motifs or variants which are not usually found on the grayware types. Among these are simple triangles (496), hanging rim festoons (497), the elongated pipal leaf (498), the honeycomb (499), broad banding (500–501), and parallel-line zigzags (502). An interesting use of what is probably the pine-needle motif is shown in Design 503. An ambiguous all-over decorative pattern is shown in Design 504.

Black-on-Red Slip (Quetta Ware Associated)

This is a small series of sherds associated with Quetta ware in the excavations. Design 505 is obviously akin in both motif and pattern to the designs on the decorated grayware types (cf. 482). The pipal leaf (506) is somewhat more delicately drawn than on the Quetta ware (418–421) or on the grayware types (498). Vertically lined horizontal bands (507) or festoons (508), diagonally crossed lines (509), wavy-line horizontals (510), broad banding (511–512), broad horizontal band (513), floating rectangles (514), vertical paneling (515), diagonal zigzag (516), the sigma (517), and two unidentifiable designs (518–519) are typical of this ware. To this group can be added a number of motifs or designs which were found on sherds collected from the surface of two Period G2 sites. These are therefore most probably associated with Quetta ware. These motifs include: a star and a horizontal zigzag (520), parallel-line zigzag (?) (521), horns (?) (522), and a horizontal hourglass form (523). To these may be added the horizontal parallel-line zigzag (524), another zigzag form (525), and the parallel diagonals (526).

The checkerboard (527ab–528), the festoons with parallel diagonal lines (529), and zigzags (530) are arrangements alien to the Quetta Area design group.

Polychrome Wares in Quetta Ware Association

An elaborate geometric treatment (531) consists of a black and red-banded rim, grouped verticals in red and black along the shoulder, red and black horizontal zoning lines, a diamond and triangle pattern in black and red, the last with diagonal hatching. The apices of these triangles are opposed, forming the diamond. These areas are incompletely outlined in black. The diamonds are painted red, containing black-outlined squares.

Another sherd (532) illustrates a banded zone design. Large black-outlined loops are filled with diagonal hatching. These in turn are outlined with festoons in red, below which is an additional row of black festoons. The latter is partially submerged in a black horizontal band, below which is a sequence of black-red-black horizontal bands.

A sherd in poor condition has red and black rim banding and outlined willow leaves on the shoulder (533).

In an ambiguous all-over design (534), based on the familiar grid pattern, the emphasis seems to be on verticality.

In a design (535) apparently laid out in panels, framed by multiple verticals crossed in red, is a horizontal painted hourglass with somewhat curving sides. Two small red triangles, outlined in black, are used as fillers. The panel unit rests on multiple horizontal black lines.

A very fragmentary design (536) consists apparently of sequential right-angled triangles painted red and outlined in black.

Simple festoons in black are suspended from a broad red band, also outlined in black (537).

Very different in treatment from the last-mentioned is a design consisting of red and black parallel horizontal lines, below which is a panel of diagonal hatching. The space thus marked off contains a black star with a red square at its center (538).

The details of what is apparently a black and red all-over pattern (539) are not identifiable.

A small fragment (540) has a design bearing some resemblance to Design 532, but with motifs more loosely spaced.

A unique decorative treatment in this series may be observed in Design 541. The shoulder of a small canister is decorated with a band of alternating red semicircles outlined in black and marked off by black zoning lines. Diagonal zigzags in red, outlined in black, cover the body of the pot.

Between broad red bands outlined in black, groups of black parallel verticals mark off units of opposing parallel-line areas. Some areas between the groups of parallel lines are painted red (542–543).

Another method of paneling (544) is attained with vertical stepped bands painted red; the spaces between each panel are filled with an animal motif standing over a possible red terrace. Below a narrow horizontal black line are a series of diagonal zigzags.

Vertical panels in black, with the long sides sloping slightly inward, are treated with diagonal hatching. The panels are separated by vertical red bars. Above the design are parallel horizontal black bands and a wide red band (545).

A small fragment has triangles with alternating apices in black, outlined in red and black (546).

In Design 547, apparently related to 546, triangles are painted in series with apices alternating and outlined in black. Those with apices downward are diagonally hatched in black; those with apices upward are diagonally hatched in red. The sequential triangles are separated from one another by a red painted band which outlines them.

Other Quetta-associated "alien" motifs are shown in Designs 548 to 549.

Two sherds of interest as possible evidence of trade wares are Designs 571 and 572. These were found in Cut 3, Damb Sadaat.

Miscellaneous

A number of painted sherds were recovered from the surface of sites in the Quetta Valley. These are probably assignable to a "prehistoric" period (Designs 550–558) or to Period F (Designs 559–570).[1] Design 564 is Londo ware.

[1] See discussion of these and other similar design types and their probable chronological status under Ghul Painted Ware.

POTTERS' MARKS

A TOTAL OF 362 so-called potters' marks were recorded from the pottery recovered in the excavations in the Quetta Valley. The majority were located on the exterior surface of the bases of Quetta ware and Sadaat Single-Line ware, though a few were found on sherds of Mian Ghundai Fine Plain, Mian Ghundai Buff Plain, Mustafa Temper, and on Faiz Mohammad Grayware. Similar marks were also found on both rims and bodies, but these were not so numerous as those found on the bases of vessels.

The 362 examples can be divided into two categories: marks produced with an incising instrument and those apparently made by pressing a finger-nail into soft clay. Fifty different marks were observed; 18 of these were made with the finger-nail. The latter method seems to have grown in popularity, for by Period G3 the number of examples of finger-nail markings equals if not exceeds those made with an incising tool. The use of the latter seems to have reached its zenith in Periods G1 and G2. Fifty examples of instrument incising and only two of finger-nail incising were recovered in Period G1. Four examples of instrument incising were recovered from Period H2. The fact that one of these signs (Pl. 14m), as are a number of those from Period G1, is rather complicated may indicate that at least some of them are not indigenous to the Quetta Valley.

Sherds with potters' marks have been recovered from virtually all sites in the Quetta Valley where Quetta ware, or Sadaat Single-Line ware, has been found. Therefore it may be of some importance to note that a few identical potters' marks were found on decorated wares (black-on-red) on the surface of the Fort Sandeman Site of Periano Ghundai in Zhob District. The pottery from this site will be described in a subsequent publication.

Because these potters' marks are distributed in time and space, and they occur regularly on fine or decorated ware, they are undoubtedly elements in a problem of wide importance. On the basis of the evidence, the signs were probably mutually intelligible, at least among pottery makers and painters, over a considerable period of time. We can therefore speculate whether these signs are trademarks or whether they indicate that the vessels bearing them have some ceremonial significance. It seems more likely that the marks are purely utilitarian rather than ceremonial, because the Quetta ware was always recovered in abundance from habitation sites. Neither on the basis of their position when recovered nor because of their association with other than utilitarian wares have we any reason to assume that the painted vessels were ever used for ritual purposes.

However, because the signs were probably mutually intelligible within one group of people and because they are rather limited in variety but not in number, they may represent some-

TABLE 4

COMPARISON OF SYMBOLS; QUETTA POTTERY AND MOHENJO-DARO SEALS

This Paper, Plate 14	Marshall (1931, Vol. 3) Plates	Seal	Sign
k	119	425	Fourth
c	119	425	Third
hh, jj	119	H.27	Second
gg	120	H.4	Second
Not illustrated	120	H.4	Third
g, aa, bb	120	100	Fifth
h	120	457	Second
g, aa, bb	120	203	Second
i	121	549	Second
b	122	H.165	Fifth
z	123	412	Fourth (139)
t, v	123	H.(1400)	Second (157)
oo	124	389	Third (217)
pp	125	32	Fourth
dd	126	H.256	Second

TABLE 5

OCCURRENCE OF POTTERS' MARKS BY PERIOD[a]

Period	Instrument	Finger-Nail
G3	75	78
G2	119	34
G1	50	2
H2	4	—
Totals	248	114

[a] Includes fragmentary sherds.

thing more significant than mere potters' marks. We are not justified, at this stage of our knowledge of prehistoric Baluchistan, in ruling out entirely the possibility that these signs represent a kind of writing, no matter how simple. This suggestion is made in spite of the fact that we do not have a single example of multiple signs. It is possible, however, that actual writing was on perishable material. Until more information is made available from additional excavations, the assumption that these symbols are part of a system of writing cannot be proved. However, it is possible to compare these marks with the symbols occurring in the elaborate script of the Harappan civilization (see Table 4).

Because these resemblances fall within the range of simple geometric designs where one might expect parallels to occur, they are therefore very tenuous. Nevertheless, the bulk of the Harappan signs are apparently ideographic, which gives this form of writing its peculiarly characteristic appearance. Although these ideographic symbols do not occur in the Quetta series, it does not necessarily disprove the use of a crude form of writing that may have been mutually influential.

SITE Q8

THE STRATIGRAPHY AT Damb Sadaat and at Kili Ghul Mohammad is based primarily on clearly discernible architectural levels within the bounds of which designated pottery types reach their climax. At Damb Sadaat (Mian Ghundai) the stratigraphy breaks into three parts:

Damb Sadaat III includes Phases 2–6 in Section I (Fig. 4), architectural Group A, pottery of the Sadaat types described by Alcock (Appendix 1) and designs of Alcock's Group B (pp. 368–369). The monumental building tendencies of Group A, especially Wall A_3, and the pottery types equate with Alcock's Sadaat Phases A–D, Cut III, with Group A, Cut 1.

Damb Sadaat II includes Phases 7–21 of Sections I–II, A–T and Phases 1–9, Section II, G–T (Fig. 5), the domestic building complex, Group B, Quetta ware, as defined by Piggott. Designs in this type are 108–469. The period designated by Alcock as Late Quetta is a part of Damb Sadaat II. The lower phases of Damb Sadaat II contain pottery designs which tend towards linearity and appear to be derived from Damb Sadaat I design prototypes.

Damb Sadaat I includes Phases 22–39 of Section II, the stone wall (Phase 22), and the occupation levels below it. The pottery is characterized by the so-called Kechi Beg type wares; designs are 39–107.

SITE Q24

Kili Ghul Mohammad IV includes the irregular clay mass shown as Phase 2, Sections I and II, the clay and charcoal layers of Phase 3, pottery of Kechi Beg type, exclusive of the polychrome and red-paint wares. [The pebble layer (Phase 4) contains sherds of the Kechi Beg types and of Kili Ghul Mohammad II as well.]

Kili Ghul Mohammad III includes Phases 5–13, Section I, the building level designated by Walls 1 and 2, Section I. Characteristic pottery is Kili Ghul Mohammad Black-on-Red Slip, with wheelmade wares predominating. Designs are 1 to 36.

Kili Ghul Mohammad II includes Phases 14–19, Section I, and Phases 14–18c, Section II, and Walls III to VI. Burj Basket-marked, Adam Sandy, and Nazim Hard-Clay Temper wares are associated. Handmade wares are predominant, though wheelmade ones occur.

Kili Ghul Mohammad I includes the preceramic Phases 20–45, Section I, and Phases 19–29, Section II. At least 18 possible floor levels were apparent, but the archaeological material is so scant that typological differentiation is not possible.

CORRELATIONS

Damb Sadaat I and Kili Ghul Mohammad IV correlate on the basis of the presence of the Kechi Beg wares: Kechi Beg White-on-Dark Slip, Kechi Beg Black-on-Buff Slip, Spezand Black-and-Red Rim, Sultan Purple, Khojak Parallel Striated, and the plainwares such as Nazim Hard-Clay Temper, Adam Sandy, and others. However, the absence of Kechi Beg Polychrome and Kechi Beg Red Paint, plus the general configurations of all the wares present in both assemblages, indicates that Kili Ghul Mohammad IV is probably somewhat earlier than Damb Sadaat I.

SITE Q14

The type wares from Q14 (Kechi Beg) correlate that site with Damb Sadaat I rather than with Kili Ghul Mohammad IV, again principally on the basis of the Kechi Beg Polychrome and the Kechi Beg Red Paint ware in the former. There is no stratigraphic differentiation of the two building periods at this type site. However, the stone wall of Building Period II at this site is reminiscent of the Damb Sadaat I stone wall.

SITE Q13 (KAREZ SITE)

The presence of sherds of the so-called Quetta ware, plus the Faiz Mohammad graywares, correlates this site with Damb Sadaat II. The motifs are drawn with infilling treatment which marks a late phase of the Quetta ware.

The stratigraphy is as given in the tabulation on page 333.

The presence of the heavy gravel bed (Phase 4, Kili Ghul Mohammad, Sections I and II) indicates a possible discontinuity in the stratigraphy of Kili Ghul Mohammad III and Kili Ghul Mohammad IV, perhaps because the site

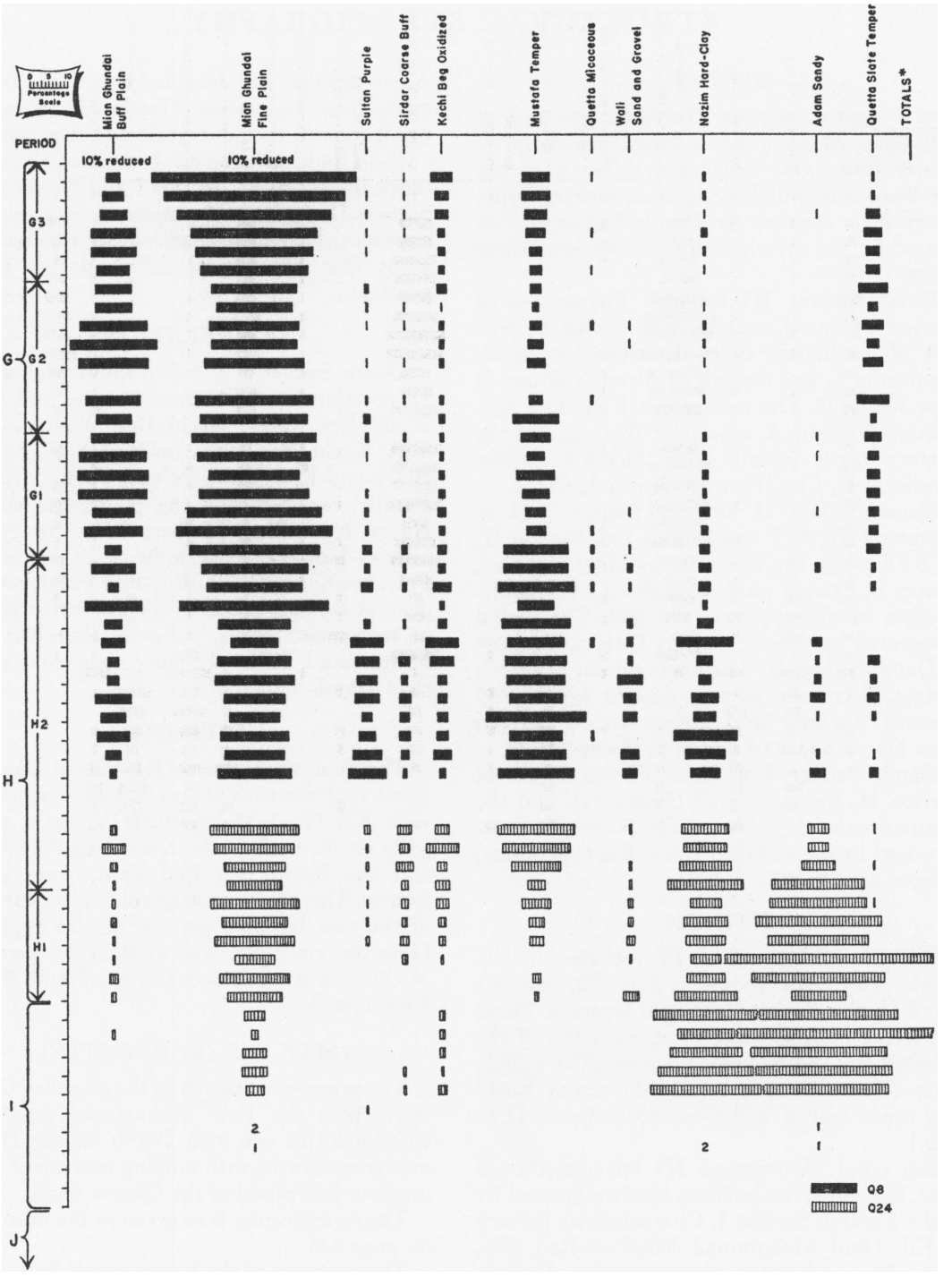


FIG. 60. Quantitative graph of ceramic chronology, plainwares. Spread at upper portion of type configurations, as in Mian Ghundai Fine Plain, is possibly caused by surface contamination. See Fig. 61 for totals.

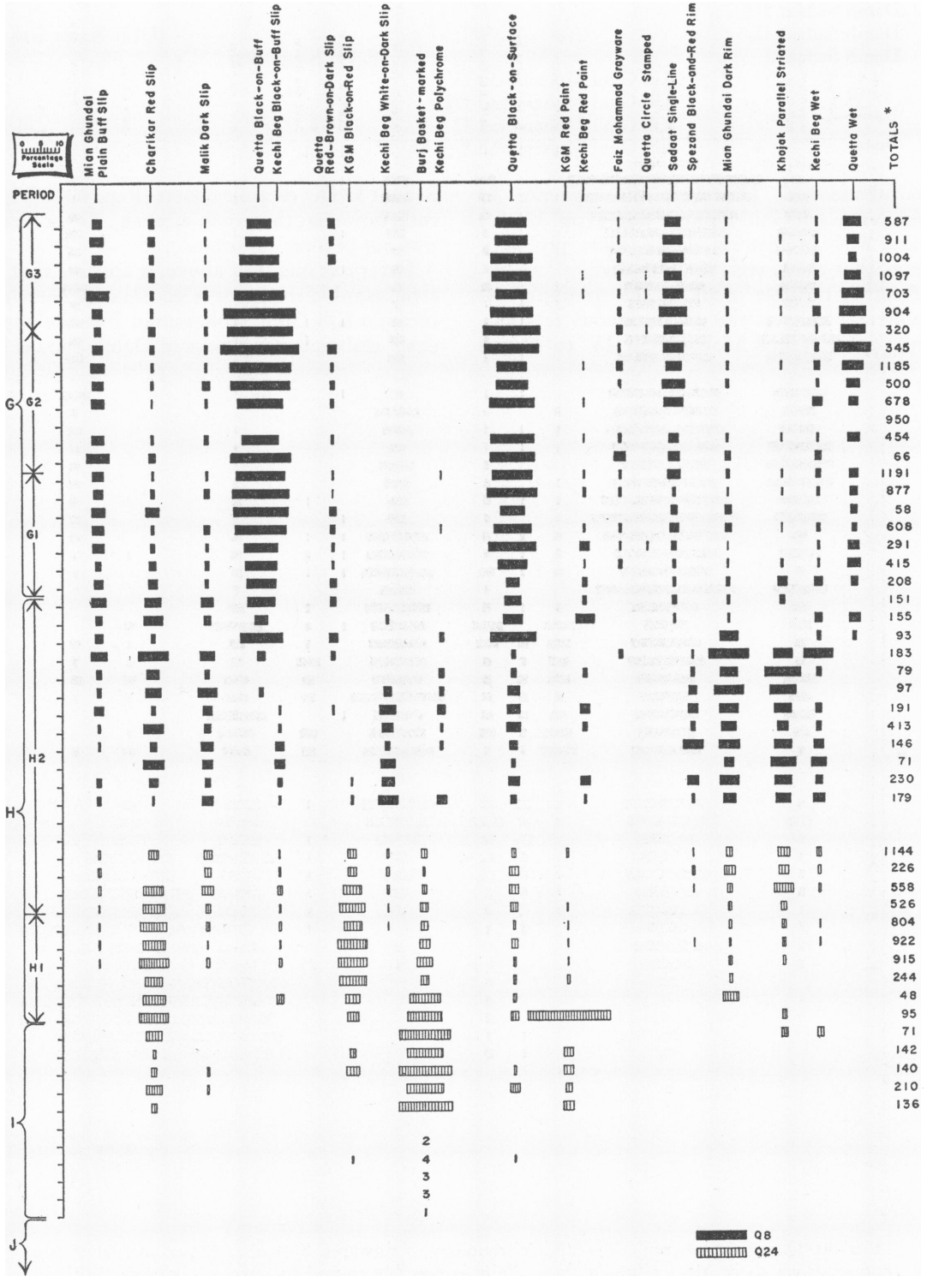


FIG. 61. Quantitative graph of ceramic chronology, decorated wares. Totals include plainwares and decorated wares.

Damb Sadaat III
Damb Sadaat II
Damb Sadaat I

(Q13) Karez Site

(Q14) Kechi Beg

Kili Ghul Mohammad IV
Kili Ghul Mohammad III
Kili Ghul Mohammad II
Kili Ghul Mohammad I

was abandoned. However, the presence in these gravels of Ghul Painted wares (pp. 336 ff.) mixed with prehistoric sherds most probably means that the gravels are intrusive.

Another possible break in the continuity of the stratigraphy is the discontinuous relationship of Kili Ghul Mohammad IV to Damb Sadaat I. The ceramic charts (Figs. 60–61) indicate, however, that such a break, if it occurred, was not of long duration.

Except as qualified above, it appears that the stratigraphic sequence is continuous from preceramic Kili Ghul Mohammad I to the apparently elaborate structures of Damb Sadaat III.

PERIOD DEFINITIONS AND CHRONOLOGY

WE MUST AT THIS POINT consider the problem of designating the chronological framework within which the stratigraphy of the prehistoric assemblages as defined above is contained (p. 333). For the moment, this framework is necessarily limited to the data furnished by the interrelated stratigraphies of the excavated sites in the Quetta Valley. However, the framework, to have value, must be applicable to the ever-expanding temporal dimensions provided by typological correlation of the several areas of Baluchistan and neighboring regions with the Quetta sequence. It is clear then, that a system of periods should be formulated that will allow the cultural assemblage to be placed in a relative chronology.[1]

CRITERIA FOR DIFFERENTIATIONS

At this point it is obvious that though the Quetta Valley assemblages are closely interrelated, they can be differentiated. This is demonstrable, for example, in pottery in such sensitive criteria as design motif and design treatment. The definition of certain traits forms the mean about which the remainder of the known assemblage is gathered. Usually, the period division is not made at the extremes of any group of criteria, but at an obvious crucial point in their growth and decline. This is of course an arbitrary division and therefore can fluctuate within certain limits. The precise establishment of the initial and terminal points of the period will depend upon additional data.

Pottery is the obvious trait on which an initial period division can be based. Because of its relative abundance, its possible refinement, its sensitivity, and, coincidentally, its conservatism and stratigraphic accessibility, pottery is an ideal trait to serve as an index of cultural change.

The sherds were initially removed from the strata cuts in 25-cm. levels. Each sherd was washed in the field laboratory and marked with the designated number of the level in the strata cut, then placed indiscriminately in boxes. In the museum laboratory the sherds were tossed into separate bins according to typing criteria set up by the sorter. When all the sherds were so classified, they were counted according to type and level. The number of sherds of each level was ascertained, as well as the total for each type. The percentage of each type in each level was laid out on graph paper on a bar graph. In order to make it possible to distinguish minor percentages, each bar was made duo-directional. There are some blanks in the graph resulting from the division of the collections in Karachi which, fortunately, proved to be of minor importance. The sherds from the stratigraphic cuts of Sites Q8 and Q24 were all typed in this way. A total of more than 110,000 sherds were handled in the process.

The resulting graphs (Figs. 60–61) show the frequency of occurrence of each type at each level. They also show the particular configuration of a type as it occurs from the preceramic level (Kili Ghul Mohammad I) through Damb Sadaat III.

Without launching into a detailed discussion of the statistical validity of these configurations, I should point out that no total for any level was based on fewer than 45 sherds and that most levels had over 150 sherds, with an occasional total of over 1000 sherds. No sherds smaller than thumb-nail size were counted. Thus the reliability of the data is enhanced by the quantity under consideration: Q8, Quadrant A, 17,441 sherds; Q24, Quadrant NW, 6323 sherds. In addition, each adjoining quadrant was also examined qualitatively to check these results.

These typological graphs may be criticized on the basis of the possibility that a broken vessel may have shattered into few or many sherds, thus affecting the numerical representation of a type; a level containing few or no sherds can also materially affect a configuration, etc. In each case the answer is clear. It is to be expected that these bars will vary considerably from level to level. The value of the graph does not rest on these minute variations. It is in the *tendencies* shown by the configurations that the progression of a given type is

[1] I use the term "assemblage" rather than "culture," "cultural phase," etc., in order to point up the limits of our knowledge of these prehistoric phases. Braidwood has an excellent discussion of the pitfalls of these terminologies. See Braidwood, 1946a, 13 ff., and 1946b, 32 ff.

demonstrated. They also make possible the construction of a chronological frame, initially orientated to ceramics, but capable of expansion to include other traits as they become known.

THE PERIODS

The period designations are lettered from A to J. Periods A to F are historical[1] and G to J are prehistoric.

PERIOD J: The preceramic period as it is known at Q24 by Kili Ghul Mohammad I. As these neolithic assemblages become better known, a subdivision of Period J, the addition of a Period K, or other changes can be expected.

PERIOD I: Handmade wares, including basket-marked wares, are dominant. Tempers are coarse. Fine wheelmade pottery, black-on-surface painting, and Khojak Parallel Striated appear in the latter part of this period. Kili Ghul Mohammad II in the stratigraphy identifies this period.

Period H can be divided into two parts:

PERIOD H1: This, the earlier, part is marked by the domination of the Kili Ghul Mohammad Black-on-Red Slip and of red-slipped wares in general. Pedestal vessels appear. Fine plainwares are popular, although coarse handmade wares are more common. Basket-marking occurs, but it is on the decrease. Many types, such as Mustafa Temper, Sultan Purple, the rim wares, and the wet wares, etc., common to later periods have their beginnings in this part. Kili Ghul Mohammad III in the stratigraphy identifies this part.

PERIOD H2: During this period typical Kechi Beg wares, White-on-Dark Slip, and Black-on-Buff Slip are prominent. Kechi Beg Polychrome and Red Paint wares appear to flourish in the latter portion of this period. In general, coarse handmade wares become scarce, though Quetta Slate Temper wares flourish, as do coarse oxidized Kechi Beg and Mustafa Temper wares. Khojak Parallel Striated wares and Kechi Beg Wet wares are common. Quetta Black-on-Buff slip has its beginnings in the later part of this period. This period correlates in the stratigraphy with Kili Ghul Mohammad IV and Sadaat I.

Period G is the latest prehistoric period identified for the Quetta Valley. Characteristic goblet and open vessels appear. It is the time of climax for the Quetta wares: fine plain wares (including fine buff), slate temper, buff slip plainwares, and the Quetta Slate Temper. The well-known graywares (black-on-gray and red-on-gray), here called Faiz Mohammad Grayware, flourish in this period along with the closely related Quetta Red-Brown-on-Dark Slip wares. Both of these characteristic Period G types of ware first appeared late in Period H2. Red-slipped wares appear in small percentages all through Period G, but may be foreign importations, if one can judge from their decoration (when decorated) which relates to Zhob-Loralai rather than to Quetta. Sadaat Single-Line ware reaches its maximum in this period. Fine wares dominate over coarse wares: most of the earlier coarse wares, such as Wali Sand and Gravel, Nazim Hard-Clay, and Adam Sandy occur only in negligible quantities; Mustafa Temper and Quetta Slate Temper wares are not abundant.

Period G can be divided into three subperiods, especially on the basis of tendencies in design:

PERIOD G1 (EARLIEST): Designs in Quetta ware have a crisp linear quality which has a strong affiliation with the drawing technique of Kechi Beg Black-on-Buff Slip and Kechi Beg Polychrome wares. Kechi Beg decorated wares also survive. Period G1, in the stratigraphy, is correlated with Damb Sadaat II.[2]

PERIOD G2: Designs are bold, with much emphasis on infilling. The drawing has less linearity than on the Quetta wares in Period G1. This period correlates stratigraphically with the upper levels of Damb Sadaat II.

PERIOD G3: This period marks the decline of most of the Quetta ware designs. The remaining designs, the Sadaat, reach a climax in the Sadaat Single-Line wares. Period G3 in the stratigraphy correlates with Damb Sadaat III.

[1] See pp. 343 ff. for discussion of these historical periods.

[2] It is possible to cite numerous examples of these differences in kind of drawing. For instance, compare Design 159, Period G1, with Designs 160 to 162, Period G2; Design 213, Period G2, with Design 214, Period G1; Design 313a, Period G1, with Design 313b, Period G2. Nevertheless, it must be kept in mind that these differences are not absolute, and excellent linear drawing is found in both Period G2 and Period G3. However, the *tendency* in these periods is towards an infilled block design rather than a linear drawing of designs.

HISTORIC WARES AND PERIODS

In the course of the survey of the Quetta Valley a number of sherds were collected that did not fall within the limits of the prehistoric ceramic corpus, as here defined, and therefore are attributable to the immediately post-prehistoric or historic periods.[1] It was readily apparent that the decorated wares could be divided into 13 groups, as follows:

1. Ghul Painted
2. Pishin black-on-red
3. Finger-tip decorated
4. Appliqué
5. Stamped
6. Mould-made
7. Ring
8. Ribbed
9. Rope
10. Loop and comb incising
11. Glazes
12. Modern or Islamic
13. Handles and lugs

No sherds representing these groups were found in stratigraphic context in any of the excavated sites. However, many of them have been noted in the published reports on excavations or surveys in areas adjacent to the Quetta-Pishin District. These reports covered the territory from Taxila on the east to Seistan on the west, and from Begram north of Kabul to Sind and Makran in the south. For the glazed wares this comparative material can easily be extended to sites in western Iran or Russian Turkestan.

One can freely admit that descriptions based on so spatially widespread a scheme of reference may result in numerous errors and may also present a deceptive picture. However, no ceramic typological scheme is now available in the published material that would serve to identify the relative time and the probable cultural content of sites in these areas. With the discovery of the preceramic horizons at Kili Ghul Mohammad and the purchase of modern wares in the Quetta bazaar, the ceramic boundaries of the culture sequences of the Quetta Area become more clearly defined. The Islamic glazed wares historically follow the periods immediately preceding modern wares.[2] Our knowledge of the prehistoric ceramics extends from the preceramic period (Period J) through Period G, the latest prehistoric period that we are able to define. It is apparent, then, that the remaining ceramic groups belong to the periods between Period G3 and the Islamic.

DESCRIPTIONS

Ghul Painted

Plate 16

Ghul Painted is a coarse, thick ware with polychrome or black-on-red slip painting on the exterior and frequently on the interior. It appears to be handmade. The paste is granular; the temper is hard clay. Occasionally other tempers occur. Color varies from black-brown to red; red-brown is common. Thickness ranges between 1.1 to 1.5 cm.

The rim sherds recovered indicate that large carinated bowls and large closed bowls were common forms. Cups are also suggested, as well as small open bowls. No bases associated with this style were recovered. It appears, however, that flat bottoms without supplementary bases were utilized. Frequently a ridge was formed at the shoulder break on the body of the vessel. Most often this ridge is plain, although three decorative techniques were also common: first notching at intervals; second, punching; third, criss-cross incising. Frequently the rim is notched or incised, and is occasionally painted.

Decoration consists of painting over a buff or light brown slip in rather bold strokes of black, which outline geometric or occasional animal forms, which are then filled in with red. Rarely the use of these colors is reversed. The decorated surface is usually well burnished.

The design elements can be divided into four general groups: the first (Pl. 16a–s) consists of geometric or linear forms, such as triangles, simple verticals and diagonals, and hatching. Included in this group are simple dots and hanging loops. The second group emphasizes curvilinearity (Pl. 16t–ss). It is distinguished by bold sweeping curves that usually end, tendril-like, in a comma form or frequently in a

[1] The division made in this paper between prehistoric and historic periods is, of course, arbitrary, and is used as a means of labeling the material for more ready reference.

[2] These glazes are classifiable into types, but for the purpose of this paper are considered as a single unit.

volute. In this group the fill is red. The third group (Pl. 16tt–nnn) resembles Group II in its emphasis on curvilinearity. However, it is characterized by line drawing in black on a red or buff-white slip. Occasionally red is used as a fill as in Group II. Designs consist principally of triangles (hatched), open volutes, petal-like forms, and dots. The fourth group consists of animals. Only two sherds could be assigned to this group: one shows four legs and the hindquarters of some mammal, most likely a cow or a bull; the other is apparently a bird in flight. On the basis of technique, the animal form belongs to Group I (Pl. 16b); the bird, to Group II or III (Pl. 16ee).

It is possible that the first group may represent the survival of prehistoric design. The second and third groups plainly owe their origins to sources outside the Quetta Valley.

Occurrence, Quetta Valley: Ghul Painted was first recognized at Q24. Sherds of this type were recovered not only from the surface of the site but also from the gravels of the upper levels of the excavation (Phase 4, Sections I and II, Figs. 14, 15), especially in the southwest quadrant which was very much disturbed by Islamic graves. Sites in which these sherds were encountered were frequent:

Group I: Q19, Q22, Q24, Q30, Q32
Group II: Q19, Q24, Q25, Q30, Q32
Group III: Q24, Q30, Q32

Occurrence outside Quetta Valley: Ghul Painted has a counterpart in pottery of Type E at Rana Ghundai which is assigned to Period IV there.[1] Though Ross illustrates only two examples, the stylistic resemblance is clear.[2] However, though Ross illustrates and describes a curvilinear style,[3] the sherds we recovered at Rana Ghundai suggest a much larger representation of Group I at this site than is apparent from Ross's data.

Beatrice de Cardi's definition of Londo ware aids somewhat in establishing the range of this polychrome group.[4] Only two sherds of Londo ware were recognized in the Quetta Valley, and both of these were from the Quetta Miri (Q19). From de Cardi's report, it seems initially clear that there are no direct parallels for Ghul Painted in the Londo group. The formalism of the decoration of Londo ware is quite unlike that of the Ghul Painted style. Nevertheless, a number of resemblances suggest a more than casual relationship.[5] These are the obvious parallels: both wares are handmade, rather coarse in paste; are burnished to a polished appearance; include laminated bowl forms; use red or red-brown as a fill or subsidiary color; and use hatched triangles as well as volutes or scrolls (Pl. 16t–nn, vv; also de Cardi, Fig. 2, No. 5). The bird of Group IV is comparable to the bird shown by de Cardi (Fig. 1, No. 3).[6] Because so few sherds of Londo ware were found in the Quetta Valley, it may be assumed that these parallelisms to Ghul Painted ware indicate a possible localization of the style.

Group III bears a general resemblance to the Sassanian pottery described by Stuart Piggott.[7] The rondel motif is paralleled in the sherds (Pl. 16xx, zz). The use of rather delicate black lines for outlining, for hatching, and for drawing motifs, such as the scroll, may be seen in a sherd found by Stein at Spina-Ghundai.[8] Piggott also mentions the use of a plum-red slip on the upper portion of the vessel body.[9]

Ghul Painted is unreported from Taxila, Seistan, and Afghanistan.

Pishin Black-on-Red

Plate 17gg-ii

This is a fine, wheelmade, painted ware with a paste varying from very fine to slightly coarse, ranging in thickness from 3.5 to 10 mm. Hard clay and fine grit are in common use. The paste is usually reddish. Both interiors and exteriors are slipped in red and then burnished. Decoration consists of fine black lines with supplementary red lines. Occasionally red is used for outlines.

A characteristic design element, horizontal zigzag below the rim, is enclosed by horizontal lines to form a border. Another typical design element is a diamond, subdivided into smaller diamonds. The latter are alternately filled with red paint.

[1] Ross, 1946, 309, Fig. 5; Pl. 11, No. 2.
[2] Cf. with Ross, 1946, Fig. 5.
[3] Ross, 1946, Fig. 5; also 310.
[4] De Cardi, 1951.
[5] Cf. De Cardi, 1951, 66–69, Figs. 1 and 2.
[6] De Cardi, 1951, 68.
[7] Piggott, 1949, 31–34; Pl. 8.
[8] Stein, 1929, Pl. 21 Sp. M. 2; cf. Pl. 16 of the present paper.
[9] Piggott, 1949, 31; cf. Pl. 16xx.

The principal form appears to be an open bowl without rim flare.

OCCURRENCE: This ware occurs once in Quetta surface collections at Q34. It is found at the P1 and P4 sites in Pishin. The ware has not been reported from other areas.

FINGER-TIP DECORATED

Plate 17bb-ff

A coarse, grit-tempered, oxidized ware is readily recognized by the deep pock marks probably made by finger tips pressed into the wet clay. The impression of the finger tip is often clearly visible.

Flat open platters (finger-print impressions on interior) and probably large open bowls (finger-print impressions on exterior) are characteristic. Fabric impressions are frequent on interior of vessels.

OCCURRENCE, QUETTA VALLEY: Q25, Q30, Q32, Q34.

OCCURRENCE OUTSIDE QUETTA VALLEY: Vats reports two finger-tip decorated vessels from Stratum 1, Cemetery H, at Harappa.[1]

A large vessel was brought to Quetta by some Brahui who said they had dug it out of a mound near Mastung.

APPLIQUÉ[2]

Plate 17x-aa

This classification applies to a technique of decoration which consists of raised or applied bands of clay placed on the exterior of the vessel (forms indeterminate). These applied bands are then treated in various ways. Three examples available from the Quetta Valley illustrate: simple smoothing (Pl. 17aa), punctation (Pl. 17x), and incising (Pl. 17y).[3] Curvilinear designs of loops and circles, and an oval, disc-like bead form, may be characteristic.

OCCURRENCE, QUETTA VALLEY: Q32.

OCCURRENCE OUTSIDE QUETTA VALLEY: The site of Shahidan in Waziristan produced several examples of this technique.[4] A sherd from Periano Ghundai illustrates a criss-cross rope pattern.[5] Stein illustrates several sherds of this type from Dabar Kōt, including the so-called cowrie-shell pattern.[6] The raised band technique occurs at Shahi-Tump[7] and at Kulli.[8] Stein found examples of this technique at Sohr Damb near Mashkai associated with painted pottery: "... pieces with coarsely executed geometrical patterns in pink or red over buff ground."[9]

Ross describes, but does not illustrate, a ware which he assigns to Rana Ghundai Period V though he did not find examples *in situ:* "The embossed designs included rope, 'cowrie-shell,' and 'wheat-ear' designs."[10]

In a surface collection made at Rana Ghundai in 1950, we recovered examples of this ware as described by Ross. They are comparable in every way to the examples illustrated by Stein and those recovered by us in the Quetta Valley.

STAMPED

Plate 17b, d-i

This designation refers to a decorative technique. In the Quetta Valley, stamping occurs in a variety of clays. Coarse handmade and wheelmade sherds have been recovered as well as a fine, thin-walled variety. One sherd of the latter group is slipped in dark red. Stamping, in general, apparently occurs on the neck or shoulder of a vessel. No rims or bases were recovered.

Stamp marks, consistently on the exterior, include concentric circles, dragged comb-teeth, sun-ray, and leaf impressions. An S-scroll also occurs. The stamping appears in horizontal rows around the vessel or in the form of a single impression haphazardly pressed into the clay on its body.

OCCURRENCE, QUETTA VALLEY: Stamped ware sherds occurred at Q19, Q21, Q30, Q31, and Q32. Apparently the stamping technique was not popular in the Quetta Valley at any time, because only a few sherds of this kind were recovered from all the sites.

OCCURRENCE OUTSIDE QUETTA VALLEY: At Taxila, Marshall assigns the origin of this ware to the Greeks.[11] It occurs at Bhir Mound, Stra-

[1] Vats, 1940, Vol. 2, Pl. 59, No. 10; Pl. 60, No. 14.

[2] I have not included in this group the raised bands that are associated with painted wares which occur at Shahi-Tump, Khurab, etc.

[3] This may be mould-made.

[4] Stein, 1929, Pl. 4, Sh.i.l, i.5.

[5] *Ibid.*, Pl. 6, P.72.

[6] *Ibid.*, Pl. 14, D.E.i.2; Pl. 15, D.E.ii.11, 12; D.E.i.1.

[7] Stein, 1931, Pl. 11, Sh.T.ii.8, ii.9.

[8] *Ibid.*, Pl., 25, Kul.1.viii.8.

[9] *Ibid.*, 146; also Pl. 27, Sohr.1.

[10] Ross, 1946, 310.

[11] Marshall, 1951, Vol. 2, 400.

tum III, and extends through to Stratum III–II at Sirkap. It is common to Buddhist sites in Swat which Stein calls Gandharan.[1] It is also found at Begram and Shotorak.[2] It occurs, but not in great quantity, at Agroha in the Punjab.[3] This site is dated in the second century before Christ on numismatic evidence. It is infrequent at the Sassanian site of Khair Khaneh near Kabul.[4]

Stein lists Kōt-Kat, Shahīdān in the Derajat and Waziristan,[5] and the sites of Periano Ghundai, Kaudani, Tor Dherai, and Dabar Kōt in the Zhob and Loralai districts where stamped sherds were recovered.[6] Spet-Bulandi, near Mastung in Sarawan District, appears to be the only site in southern Baluchistan from which stamped wares were recovered by Stein.[7] In Seistan, stamping occurs in somewhat limited form as compared with Buddhist sites to the east of that area.[8]

Stamping does occur in Islamic times, but apparently the technique never achieved great popularity among Moslem ceramists.[9]

Mould-made

Plate 17j-w

Mould-made wares are generally of fine paste, with the vessel walls usually 4 to 8 mm. thick. No vessel forms were determined because of the absence of rims and bases. Mould-made wares are usually unpainted; at least among the sherds belonging to this type, we found no evidence of slip or supplementary painting. Mould impressions occur on the exterior.

Occurrence, Quetta Valley: Mould-made sherds, all apparently Islamic, were recovered from the surface of Sites Q5, Q30, and Q32E.

Occurrence outside Quetta Valley: Mould-made wares occur at Taxila in Bhir Mound, Stratum 2.[10] They are abundant in Buddhist sites in Swat,[11] Shotorak, and Begram,[12] and at Agroha.[13] They are common in Islamic sites of Seistan.[14]

Mould-made sherds are apparently rarely found in northern Baluchistan, Waziristan, the Derajat, or Gedrosia.[15]

Ring

Plate 18a-l

In this, a thin-walled, fine paste ware, the walls average 5 to 6 mm. in thickness. The paste, of a fine clay, with possibly fine sand as temper, varies from reddish to brown. The ware is slipped in brick red or brown. The outstanding decorative feature is an over-all pattern of very fine, parallel, horizontal lines, consistently less than 1 mm. thick. Some of the lines are painted directly on the slip. More characteristic, however, is the so-called burnished line grooving which may be distinguished by its shiny, polished appearance. These lines lie in parallel grooves as if the polishing had forced the paint into the surface of the vessel. Their color varies with the slip. For example, if the slip is red, the lines are red and set off from it by their polished appearance which tends to darken them.

No complete vessels were recovered. However, two basic forms are suggested by the base and rim sherds: open flat platters and stemmed goblets (Pl. 18a-l). In the former, the decoration is on the interior; in the latter, on the exterior.

Occurrence, Quetta Valley: Ring ware occurs at Sites Q10, Q19, and Q31.

Occurrence outside Quetta Valley: This ware occurs at Sampur near Mastung.[16] It also occurs in Seistan at the site of Ghagha Shahr.[17] It is not described as occurring at the Buddhist

[1] Stein, 1930, especially 21, 49, 74; Pl. 1.

[2] Personal observation of sherds in the Kabul Museum. See Hackin and Hackin, 1939, 7; Meunié, 1942, 67.

[3] Srivastava, 1952, Pl. 5.

[4] Hackin and Hackin, 1939, 4–5, for dating evidence.

[5] Stein, 1929, Surkh-dherai, Pl. 1, S.D.21–22, 26–28, Chaudhwān, Pl. 2, Ch.19–20, 26 (probably), Kōt-Kat, Pl. 3, K.K.10, Shahidan, Pl. 4, Sh.ii.1.

[6] *Ibid.*, Periano Ghundai, Pl. 6, P.67, 74, Kaudanī, Pl. 10, K.C.l, K.13, Tōr Dhērai, Pl. 14, T.D.E.15, Dabar-Kōt, Pl. 15, D.E.i.4, i.3.

[7] Stein, 1931, Pl. 32, S.Bul.8.

[8] Stein, 1928, Vol. 3, Pl. 115; note especially Shahr.02, 07, 030, 023.

[9] Few Islamic ceramics from the Baluchistan area have been published. Stein, however, did illustrate some sherds from the Persian Gulf region which, though remote from Baluchistan, may be regarded as suggestive. Stein, 1937, Pl. 22, Khar.70, Pl. 26, Gur.38.

[10] Marshall, 1951, Vol. 3, Pl. 128; Vol. 2, 434 ff.

[11] Stein, 1930, Pl. 1; Barger and Wright, 1941, 31.

[12] Observations in Kabul Museum of sherds from these sites.

[13] Srivastava, 1952, Pl. 5.

[14] Unpublished American Museum collections from Peshawarun; Stein, 1928, Vol. 3, Pl. 115, A.026, K.G.091; 1937, Pl. 5, Jam.iv.165, 166; Pls. 22–23, 26 (lower picture).

[15] Stein, 1929; 1931.

[16] Hargreaves, 1929, 4–5, Pl. 5 (b), Nos. 5, 8; Stein, 1931, Pl. 32, S.Bul.3, 4.

[17] Stein, 1928, Vol. 3, Pl. 115, Gha.010+012.

sites in Afghanistan, nor did I find it recorded at Taxila.

This ware occurs at Site P1 (Spina Ghundai) in Pishin; also at the Pishin Site P4 with Pishin Black-on-Red but unaccompanied by ribbed ware.

Ribbed

Plate 18m–cc

This is a medium-thick, wheelmade ware (6 to 16 mm., average *ca.* 7 to 8 mm.). The paste is generally very fine, but an occasional sherd shows considerable coarseness, containing large bits of grit temper. Pastes are usually reddish. The sherds are slipped in light tan or buff. The coarse sherds are frequently unslipped.

The exterior surface is characteristically covered with deep grooves, sometimes over 5 mm. wide. There is a tendency for both the bottoms of the grooves and the crests of the ridges between them to be flattened. Slight ribbing is frequent on the interior of sherds.

No rims or bases were identified as belonging to this type.

Occurrence, Quetta Valley: Ribbed ware occurs at Sites Q18, Q19, and Q32.

Occurrence outside Quetta Valley: Ribbing occurs abundantly at sites such as Ghagha-Shahr and Shahristan in Seistan.[1] Ribbed ware is reported by Hargreaves at Sampur Mound near Mastung but is not illustrated.[2] Stein reports ribbed ware in Kharan,[3] Makran,[4] and Spet-Bulandi (near Mastung).[5] There is some indication that this ware occurs in Waziristan.[6] In the Zhob Valley, Stein may have recovered it at Moghul Ghundai.[7] In Loralai, Dabar Kōt is represented[8]; there is also surface representation of this type in Pishin.[9]

Rope (Wheelmade)

Plate 18dd–nn

Rope ware is a thick (1 to 2.5 cm.), wheelmade, medium-coarse, tempered ware, the temper varying from medium fine to very coarse when it consists of grit. Some sherds have a medium-fine, hard-clay temper. Paste varies in color from light red to gray; it is usually somewhat coarse. More than half of the sherds are slipped in a cream-buff to reddish brown. In both unslipped and slipped sherds, the surface is slightly rough.

In some cases the raised bands on the surface project as much as 0.5 cm.; most of them, however, are rather shallow, varying in width from 1.5 to 3.5 cm. The bands are placed at the shoulder of the vessel. Double rows of bands occur infrequently. Their rope-like appearance results from the parallel oblique incisions that run in the same directions across the width of the raised band. These incisions are apparently made in one of three ways: with the side of the thumb, by cutting obliquely with an implement, or by pressing a cloth-covered instrument (probably a stick) into the clay. There is, of course, now no possible way to determine whether these three methods are examples of evolving techniques.[10] No base sherds, and only one rim, could be associated with these rope bands, so that it is impossible to determine vessel form. However, judging from the thickness and the slight curve of the body sherds, it is clear that the vessels were of considerable size.

Occurrence, Quetta Valley: Rope banding occurs in the Quetta Valley at Sites Q19, Q22, Q25, Q30, Q31, and Q32.

Occurrence outside Quetta Valley: Rope banding occurs at Rana Ghundai, Period V[11]; at Taxila, Bhir Mound Stratum II, and at Sirkap Stratum II[12]; it is associated with ring ware at Sampur Mound near Mastung[13]; at Khair Khaneh near Kabul[14]; and in Seistan at

[1] Stein, 1928, Vol. 3, Pl. 115, Shahr.07, Gha.02, 08, K.G.0223, 024.

[2] Hargreaves, 1929, 13, Appendix C, Group II, 1–2.

[3] Stein, 1931, 28, Pir Hasan Shah, Pl. 1, P.H.4–6.

[4] *Ibid.*, Nag, Pl. 2, N.S.1, 2; Panjgur, Pl. 2, P.K.2. Note that he assigns this to Islamic time, 43.

[5] *Ibid.*, Pl. 32, S.Bul.1, 2.

[6] Stein, 1929, Pl. 3, Dabra, D.5.

[7] *Ibid.*, Pl. 11, MM.N.48.

[8] *Ibid.*, Pl. 14, D.29.

[9] *Ibid.*, Pl. 21, Sra-Kala (S.K.) 2, 3, Spina-Ghundai, Sp.M.4.

[10] Closely related to the technique of "rope banding" or decorating is the treatment of the ridges that are sometimes placed by the potter at the shoulder break or near the rim. These vary from simple, untreated ridges (Pl. 19a–j) to the rather elaborate pinched ridges that resemble the rope banding (Pl. 19k-u).

[11] Ross, 1946, 310.

[12] Marshall, 1951, Vol. 3, Pl. 122, No. 35; Pl. 125, Nos. 132a, 144. Note that Ghosh, 1947–1948, does not record this type at Sirkap though his Pl. 45, Fig. 7, is a possible occurrence.

[13] Hargreaves, 1929, Pl. 2(b), (c); Pl. 3(a), (b).

[14] Hackin and Hackin, 1939, Pl. 17, 22a, 22b.

Shahristan[1] where it is apparently associated with ribbed ware.

It occurs abundantly in the upper portion of the mound at Dabur Kōt. Stein records its occurrence at Shurkha-dherai, Chīchadherai, Kōt-Kat, and Shahidan in the Derajat and Waziristan.[2] In this latter series found by Stein, a number of these sherds are painted.[3]

Loop and Comb Incising

Plate 20

This group is based on a technique of decoration. It occurs both in coarse and fine wares. It is frequently found in wares slipped in red, cream, or buff. Occasionally, a line of red paint indicates that loop incising occurs with painted wares, though it never occurs in a prehistoric context. The technique has been observed in sherds with rope bands and also in ribbed-ware sherds. It can be divided into three groups: undulating loops (Pl. 20a-s, u), vertical loops (Pl. 20t, z, dd), combed loops (Pl. 20v-y, aa-cc). Loop incising always occurs on the exterior of the vessel, usually at the shoulder.

Occurrence, Quetta Valley: Undulating loop incising occurs at Sites Q15, Q19, Q23, Q31, Q32, and Q34; vertical loop incising at Sites Q4 and Q31; combed loop incising at Sites Q19, Q12, and Q32.

Occurrence outside Quetta Valley: Undulating loop incising occurs in Rana Ghundai Period V.[4] It appears in Stratum II, Bhir Mound, Taxila.[5] It occurs in apparent association with ribbed ware in Seistan,[6] and is also found in Islamic association.[7]

Undulating loop incising occurs at Spet-Bulandi[8] and Sampur Mound near Mastung,[9] and at Pir Hasan Shah in northeast Kharan. At Surkh-dherai in the Derajat, Stein found sherds decorated in this fashion. It also occurs at Pai Jo Kotiro and at Amri.[10]

Vertical loop incising occurs at Taxila, Sirkap Stratum 3.[11] In Seistan it is found in sherds taken from the site of Shahristan.[12] It was found by Stein at Pir Hasan Shah in northeast Kharan, as well as at Zayak.[13] It occurs in the Derajat; at Surkh-dherai and at Shahidan; in Zhob, at Periano Ghundai and Moghul Ghundai.[14] It is found in Jhukar context at Chanhu-Darō.[15]

Comb incising occurs frequently in an Islamic context.[16] It occurs in Seistan at Shahristan, Atish, and Chala-Tappa.[17] It occurs also in the Harappan levels of Chanhu-Darō,[18] as well as in the Jhukar horizon.[19] At Harappa, Wheeler recovered an example of this technique,[20] and Deva and McCown record examples from Majumdar's survey in Sind in 1928 from the site of Mari Khan.[21] There is some doubt, however, attached to the reliability of Mackay's levels. Wheeler records only one sample. The commonness of this technique in Islamic times leads one to speculate whether these odd sherds are not chance recoveries of Islamic wares which have infiltrated into the sherd sample in some unexplained manner.

Glazes

Plate 21

Green glazed sherds are the most common recovered in the Quetta Area. The paste is very fine and is usually reddish in color. The walls are thin (5 to 7 mm.). The glaze color varies from a pale yellowish green to a deep blue-green. Bright green is not uncommon. Glazing on both interior and exterior of the vessel wall is common; frequently a white glaze is applied

[1] Stein, 1928, Vol. 3, Pl. 115, Shahr 032.

[2] Stein, 1929, Pl. 1, S.D.5, 17, 29, 33, 42, Pl. 2, Ch.D.18, Ch.7, Pl. 3, K.K.7, Pl. 4, Sh.ii.5.

[3] Note especially Stein, 1929, Pl. 1, S.D.29, 33, 42, Pl. 2, Ch.D.18.

[4] Unpublished surface collections, the American Museum of Natural History.

[5] Marshall, 1951, Vol. 2, 411, Vol. 3, Pl. 122, No. 40.

[6] Stein, 1928, Pl. 115, Shahr.014, K.G.0229.

[7] Unpublished collection of sherds from Peshawarun in the American Museum of Natural History.

[8] Stein, 1931, Pl. 32, S.Bul.1.1., 5, IV2, Sam.2, Pl. 1, P.H.10.

[9] Stein, 1929, Pl. 1, S.D.18.

[10] Deva and McCown, 1949, Pl. 1, No. 7, Pl. 7, No. 77.

[11] Marshall, 1951, Vol. 3, Pl. 128, No. 233.

[12] Stein, 1928, Pl. 115, Shahr. 036.

[13] Stein, 1931, Pl. 1, P.H.10, Z.N.13.

[14] Stein, 1929, Pl. 1, S.D.23, Pl. 4, Sh.ii.2, Pl. 6, P. (SW). 71, Pl. 11, MM.E.1.

[15] Mackay, 1943, Pl. 48, No. 25.

[16] Unpublished sherds from Peshawarun in the American Museum of Natural History; also Stein, 1937, Pl. 22, Daq.234, Pl. 26, Gur.40.

[17] Stein, 1928, 928, Pl. 115, Shahr.017, note Gh.Ta.03, 04, and Atish.05.

[18] Mackay, 1943, Pl. 38, Nos. 24, 26.

[19] *Ibid.*, Pl. 48, Nos. 7, 15, 16.

[20] Wheeler, 1947, 96, Fig. 10, No. 34.

[21] Deva and McCown, 1949, 28–30, Pl. 6, No. 71; note also Pl. 7, Nos. 75, 80.

on the opposite wall. Among the designs, the most interesting is an open-mouthed, animal-like form on the interior of an open bowl (Pl. 21b). Other design elements include triangles (Pl. 21l), dots (Pl. 21j), scrolls (Pl. 21d), scales (Pl. 21h), and perhaps a series of floral patterns as in Pl. 21rr.

Forms are undeterminable, but a number of ring bases, some handle lugs (Pl. 21a, x), and what appear to be bottle-necked vessels (Pl. 21g) occur.

OCCURRENCE, QUETTA VALLEY: In the Quetta Valley green glazes occur at Sites Q6 (1 sherd), Q19, Q30, Q31, Q32, and Q37.

Yellow glazes vary in shade from a bright to a whitish yellow. The background is usually yellow and the designs are in brown or green, or both, occasionally enhanced by spots of red. Glazing is, in the main, on the interior. Paste is the same as in the green glazes. The vessel walls tend to be somewhat thinner than those of the green glaze vessels. Distinguishable designs include dots (Pl. 21kk), verticals (Pl. 21ff), and scrolls (Pl. 21uu).[1] Ring bases occur; open bowls, platters, or plates are suggested by the rims.

Yellow glazes occur at the following sites in the Quetta Valley: Q11 (1 sherd), Q15 (1 sherd), Q19, Q27 (1 sherd, modern?), Q29 (modern), Q30, Q31, Q32.

White glazes vary in shade from chalk to yellow or greenish white. The paste is the same as for green glazes. Glazing on both surfaces is frequent. No forms are distinguishable, but one ring base and a pedestal base (Pl. 21eee) were found. Design elements are scrolls, dots (Pl. 21jjj), and pendent verticals. The design colors range from brown to green.

OCCURRENCE, QUETTA VALLEY: In the Quetta Valley white glazes occur at Sites Q3, Q18 (1 sherd, pedestal base), Q19, Q30, and Q32.

Under the designation of dark glazes, a series of dark red-brown glazed sherds are considered. Though the paste is usually fine, these are heavy. Paste color varies from reddish to gray. The sherds are quite thick (0.9 to 2 cm.). Usually both surfaces are glazed. Forms are open bowls with ring bases, and tall, flat-bottomed cylinders. A protruding ridge is frequent on the walls of the cylinder form. This ware is not decorated.

[1] Part of a glazed brick found at Q22.

OCCURRENCE, QUETTA VALLEY: The dark glazes were found at the following sites in the Quetta Valley: Q3, Q12, Q19, Q29 (1 sherd), and Q34 (1 sherd).

MISCELLANEOUS GLAZES: A series of glazes that occur only occasionally in the collection cannot be included with any of the preceding kinds of glaze. All are of fine reddish paste and are somewhat thinner than the green glazes.

WHITE-ON-DARK-BROWN-ON-RED: White dots on brown (Pl. 21zz); Q32, 2 examples.

WHITE AND BLUE: Open-bowl rim type with a floral pattern in blue filled with white glaze (Pl. 21rr); Q19, 1 example.

BROWN-ON-YELLOWISH-TAN: Interlocking scroll design incised between rows of brown dots (Pl. 21uu), exterior; Q32, 2 examples.

BROWN-ON-WHITE: Design of what appears to be a mythological animal (Pl. 21xx), interior; Q19, 1 example. Scrolls; Q32, 1 example.

RED: No decoration; Q29 (modern).

MODERN OR ISLAMIC WARES

Plate 22

A number of ceramic decorative styles occur in these collections which for the present can be assigned to Modern or Islamic periods only on the basis of their occurrence in the modern bazaars, or in other recent context.

WEDGE INCISED: Wedge-shaped punctations; Q3, Q19, Q32 (Pl. 22h–m).

COMB-TOOTH MARKED: Q1, Q4, Q19, (Pl. 22t, u, hh).

INCISED AND PUNCTATE: Q19, Q32, Q34, Q37 (Pl. 22a–g).

ROULETTE STAMPED: Q19, Q34 (Pl. 22n, v, cc).

DASH INCISED: Q4, Q19 (Pl. 22o–q).

VICTORIAN POTTERY BASKET: Pottery basket with leaf appliqué decoration; Q1, (Pl. 22aa, bb, ii).

CHINA: White china painted with floral designs in blue or brown; red used occasionally as a supplementary color; gold appears once; Q3, Q4, Q12, Q18, Q19, Q29, Q30, Q32, Q34 (Pl. 22nn–rr).

ISLAMIC MOULD-MADE, MICACEOUS PASTE: Q2, Q12, Q21, Q28, Q29, Q31 (Pl. 22r, s, w, x, y).

SWIRLED MICACEOUS SLIP: A swirled micaceous slip over a reddish micaceous paste; Q4, Q7, Q12, Q19, Q23 (not illustrated).

BLACK-ON-RED MICACEOUS PASTE: An oxidized ware with a micaceous red slip painted in black with simple geometric designs; Q1, Q2, Q3, Q4, Q5, Q12, Q22, Q29, Q32 (Pl. 22dd–gg, jj–mm).

A number of kinds of pottery (listed below) are available for purchase in the bazaars of

Quetta City which are of importance because of their obvious position in the ceramic history of the Quetta Valley. Pottery is manufactured in the Quetta sub-district and in Quetta City and in the Pishin sub-district in at least two places, Gulistan and Kili Abdullah. I was able to witness pottery making at Gulistan where the potter made open bowls and jars of various types. The only decoration employed by him was made with a roulette. According to reports, a certain amount of pottery is manufactured in Sibi and sent by rail to Quetta City. This may account for the heavy mica content in the paste and slip of some of the wares observed there. Chilam bowls are typical.

The Gulistan potters work with a foot-powered wheel set into a hole in the ground. The potter sits on the rim of the hole to propel the wheel. Firing takes place in an outdoor brick kiln. The fuel is dung, brush, and sometimes wood. Firing is usually oxidizing.

1. Plain buff bowls, fine brown paste, micaceous clay (Fig. 62a–b).

2. Plain buff jar, straight rim, fine brown paste, micaceous clay (Fig. 62c).

3. Rouletted ware; a bowl, incurving rims, rouletted with square indentations on rims and shoulder; slipped in whitish clay; paste, fine red micaceous clay (Fig. 62d).

4. Black-on-red slip painted ware; fine micaceous paste; rouletted flaring rims; holes punched in bottom of vessel. Slip, reddish brown; designs, divided into two rows by horizontal black lines; horizontal lines continue onto bottoms of vessel (Fig. 62e).

5. Black-on-red slip painted ware; open platter with high walls, exterior rim and shoulder rouletted (squares), hard clay temper, fine paste. Interior only, red micaceous slip. Designs, concentric wide black bands; black triangles on rim (Fig. 62f).

6. Large, light brown jar, rounded bottom, flaring rim; painted ambiguous black designs along shoulder; paste, fine micaceous (Fig. 62g).

7. Small jar, rounded bottom, red slip on upper portion over fine paste, traces of hard-clay temper; black decoration, horizontal lines setting off curvilinear hatching and loops (Fig. 62h).

8. Similar to Fig. 62g, without red slip; hard clay nodules in paste break out on surface; designs, reverse commas and diagonal dashes (Fig. 62i).

9. Single-handled jar, fine reddish paste; fine, hard clay temper, light reddish slip over upper three-quarters of vessel; ring base; decoration, two bands of roulette impression on shoulder and mid-body, respectively (Fig. 62j).

10. Open bowl, ring base, glazed inside; also on upper three-quarters of exterior; glaze is deep blue-green (Fig. 62k).

11. Similar to Fig. 62k only brown in glaze color with spots of green on interior; indication of incised banding under the glaze (Fig. 62l).

12. Similar to Fig. 62k and Fig. 62l though larger; yellow glaze of somewhat coarse texture drips on to base (Fig. 62m).

13. Deep dark green glaze jar with narrow mouth; turned rim, incised; flat ring base; glazing on interior and on exterior down to base line (Fig. 62n).

14. Large, narrow-mouthed vessel, shoulder areas mould-made. Vessel was obviously made in three parts: 1, lower portion an open bowl with ring base; 2, decorated, mould-made shoulder; 3, long neck with flaring rim-ridge on neck. Mould-made portion slipped with micaceous clay. Fine reddish slip over upper portion of vessel; paste fine, with mud-clay temper; designs floral, dots, stars (Fig. 62o).

Handles and Lugs

Plates 23, 24

Besides the sherds, a few handles and lugs were recovered. Except for some obvious Islamic handle types, on the present evidence it is impossible to assign these to periods. However, as handles are not common at known historic sites until Period D, that period probably marks an early step towards the full popularity of their use.

1. Simple lug handles (Pl. 23v, w), Q32.

2. Three-pronged lug or decorative element (Pl. 23aa, gg), Q30, Q32.

3. Incised, decorated lug (Pl. 23z), Q19.

4. Handles with a single broad groove down the center (Pl. 23y; Pl. 24s-u), Q19, Q32; double-grooved handles, Q19, Q31.

5. Twisted rope handles (often capped with a rounded cord), single (Pl. 23dd-ee), Q19, Q32; double (Pl. 23ff), Q32.

6. Decorated handles, stamped with circles (Pl. 23cc), Q19; wedge-stamped (Pl. 23bb), Q31; herringbone incised (Pl. 23q), Q37.

No definite example of a spout occurs in the surface collections made in the Quetta Valley.

CHRONOLOGICAL FRAMEWORK

It is apparent that some chronological sequence can be set up for these historical ceramic styles on the basis of their occurrence, either in stratigraphic context or in association with typologically definable criteria in certain surface collections (Fig. 63). It is important to emphasize at this point that we are dealing

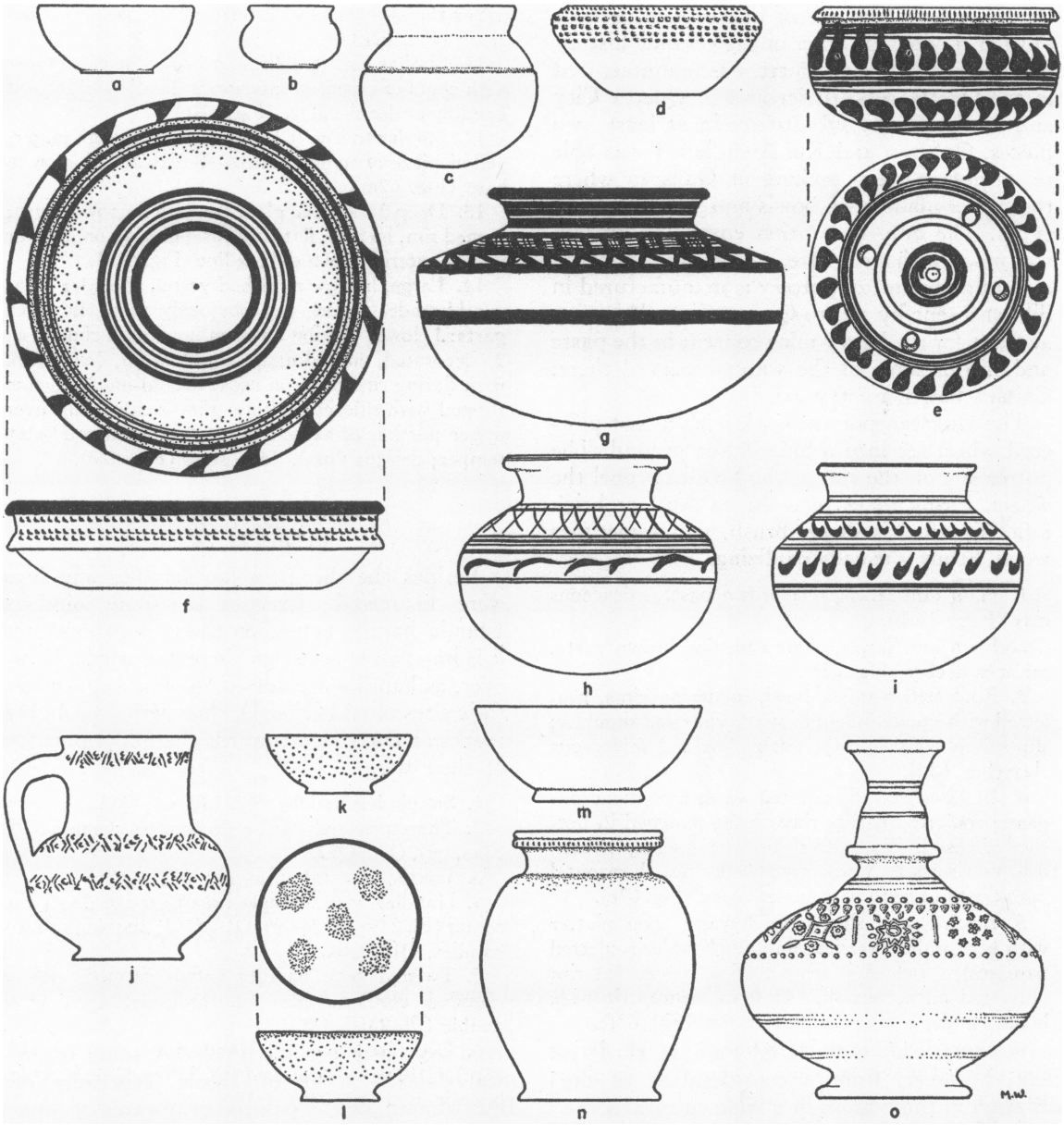


FIG. 62. Modern wares, forms and decorations.

with the relative sequence of ceramic styles, not cultures.[1]

PERIOD F

The latest prehistoric phase definable in the Quetta Valley is that of Period G3. It is hoped to demonstrate in a future paper that Damb Sadaat III has rather precise analogies to one phase of Period III at Rana Ghundai. The occurrence of Ghul Painted in Period IV at Rana Ghundai, therefore, indicates that this ware is the probable successor to the Period G3 wares of the Quetta Valley. It is impossible, in the light of the present evidence, to determine whether Ghul Painted I is earlier than, or

[1] Some of these styles are clearly associated with a historical period or a culture. Thus the use of absolute dating is not excluded.

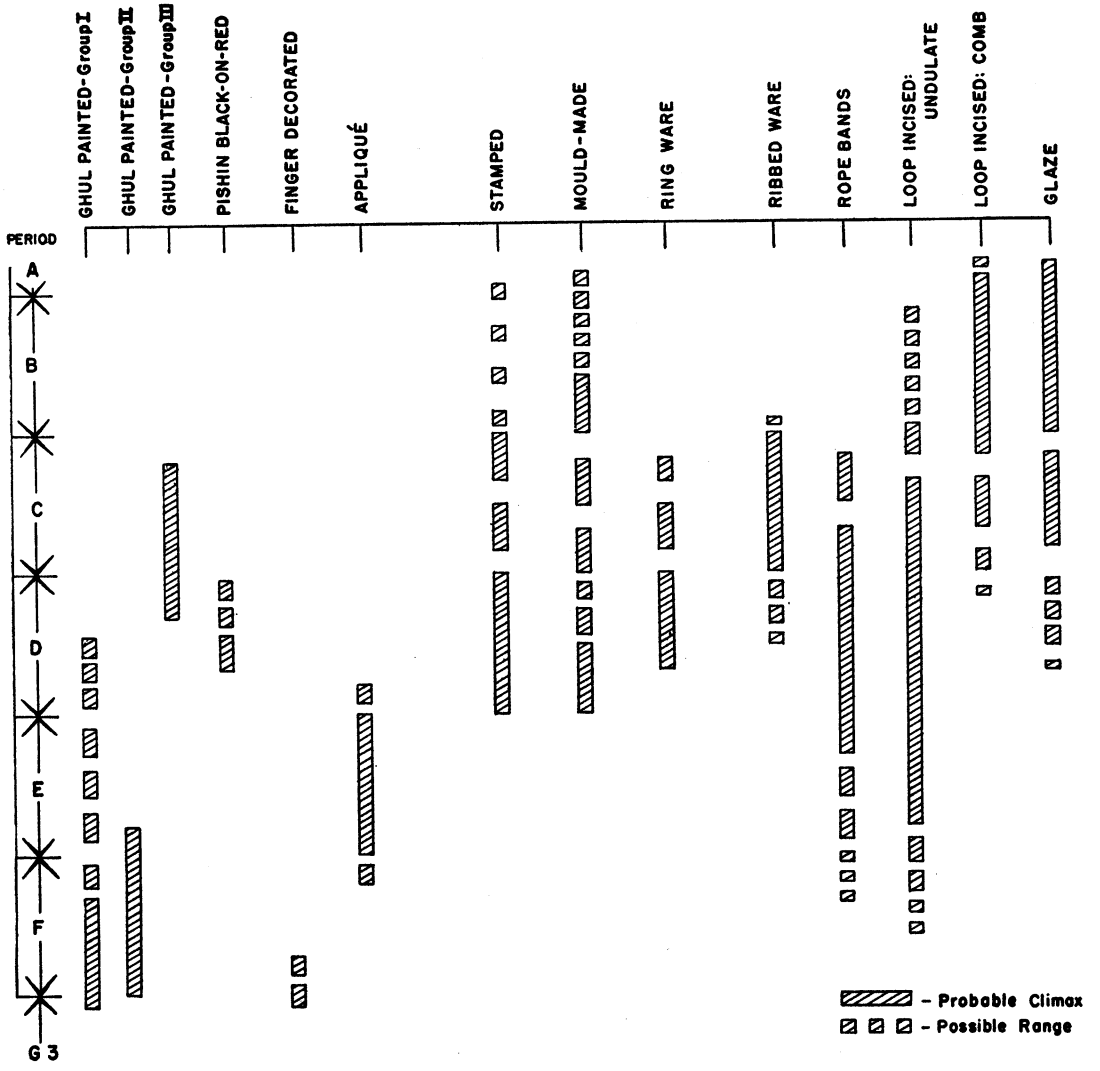


FIG. 63. Probable chronological range of historic wares.

contemporaneous with, Ghul Painted II. It is clear, however, from a consideration of the situation in these areas in a wide cultural sense that at the close of the prehistoric period in western Pakistan two processes were in progress: first, the maintenance of local styles related to the preceding period, as in the Jhukar levels at Chanhu Darō, Rana Ghundai III and IV, Quetta sites (Group 1), and probably Kaudani; and, second, the influx of entirely new styles such as occur in Cemetery H and Rana Ghundai IV and also in the Jhukar levels at Chanhu Darō. It is very likely that as this latter style became localized and eventually traditional to an area, it, in turn, survived into later periods. Probably some of the local painted styles of Taxila, especially of Bhir Mound, or the painted graywares of some of the Ganges Basin sites, such as Hastinapura,[1] are examples of this survival of style. It is the long survival of ceramic decorative styles especially which seems characteristic of this period.

The difficulty in dealing with these Ghul Painted wares stems from the vast discrepancy in time between the Period F painted and the Period D–C painted wares. I have assigned these painted wares to Period F on the basis of

[1] Lal, 1952.

the stratigraphy at Rana Ghundai, in part on the results of the de Cardi survey and our Zhob-Loralai survey, and on the fact that Ghul Painted does not occur in surface collections in the Quetta-Pishin District where the ribbed wares or the ring wares of Period D–C occur. The latter two wares are fairly certainly assignable to the Partho-Sassanian Period. On the other hand, Stuart Piggott's evidence for linking the decorative style illustrated by Ghul Painted III to the Sassanian Period is very strong. I believe that, despite the decorative design differentiations I have made, it is very possible that all these Ghul Painted wares belong to one type. If this is so, some of the designs would certainly be outside the now known range of design elements found in the Sassanian Period, though the ceramic designs of this period are hardly adequately described in the literature. The solution of the problem obviously depends on future excavation in some of these historical sites.

For present purposes, I have followed the unsatisfactory course of spanning the periods involved. I have also enlarged the meaning of the columns shown in Fig. 63. The column for Ghul Painted I represents not only the specific style described above, but also other painted wares which occur in Baluchistan on which prehistoric designs continue to be used. As these periods are broken down, new styles can be added in columnar form. Ghul Painted II recalls a decorative style occurring in Rana Ghundai IV. It also represents such wares as the Londo—in other words, new painted wares that arise in Baluchistan. Ghul Painted III is the style most closely related to Piggott's Sassanian designs as they occur in the Quetta Valley.

Londo ware provides a new provocative ceramic group which I have assigned to this period. It appears that the ware can be divided into two groups: the first involves a possible correlation with Ghul Painted II; the second, described in greater detail as the black-on-polished red slip, is poorly represented in the Quetta Valley. Of these two subdivisions of the Londo ware, group 1 may possibly be somewhat earlier than group 2. On the basis of western Asiatic typological affinities, de Cardi has dated Londo ware (group 2, principally) at *ca.* 1100 B.C. Group 2 has not been found in association with group 1 anywhere in Quetta-Pishin.

A ware such as Pishin black-on-red may be a late survival of the black-on-red tradition in these areas.

It is apparent that, even after the collapse of the Harappan civilization in Sind and the Punjab and the village cultures in Baluchistan, not only the survivors but the newcomers employed painting as their ceramic decoration technique. In general, the use of this technique seems to have gradually decreased in popularity until the fifth century before Christ when it attained only a fraction of its previous popularity. The reasons for this are, of course, varied, but it may well be that the constant political and economic shifts, which seem to have been a feature of the early historic periods, destroyed the traditionalism which had maintained the prehistoric range of designs during that stable period.

Finger-tip decoration, found at Cemetery H, is another ceramic style assignable to this period. Rope banding, though not in full vogue until Periods D and C, probably had its beginnings in the slashed, criss-crossed, and pinched raised bands of painted wares such as the Ghul Painted. Loop incising (especially vertical) occurs only sporadically in this period.

The close of the prehistoric period, i.e., Sadaat, the Harappan civilization, Rana Ghundai III, etc., can probably now be placed at about 1500 B.C. to 1400 B.C., a dating somewhat later than Piggott's estimate.[1] The de Cardi date for the Londo ware would indicate that the painted pottery tradition was still in vogue by the beginning of the first millennium before Christ.

Period E

The recovery of appliqué wares at Rana Chundai, which Ross has associated with Period V, is an important clue to the ceramic style which probably arose subsequent to the climax of the popularity of the techniques used in the early historic painted-ware periods. At Rana Ghundai, at least, appliqué wares seem to replace painted wares almost entirely.

In terms of chronology, the appliqué wares probably reached a maximum popularity some

[1] Piggott, 1950, Chap. 6.

time after the beginning of the first millennium before Christ. They do not occur in any stratum at Taxila, so it is possible that this maximum popularity was prior to the fourth or fifth centuries before Christ.

Period D

Our surface collections made at Dabar Kōt revealed that stamped and mould-made wares and appliqué wares were common there. Investigation of the exposed upper levels on the southern portion of the site showed that the stamped wares belonged to the latest occupation of that particular area of the mound. Unfortunately, no appliqué wares were found in stratigraphic context, though they were abundant on the slopes of the mound. Among the sherd collections made at Dabar Kōt there are few decorated wares which cannot be assigned to the prehistoric periods or to a known subsequent period. Thus it appears that the stamped and mould-made pottery, which is clearly Buddhist, is later than the appliqué pottery.[1] Rope bands are common to both the appliqué and the stamped wares. It is therefore postulated that the stamped-ware period is subsequent to Period E. Because of the prevalence of rope banding in both periods, I believe it is probably not very much later.

Stamping and mould-making techniques probably begin about the third or fourth century before Christ. Marshall[2] believes that stamped and mould-made wares were introduced in Taxila by the Greeks, a statement certainly supported by the evidence at Taxila and the known spread of Hellenistic traits to the Indian Area. The adoption of these ceramic techniques by Buddhist groups is well known. Stamping was apparently very popular in the early centuries of our era. It was somewhat less popular in the subsequent Buddhist times; it still survives in the Islamic Period, though on a limited scale. Mould-made wares became very popular in the same way as the stamped wares, except that in the Islamic Period there is a great revival of the technique.

Rope bands are very common in this period.

The close of the period is marked by the absence of stamped and mould-made wares at Khair Khaneh near Kabul which is dated by Hackin and Hackin[3] to the fifth and sixth centuries *anno Domini*.

Period C

Seistan provides a clue to the chronological position of the ribbed pottery which is the succeeding ceramic style postulated in this survey of the popularity of ceramic styles. On the basis of Stein's discoveries, it seems clear that ribbed pottery was in great vogue by 600 A.D. Its latest survival probably overlaps the beginnings of the Islamic Period, for no major pottery style seems to have intervened in Seistan, at least before the advent of Islamic glazed wares.

Hargreaves describes a ribbed ware at Sampur, but does not illustrate it.[4] The silver goblet recovered at Sampur[5] has a direct equivalent in the goblets recovered at Sirkap, Stratum III, dated to the first century *anno Domini*. It is likely, therefore, that ribbed ware has its beginnings in that century.

Rope ware is common in this period.

Ring ware occurs at Sampur and at the site of P4. In both sites ribbed ware occurs very sparsely if at all. In Seistan ribbed ware is very common, while ring ware is far less so. Pishin black-on-red occurs in association with ring ware in Pishin.

Period B

This is the period dominated by the glazed wares common to Islamic times. Mould-made wares also occur in abundance. Painted pottery is sparse. Rope bands are usually absent in Islamic surface collections of pottery.

Glazed wares, of course, appear in the areas under survey in Parthian times.[6] Sassanian glaze has been noted in a number of surface collections. Glazed pottery, however, reaches its maximum popularity in the Islamic Period.[7]

Period A

The arrival of the British in these areas after 1800 A.D. does not seem to have influenced the

[1] No stamped or mould-made wares were found at Rana Gundai in Period V context.

[2] Marshall, 1951, Vol. 2, 400.

[3] Hackin and Hackin, 1939, 4–5.

[4] Hargreaves, 1929, 13, Appendix C, Class II.

[5] *Ibid.*, Pl. 4(a), (b).

[6] Marshall, 1951, Vol. 2, 401, 433.

[7] Studies of Islamic pottery are virtually non-existent for these areas. Existing classifications of the wares could in all probability be readily placed chronologically in sites such

late Islamic ceramics very much. Glazed wares are now purchasable in the bazaars. These are often colorful, but are undecorated and rather inferior in workmanship. Painted wares, usually black designs on buff or on a red slip, are common. The designs are undistinguished and limited to very simple curvilinear and geometric elements. The forms are varied but primarily utilitarian. Mould-embossing and roulette-stamping are common techniques.

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as Brahminabad in Sind. Another site in Sind, to be published by Alcock, should set up a firm ceramic sequence for the early Islamic period. The work of French archaeologists at Lashkari Bazaar, Kunduz, Balkh, Ghazni, and Zaranj should stabilize the ceramic sequence for Medieval Islam. Studies of sites such as Peshawarun, Farah, Old Kandahar, and Herat should reveal the ceramic pattern for later Islam.

On the basis of the chronological order of ceramics as derived from the typology, periods running from A through F and their approximate dating are given below. The dates for Periods A and B are based on those for historical India; for the remaining periods, C to F, we have relied on traditional dates which were derived from traditional histories together with numismatic evidence. In all cases, these wares overlap the period bounds. The periods are postulated on the basis of popularity, not on the beginning and end of a pottery technique.

Period A	1800 A.D. to the present
Period B	800–1800 A.D.
Period C	500– 800 A.D.
Period D	300 B.C.–1 A.D.
Period E	800– 300 B.C.
Period F	1500– 800 B.C.

RELATIVE CHRONOLOGY OF SURFACE COLLECTIONS

QUETTA VALLEY, PREHISTORIC PERIODS

THE STRATIGRAPHIC SEQUENCE of the prehistoric wares based on the excavations enabled us to assign the prehistoric sites observed in our survey to the same periods (Fig. 64). On the basis of surface collections alone it is, of course, impossible accurately to determine the length of time during which a given site was occupied. Nevertheless random sampling usually insured an adequate representation of the ceramic types available on the surface of the site. It seems clear that it is hardly likely that sherd representation of any reasonably extensive occupation would be completely obliterated by a subsequent occupation. There is reasonable assurance, therefore, that our surface collections contain a fair representation of the ceramic types for each site visited.

PERIOD J: Only two sites can be assigned to this period: Q24 and Q29. Q24 is represented by Kili Ghul Mohammad I.[1] The large quantity of flint chips and the Period H and I types of sherds found on the surface indicate that Q29 had a long occupation in the early prehistoric periods.

PERIOD I: It seems clear that Sites Q17, Q24, Q25, Q29, and Q34 were occupied in this

[1] In order to avoid confusion with the term "Kulli," I have abandoned the use of "Kili" which we employed in the field and in the preliminary report for certain assemblages found at the Kili Ghul Mohammad site (Fairservis, 1952).

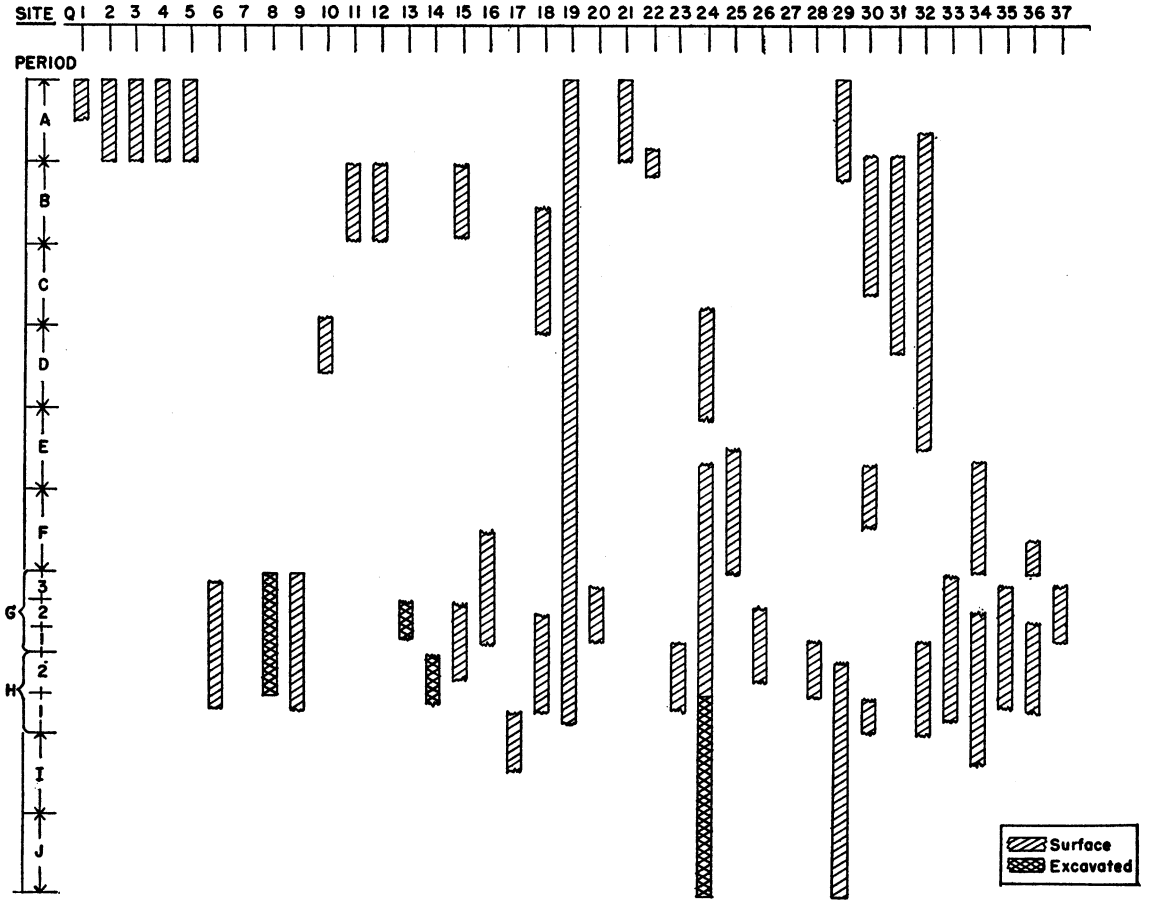

FIG. 64. Possible chronological sequence of sites in the Quetta Valley.

period. At all these sites there is a strong representation of Period I pottery types.

PERIOD H1: This is an extremely important period for the study of the prehistoric influences prevalent in Baluchistan at this early time. The climax of Kili Ghul Mohammad Black-on-Red and the rise of Kechi Beg types, all fine wheelmade wares, indicate new influences. Relationships to Zhob wares to the north and east, to Togau wares in Kalat, and to Amri wares in Sind are implied. Some representation of Period H1 wares was found at Sites Q6, Q9, Q14, Q17, Q18, Q19, Q23, Q24, Q25, Q29, Q30, Q32, Q33, Q34, Q35, and Q36.

PERIOD H2: This period marks the full development of the Kechi Beg wares. It is represented at a total of 18 sites: Q6, Q8, Q9, Q14, Q15, Q18, Q19, Q23, Q24, Q25, Q26, Q28, Q29, Q32, Q33, Q34, Q35, and Q36.

PERIOD G1: This is a transitional period during which Quetta wares became dominant and Kechi Beg was dying out. It is represented at 20 sites: Q6, Q8, Q9, Q13, Q15, Q16, Q18, Q19, Q20, Q23, Q24, Q25, Q26, Q28, Q32, Q33, Q34, Q35, Q36, and Q37.

PERIOD G2: During this period, typical Quetta wares attained their climax. It marks the greatest popularity of such wares as the Faiz Mohammad Grayware. It is the period represented primarily by Piggott's Quetta ware.[1] Seventeen sites in all have been identified for this period: Q6, Q8, Q9, Q13, Q15, Q17, Q18, Q19, Q20, Q24, Q25, Q26, Q33, Q34, Q35, Q36, and Q37.

PERIOD G3: This period typifies the latest prehistoric assemblage in the Quetta Valley. It is represented at 10 sites: Q6, Q8, Q9, Q16, Q19, Q20, Q24, Q33, Q35, and Q37.

QUETTA VALLEY, HISTORIC PERIODS

A stratigraphic standard like that by which it was possible to assign surface collections to prehistoric periods with reasonable accuracy is, of course, not available for the historic periods. Therefore we must depend on a typological frame of reference (Fig. 63) as a standard. This, however, permits only a very rough assignment to period. The distribution of such styles as Ghul Painted, stamped, loop incising, etc., is so chronologically wide that until they are more clearly defined, they can serve only as rather insensitive criteria. It is only through the multiple representation of pottery types that time limits can be set for the occupation of sites, and even these limits become obscured by successive occupancies. Nevertheless, even a rough approximation (Fig. 64) establishes a relative chronological order and paves the way for more definitive work in the future.

PERIOD F: Until additional work clarifies the situation, it appears that at least five sites in the Quetta Valley are immediately post-prehistoric. These are: Q19, Q22, Q24, Q25, and Q30. Sites Q16, Q34, and Q36 may possibly belong to this early historic period.

PERIOD E: The assemblages of this period are represented at Sites Q19, Q22, Q24, Q25, Q30, and Q32. Q34 has a very slight representation.

PERIOD D: Only three sites, Q10,[2] Q19, and Q32, can be directly assigned to this period. Two other sites, Q18 and Q31, are doubtful representatives.

PERIOD C: This immediately pre-Islamic period is represented fairly strongly in the Quetta Valley. Four sites have been assigned to it: Q19, Q30, Q31, and Q32. Very probably Q10 and Q18 also belong to this period.

PERIOD B: This period can be roughly equated to the Islamic Period. Rather surprisingly, only nine sites can be assigned to it, six of which are rather definite: Q18, Q19, Q29, Q30, Q31, and Q32; three others are uncertain: Q11, Q12, and Q13.

PERIOD A: Aside from modern villages, the archaeological sites which were examined and which can now be assigned to this period are: Q1, Q2, Q3, Q4, Q5, Q19, Q29, Q30, Q31, and Q32. Site Q21 is uncertain.

Q7 and Q27 cannot be assigned to any period. However, because of proximity to the Nushki Railroad and its small size, Site Q7 should perhaps be assigned to Period A. This is probably true also of Q27, as the hard-fired red plainwares found there are similar to those of Q2, Q3, and Q4.

[1] Piggott, 1947.

[2] Ring ware found with bronze and iron objects (Pl. 32).

OUTSIDE THE QUETTA VALLEY

It has been found possible to fit the ceramic types found in the course of our survey beyond the limits of the Quetta Valley into the chronological sequence described above (see also Fig. 65).

PISHIN AREA

Site P1

Period G (Pl. 25a–b)[1]
  Quetta ware
  Faiz Mohammad Grayware
Period F (Pl. 25f–h, possible 25d, e)
  Ghul Painted I
  Ghul Painted II
  Jhukar-style polychrome
Period E (Pl. 25l–m)
  Appliqué
Period D (Pl. 25i–j)
  Stamped
Period C (Pl. 25n–s)
  Pishin black-on-red
  Ring ware
Period B (Pl. 25v–z)
  Islamic glazed
  Mould, stamped
  Glass bangles (?)

Site P2

Period D–C (Pl. 25dd, ff, gg)
  Ring ware
  Rope bands
Period B (Pl. 25ii)
  Islamic glaze

Site P3

Period G3 (Pl. 26a, e, h)
  Quetta Wet
  Sadaat designs on black-on-buff slip
Period A (Pl. 26d)
  Modern china

Site P4

Period D (Pl. 26j–n)
  Pishin black-on-red slip
  Ring ware

Site P5

Period B (Pl. 26bb–nn)
  Islamic glazes

Site P6

Period J (?) (Pl. 27c–l, o–aa)
  Flints

[1] Examples only. Not all sherds illustrated are cited as examples.

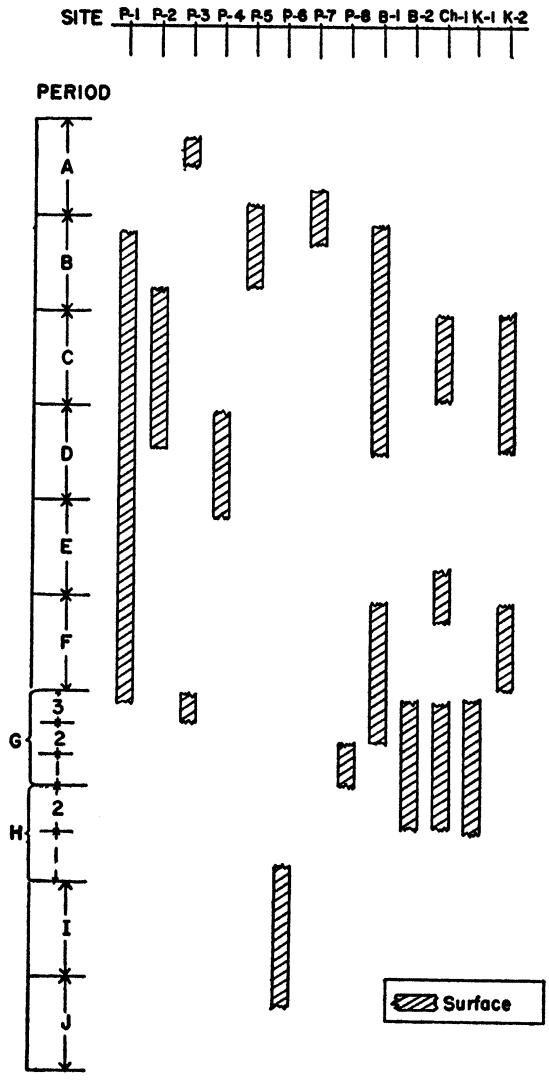

Fig. 65. Possible chronological sequence of sites outside the Quetta Valley.

Period I (Pl. 27a, m)
  Burj Basket-marked
Period H1 (Pl. 27b)
  Kili Ghul Mohammad Black-on-Red

Site P7

Period A–B (Pl. 27bb–gg)
  Islamic glaze
  Modern rouletted

Site P8

Period H (Pl. 27hh–ii)
  Rim ware
  Kechi Beg Wet

Period G1 (Pl. 27jj–nn, pp–rr)
  Fine line Quetta ware
Period G2 (Pl. 27oo, ss–ww)
  Quetta ware
  Quetta Wet
  Quetta Red-Brown-on-Dark Slip
Period G3 (Pl. 27xx–yy, ggg)
  Sadaat Single-Line
  Sadaat designs on black-on-buff slip
Probably Period G (Pl. 27aaa–fff)
  Worked flint chips, blades, alabaster bowl fragment

BOLAN AREA

Site B1[1]

Period G2 (Pl. 28g, i, m, o)
  Quetta Red-Brown-on-Dark Slip
  Quetta Wet (includes Circle Stamped)
  Quetta ware
Period G3 (Pl. 28a–d, j, k)
  Quetta Wet
  Sadaat designs in black-on-buff
Period G3—Harappan
  Kulli types (Pl. 28e, f, p, q, v)
  Harappan types (Pl. 28r–u, y)
  "Zhob" Black-on-Red Slip (Pl. 28l, z)
Period F (Pl. 28aa–bb, mm–oo)
  Jhukar-style painted
  Ghul Painted
Period D–C (Pl. 28uu–ww, zz)
  Rope bands
  Ring ware
  Ribbed ware
Period B (Pl. 28xx, yy, aaa)
  Islamic glazed wares

Site B2

Period H2 (Pl. 29d–i, l–v)
  Kechi Beg Polychrome
  Black-on-red slip (1 sherd)
  Kechi Beg Wet
  Mian Ghundai Dark Rim ware
  Spezand Black-and-Red Rim ware
  Kechi Beg White-on-Dark Slip
  Burj Basket-marked
  Khojak Parallel Striated
Period G1 (Pl. 29x–z, aa–bb, dd)
  Fine line Quetta Red-Brown-on-Dark Slip (?)
Period G2 (Pl. 29ee–mm)
  Quetta Red-Brown-on-Dark Slip
  Quetta ware
  Quetta Wet
Period ?G3 (Pl. 29nn–qq)
  Harappan Black-on-Red Slip
  Kulli Black-on-Red Slip
  Harappan Finger-nail Incised
  Worked flint flakes (unassignable as to period) (Pl. 29a–c, j–k)

[1] This site is very important because it is related to culture assemblages defined in southern Baluchistan, specifically at Kulli. The Kulli assemblage in turn has Harappan links. It is the northernmost such site as far as is known.

CHAGAI AREA

Site CH1

Period H2 (Pl. 30a–e)
  Mian Ghundai Dark Rim
  Burj Basket-marked
  Kechi Beg White-on-Dark Slip
Period G2 (Pl. 30f–p, r)
  Quetta ware
  Black-on-red slip (Quetta style, 1 sherd)
  Faiz Mohammad Grayware (note design on exterior of sherd)
Period G3 (Pl. 30q)
  Sadaat Black-on Buff
Period F (Pl. 30t–w)
  Londo Black-on-Buff
Period D-C (Pl. 30cc–dd)
  Ribbed ware
Sherds bearing incised diamonds and punctate dots, unassignable as to period (Pl. 30y, bb)

KALAT AREA

Site K1

Period H2 (Pl. 31a–h, p, q, z)
  Kechi Beg Wet
  Mian Ghundai Dark Rim
  Kechi Beg White-on-Dark Slip
  Kechi Beg Polychrome
  Khojak Parallel Striated
  Black-on-red slip (1 sherd)
Period G1 (Pl. 31i–l, n, o, r–t, v–x)
  Quetta ware, fine line decoration
Period G2 (Pl. 31u, cc, dd, gg, hh, oo)
  Quetta ware
  Quetta Red-Brown-on-Dark Slip
  Quetta Wet
  Faiz Mohammad Grayware
Period G3 (Pl. 31aa–bb)
  Sadaat Black-on-Buff Slip
  Sadaat Single-Line
Potter's marks, pedestals, worked flint, probably Period G (Pl. 31ee, ff, ii–nn, pp, qq)

Site K2

Period F (Pl. 31ss, uu, hhh–jjj, lll)
  Ghul Painted suggesting Jhukar influence (?)
Period D-C (Pl. 31vv, aaa–ggg)
  Rope bands
  Ring ware
  Ribbed ware

TABLE 6

NUMBER OF SITES PER PERIOD

Period	Definitely Identified	Possible	Total
A	10	1	11[a]
B	6	3	9
C	4	2	6
D	3	2	5
E	6	1	7
F	5	3	8
G1	10	—	10
G2	17	—	17
G3	20	—	20
H2	18	—	18
H1	16	—	16
I	5	—	5
J	2	—	2

[a] Exclusive of modern villages which properly belong in this period.

SETTLEMENT OF THE QUETTA VALLEY

An examination of the number of sites that represent each period in the Quetta Valley reveals that there is a definite falling off in their number after Period G, the last prehistoric period defined (Fig. 64). This paucity of sites continues until Period B when there is an increase which is climaxed by the heavy settlement pattern of Period A. There is some indication that the type sites of Periods F to C are like Q19 and Q32, fortresses or walled villages of considerable size. Nevertheless, the number of such sites is so limited that it seems safe to assume that there was a marked falling off of population in the Quetta Valley in the early historic period. This seems to be a valid conclusion in spite of the probability that both natural and artificial forces contributed to obscure evidences of occupation through the succeeding centuries. These forces have acted not only on the prehistoric sites but on the historic sites as well.

CHRONOLOGIES, WESTERN PAKISTAN

RELATIVE CHRONOLOGY

THE RELATIONSHIP of the stratigraphy of the Quetta Valley prehistoric sites to that of other areas in Baluchistan is in some cases rather clear. This is especially true in a comparison with the stratigraphic column set up at Rana Ghundai by Ross.[1] There is no parallel for Kili Ghul Mohammad I at Rana Ghundai, though quite possibly such an assemblage exists at that site, but was overlooked by Ross in view of the difficulties under which he was working. I would equate Rana Ghundai I with Kili Ghul Mohammad II mainly on the strength of the analogy that handmade wares with very little decoration occur at both sites. Rana Ghundai II and Kili Ghul Mohammad III parallel each other in the similarity of the Kili Ghul Mohammad Black-on-Red Slip and Kili Ghul Mohammad Red Paint wares to the Type A wares described by Ross. Rana Ghundai IIIa and b, with their Amri affinities, are certainly akin to the Kechi Beg wares as recovered at Kili Ghul Mohammad IV and Damb Sadaat I. There is also a carry-over, at least into the Period G1 phase of Damb Sadaat II in Rana Ghundai IIIa through Rana Ghundai IIIb. If Piggott is correct in assigning the main occupation of Sur Jangal to the Rana Ghundai III period,[2] and there is no evidence to negate this at this time, then the equation of the Sur Jangal graywares with the Faiz Mohammad graywares places Damb Sadaat II parallel to Rana Ghundai III. Some sherds found in Damb Sadaat II through III appear to have originated in the Sur Jangal area.[3] The apparently continuous development of design from Rana Ghundai II through Rana Ghundai IIIc has its parallel in the sequence from Damb Sadaat I through Damb Sadaat III. An obvious unity of development in these sequences may indicate a similarity of economic and political stability. The presence of designs such as Designs 527 and 530 in Sadaat context (i.e., Damb Sadaat III) suggests that the Periano Ghundai wares which parallel Rana Ghundai IIIc, according to Piggott,[4] were being manufactured in Period G3 times. It is important to note the presence of Quetta Wet ware at Periano Ghundai.[5]

In southern Baluchistan the parallels are closest during Period H2. This is primarily because of the similarity of the Kechi Beg pottery designs (Kili Ghul Mohammad IV, Damb Sadaat I) to those of Amri-Nal. The relationship between the Amri assemblage in Sind and the Nal-Nundara assemblages in southern Baluchistan has been clearly summarized by Piggott.[6] The designs of the Kechi Beg ware of Kili Ghul Mohammad IV and Damb Sadaat I are closer to those of the Amri of Sind than to those of Nal. This is especially true of such polychrome designs as Designs 66 and 67. However, at Nal, Hargreaves unearthed a white-on-black ware[7] which is certainly closely related to Kechi Beg White-on-Dark Slip wares. (The latter ware is not recorded in Sind.) Polychrome designs such as Designs 542, 543, and 544 which were found in Damb Sadaat II are probably imports from the Nal Area, as are the canisters, Designs 531 and 541. At Nal, designs like the pipal leaf,[8] the terrace,[9] and the horizontal band decoration broken into panels by the use of verticals[10] suggest a Quetta ware influence (or vice versa). The Amri is therefore probably contemporary with Kili Ghul Mohammad IV and Damb Sadaat I, whereas the Nal is most probably parallel in time with Damb Sadaat II. That there is considerable overlap in these pottery styles is indicated by such designs as Design 56 which is perhaps an early Nal motif found in Damb Sadaat I context.

The antler motif, an element common to

[1] Ross, 1946, 291–315. I have used Piggott's rearrangement (1950, 120) of Ross's designations.

[2] Piggott, 1950, 173 *ff.* I have deferred comparison to the Sur Jangal stratigraphy as outlined by me (Fairservis, 1952, 18–21) until a later report.

[3] For example, compare Stein, 1929, Pl. 21, S.J.v.16 and S.J.47, with Design 546 and Design 547 of the present report; S.J.59 with Design 527; Pl. 20, S.J.i.43 and S.J.20, with Design 529. Also note the model house, Pl. 21, S.J.vi.11.

[4] Piggott, 1950, 126.

[5] Stein, 1929, Pl. 6, P.78, P.80, Pl. 8, P.SW.38; also note ring-stamping, Pl. 6, P.68. More precise parallels to the Zhob-Loralai sites will be described in a future publication dealing with that area.

[6] Piggott, 1950, 75–96.

[7] Hargreaves, 1929, Pl. 18, Nos. 3–4.

[8] Hargreaves, 1929, Pl. 17, No. 24, Pl. 21, Nos. 1–2.

[9] *Ibid.*, Pl. 17, No. 59.

[10] *Ibid.*, Pl. 17, Nos. 26, 28.

togau ware as defined by de Cardi,[1] occurs only on surface sherds in the Quetta Valley.[2] However, it is always associated there with Kechi Beg wares, and it is therefore suggested that the *togau* ware belongs to Period H. It is likely that ceramic styles of Kili Ghul Mohammad IV and Damb Sadaat I are contemporaneous with the *togau* ware style. It is also possible that the horned buck *togau* design, illustrated by de Cardi,[3] is related to the horned bucks found at Sur Jangal and Rana Ghundai II, IIIa. The *togau* style may therefore relate back to the black-on-red wares prevalent in Period H1 (i.e., Kili Ghul Mohammad III).[4]

The polychrome style illustrated in Designs 534, 535, 537, 538, and 540 is probably imported from an area under Nundara influence.

The Kulli relationships to the Quetta sequence are somewhat less well defined. However, basic designs like that in Design 414, the hatched treatment of the bodies of bulls (Designs 430, 433), (note also "bug eyes"), and the comb pattern (Design 397) are certainly influences, if not trade elements, from Kulli sources. These elements are all found in Damb Sadaat II–III context. Kulli design motifs also exhibit elements probably derived from the Quetta Valley assemblages.[5] The bird figurines found at Mehi[6] exactly parallel those of Damb Sadaat III.

There is little doubt of the general contemporaneity and the precise parallels between the Kechi Beg Polychrome and the Black-on-Buff wares of the Quetta Valley and those of Sind. However, the important question of the temporal relation of the Quetta Valley sequence to the Harappan is complicated by a number of factors, the most troublesome of which is the confused situation of the Amri-Harappan sequence. The Amri assemblages at the type site at Amri and at Lohri, Ghazi Shah, and Pandi Wahi in Sind appear to indicate clearly that the Amri culture is pre-Harappan at these sites. Piggott,[7] however, has described the mixture of the two assemblages, Harappan and Amri, at Pai-jo-Kotiro in the Gaj Valley. Further examination of the sites of Ghazi Shah and Pandi Wahi suggests that there is some evidence of an intermixture of the assemblages there though unmixed Amri wares are found in the lower levels uncovered at both these sites.[8] The typical Harappan painted curvilinear pottery has tended to veil the origins of the design elements. However, the presence of such elements as the pipal leaf, the willow leaf (especially in its multiple form), the overlapping scales,[9] hatched triangle patterns,[10] the antelope or ibex in panels, and the Amri-Nal polychrome style suggests a rather close relationship between the Amri-Nal and the Harappan styles. It appears therefore that the Amri-Nal style underlies the Harappan much as it does the Classic Nal style of southern Baluchistan and the Early Quetta style in northern Baluchistan. The ramifications are as characteristic of Sind-Punjab as are the local styles that are outgrowths of specific areas in Baluchistan.[11]

Concrete evidence for Harappan civilization in the Quetta Valley is very scanty (Pl. 15). The Quetta Miri (Site Q19) offers the most abundant evidence of Harappan derivation in the form of two fragments of thumb-nail incised pottery (Pl. 15e, g), one of which appears to have been mounted on a pedestal (Pl. 15e), two perforated sherds (graters or heaters; Pl. 15b, c), and a polished gray sherd incised with small pipal leaves (Pl. 15d). A similar polished gray sherd was found in Damb Sadaat II (Pl. 15a), without incising and a thumb-nail incised bowl (Pl. 15f) was recovered from a Damb Sadaat III level. The bird figurines of Damb Sadaat III are very similar to those of Harappan. Though beyond the limits of the Quetta Valley proper, Site K1 is close enough to make the appearance of a single sherd with incised characters of the Harappan script of some

[1] De Cardi, 1950, Vol. 24, No. 2, 52 ff.
[2] See Designs 15, 28–31, and 36.
[3] De Cardi, 1950, 56, Pl. 1, No. 9.
[4] Cf. de Cardi, 1950, Pl. 1, No. 9, with Stein, 1929, Pl. 21, S.J.12 (reversed on plate), also Pl. 20, S.J.vi.9.
[5] For example, Stein, 1931, Pl. 22, Kul.V.vii.1, Kul. V. vi.1, Pl. 27, Mehi.3.
[6] Stein, 1931, Pl. 29, Mehi.II.5.I, Mehi.II.22.
[7] Piggott, 1950, 94.
[8] Majumdar, 1934, 79–87, 91–95.
[9] Compare Design 61 with Marshall, 1931, Vol. 3, Pl. 91, Nos. 30, 32.
[10] Marshall, 1931, Vol. 3, Pl. 92, Nos. 10, 14.
[11] Piggott, 1950, 192–195, compares these design characteristics of Harappan with those of Kulli. I am inclined to regard similarities of Kulli to Harappan as the result of contemporary contact, whereas those of Amri-Nal are more basically sources of origin for Harappan styles. In this regard it is possible that the Harappan offering-stands owe their origin to the pedestal goblets of Kechi Beg assemblages.

importance (Pl. 15h). Though broken along the top of the characters, enough remains for them to be identified with some assurance. The sherd was part of a plate, or open bowl, painted black or red-brown on a buff slip (design unidentified) on the interior. The broad painted marks probably warrant our placing the sherd in Period G context, as such painted decoration is not characteristic of Kechi Beg Black-on-Buff wares.

At Mohenjo Daro[1] Mackay found several sherds of Quetta Wet ware in what he designates as the "lower levels" of that site.

Piggott[2] has summarized the conclusive evidence for Harappan-Kulli connnections. This evidence, when considered with our finds in the Quetta Valley, indicates that at least the Harappan civilization of Sind was probably well developed by Period G2 times and may well have carried over beyond Period G3.

ABSOLUTE CHRONOLOGY

At the time of our field-work there was no standard for estimating the absolute chronology of the western Pakistan sequences except the evidence from the Harappan seals recovered in Mesopotamia. Fortunately we have been able to take advantage of the Carbon 14 method of dating to aid in the temporal placement of the Quetta Valley sequence.

Carbon samples were collected from all levels in the excavations. All these samples were in the form of charcoal, except for some fragments of wood recovered by Alcock in Cut 3 at Damb Sadaat. Of these samples, five were submitted for analysis to Dr. J. Laurence Kulp of the Lamont Geological Laboratory, Columbia University (Samples 1 to 5), and one (Sample 6) to the Tracer Laboratories, Incorporated, Boston, Massachusetts. Of these six, Samples 1, 2, 3, and 5 have been reported on as of this writing.[3]

Sample 1: Site Q24, Cut 1, Field No. 231T; Association, Kili Ghul Mohammed I

The charcoal, from 7.35 to 7.60 meters below the surface, Phase 23 (Fig. 14) at the bottom of Room 1, just above a yellow-clay floor (?), was found in quantity and seems to have been part of a hearth. Numerous small pebbles and streaks of charcoal were scattered in the surrounding fill, a medium brown silt sand. It was slightly moist, but dried out rapidly upon exposure to the air. Dated by Kulp: 5300±200 years.

Sample 2: Site Q8, Cut 1, Field No. 164A-T; Association, Damb Sadaat I

The charcoal was located in a rubble fill (amorphous clay lumps, sandy silt culture debris) 9.70 meters below the surface, Phase 28 (Fig. 5; Section IIA-T). No floor was associated. However, a distinct change in soil color indicated a change in the stratigraphic pattern. The charcoal was situated just above the line of demarcation. Dated by Kulp: 4150±250 years.

Sample 3: Site Q8, Cut 1, Field No. 133N; Association, Damb Sadaat II–III

The charcoal deposit, located against the eastern portion of Wall C of Room 2 at the 2-meter level, is from a hearth set in a stamped clay floor. It was surrounded by disintegrated clay (sun-dried) brick debris. Dated by Kulp: 4050±200 years.

Sample 5: Site Q8, Cut 1, Field No. 145N; Association, Damb Sadaat II

Sample found amidst eroded brick and clay fill at 5.05-meter level, surrounded by numerous bones and potsherds. The fill is part of Room 3, north wall complex; charcoal not at a distinguishable floor level. However, 5 cm. below the charcoal a rebuild on the wall is present. Dated by Kulp: 4050±400 years.

Stratigraphic Position	Sample Number	Time Range
Kili Ghul Mohammad I	1	3100–3500 B.C.
Damb Sadaat I	2	1900–2400 B.C.
Damb Sadaat II	3	1850–2250 B.C.
Damb Sadaat II–III	5	1650–2450 B.C.

These dates in general conform fairly well with previously published estimates for the Indus-Baluchistan Area.[4] They clearly indicate that a degree of conservatism is necessary in any attempt to establish an absolute chronology

[1] Mackay, 1937, Vol. 2, Pl. 67, Nos. 1, 2; 1938, Vol. 1, 184.

[2] Piggott, 1950, 113–115.

[3] These samples were subjected to a varying number of runs: Sample 1, three runs; Sample 2, two runs; Sample 3, two runs; Sample 5, one run.

[4] See especially Wheeler's discussion, 1953, 84–93.

of these areas. The dates for Kili Ghul Mohammad I do not seem to be too conservative, if one accepts the general tendency among Near Eastern archaeologists to consider the Indo-Baluchistan Area as on the fringe of a "Nuclear Near East."[1] It must be emphasized that this charcoal sample was recovered from the upper portion of Kili Ghul Mohammad I and that we have no reports on the samples from the lower levels. It may well be that the beginnings of Kili Ghul Mohammad I reach into the fifth millennium, thus placing the latter assemblage closer in time to such early village complexes as those at Jarmo and Jericho.

The dates for Damb Sadaat I (which equate with Amri[2]) deviate the most from previous estimates. The tendency has been to date Amri assemblages around the beginning of the third millennium. Even though the sample from Damb Sadaat I probably represents a late Amri phase in the Quetta Valley, it is difficult to put the early Amri phase before 2800 B.C., especially in view of the apparent overlap with the Harappan which Majumdar's survey[3] indicates.

The dates for Damb Sadaat II conform rather well with the evidence for contemporaneity with the Harappan of Sind (p. 355). A number of authorities[4] have dated the Harappan civilization in the period between 2500 and 1500 B.C. In view of the Carbon 14 dating, I believe that the beginnings of the Harappan civilization (as such) are probably nearer 2200 B.C. than 2500 B.C. Damb Sadaat III probably ranges well into the second millennium. It is possible that the Damb Sadaat III societies had already ceased to exist by the time the Harappan colonies had penetrated into Loralai and Kachhi districts, because there is so little evidence of direct contact in the Quetta Valley.[5] If this were so, it is likely that the Harappan civilization may have survived later than the estimate of 1500 B.C. now in vogue, perhaps as late as 1300 B.C. Admittedly there are no good grounds for this speculation except the implied tendency of these analyses to make the dates somewhat later. If these dates are reliable, the long existence of the Harappan civilization as indicated by the archaeological evidence may force us to consider a later date than the middle of the second millennium for the collapse of that civilization.

[1] See especially Braidwood, 1952, 12, Fig. 11.
[2] See p. 354.
[3] Majumdar, 1934.
[4] Wheeler, 1953, 84–93; Piggott, 1950, 211, 238–241.
[5] Note an almost parallel situation in Loralai (Fairservis, 1952, 36–37).

SUMMARY

THE NUMBER OF SITES located during our archaeological survey of the Quetta-Pishin District of Baluchistan indicated that the district had been extensively inhabited in prehistoric times. A number of prehistoric assemblages were defined on the basis of random collections of sherds made from the surface at the various sites. Four prehistoric sites were selected for stratigraphic excavation: Q14 (Kechi Beg), Q13 (Karez), Q8 (Damb Sadaat or Mian Ghundai), and Q24 (Kili Ghul Mohammad). The first two sites were occupied during a single period, that is, the assemblages uncovered by the excavations demonstrated only slight change in their ceramic configurations from the earliest to the latest phases. The assemblages in these two sites, however, differed. The stratigraphic order of these assemblages was determined at Site Q8. The ceramics typical of Site Q14, recovered in its lowest levels, were designated as Damb Sadaat I. The ceramic types from Site Q13 were assigned to Damb Sadaat II. Characteristic of Damb Sadaat II is the so-called Quetta ware, a black-on-buff painted ware emphasizing the use of geometric designs. The final phase of Site Q8, i.e., Damb Sadaat III, was defined by Leslie Alcock partly on the basis of a characteristic group of designs which also occurred in the Damb Sadaat II phase, but which dominate the design repertory of Damb Sadaat III, while the typical Quetta ware designs disappear.

A section of Site Q24 was tested by means of a deep cut to virgin soil. Its lowest levels revealed a preceramic assemblage of which simple mud architecture, bone and stone tools, and goats, sheep, and oxen were the important features. The lowest levels in this cut were typologically undifferentiated because of the small number of artifacts recovered. They were therefore considered as a single unit, Kili Ghul Mohammad I. The succeeding level, Kili Ghul Mohammad II, contained crude handmade and basket-marked pottery; Kili Ghul Mohammad III featured a fine wheelmade black-on-red ware decorated with simple geometric designs. The ceramic content of the topmost level, Kili Ghul Mohammad IV, was almost identical with Damb Sadaat I, except that the absence or scarcity of certain pottery types indicated that Kili Ghul Mohammad IV was somewhat earlier than Damb Sadaat I. There appears, however, to have been no important break in the continuity of prehistoric occupation from Kili Ghul Mohammad I through Damb Sadaat III.

Because the excavations were limited in scope, our study was largely confined to the ceramic content of the several assemblages defined. However, the evidence indicates that in all periods sheep, goat, and cattle raising was important to the economic life. Weaving was certainly common by Kili Ghul Mohammad II times. Copper appears in Kili Ghul Mohammad III. Architectural style seems to have been confined to simple oblong or square mud-brick houses, though in Damb Sadaat I stone walls were probably common. Flat stone wall foundations occurred in Damb Sadaat II. Damb Sadaat III is characterized by evidence of a ceremonial architecture consisting of a square platform with drains and a foundation deposit. Brick walls, larger than any noted in earlier assemblages, are also found in Damb Sadaat III.

Clay figurines representing both women and animals occur occasionally in Damb Sadaat II, and are quite common in Damb Sadaat III, suggesting a ceremonial function of the platform with which they were associated. Model houses, bone spatulas, and bone points, seals, and alabaster cups are found in both Damb Sadaat II and Damb Sadaat III.

There is clear identification of the Damb Sadaat I polychrome wares (Kechi Beg Polychrome) with those of the Amri of Sind. The contemporaneity of certain Zhob ware types and the *togau* ware of Kalat with Damb Sadaat I is also indicated. Kili Ghul Mohammad II and III may have parallels in Loralai, and Damb Sadaat II–III in Loralai-Zhob. Contacts with the Harappan civilization seem to have been slight. There is some evidence for contact, however, in Damb Sadaat II–III times.

A large number of historic period sherds were collected. In addition, modern Quetta ceramics were purchased in the bazaars. We had, therefore, a comprehensive range of ceramic collections from prehistoric to modern times. By means of a broad typological method based on comparative studies of ceramics re-

covered outside the limits of the district, a relative chronological framework is postulated which runs from Period A, the present, to Period J, the preceramic. It is proposed that this chronological framework might form a basis for future reference in the archaeology of Pakistan.

The settlement of the Quetta Valley appears to have been very extensive during Period G (Damb Sadaat II, III). Sites occur almost everywhere in the valley where fertile soil and water exist today, indicating that climatic conditions and the ecology of the modern Quetta Valley are comparable to those of prehistoric times. This hypothesis is reënforced by the situation of modern villages in the immediate vicinity of prehistoric sites.

Following Period G there appears to have been a sharp decline in the population. The reasons for this decline are unknown. No traces of violence have so far been identified. The existing sites, however, tend to be concentrated in the central portion of the valley in the fertile plain where Quetta City is located. This may indicate a decrease of water sources ordinarily accessible to the population. The settlement pattern of the Islamic Period (Period B) indicates that during that time the valley was virtually being restored to its former population density which was almost identical with that maintained today.

The role of the Bolan Pass, as a link between the Irano-Afghan Plateau and the Indus River Valley, emphasizes the importance of the archaeology of the Quetta Valley to a study of the interrelationships between the two areas. The present archaeological evidence, however, suggests that the closest connections of the cultures of the valley were with Seistan, Kalat State, and northern Baluchistan rather than with Afghanistan, Sind, or Punjab. It appears that the importance of the area to British military strategy in India in the nineteenth and twentieth centuries has given the Bolan Pass an unmerited historical emphasis. The migrations of nomadic populations, the historical records, and the trade routes, as well as the archaeological evidence, prove that passes farther east and north were of greater importance as links between central Asia, Iran, and India than was the Bolan Pass, which was used only as an alternate, and more difficult, route.

The Quetta Valley and the Pishin Plain are traversed by major routes linking northern and southern Baluchistan, Seistan, and Sind. It is therefore not unexpected that the archaeology of the Quetta Valley shows the closest affinities to those areas.

Future excavations of Quetta Valley sites will probably reveal information invaluable to an understanding of the character of the integration that occurred on the borders of the Near Eastern and Indian cultural spheres. Our own limited excavations of prehistoric sites emphasized the importance of a more extensive archaeological program. The picture of the prehistoric cultures of the Quetta Valley as we now know them is revealing. Initially we are made aware of an extremely primitive society of herdsmen who found lush forage and abundant water for their flocks in the central portion of the valley. They herded, or hunted, primitive oxen which may have been related to the aurochs. They also knew a more refined bovid, probably *Bos indicus*. The herdsmen lived in small huts, probably at first of wattle-and-daub or adobe and later of mud brick. They had no pottery but probably used skin bags and made baskets. They had bone and stone tools.

The technique of pottery making was probably coincidental with a greater emphasis on agriculture. The attraction of the fertile soil and the water supply of the Quetta Valley probably served as an impetus to more extensive settlement, and the increase in population was probably paralleled by an improvement in technique, a result of the increasing tempo of population drift and idea dissemination which was occurring all over the Iranian Plateau. A fine black-on-red wheelmade ware, which has counterparts in Iran (example, Hissar I), was manufactured locally or brought in by traders. This ware may represent a complete economic change from an almost total emphasis on herding to a heavy dependence on agriculture. Handmade and basket-marked pottery declines while wheelmade wares increase in popularity.

Mesopotamian pottery decorative styles, such as those found in Halaf wares, seem to have diffused far to the east, for in Sind, Kalat, and the Quetta Valley they appear on a fine buff wheelmade ware. This is perhaps one end result of the variety of stimuli from the west which these borderland areas were receiving. It is almost certain that copper appears with these wares, and probably improved techniques for

the utilization of water, because the settlement pattern at this time includes the southern Quetta Valley which is normally lacking in good water resources.

The close relationship of Baluchistan to Iran is rather characteristically demonstrated by the florescence of the so-called Quetta ware in the Quetta Valley. In the bold decorative style utilized by the Obeid potters of Mesopotamia and the ceramic artists of McCown's buffware provinces of Iran, the Quetta potters provided our index marker for a period of extensive settlement and development in the valley. The size of the sites indicates large villages and probably the largest population so far attained in the valley. The houses were small and the passages between them were erratically winding alleys. Doors were swung on stone sockets, hearths were sunken, and pottery bread ovens were utilized in every home. Flat stones and pebbles were employed as foundations for the mud-brick walls. The frequent earthquakes of the area probably dictated the building of heavy walls and limited enclosures.

Though sheep, goats, and cattle were important in the economy, agriculture was most likely at its climax for the prehistoric period. Small Mother Goddess figurines, obviously symbolic of a fertility cult, emphasize the role of agriculture. Though we found no traces of the kind of crops that were cultivated, these were in all probability primarily wheat and barley, such as were grown farther to the west.

This emphasis on agriculture and the fertility cult, probably founded because of it, led to the elaboration of ritual which signalizes the last known phase of the prehistoric period in the Quetta Valley. Mother Goddess figurines, animal figurines, a sacrifice, and a ritual building equipped with drains and consecrated by a cairn are evidence of the extent of this elaboration. The character of the culture in which the ritual elaboration occurred suggests a fundamental change in orientation that had occurred in Baluchistan.

The assemblages we have described were primarily derived from Iran. It is true that some design elements on the pottery were derived from designs characteristic of the Indus Valley, such as the Brahma bull and the pipal leaf, but in addition the ibex and the desert antelope of the Iranian Plateau are also depicted. The Iranian orientation is therefore clear. The Iranian character of these Baluchi assemblages was probably further reënforced by continued and augmented contacts with Iranian cultures in Seistan and southern Baluchistan. The wide distribution of characteristic wares, such as those of Amri and Quetta, indicates the extent of these contacts.

Though it is clear that there is a strong diffusion of influence from Iran, we can also observe another contributing factor in Baluchistan. This is the tendency towards localization. Contrary to the general idea of the geography of Baluchistan few, if any, fertile areas exist in isolation. On the contrary, most of the fertile areas are connected by well-traveled, accessible trade routes. We must assume that it was not geographic isolation that produced localization, but cultural factors such as regional politics, economic outlets, and social affinities which had this effect on a comparatively homogeneous prehistoric cultural aspect. This kind of localization allowed for contact without drastic change of local traits. We begin to see increased localization by the middle of Period G. Assemblages similarly based on an Iranian cultural tradition branch off from it in bewildering fashion. Each local unit takes its initial identity from its share of the Iranian heritage. In Zhob-Loralai the strongest portion was that represented by the black-on-red wares, the earliest wheelmade wares in the Quetta Valley (i.e., Kili Ghul Mohammad Black-on-Red). The Amri tradition is strongest in the Quetta Valley, in Kalat, and in Sind. The broad decorative elements of the later Iranian assemblages receive special treatment in the Quetta Valley; in Kalat, polychrome wares have an important place; in Sind, the Harappan Black-on-Red ware, with its characteristic floral designs, is typical. These differences in the ceramics of these three areas are merely symbolic of other trait differences that were in all probability only minor variations in rituals, politics, and craft techniques in Baluchistan. In Sind, however, the Iranian traits were gradually integrated with those of the indigenous culture. In the Indus Valley this culture had its basis in the ecology, which was most likely related to tropical India. An extensive integration probably occurred which resulted in the Harappan civilizations.

It is at this point that the meaning of the elaboration of the last phase of the prehistoric

period in the Quetta Valley becomes somewhat clear. The Iranian aspect of the society has disappeared, and another influence, the Indian, in the ritual, artifacts, and architecture can be clearly discerned. In Baluchistan this influence is extensive. It is direct at Mehi and Kulli in the south as well as at Dabar Kot in the north. In the Quetta Valley it motivated an emphasis on agriculture which may have been greater than the natural resources of the valley could safely support. An extensive drought, unbroken by the propitiatory effect of ritual sacrifice, may have caused a collapse of the economic basis of life prior to the postulated Aryan invasions. It is certain that whoever entered the valley after Period G3 would have found few settlements to make raiding rewarding. It was not until a people with the engineering skill necessary to re-utilize the water resources of the valley arrived that the plain was again dotted by living villages, the location of which close to the ancient mounds emphasizes the similar recognition by the ancient and the modern peoples of the resources of this small valley.

APPENDIX 1. THE POTTERY, SITE Q8, CUT 3[1]

THE PRELIMINARY STUDY of the pottery from Site Q8, Cut 3, was concentrated on three groups: that from the occupation fills in front of the main wall (Trench M); that from Phase D; and Pottery Group A. Of these, the first furnished not only the most complete sequence from Late Quetta through to Sadaat Phase C, but also was the easiest to relate to the structural phases of the main wall. The second group is the only pottery which certainly comes from Phase D and is of particular interest in that new vessel forms and decorative motifs appear. Pottery Group A merits publication as a complete group of contemporary vessels. Together, the three groups give a complete cross-section of the pottery of Cut 3. A brief examination of sherds from other trenches and strata shows that these will confirm the conclusions already drawn.

The pottery found in Cut 3 is of three main fabrics:

1. A very coarse, heavily grit-backed ware, handmade, chiefly used for ovens, but also for storage jars.
2. A medium-coarse ware, backed with terra cotta particles (grog); wheelmade, well fired to buff or pink, and sometimes slipped; used chiefly for large basins and storage jars.
3. A fine porous ware, wheelmade, well fired to buff or pink, and occasionally, especially in Phase D, overfired to a greenish color; metallic; usually slipped pink or cream, frequently with decoration in black; used for a very wide variety of vessel forms.

These three wares occur at all levels.

The original distinction between Quetta and Sadaat wares was based on their painted ornament. In both wares designs are painted in black (often rather a purplish brown) on a buff or reddish slip, or on a red unslipped ground; in Sadaat times, the red is nearer pink. In neither period is there any sign of the rich red slip of Harappan painted wares. But in contrast to Quetta ware, which has a very rich repertory of geometric and especially rectilinear designs, Sadaat ware has only four basic motifs, all curvilinear. These, which make clever use of the thick and thin effects of a wide brush, always display great restraint; the Quetta painters, on the other hand, clearly delighted in splashing paint in quantities on their vessels.

Relief decoration (Quetta Wet ware), chiefly produced by stippling a thick slip, occurs in both Quetta and Sadaat times. Among the small number of sherds so decorated, there is a very wide variety of stippling; other relief motifs, thin parallel grooves and wide and narrow wavy lines, also appear.[2]

A tabular analysis (Table 7) of the painted wares verifies what the structures uncovered in Cut 3 had already suggested: that Phase A, Level 11 and above (Fig. 8), marks the complete replacement of the Quetta population by Sadaat peoples. Sadaat-decorated sherds in Level 12 and below show that the makers of Sadaat ware were already established in the neighborhood, and were trading with the inhabitants of the site. By contrast the very rare Quetta-decorated sherds that occur above Level 11 are mere rubbish survivals and prove no continuity of the Quetta tradition.

A similar tabular analysis could be made of the plainwares. It appears that some forms were adopted from the Quetta people by their dispossessors; for instance, the biconical jars and some of the beakers; but, on the whole, the Sadaat plainwares are as distinctive as the painted vessels (Table 8). New plainwares appear again in Phase D, and these, together with the occasional use of a heavy red slip, point to influences from the Indus Valley.

CATALOGUE OF VESSEL FORMS

In the catalogue leading forms are numbered with Roman numerals; their variants are desig-

[1] This analysis of the pottery excavated at Site Q8, Cut 3, was written by Leslie Alcock. It differs in emphasis from that which we utilized. It is reproduced here as written, with some alterations and parenthetical statements for which I am responsible. However, because his descriptions of painted designs so closely followed our descriptions (pp. 271 ff.), only the numbers of the designs found in Cut 3 are listed, in order to avoid unnecessary duplication. There are, of course, innumerable variants of these designs, but the illustrations should suffice as type samples. The pottery forms described here and illustrated as Figs. 66–69 should be compared with those described in pp. 242 ff. and illustrated in Figs. 41–59.

[2] A selection of relief decorated sherds occurs in Phase D. [This is Quetta Wet ware and Khojak Parallel Striated. —W. F., Jr.] The sherds have not been analyzed numerically, as there is too little material for such an analysis to be significant.

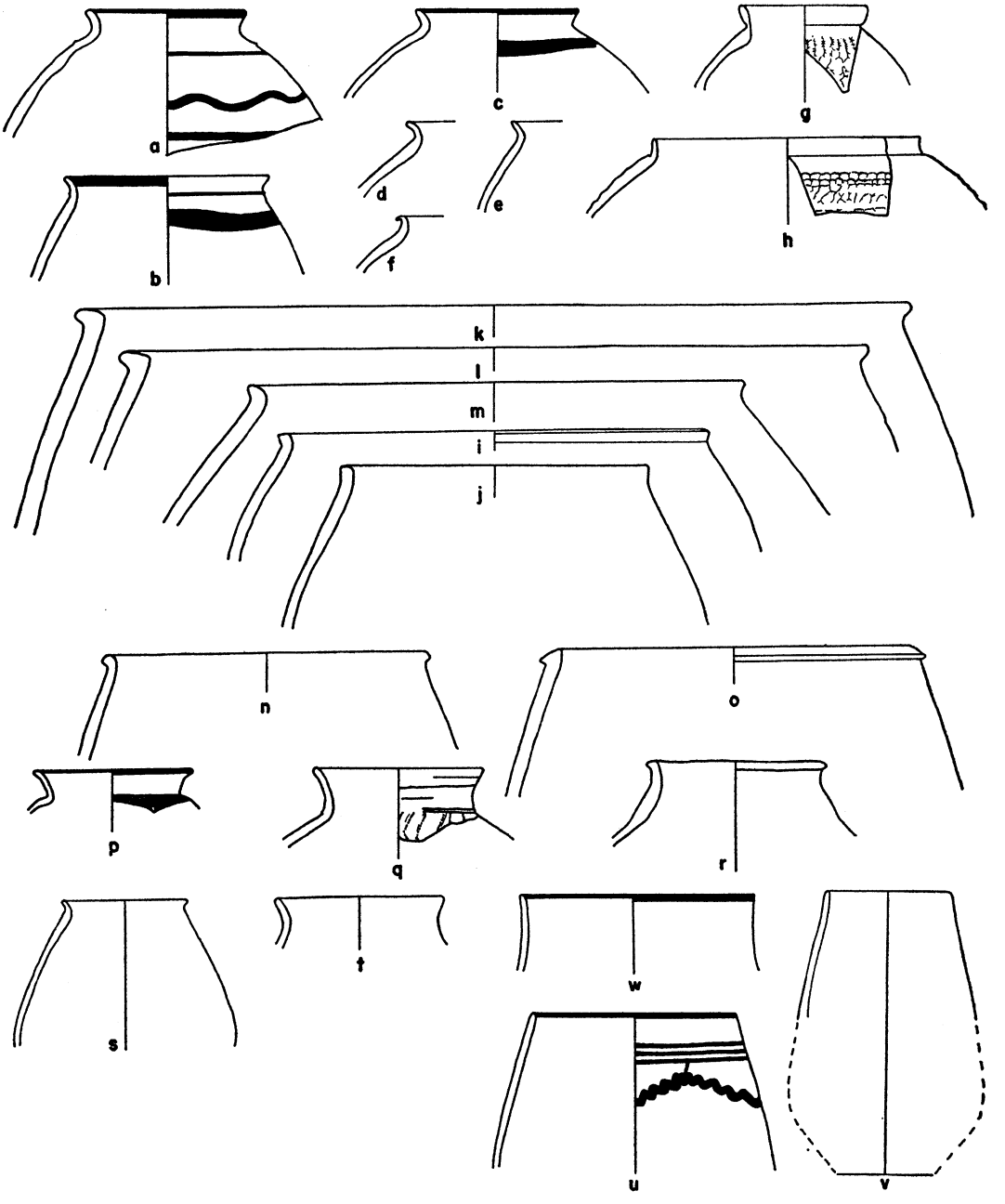

FIG. 66. Vessel shapes, rim profiles, and bases, Site Q8, Cut 3. a–f. Type I. g, h. Type II. i–m. Type III. n. Type IV. o. Type V. p, q. Type VI. r. Type VII. s. Type IX. t. Type X. u–w. Type XI.

nated by letter. Types I–XXXIV (Figs. 66–69) represent all forms of vessel recognized in Trench M; each type, except Type XXXIII, illustrated and described, and all except unique examples have been noted in the table of vessel forms (Table 8). A number of examples of Types I–XXXIV also occur in Phase D, and these have also been incorporated in the table. Because the collection from Phase D is rather small, only the leading types (usually three or

TABLE 7

OCCURRENCE OF PAINTED DESIGNS, SITE Q8, CUT 3

Level	Quetta	Sadaat	Unassigned
Surface	6	15	3
1	—	28	9
2	1	6	4
3	—	16	—
4	1	22	4
5	2	18	3
6	—	4	1
7	6	73	10
8	7	89	22
9	1	25	10
10	3	21	6
11	14	84	15
11A	5	1	1
12	3	2	3
12A	43	7	3
12B	2	3	—
12C	8	4	3
13	3	3	—
14	25	4	1
15	23	2	1
15A	23	12	2

more specimens) appeared significant, and these are recorded as Types XXXV–XLII. They are not analyzed in the tables.

The forms of bases are also analyzed. As may be seen in Table 9, footed bases belong almost exclusively to the Quetta Period. A group of coarse storage jars with plain but crudely made bases has been omitted from this table.

I. Ovoid to globular storage jar with everted rim (Fig. 66a–f). Earliest and latest examples are markedly ovoid, and there is complete range of variants. At first, out-turn of rim is sharp (Fig. 66d) from Level 11, but thereafter it becomes more curved (Fig. 66b) and occasionally is as slight as in Fig. 66e; once only undercut (Fig. 66f).

The ware is fine, slightly porous; fired pink or buff, sometimes overfired greenish. White or creamy slip occurs; painted bands and wavy lines are frequent. Fairly metallic.

II. Fine rusticated storage jars, with vertical rims (Fig. 66g–h). Buff fired; cream slip.

III. Large, coarse storage jars (Fig. 66i–m). The simplest are rimless, but a triangular (Fig. 66j) or rounded, everted rim (Fig. 66k–l) is more common. A beveled variant (Fig. 66m) also occurs. First appearing in Phase A, this type tends to develop a more pronounced rim as it evolves.

The ware is fairly coarse, heavily backed with terra cotta particles (grog), fired buff or pink. Surface is smooth; cream or pink slip is usual. Only one example, from Level 9, was decorated with a black band extending 18 mm. below the rim externally and 6 mm. internally.

IV. Medium, coarse storage jars (Fig. 66n). Rim diameter 5½ to 8½ inches. Ware is usually fired pink, less commonly buff, and varies from fairly fine to rather coarse grog backed.

V. Large storage jar with triangular rim (Fig. 66o). Fine paste. Fired pink, with cream slip on exterior. Level 1.

VI. Small tall-necked jars (Fig. 66p–q). Fine ware, but markedly more porous in Level 1 than in lower levels; fired pink or buff, with cream or pink slip. A variant (Fig. 66q) is unique in having *pointille* ornament. Figure 66p from Level 11 is also unique in having a sharply marked shoulder and decoration in black on a pink slip.

VII. Crudely made storage jar with tall neck, triangular rim (Fig. 66r). Rather sandy fabric, fired pink, traces of cream slip externally (Level 9).

VIII. Unique example of a medium-sized storage jar with straight neck (not illustrated). Very micaceous fabric, fired pink, Level 8.

IX. Small ovoid jars with sharply everted rim (Fig. 66s). Fine paste, pink or buff fabric and slip. A variant is decorated with plain bands, or bands and wavy lines, of Designs 144 to 146.

X. Small flaring jar, usually with rather thick walls (Fig. 66t). Diameter 3 to 5 inches. Fine paste, fired buff; cream slip invariable. Occurs only in Phase C.

XI. Biconical jars. Diameter from 5 to 8 inches and, very rarely, up to 13 inches (Fig. 66u–w). Common in all levels. Figure 66w has a fine "S" profile. Figure 66v illustrates an important sub-class with a rim diameter of from 3 to 4½ inches, which appears only in Level 11 and above. Fine paste, fired pink or buff, very metallic. Pink, buff, or cream slip is usual; decoration of Quetta or Sadaat motifs between horizontal bands is very common.

XII. Wide, straight-sided jars (Fig. 67a). These are very common, with Quetta decoration in Late Quetta levels, but occur with typical Sadaat decoration in higher levels.

Fine paste. Firing as in Type XI, but one overfired green. Slip and decoration as in Type XI. Frequently very thick and rather irregular in Quetta levels.

XIII. Jar or cup with slightly flared rim (Fig. 67b–c). The type cannot be fully restored from the existing examples. Diameter 4½ to 6 inches. Fine metallic fabric, fired usually buff, with cream slip. Quetta decoration.

XIV. Unique example of small Quetta ware cup from Level 12C (Fig. 67d). Fine porous fabric. The exterior is probably painted in black on a reddish buff slip.

TABLE 8

DISTRIBUTION OF VESSEL FORMS ACCORDING TO TYPE AND LEVEL, SITE Q8, CUT 3

Level	Type																			
	I	II	III	IV	VI	IX	X	XI	XII	XIII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXXIII	XXXIV
Surface	4	1	3	1	2	1	—	9	—	—	1	19	—	4	6	—	—	9	—	3
1[a]	10	—	13	3	2	—	2	22	—	—	1	18	5	26	3	—	—	7	1	4
2	—	—	5	2	—	—	1	11	—	—	—	14	5	8	2	—	—	2	—	—
3	2	—	4	3	3	—	—	9	3	—	—	7	2	13	2	—	—	10	1	1
4	4	—	5	—	—	—	4	15	—	—	—	18	1	9	1	—	—	14	2	1
5	2	—	1	—	—	2	—	5	—	—	1	3	—	5	1	—	—	3	—	—
6	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	3	—	—
7	4	—	10	5	2	1	—	32	1	—	1	33	6	22	3	—	—	35	2	2
8	4	1	7	1	—	1	—	31	1	—	—	12	1	24	1	1	—	12	2	1
9	2	—	9	1	—	—	—	15	—	—	—	1	1	13	1	—	—	11	3	2
10	—	—	2	—	—	—	—	15	1	—	1	—	2	8	1	—	—	10	3	—
11	8	—	5	—	1	4	—	20	1	1	3	3	6	18	3	—	—	17	—	—
11A	1	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—	—
12	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	—	—	1	—	—
12A	—	—	—	—	1	3	—	10	7	—	—	—	—	—	—	4	14	13	2	—
12B	—	—	—	—	—	—	—	1	—	—	—	—	1	1	—	—	—	1	—	—
12C	—	—	—	—	—	1	—	2	—	—	—	—	—	—	—	—	—	—	—	—
13	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—
14	—	—	—	—	—	—	—	5	—	2	—	—	2	1	—	3	3	4	1	—
15	—	—	—	—	—	—	—	4	3	1	—	—	5	1	—	2	3	4	—	—
15A	3	1	—	—	—	1	—	3	—	2	—	—	7	1	—	—	—	1	—	—

[a] These levels refer to the levels shown in Section I (Fig. 8).

XV. Straight-sided cup (Fig. 67e). Design in black on a red slipless ground. From Level 12A; there are probably other examples from both Quetta and Sadaat levels, but the rim fragments are too small for certainty.

XVI. Beaker with flaring rim (Fig. 67f). For complete examples and possible decoration, see Pottery Group A (Fig. 71f–g). Fine ware, usually fired to pink or buff, with pink or cream color wash. Sadaat decoration common.

XVII. Tumbler with flaring rim (Fig. 67g). See Pottery Group A (Fig. 71h) for complete example. Ware, angle of rim, and size are so close to those of Type XVI that a numerical analysis of the two types is impossible. Apart from one example each, in Levels 12A and 15, both types belong to the full Sadaat Period, throughout which they are evenly distributed.

XVIII. Swag-bellied beaker (Fig. 67h). Complete example in Pottery Group A (Fig. 71i). Thin-walled, fine paste fired pink or buff, usually with thin slip or color wash, but no decoration. Four out of five bases are string cut.

XIX. Steep-sided bowls (Fig. 67i–o). One variant (Fig. 67j) has only shallow sides; Fig. 67i and k are variants with smoothly curving sides; Fig. 67m has a slight neck, Fig. 67n a more or less pronounced everted rim; Fig. 67o with a beveled rim is unique. Fabric is fine, porous, usually free from grit; fired red or buff, with pink, buff, or cream slip, and occasionally Sadaat decoration. The type is confined to full Sadaat Period, and variants (Fig. 67 m and n) become increasingly popular. The rim tends to become more sharply cut.

XX. Medium-sized plain dishes (Fig. 67p–r). Diameter 5 to 9 inches. Finish is frequently rather crude. Fairly fine fabric, fired buff or pink, with rare light-colored slips. Variant (Fig. 67r) has curving sides, while Fig. 67q has a slight rim.

XXI. Large decorated bowls (Fig. 67s–v). Diameters 9 to 15 inches. Usually fine, well-fired, metallic fabric. Rarely unslipped, usually with pink or cream slip on interior, or on both sides; festoon ornament in black. Figure 67t is a common variant with a slight neck; Fig. 67u has a pronounced beveled and tapered rim; Fig. 67v is a very rare variant with slight beaded rim.

XXII. Small fine dishes (Fig. 68a). Diameter 4 to

TABLE 9

DISTRIBUTION OF VESSEL BASES ACCORDING TO TYPE AND LEVEL, SITE Q8, CUT 3

Level	Type		
	Plain	Flat, Beaded	Footed
Surface	6	2	1
1	14	10	—
2	2	4	—
3	11	4	—
4	14	5	—
5	10	4	—
6	3	2	—
7	15	7	1
8	14	12	1
9	11	1	—
10	5	1	—
11	17	17	—
11A	1	—	—
12	2	1	2
12A	2	4	8
12B	—	—	—
12C	4	1	1
13	—	—	3
14	3	—	—
15	4	3	7
15A	1	2	3

7 inches. Fired pink or buff; pink or buff slip; festoon ornament common.

XXIII. Quetta ware bowls (Fig. 68b). Diameter 8 to 13 inches. Fired pink or buff; cream slip and Quetta ware decoration invariable.

XXIV. Fine, decorated bowls (Fig. 68c). Diameter 12 to 17 inches. Fine, very metallic fabric. Fired buff; red or cream slip; purple-black ornament.

XXV. Large plain basins (Fig. 68d–k). Diameter 13 to 21 inches. Fired pink or buff. Grog backing, but a few examples of very fine hard ware. No rim, though in some cases the edge is squared off.

One variant (Fig. 68e) has a slight sharply inturned rim, while Fig. 68f has a hammer-headed rim. Figure 68g is a minor sub-type with slightly flaring rim, while Fig. 68h and i have slight beaded rims, respectively, curved and triangular; variant (Fig. 68j), on the other hand, has a pronouncedly outturned rim. Figure 68k is unique.

XXVI. Unique example of bowl with flaring under-grooved rim (Fig. 68l). Fine buff ware; dark line round rim. Diameter unknown. From level 10.

XXVII. Unique example of small bowl (Fig. 68m). Rim has tapering perpendicular edge. Fine pinkish ware. From Level 7.

XXVIII. Unique example of saucer with narrow bead rim grooved on inside (Fig. 68n). Fine fabric; fired pale green. No decoration. From Level 12A.

XXIX. Unique example of small, straight-sided bowl, with out-turned triangular rim (Fig. 68o). Fired buff, with fine fabric. Dark brown slip almost to base on interior and 32 mm. down on exterior. Level 1. Two other examples without rim, from Levels 11A and 15A.

XXX. Rare miniature dish, perhaps for condiments (Fig. 68p). Fine ware; fired pink, from Level 12A.

XXXI. Unique example of goblet with pedestal base (Fig. 68q). Fine ware; fired pink; cream slip on exterior; decorated with purple horizontal bands very irregularly drawn. From Level 12C.

XXXII. Rare small dish with tapering flaring sides, no rim (Fig. 68r). Thick base. Fine fabric, fired pink. Base only roughly finished. From Level 7.

XXXIII.[1] Large, coarse, handmade pots with simple rims: too ill-made for diameter or angle of rim to be determined; therefore not illustrated.

XXXIV. Coarse handmade ovens, with overhanging rim (Fig. 68s). A common variant has a form of rouletted ornament, apparently imitating basketry.

XXXV.[2] Large roll-rim storage jar, in coarse, grit-backed fabric (Fig. 68t–u). Cream slip, Level 8; variant (Fig. 68u), Level 7, has a more angular rim.

XXXVI. Medium flaring-rim jars (Fig. 68v). Medium-coarse fabric, fired pink. Traces of cream slip, Level 3.

XXXVII. Necked jar with everted rim (Fig. 69a–b). Fine fabric, fired buff. Variant (Fig. 69a) is fired pink, and possibly had pink slip, with designs in black.

XXXVIII. Flat beveled-rim jar, fine fabric, fired pink or buff (Fig. 69c).

XXXIX. Beveled-rim jars (Fig. 69d). Fine fabric, fired buff, Level 6.

XL. Flange-rim dishes (Fig. 69e–f), Level 23. Variant (Fig. 69f), Level 6, has an angular body.

XLI. Steep-walled bowls with everted rims (Fig. 69g–j). The commonest rims are rather heavy, or may be undercut (Fig. 69h); but there are also finer variants (Fig. 69i–j). Levels 4 and 9.

XLII. Flat-bottomed dish (Fig. 69k). Fine fabric, fired pink, with red slip, Level 3.

[1] Types XXXIII and XXXIV represent only the two leading types of coarse, handmade pots; other fragments were too indeterminate to reveal the form of the pot from which they came.

[2] Types XXXV–XLIII are leading types from Phase D. Other characteristic sherds, too fragmentary for illustration here, are: 1, hollow stand from a goblet or a dish-on-stand, from Level 12A; 2, solid stands from Levels 2 and 9; 3, fragment of an offering dish of Harappan type from Phase D.

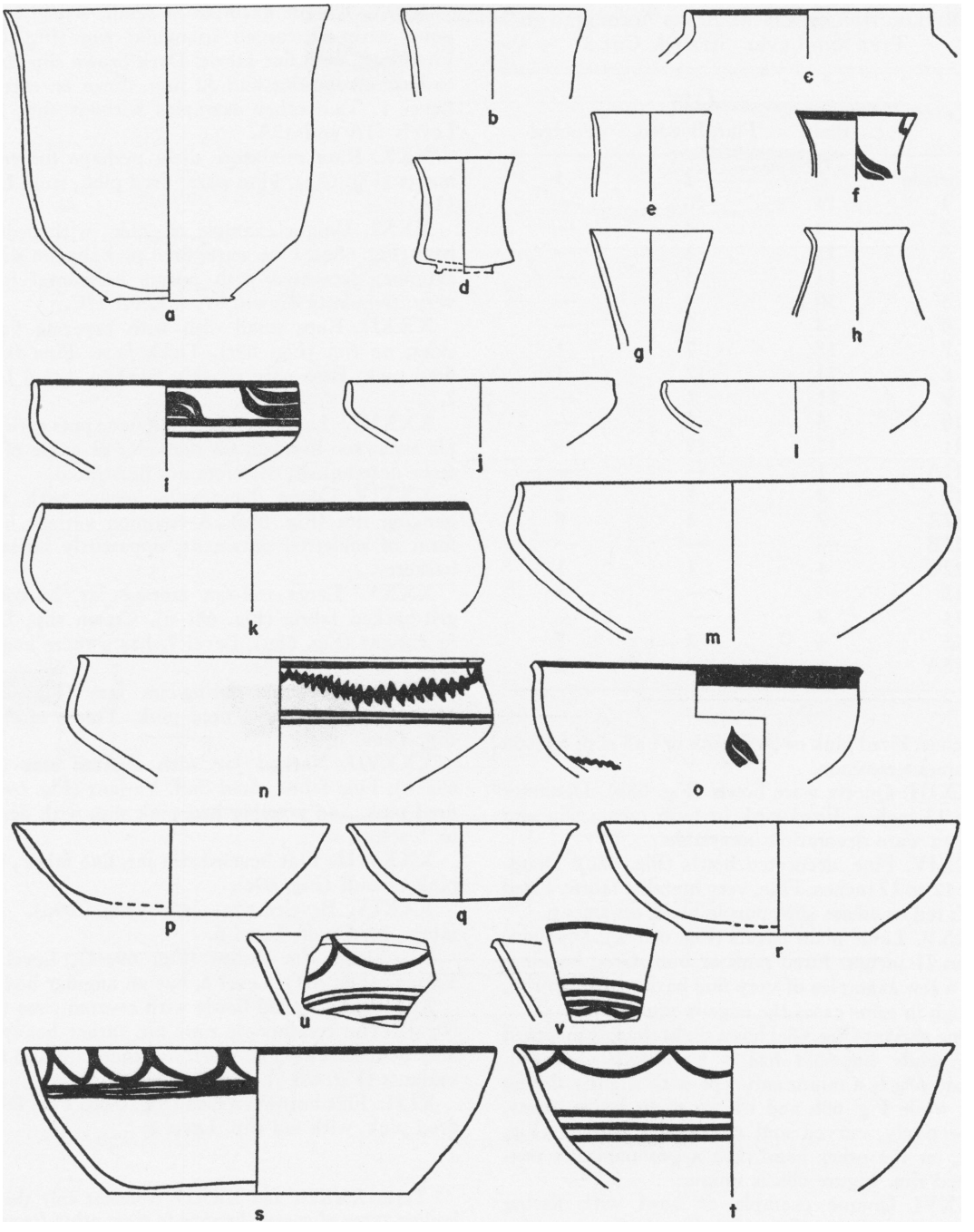

FIG. 67. Vessel shapes, rim profiles, and bases, Site Q8, Cut 3. a. Type XII. b, c. Type XIII. d. Type XIV. e. Type XV. f. Type XVI. g. Type XVII. h. Type XVIII. i–o. Type XIX. p–r. Type XX. s–v. Type XXI.

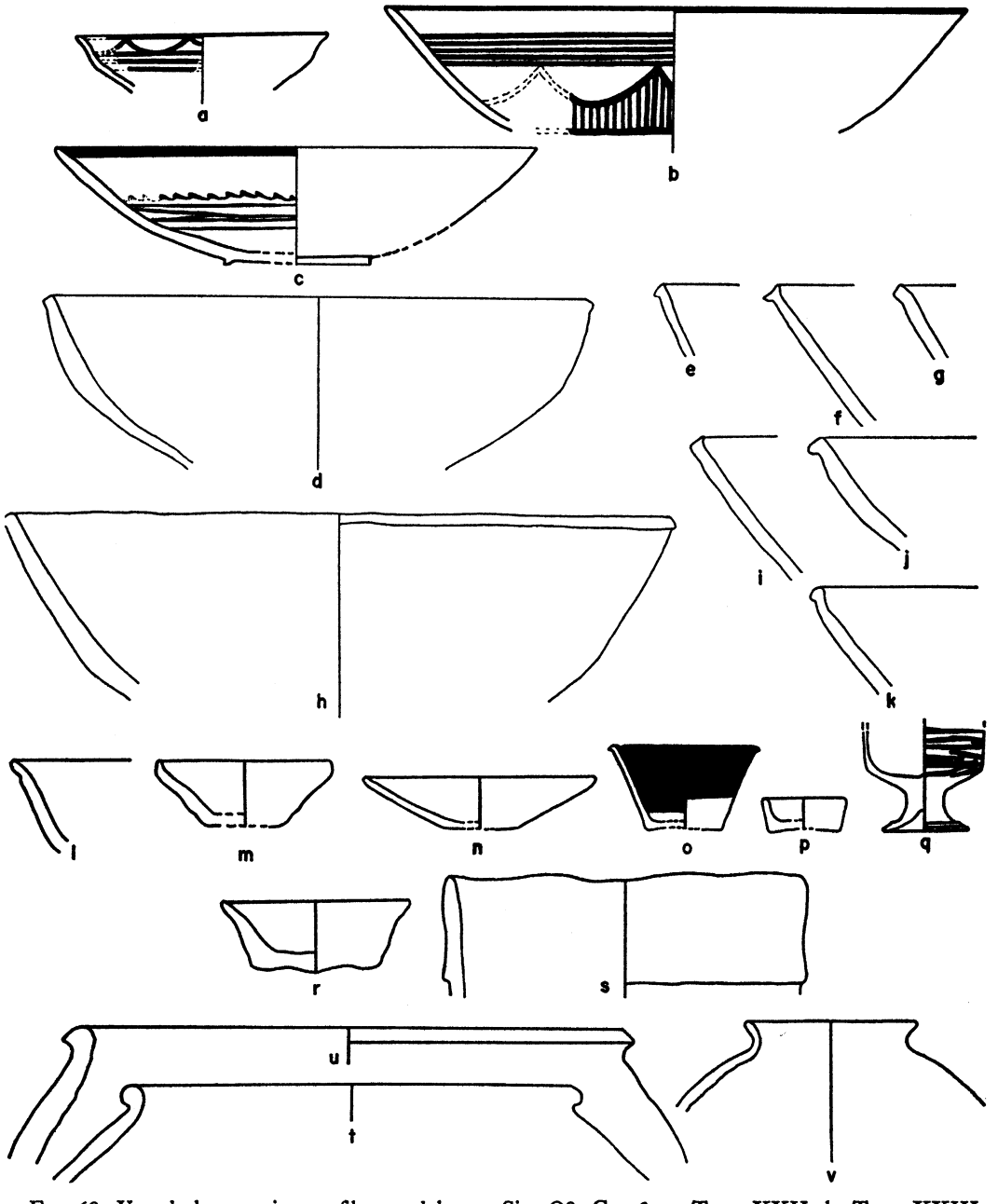

FIG. 68. Vessel shapes, rim profiles, and bases, Site Q8, Cut 3. a. Type XXII. b. Type XXIII. c. Type XXIV. d–k. Type XXV. l. Type XXVI. m. Type XXVII. n. Type XXVIII. o. Type XXIX. p. Type XXX. q. Type XXXI. r. Type XXXII. s. Type XXXIV. t, u. Type XXXV. v. Type XXXVI.

POTTERY DESIGNS

The painted motifs from Damb Sadaat, Cut 3, have been divided into three main groups: (A) undoubtedly Quetta motifs; (B) undoubtedly Sadaat motifs; (C) unassigned motifs (Table 7).[1]

A: Designs 134, 165, 173–175, 179, 195–196, 199, 200–206, 209–210, 215–217, 221, 240, 255, 258, 262, 271–272, 279, 282, 284, 289, 293–295, 318, 319a,

[1] See pp. 271 ff. for further discussion of these designs as they occurred in Site 8, Cuts 1 and 2. These designs occur on the same pottery types as described in pp. 255 ff.

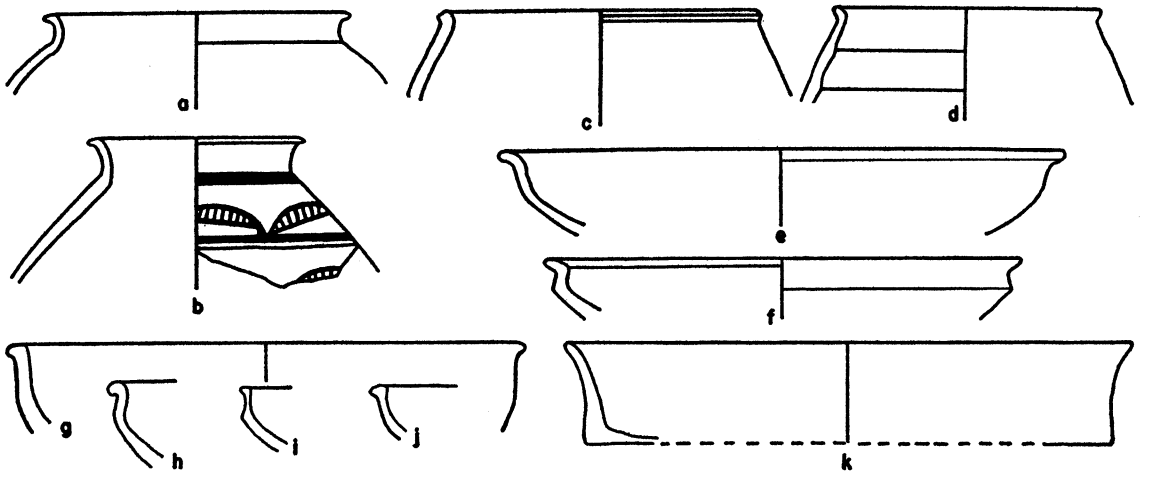

FIG. 69. Vessel shapes, rim profiles, and bases, Site Q8, Cut 3. a, b. Type XXXVII. c. Type XXXVIII. d. Type XXXIX. e, f. Type XL. g–j. Type XLI. k. Type XLII.

325, 333, 340, 345–346, 349–350, 356, 365, 367, 371, 373, 375–376, 386, 399, 403, 418–420, 448, 479, 493, 498, 505.

B: Designs 141, 144–147, 149, 177, 186–194, 248, 250–252, 254.

C: Designs 109–115, 122, 123, 125–132, 148, 424, 521, 530–531, 571–572.

POTTERY GROUP A

This group of 21 whole or nearly complete pots, and three more fragmentary examples, were uncovered immediately below the surface near the summit of the mound. It was clear that the erosion of the mound was the chief cause of the damage to the pots. This same surface erosion had obliterated any trace of their stratigraphical position. But it is clear that a group of pots lying in disorder above the main wall can scarcely be contemporary with the use of that building, i.e., it must be later than Phase B. On the other hand, the characteristic features of Phase D are absent from Pottery Group A. It should, therefore, be attributed to Phase C.

1. Globular storage jar with everted rim (Fig. 70a). Fine porous fabric, fired patchily pink and buff. Band of black color wash thinly applied around body; potter's mark (inverted "V") below neck. Type I.

2. Globular storage jar (Fig. 70b). The rim is missing but was presumably similar to that of 1. Paste as in 1, fired to an even pink. Decorated with one wavy line between two parallel bands. Type I.

3. Globular storage jar, rim uncertain; the body slopes in more sharply to the base than in 1 and 2. Fired to greenish buff, cream slip; decorated with one wavy line between parallel bands. Too fragmentary for illustration. Type I.

4. Fragmentary globular storage jar. The surface of the pot was scraped over before firing to remove

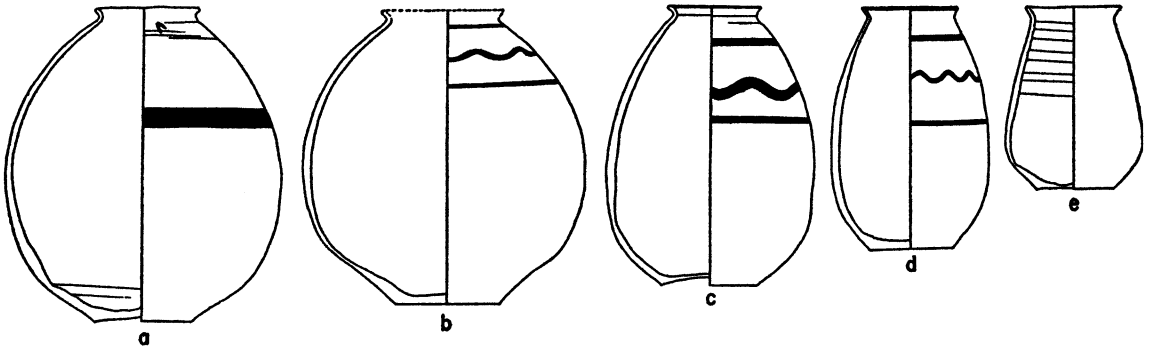

FIG. 70. Pottery types, Group A, Site Q8, Cut 3.

surplus clay. Fired pink, with very thin cream slip; wavy line between parallel bands. Not illustrated. Type I.

5. Fragments of rather smaller globular storage jar. Fired greenish buff, cream slip; wavy line between parallel bands. Not illustrated. Type I.

6. Tall, ovoid storage jar with everted rim (Fig. 70c); poorly finished. The exterior has grooves and indentations. Fired pinky buff, thin cream slip; wide wavy band thinly applied between two parallel bands. Type I.

7. Narrow, elongated storage jar with everted rim (Fig. 70d). Fired pink, with cream slip; ornament is purplish brown. Type I.

8. Elongated storage jar with everted rim (Fig. 70e). Cream slip which has in places turned pink during firing. A small version of Type XIX (Fig. 67j).

9. Small, tall-necked jar (Fig. 71a). Fine porous fabric, fired pink; ornament of double SS between parallel bands, in black.

10. Small, tall-necked jar (Fig. 71b). Fabric is backed with fine grit and is fired pink. Exterior shows marked turning grooves. Type VI.

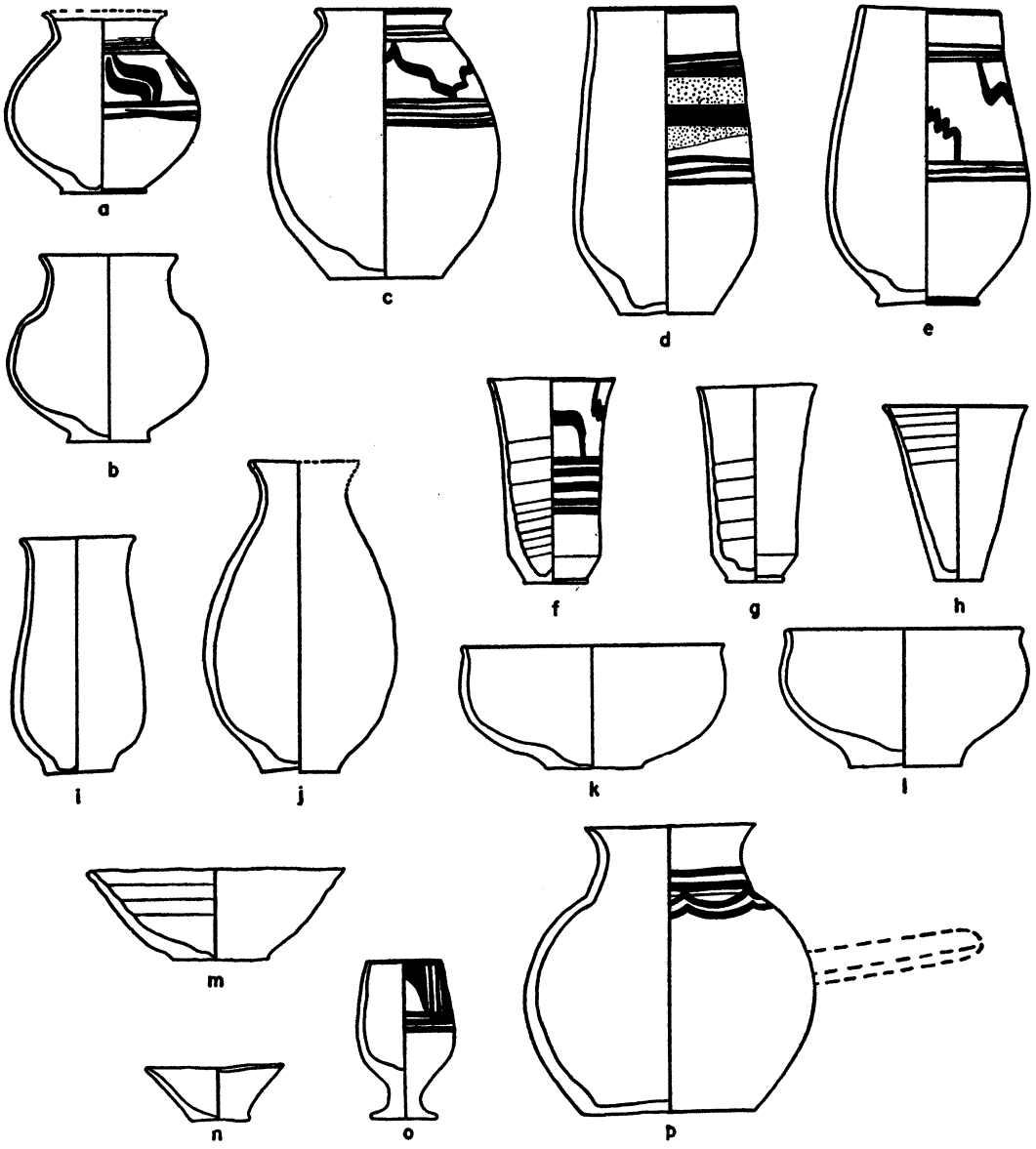

FIG. 71. Pottery types, Group A, Site Q8, Cut 3.

11. Small, ovoid jar with everted rim (Fig. 71c). Porous fabric, fired greenish buff; cream slip, ornament in black. Lower exterior appears to have been trimmed with a knife. Type IX.

12. Small biconical jar (Fig. 71d). Fine paste, thin walls. Fired red with buff slip. The decoration of black and red bands is very unusual. One other fragmentary example was found near Pottery Group A. Type XI (Fig. 66v).

13. Small, dumpy, biconical jar (Fig. 71e). Paste has some fine grit; fired reddish brown. Traces of very thin cream slip; ornament of alternate "squiggles" and wavy stepped lines in black. Lower exterior rather crudely knife trimmed. Type XI (Fig. 66v).

14. Flaring beaker (Fig. 71f). Fine paste, fired deep pink; ornament in black. Pronounced turning grooves internally and less pronounced externally. Type XVI.

15. Flaring beaker (Fig. 71g). Fine paste, fired pink. Possible cream color wash. Rather crudely finished, with marked turning striations on exterior. Type XVI.

16. Flaring tumbler (Fig. 71h). Buff. Turning striae on exterior. Type XVII.

17. Swag-bellied beaker (Fig. 71i). Fine paste, fired pink. The pot is slightly lopsided, and has both marked turning striae and finger prints on the exterior. Potter's mark incised on base. Type XVIII.

18. Narrow-necked water pot (Fig. 71j). Fine paste, fired buff; cream slip. Unique.

19. Steep-sided bowl with slight neck (Fig. 71k). Fired reddish brown. Poor finish, with pronounced internal turning grooves and external striae; crudely cut base. Type XIX.

20. Steep-sided bowl with slight neck (Fig. 71 l). Fired pink, with thin cream slip on upper exterior. The finish is better than that of Type XIX, but the external striations are still noticeable. Type XIX.

21. Medium-sized plain dish (Fig. 71m). Fired pink. Very crudely finished, with pronounced turning grooves and roughly trimmed base. Type XX.

22. Miniature dish (Fig. 71n). Fired pink. Cream slip internally; very crude finish. Comparable, but not precisely parallel, to Type XXIX.

23. Small goblet (Fig. 71o). Porous fabric, fired buff; purple-brown ornament. String-cut base. Unique.

24. Tall-necked, handled pot (Fig. 71p). The handle appears to have stuck straight out from the side of the pot, like a saucepan handle, a very weak device. Fired pink; ornament in purple. Unique.

APPENDIX 2. FABRICS, BASKETRY, AND MATTING AS REVEALED BY IMPRESSIONS ON POTTERY[1]

AMONG THE POTSHERDS collected at the sites described in the present report a few retain impressions of basketry and fabrics. In view of the absence of such perishable material in the archaeological collections from this region, it seemed worth while to attempt to recover as much data on textile techniques and materials as possible from this source.

As an experiment, positive latex casts were made and two procedures tested to determine which would reveal the maximum definition of detail recorded on such casts. The first involved the use of a latex product that has the property of swelling to nearly twice its original size when soaked in kerosene. Positive casts made with this material and so enlarged yield good negative molds from which still larger positives can be developed. By such successive steps, each of which requires at least a week, fairly faithful replicas of any desired size can be obtained. The weakness of the process, apart from the time consumed, is that every flaw in each successive mold is recorded and, in turn, amplified. In theory, it was hoped that such a procedure combined with photography would yield better results for study than obtainable any other way. In practice, fully as much detail was attained by direct photographic enlargement of the replicas made with any type of casting latex.

Pictures made after the surfaces of the latex positive casts had been coated with ammonium chloride show fabric structure, yarn twists and size, and in some cases impressions of fibers. The remarkable clarity of some of these fiber impressions suggested that it might be possible to identify them. Accordingly, swatches of cloth made from different known fibers, i.e., wool, cotton, linen, and silk, were pressed on discs of potters' clay. About 30 discs were fired, and the best examples were used to make latex replicas. In some cases we found that enlarged photographs of these positive replicas are more revealing or graphic than pictures of the actual fabrics made under identical conditions at the same scale. The same may well be true of the best reproductions secured from sherds.

The results of the comparison of the knowns and unknowns, although admittedly debatable in this study, lead us to believe that positive identification of fibers is possible. The requisite skill would necessarily have to be developed through experience with a greater amount of material, but it should be obtainable. Table 10 indicates which casts showed one or more features similar to the known replicas. In no case should these be taken as positive, unquestionable identifications.

When we examine this small group of fabric-impressed sherds, the most obvious fact is that, except for one (73-4568), all fabric marks were on the interior surface. This is one of the few features they show in common. Most of the sherds are from fairly large, rather heavy vessels. None shows any marks of wheel turning. Only two, one with the fabric mark on the outside and an open bowl, are rim sherds. The others are seemingly basal, or near basal, fragments. The pottery types represented include Ghul Painted, plain buff slip, with and without punctate dotted appliqué ridges, and plain finger marked. Other sherds of the same wares lack fabric marking, so it is not a consistent or common feature of any one of the pottery types described in this report.

As a possible explanation of the fabric marks, Mr. Robert Sonin, a student of ancient ceramic techniques, suggests that the jars or bowls represented by these sherds were initially shaped over an inverted vessel. In that case, a piece of cloth would function very well as a separator and would leave such impressions as observed. This suggestion is supported by one sherd (Pl. 34f) which shows that the cloth, which happened to be very frayed and raveled, had rested on a smooth curved surface identical with a vessel bottom. If the marks resulted from the use of a pad or wad of cloth held in the hand of the potter to steady the clay while scraping or smoothing the exterior, then some double or overlapping impressions would inevitably occur. None can be detected.

Only 52 sherds showed fabric marks, but not all provide useful data. With one exception, all

[1] Comments by Junius B. Bird, Department of Anthropology, the American Museum of Natural History.

TABLE 10

DATA FROM FABRIC-IMPRESSED SHERDS

	Material			Yarn Twists			Construction			Count per Cm.		Sherd Type				Temper Material				
	Cotton?	Bast, etc.?	Silk?	Warp and Weft	Warp? Only	Weft? Only	Plain Weave 1×1	Plain Weave 1×2	Single Element	Warp?	Weft?	Ghul Painted	Buff Slip	Finger-Tip Decorated	Plain Unclassified	Crushed Sherds	Crushed Sherds and Grit	Crushed Grit	Crushed Fossil Shell	No Temper
Site Q12																				
No. 73-4540				\			x			18?	15?				x				x	
Site Q19																				
No. 73-4541					?	?	x			9	5.5			x						
No. 73-4542				\			x			24?	15				x		x			
Site Q23																				
No. 73-4543				\			x			18	12.5				x	x				
Site Q24																				
No. 73-4544					/?		x			20	6.5				x		x			
Site Q25																				
No. 73-4545				–			x								x	x				
No. 73-4546	x			/			x			5	3.5				x		x			
No. 73-4547		x		/			x			9	6	x								
Site Q30																				
No. 73-4548		–		/			x			5.5	5		x			x				
No. 73-4549		–		–			x			11	11?				x		x			
No. 73-4550		–		–			x			12	9?		x							x?
No. 73-4551	x?			/			x			13	9		x			x				
No. 73-4552				/			x			14	14	x				x				
No. 73-4553				/			x			15	12				x		x			
No. 73-4554				/?			x			16	16?				x		x			
No. 73-4555				/			x			17.5	14				x		x			
No. 73-4556				/			x			18	14									x?
Site Q32																				
No. 73-4557					?	?	x?			?	3			x				x		
No. 73-4558	x			/			x			6?	3		?			x				
No. 73-4559	x			/			x			6?	3.5		x				x			
No. 73-4560				/			x			8	7		x					x		
No. 73-4561				/			x			11.5	11.5				x				x?	
No. 73-4562				/			x			12?	7	x					x			
No. 73-4563				/			x			13	9			x		x				
No. 73-4564	x			/			x			13	12.5				x		x			
No. 73-4565	x			/			x			14	12			x		x				
No. 73-4566				/			x			26	15.5	x					x			
Site Q36																				
No. 73-4567				/			x			24	10		x							
Site P1																				
No. 73-4568				/			x			7	6		x			x				
No. 73-4569	x			/			x			7.5	4						x			
No. 73-4570				/			x			8	5				x			x		

TABLE 10—(*continued*)

	Material			Yarn Twists			Construction			Count per Cm.		Sherd Type				Temper Material				
	Cotton?	Bast, etc.?	Silk?	Warp and Weft	Warp? Only	Weft? Only	Plain Weave 1X1	Plain Weave 1X2	Single Element	Warp?	Weft?	Ghul Painted	Buff Slip	Finger-Tip Decorated	Plain Unclassified	Crushed Sherds	Crushed Sherds and Grit	Crushed Grit	Crushed Fossil Shell	No Temper
No. 73-4571	x			/			x			9	4.5				x		x			
No. 73-4572				/			x			10	9.5				x		x			
No. 73-4573		x		/			x			12.5	8				x		x?			
No. 73-4574		x		/			x			12.5	11	x				x				
No. 73-4575		x		/			x			13	8.5		x							
No. 73-4576				/			x			15	11		x			x				
No. 73-4577				/			x			15	12	x						x		
No. 73-4578				/			x			16.5	13				x			x		
Site P2																				
No. 73-4579				–			x			9	9		x				x			
Site P4																				
No. 73-4580	x				/\	//		x		3.5	3 pr.		x				x			
No. 73-4581		x		–			x			6	4.5		x					x		
No. 73-4582				/			x			9	5				x	x				
No. 73-4583				/			x			12	10				x		x			
No. 73-4584							x			24	8		x			x				
No. 73-4585			x				?			42	10		x				x			
No. 73-4586						/			?	11	11				x		x			
Site Ch1																				
No. 73-4587				/			x			15	9				x	x				
No. 73-4588	x			/			x			23	11			?			x			
Site B1																				
No. 73-4589	x			/			x			6	4		x				x			
No. 73-4590	x?			/			x			10	9				x	x				

were surface finds from sites yielding mainly historic material. They can be assigned to Periods C to F inclusive, in spite of the fact that some of the pottery types represented seem to be more ancient. This assigned chronological position seems to be borne out by the ratio of fabric-marked to unmarked sherds. If the surface sherd samples are representative, then this ratio is close to 1:58. In contrast, among approximately 100,000 excavated sherds from Periods G, H, and I levels, not a single fabric-marked example was noted.

In dealing with so limited a series, one finds it difficult to decide on the most useful form of presentation. The obvious comparison of textile materials as associated with the different pottery types failed to show any definite correlation. A comparison site by site and by assumed horizons was equally unrewarding. One is left with little more than the statistical range of data for a group of textiles against which there is at this time virtually no basis for comparative judgment and interpretation.

Table 10 shows that 89 per cent of the yarns are Z-spun singles, about 9 per cent S-spun singles, and the remainder, one instance only, is conclusively two-ply. The latter is used in conjunction with the sole example of paired singles

for filling. This dominance of single-strand yarn can be used as another argument against the presence of wool, for which no evidence could be found.

As far as one can judge the evidence, the spinning was quite even. Yarn diameters and the angles of twist can be determined if such data are needed. Most yarns show a rather tight twist, in some examples to a degree achieved by hand-spindle spinners only by a second spinning or reworking of the yarn. Where it is possible to form an opinion as to the identity of the fiber, the maximum twist is associated with what seem to be bast or other structural fibers.

With one exception, the impressions are those of plain weaves. Unfortunately none showed a trace of side or end selvages, so we cannot determine which yarn impressions represent warps, which wefts, nor have we any clue as to the method of attachment of the warps on the loom. We may, with reason, assume that heddles were attached to the warps with leash cords. Where this system survives, or can be studied through archaeological materials, plain weaves generally show more warps than wefts per unit of measure. For this reason, the higher yarn count provisionally has been listed as warp. The validity or error of such an assumption can be judged only when a sampling of selvage impressions is available.

In using the yarn count figures (Table 10), one should remember that we have not attempted to correct for the shrinkage of the clay after the impressions were made. This should not exceed 10 per cent and may well be closer to 5 per cent. Where measurements or counts are made from the photographs (Pls. 33–35), other minor errors may be expected. These result from variable shrinkage of the photographic paper used and to optical distortion. However, the total of all errors probably does not exceed the differences in counts made from actual fabrics which vary in texture and flexibility. The range of differences in texture, as illustrated, begins with a high warp? count (Pl. 33a) and ends with the lowest count, a semi-basket, plain weave (Pl. 34e). The specimens in this series were photographed at exactly the same scale and with the position of the light sources kept constant.

The single specimen that is clearly not a plain weave (Pl. 34i) just as clearly defies ready analysis. It resembles an effect that can be produced by a two-ply cord wrapped on a stick or roller and pressed into clay. It can also be produced with a twined fabric if the warps are of fine yarn and the weft rows compact, with three yarns used in each. If we could conceive another more imaginary construction, a soumak, minus the interwoven wefts, a similar impression might result. There is also some resemblance to marks produced in tests by one side of a single element construction, a simple fabric of interlocked running hitch loops. Contrary to this suggestion is the measurement of the rows, one per millimeter, a count that is virtually theoretical in such a fabric. Still another suggestion is that the effect could be produced by a fabric faced with stem-stitched embroidery, but we have not attempted to produce a test example. Perhaps we will not be criticized if this item is left as an admitted mystery.

Similarly, it is with some misgiving that the piece listed as possibly of silk is classed as a plain weave (Pl. 34h). Only one set of elements is visible, and, while the extremely slight indication of twist and the small fiber size suggest silk, the course and sequence of the yarns are not clear. Here, again, more positive identification must await opportunities to study additional material.

Another group of sherds in this collection shows marks of basketry and matting. With these, the evidence was restricted to the outer surfaces of the vessels. In some cases, the marks are seen only on the bottoms; in others, they extend at least partially up the sides. The ones submitted for examination and referred to here must be considered merely a sample, as they do not include all that were found. It is my understanding, however, that this lot includes some from every level and site at which they were noted.

A comparison of the position and distribution data of fabric versus basketry and matting marks reveals a significant and important difference. All of the latter are from the excavated Sites Q8 and Q24, and not one was found in association with fabric impressions. The basketry-marked sherds are clearly older, and all seem to be restricted to Periods G, H, and I.

When these sherds were handled, there was no reason, except for experimental tests, to make latex replicas. The identification of basketry and matting materials depends on comparative knowns which are not available at

present. Hence at this time we can be concerned only with identification of technical structure. For this purpose impressions made with white "plastoline" are adequate and were used for the illustrations in Pl. 35.

A classification by technique breaks the small sample series of 38 sherds into two sharp divisions. The least important numerically is a simple, over 2 under 2, twill plaiting of very thin, flat elements, obviously a matting. This occurs on only two flat-bottomed vessel sherds: one a surface find, the other from a level designated as within the Period H1 division at Site Q24. All the other marks can be identified as the sewn, coiled foundation type basketry, which varies only in diameter of the multiple strand, the foundation coils, the number of turns of the "sewn" element per unit of measure, and the direction of slant, or lack of slant, of the stitches. The number of turns may indicate merely availability or selection of material, for the count depends largely on the widths, 0.8 to 4.0 mm., of the material used. Within the limitations of this small sample there was no correlation between the observable features and stratigraphic position, but it would be presumptuous to claim that none exists.

Another feature of coiled basketry that might well have a significant areal or chronological diagnostic value is the direction in which the construction proceeded. Group conformity in such a simple feature could, as with spinning twist direction, be observed rather strictly for long periods of time by certain peoples. Naturally if flat, coiled basketry "mats" are used as supports during pottery making, the resultant impressions may vary, depending on which side the mats make contact with the clay. However, if such supporting mats are curved, or in some degree concave, the inner surface is apt to be the one recorded. This is certainly the case where the basket supports the upcurving vessel sides. The present sample offers little on this question. Coil direction, counterclockwise, is shown in only two instances, both on flat-based jars that fail to establish inner and outer basket surfaces.

TABLE 11

SHERDS WITH BASKET AND MAT IMPRESSIONS
(Counts and measurements in centimeters.)

	Site Q8			Site Q24		
	Period G?	Period G3	Period H2	Period H2	Period H1	Period I
Number of sherds	5	10	1	2	12	6
Surface	5	3		1		1
Excavated		7	1	1	12	5
Technique						
Coiled	5	10	1		12	6
Plaited				2		
Average coil width	0.7	1.3	0.8		0.9	1.0
Average stitches per cm.	4.0	4.8	6.0		4.0	4.0
Range						
Coil widths	0.4–1	0.5–3.5			0.4–2	0.6–3
Stitches per cm.	2–5.5	2–8			2–5	3–4

Flat-based vessels, like those shown in Fig. 52, top, are associated only with basketry and matting and not with woven fabrics. Also, none of the basket-marked sherds shows modeled or painted decoration, though a few have a light, cream-colored slip. Temper is dominantly of crushed sherds, mixed with a small percentage of crushed stone. Some sherds seem to have temper exclusively of crushed sherds, a few only stone. Two bear the impressions and residual traces of minute fossil shells. Paste, as well, varies. But none of these features seems associated with any one variety of basketry.

In summing up this attempt to evaluate perishable items recorded unintentionally by the potters, we might stress the following:

1. Within the limited geographical area covered by this report, identification of fabric marks as either textiles of spun yarns or basketry and matting of harder materials seems to have a definite chronological significance.

2. Two distinct procedures seem to have been followed in the initial shaping of the coarse, relatively heavy vessels. The earlier vessels were occasionally shaped on, or in, baskets or basketry platters. Later, comparable items may have been started over the bottoms of inverted jars or bowls, with cloth used as a separator.

3. From the evidence of the yarn impressions, the region seems to have had a fairly uniform spinning tradition somewhere within Periods F to C. Whether variants from the norm represent trade, outside influence, or some lack of unity can be judged only after much more material has been studied.

4. If the very tentative nature of our fiber identification be kept in mind, the use of cotton is indicated at seven sites, bast or similar fibers at three, while a single specimen suggests the presence of silk. Wool appears to be completely absent.

In conclusion, I wish to acknowledge the generous contributions of Miss Heath MacBain for many hours spent in careful preparation of casts and the recording and correlation of data derived from them, and of Mr. G. Robert Adlington for photographs and for instruction in the procedures for maximum photographic effects.

APPENDIX 3. HUMAN SKELETAL REMAINS

DR. ALPHONSE RIESENFELD was kind enough to examine the skeletal material from the Quetta sites and is responsible for the subsequent descriptive notes, measurements, and observations. Fourteen burials were excavated from Sites Q8, Q13, and Q24. The skeletal remains from Q8 are prehistoric; those from Sites 13 and 24 are Islamic.

Six burials were uncovered in Site Q13; all were intrusive:

1. Complete skeleton, with skull and mandible; adult male (Burial 1, Location 124; 99.1–1062).
2. Skull and mandible; young adult, probably male (Burial 3, Location 152; 99.1–1064).
3. Incomplete skeleton, mandible; adult, probably male (Burial 2, Location 151; 99.1–1063).
4. Fragments of skeleton, fragments of skull, left part of mandible; infant (Burial 4, Location 118; 99.1–1065).
5. Fragmentary skeleton and skull, mandible; infant (Burial 5, Location 122; 99.1–1066).
6. Fragmentary skeleton and skull, mandible; infant (Burial 6, Location 117; 99.1–1067).

At Site Q24 six burials were uncovered, all intrusive:

7. Skull and mandible, atlas, axis, five cervical vertebrae, right clavicle; adult male (Grave I, south end; 99.1–1069).
8. Fragmentary skull and mandible, atlas; adult (Grave I; 99.1–1068).
9. Fragmentary skull and mandible; young adult (Grave III[1]; 99.1–1072).
10. Fragmentary skull and mandible; child (Grave III; 99.1–1070).
11. Fragmentary skull and mandible; adult, probably male (Grave III; 99.1–1071).
12. Fragmentary skeleton, left part of mandible; infant (Location 209, Southeast; 99.1–1073).

Two burials were excavated at Site Q8:

13. Skeleton, fragmentary skull with mandible; infant (Location 131, South; 99.1–1074); Damb Sadaat II–III.
14. Fragmentary skull; adult, probably male (Sadaat Period, "sacrificial burial"; 99.1–1075); Damb Sadaat III.

The measurements on the adult skulls and mandibles are presented in Table 12.

The measurements using the basion in No. 2 (99.1–1064) are doubtful, because the area of basion was broken and had to be reconstructed. Foramen magnum length and width have not been measured, because the opisthion is also broken, as is the left border of the foramen magnum. The exact value of the bizygomatic diameter is doubtful; the left zygomatic arch is broken. In No. 7 (99.1–1069), the body height of the mandible cannot be measured because of a high degree of resorption of the bone owing to loss of teeth. The value given for the symphyseal height is doubtful for a similar reason. The cranial capacity has been established on the basis of Pearson's formula, with the use of basion-bregma height.

We have calculated the body size, using Pearson's formula, of the two adult skeletons found in Islamic horizons (Nos. 3 and 1; 99.1–1063, 99.1–1062). The right femur, tibia, humerus, and radius were used for this reconstruction (the tibia in No. 3 is missing). The average value was calculated on this basis, as is seen in Table 13. Indices based on the measurements in Table 13 are given in Table 14.

Observations on the adult skulls are given in Table 15.

The infant skeletal material has not been studied in detail. The only remarkable feature is the dentition of the child, No. 9 (99.1–1072). The upper right and left permanent M1 seem to be of rather large size: left M1, maximum length 13.3 mm., maximum width 12.3 mm; right M1, maximum length 13.7 mm., maximum width 12.3 mm. Both upper permanent first molars have a large Carabelli's cusp on the antero-internal corner.

It is manifestly impossible on the basis of so small and fragmentary a sample to arrive at any conclusions as to the physical type of the populations of the periods involved. The Islamic skulls range from brachycephalic to high dolichocephalic. The one prehistoric skull (No. 14, 99.1–1075) is far too fragmentary for any exact measurements to be made. However, it appears to have belonged to a mesocephalic individual which, of course, would place it morphologically within the Islamic Period population range.

Of interest are the well-developed shovel-shaped incisors of No. 2 (99.1–1064).

[1] A composite grave with three burials (Nos. 9–11).

TABLE 12

MEASUREMENTS (IN MILLIMETERS) OF HUMAN SKULLS AND MANDIBLES

	Catalogue Numbers					
	99.1–1062	99.1–1064	99.1–1069	99.1–1068	99.1–1071	99.1–1075
Greatest length	184	176	172	170	—	—
Greatest breadth	156	131	134	135	—	—
Basion-bregma height	127	?139	136	130	—	—
Maximum frontal	132	114	109	112	—	118
Minimum frontal	95	97	90	89	—	101
Basion-nasion	94	?97	97	91	—	—
Basion-prosthion	87	?98	—	86	—	—
Bizygomatic diameter	135	?113	—	120	—	—
Total facial height	92	94	—	112	—	—
Upper facial height	60	58	—	65	—	—
Nasal height	45	46	—	50	—	—
Nasal width	25	23	—	23	—	—
Orbital width	39	38	—	38	—	—
Orbital height	34	35	—	30	—	—
Interorbital width	27	21	16	17	—	22
Maximum alveolar length	48	53	—	49	51	—
Maximum alveolar breadth	46	56	—	62	58	—
Maximum palatal length	42	51	—	46	49	—
Maximum palatal breadth	39	36	—	41	37	—
Foramen magnum length	36	—	35	36	—	—
Foramen magnum width	30	—	27	26	—	—
Nasion-bregma arc	125	127	124	123	—	135
Nasion-bregma cord	118	114	110	110	—	116
Bregma-lambda arc	110	122	122	118	—	—
Bregma-lambda cord	100	109	108	105	—	—
Lambda-opisthion arc	142	—	115	119	—	—
Lambda-opisthion cord	114	—	95	97	—	—
Total horizontal arc	540	491	490	488	—	—
Cranial capacity	1494.28	1377.07	1358.38	1318.21	—	—
Bigonial width	99	89	—	88	87	—
Minimum ramus	25	30	32	26	30	—
Body height	20	21	—	27	30	—
Symphyseal height	26	26	?23	33	32	—

TABLE 13

RECONSTRUCTION OF BODY SIZE (IN CENTIMETERS)

	No. 99.1-1063		No. 99.1–1062	
	Length of Right Long Bone	Reconstructed Body Size	Length of Right Long Bone	Reconstructed Body Size
Femur	42.2	160.64	43.5	163.09
Tibia	—	—	35.3	162.54
Humerus	30.1	157.75	30.2	158.04
Radius	22.9	160.83	23.9	164.10
Average body size		159.74		161.94

TABLE 14

INDICES OF MEASUREMENTS GIVEN IN TABLE 13

	No. 99.1-1062	No. 99.1-1064	No. 99.1-1069	No. 99.1-1068	No. 99.1-1071
Length-breadth	84.78	74.43	77.91	79.41	—
Length-height	69.02	?78.98	79.07	76.47	—
Breadth-height	81.41	106.11	101.49	96.30	—
Fronto-parietal	60.90	74.05	67.16	65.93	—
Alveolar projection	92.55	?101.03	—	94.51	—
Cranio-facial	86.54	?86.26	—	88.89	—
Total facial	68.15	?83.18	—	93.33	—
Upper facial	44.44	?51.33	—	54.17	—
Nasal	55.56	50.00	—	46.00	—
Orbital	87.18	92.11	—	78.95	—
Maxillo-alveolar	95.83	105.66	—	126.53	113.73
Palatal	92.86	70.59	—	89.13	75.51
Foramen-magnum	83.33	—	77.14	72.22	—
Body-symphyseal	130.00	123.81	—	122.22	106.67

TABLE 15

OBSERVATIONS ON ADULT HUMAN SKULLS

	No. 99.1-1062	No. 99.1-1064	No. 99.1-1069	No. 99.1-1068	No. 99.1-1071	No. 99.1-1075
Sex	Male	Probably male	Male	Probably male	Probably male	Probably male
Age	Adult	Young adult	Adult	Adult	Adult	Adult
Metopism	—	—	—	—	—	—
Coronal suture						
Complexity	Medium	Medium	Simple to medium	Medium	—	Medium
Closure	Medium	Open	Medium	Medium	—	Medium
Sagittal suture						
Complexity	Medium	Simple	Simple to medium	Medium	—	—
Closure	Medium	Open	Medium	Medium to obliterated	—	—
Lambdoid suture						
Complexity	Extreme	Simple	Medium	Medium	—	—
Closure	Open	Open	Medium	Medium	—	—
Wormian bones						
Coronal suture	—	—	—	—	—	—
Sagittal suture	—	—	—	—	—	—
Lambdoid suture	Large size	1 small near lambda	—	—	—	—
Asterionic suture	Large size, right	1 small, left 1 medium, right	—	—	—	—
Inca bone	Complete	—	—	—	—	—
Pterion articulation	Left and right sphenoparietal	Left and right sphenoparietal	Left and right sphenoparietal	Right sphenoparietal; ?left, parts of sphenoid and temporal broken	— —	Left sphenoparietal; right missing
Development of anterior nasal spine	Prominent	Prominent	Slight	Medium	Prominent	—
Glabella	Slight to medium	Slight	Slight to medium	Slight	—	Slight
Supraorbital ridges	Mesial half of orbit	Very slight	Mesial half of orbit	Mesial half of orbit	—	Mesial half of orbit

TABLE 15—(*continued*)

	No. 99.1–1062	No. 99.1–1064	No. 99.1–1069	No. 99.1–1068	No. 99.1–1071	No. 99.1–1075
Sagittal thickening	—	Very slight	Slight	—	—	—
Occipital torus	Slight	Very slight to slight	Medium	Slight	—	—
Inion	Slight	Very slight to slight	Medium	Slight	—	—
Root of nose	Medium	High	High	High	—	High
Bridge of nose	Slight arch	High arch	High arch	High arch	—	High arch
Glenoid fossae	Medium	Medium	Deep	Medium to deep	Deep (right side)	Deep (right side); left, incomplete
Mastoid processes	Large	Medium	Right, medium to large; left, missing	Large	Medium to large	—
Palatine torus	—	—	Slight	—	—	—
Chin	Median, positive	Median, neutral	Median, positive	Median, positive	Median, positive	—
Gonion	Everted	Slightly everted	Everted	Neutral	Inverted	—
Mandibular torus	—	—	—	—	—	—
Profile of mandibular angle	Obtuse	Obtuse	Obtuse	Obtuse	Obtuse	—
Sigmoid notch	Deep	Deep	Deep	Deep	Deep (right side)	—
Shovel-shaped incisors	—	All 4 upper, medium	No teeth	No incisors	—	—
Wear of teeth	Medium	Very slight to medium	—	Slight to medium	Medium	—
Bite	Probably edge (upper teeth missing)	Marked over	—	—	Slight over	—
Not erupted	Upper and lower M3	Upper and lower M3	—	—	—	—

APPENDIX 4. FAUNA AND FLORA

FAUNA

A LARGE QUANTITY of animal bones were recovered in the excavations. Most of them were so fragmentary that identification was difficult.[1] The bones were always associated with cultural debris. They were sometimes blackened, very frequently incised as if they had been inadvertently hacked into when the flesh was removed, and, to judge from the number of old breaks, they were apparently deliberately cracked, perhaps for the marrow.

SHEEP AND GOATS

By far the greatest number of bones recovered were of sheep and goats. These occurred without change from Period J through Period G. Because of the difficulty in making positive identification of the bones of either group, the two are treated as one, although occasionally the bone of a goat could be differentiated from bones of sheep, and vice versa.[2] Sheep and goats are now indiscriminately mixed in the flocks, which suggests that the practice was common in prehistoric times. The wear of the teeth recovered indicates that many of the animals were slaughtered before they were two years old and very probably as yearlings.[3]

OXEN (*Bos indicus*)

The remains of cattle (*Bos*) were commonly found, but in by no means so great a quantity as those of sheep and goats. The figurines and the painted pottery of Period G2 and G3 indicate that *Bos indicus* (Brahman cattle) was familiar to contemporaries of those periods. It can be assumed, therefore, that the cattle bones recovered from the various levels of those periods are most probably *Bos indicus*. The study of the bone material for these periods serves to confirm this assumption. Nothing in the *Bos* remains from Period H contradicts this identification of the cattle bones. *Bos* teeth somewhat larger than those usually assigned to *Bos indicus* appeared in Periods I and J. These teeth seem to be almost identical with the teeth of Egyptian cattle recovered in the excavations of the Metropolitan Museum of Art at Deir el-Bahri. The latter are almost certainly teeth of the now extinct aurochs or urus.[4] As the origin of *Bos indicus* is somewhat problematical, the possibility of a cross between urus and a now extinct form of Indian cattle during Period H or I is perhaps suggested.

The wear of the teeth of both forms of *Bos* indicates that, though calves and young adults were slaughtered, cattle were kept longer than sheep or goats. Perhaps the cattle were milked, or quite possibly the religious factor indicated by the figurines helped in preserving them.

EQUINES[5]

The remains of *Equus* were scattered throughout the levels of Periods J through G. These were never recovered in quantity.[6] In view of the figurine type recovered in Period G2 context (p. 226; Fig. 20a), some interest is attached to these remains as possibly indicating the presence of a true horse (*Equus caballus*). However, the identifiable fragments are with good probability those of *Equus hemionus*. For the moment, there is no material evidence for the existence of any other equid in the Quetta Valley during the prehistoric periods.

OTHER MAMMALIA

The remains of wild fauna were very scarce. Surprisingly, there was no greater representation of wild fauna in Period J (as defined at Kili Ghul Mohammad) than in any other prehistoric period. The total number of bones of

[1] The identifications were made by Mr. George G. Goodwin of the Department of Mammals, the American Museum of Natural History. Mr. Goodwin gave generously of his time, and with infinite patience completed a difficult task. I am very grateful.

[2] It is possible that some of the horn fragments uncovered are those of the ibex, but there is no certain way of establishing this without better evidence.

[3] However, there were a not inconsiderable number of individuals whose teeth were very worn, which indicates that some were kept alive to a late age.

[4] Note the parallel in refinement in Marshall, 1931, Vol. 2, in the chapter by R. B. Seymour Sewell and B. S. Guha on Zoological Remains, 654–658.

[5] I am indebted to Dr. George Gaylord Simpson, Chairman of the Department of Geology and Paleontology of the American Museum of Natural History, for identifying the equine bones.

[6] Only seven bones recovered from Quadrant A Cut, Damb Sadaat.

all species recovered is approximately 15,000. Of these, only about 200 fragments represented wild fauna (excluding *Equus hemionus*).

In Period G2 context the remains of roe deer (*Capreolus*) were identified, as were those of *Gazella subgutturosa*. The bandicoot rat (*Nesokia*) and the red fox (*Vulpes vulpes*) were identified for Period J. The ground squirrel (*Citellus*) occurs in Period G2.

Amphibia[1]

Forty-four identifiable fragments of the tortoise (*Testudo horsfieldi*) have been identified by Dr. Ernest Williams. These fragments are mainly from Period G2 levels; some are from Periods G3 and G1; a single example was recovered from a Period H1 level at Kili Ghul Mohammad.

Aves[2]

Though several limb fragments of birds were recovered from Period G levels, their condition is such that identification is impossible. Their size, however, indicates a rather large bird, perhaps of the size of the shikar or partridge.

FLORA

Unfortunately it was impossible to make any botanical identifications in organic material recovered from the excavations.[3] Nevertheless, in view of the important implications of the fauna there is here appended a list of flora for this area, derived from the Baluchistan District Gazetteer, the notes of the Quetta Natural History Society, and from an ecological sampling made by our group.[4]

Valleys

Acantholimon

Acanthophyllum

Alhagi camelorum: Very low spiny shrub, woody, mostly root stock, camel fodder; Punjab, Kashmir, west to Egypt

Arenaria: Annual herb; to north

Arnebia

Artemesia

Ephedra: Shrub, leafless; west, and mountainous Asia

Eremostachys campanula: erect herb

Gentiana

Halocharis: Annual herb; mountainous and west Asia

Haloxylon Griffithii

Onosma

Paracaryum

Perowskia: Stunted-appearing shrub; west, and mountainous Asia

Salsola

Salvia

Spiraea

Uplands

Abelia triflora: Erect shrub, 3–6 feet; temperate Himalayas from Kashmir to Kumaon, 5000–10,000 feet, frequent

Berberis lyium (barberry): Spiny shrub, 6–8 feet; western Himalayas in dry, hot places, 3000–9000 feet, Garwhal to Hazara

Berberis vulgaris (barberry): Shrub of western Himalayas, 8000–12,000 feet; western Tibert, temperate Europe, and northern Asia

Berchemia lineata: Diffuse shrub, thornless; northwestern Himalayas from Indus eastward, Khazan Valley, 4000–7000 feet, Sikkim, east to China

Buddleia paniculata: Shrub or small tree; Himalayas, 4000–7000 feet, common to west, Ava, Kabul, Baluchistan

Caragana ambiquo: Low shrub; central Asia

Cotoreaster nummularia: Small prostrate shrub; western Tibet and Kashmir, 6000–11,000 feet, Soongaria, Afghanistan, and west to Asia Minor

Juniperus macropoda (juniper): Small tree; inner, drier ranges of Himalayas, Nepal to western and northern Tibet, 5000–11,000 feet, Afghanistan, Baluchistan, Persia, Arabia

Leptorhabdos benthamiana: Annual herb with slender branches, 1–2 feet; temperate western Himalayas and western Tibet to Afghanistan and Persia

Lonicera hypoleuca (honeysuckle): Low shrub; northwest Himalayas, 8000–10,000 feet, Kunar, Giruwhal

Lonicera quimquelocularis (honeysuckle): Shrub, 5–10 feet; temperate Himalayas from Kashmir to Kumaon, 4000–12,000 feet

[1] This material was brought to the attention of Dr. Williams of the Museum of Comparative Zoölogy of Harvard College by Mr. Charles M. Bogert, Chairman of the Department of Amphibians and Reptiles, the American Museum of Natural History.

[2] Dr. Dean Amadon of the Department of Birds of the American Museum of Natural History has kindly examined these fragments.

[3] There is still some hope that some of the charcoal recovered from the hearths may be identified.

[4] I am most grateful to Dr. Richard S. Cowan of the New York Botanical Garden for reviewing these lists. With the coöperation of Dr. David D. Keck, Head Curator of the New York Botanical Garden, Dr. Sirjaer and later Dr. Karl Rechinger of the Natural History Museum, Vienna, identified specimens brought to New York.

Pennisetum flaccidum: Perennial grass in dense tufts, 6–24 inches; temperate and alpine Himalayas, 5000–11,000 feet, from Kashmir to western Nepal and western Tibet, Afghanistan, and central Asia

Pennisetum orientale: Perennial grass, densely tufted, 2–6 feet; western Himalayas from Kashmir to Kumaon, 3000–6000 feet, west to Asia Minor and northern Africa

Prunus eburnea

Ribes orientale (gooseberry): Shrub, 6 feet; Kashmir and Baltistan, 8000–12,000 feet, Kabul, Persia, Armenia, Asia Minor, and Greece

Rosa Beggeriana

Salvia cubulica

Spiraea brahuica: Low shrub with slender, stiff, interlaced, sometimes spinescent branches; northwestern India, 5000–8000 feet, to Baluchistan

Stipa capillata: Grass, 2–3 feet; western Himalayas, 9000–11,000 feet, west to Spain and east to China

Viloa kunawarensis: Stemless herb, root stock, woody and branched; Afghanistan, western Tibet, and Tibetan Himalayas from Kumaon to Balti, 11,000–15,000 feet

Spring Flowers

Alyssum

Astragalus

Campanula Griffithii

Cheiranthus stocksianus

Delphinium persicum

Eremurus aurantiacus

Eremurus persicus: Herb, 6–12 inches; northwestern India, Salt Range, 4000–5000 feet, Afghanistan, Persia, Syria

Fritillaria

Hyacinthus glaucus

Iris ensata: West and mountainous Asia, Russia

Iris falcifolia: Western Asia

Iris sisyrinchium: Herb; Afghanistan

Iris stocksii: Herb; Baluchistan

Isatis minima

Isiolirion montanum

Malcolmia bungel

Matricaria lasiocarpa

Muscari racemosum

Papaver cornigerum

Tulipa chrysantha (tulip): Bulbous plant; Punjab, Salt Range, Afghanistan, central Asia, and northern Persia, bulbs eaten in Baluchistan

Tulipa montana

Swampland

Calamagrostis epigejos: Grass, 2–4 feet; Kashmir, 8000–14,000 feet, northern Asia, Europe, and southern Africa

Eragrostis cynosuroides: Perennial grass in tufts, 1–3 feet; plains of India from Peshawar and Sind to Burma and south in moist places, west to Syria and northern Africa

Lepidium crassifolium

Lotus corniculatus: Perennial herb; western Himalayas from plains up to 10,000 feet, Europe, Orient, Abyssinia, Japan, and Australia

Ononis hircina: Under shrub; temperate western Himalayas, Tibet, and Kashmir, 5000–7000 feet, Orient, western Siberia, and Europe

Phragmites communis (reed-grass): Grass, to 8 feet; common weed of swampy places in all areas

Plantago major (plaintain): Herb; common weed in all temperate areas

Ranunculus aquatilis (water buttercup): Submerged aquatic plant with dissected leaves; Ganges west through Europe, also in Southern Hemisphere

Cultivation Weeds

Adonis aestivalis (buttercup): Erect annual, 1–2 feet; western Himalayas to temperate Asia and temperate Europe

Erodium cicutarium: Annual herb, 2–3 feet; western India to 8000 feet in Little Tibet, west to Algeria, throughout Europe and temperate northern Asia

Fumaria parviflora (poppy): Common weed; to 8000 feet in Himalayas, used as remedy for fever and ague

Holosteum umbellatum: Annual herb, 4–8 inches; Kashmir, western Asia, northern Africa, Europe

Hypecoum procumbens

Lepidium draba: Perennial weed; Punjab and west to Europe

Malcolmia africana: Annual herb; fields of Punjab, Kashmir, and western Tibet to 13,000 feet, western Asia and Mediterranean region

Malva rotundifolia (mallow): Much-branched weedy herb; northwestern India, through west Asia to Europe

Silene conoidea (campion or catchfly): Common weed; Punjab west to Atlantic

Sisymbrium sophia: Erect annual, 1–2 feet; Punjab in Salt Range, temperate Himalayas, 5000–7000 feet, western Tibet, 9000–14,000 feet, west through Europe, northern Africa, and North and South America

Veronica agrestis: Annual herb, prostrate; plains of Punjab, upper Ganges Valley, western Himalayas to 6000 feet, western Tibet to 9000 feet, Europe, northeastern and western Asia to Japan, China, and North Africa

Trees in Hills

Berberis vulgaris (archin)

Corylus colurna (metab): Clumped tree, 40–50 feet; western temperate Himalayas, 5500–10,500 feet, west to Asia Minor, Thrace, and Hungary

Daphne oleoides (pipal)

Fraxinus xanthoxyloides (mountain ash): Tree, 25 feet or more; often a shrub in temperate Himalayas and west to Baluchistan

Olea cuspidata (olive): Tree, 30 feet; frequent in northwestern Himalayas and Kashmir, 2000–6000 feet, west to Baluchistan

Pistacia vera (pistachio): Native to Persia and Syria

Prunus eburnea (mashmunk)

Tamarix articulata (tamarisk): Tree to 60 feet; common in Punjab, west to Persia, north and central Africa

Wild fig

FRUIT TREES

Almond

Apple

Apricot

Elaeagnus angustifolia hortensis: Tree, 12–30 feet, often spiny, silvery when young; western Tibet, 5000–10,500 feet, western Himalayas, 6000–7000 feet, west to Spain, western and central Asia to China

Morus alba (mulberry)

Peach

Pear

Platanus orientalis (sycamore): Tree, to 75 feet; northwestern Himalaya, 5000–8500 feet, cultivated, wild from northern Persia west to southern Italy

Populus alba (Cottonwood, poplar): Tree, 40 feet or taller; northwestern Himalayas, 4000–10,000 feet, western Tibet, western Siberia, Syria, Asia Minor, Europe, and northern Africa

Salix acmophylla: Medium tree; northwestern India to Afghanistan, Baluchistan, and Syria; helps hold streams

PLANTS

Acantholimon munroanum

Anemone biflora (biflora): Perennial herb with thick, tuberous root stock; Kashmir in dry stony places, 4000–6000 feet, Turkestan and east to Persia

Asparagus monophyllus

Atriplex leptoclada

Bougardia rauwolfii

Campanula griffithii

Camphorosma monspeliara

Celtis australis: Tree; Salt Range and temperate Himalayas, 4000–8000 feet, and west to Spain

Centauria iberica: Herb; Kashmir, 5000–6000 feet, west to Atlantic

Cheiranthus stocksianus

Cichorium intybus (chicory): Perennial herb, 1–3 feet; northwest India, west to Atlantic

Clematis orientalis: Large woody vine; dry inner valleys from the Indus to Kumaon in western Himalayas, western Tibet, temperate Asia, Persia, and Manchuria

Concolculus leiocalycinus

Crucianella glomerata

Cynodon dactylon (finger grass, Bermuda grass): Common weed-grass; tropics or sub-tropics

Delphinium uncinatum (foxglove): Erect herb, 1–2 feet; Salt Range of the Punjab, and western Himalayas in dry places

Draba hystrix

Ebenus stellata: Low under shrub, with large spines; Punjab-Himalayas, 4000–8000 feet, Persia, Afghanistan, Baluchistan

Euphorbia densa

Ficus carica (cultivated fig)

Galium tricorne (bed straw): Herbaceous weed in cultivated areas; Punjab to Kashmir to northern Africa to Europe

Gungu (Phto), Manguli (Bra)-Medicird

Halocharis sulphurea: Erect, bristly annual herb; Punjba west of the Indus, Assyria, Persia

Haloxylon griffithii: Charcoal source

Jasminum humile (jasmine): Erect, rigid, branching shrub; sub-tropical Himalayas, 2000–5000 feet, from Kashmir to Nepal, south India and Ceylon, 2000–6000 feet, cultivated

Leptaleum hamatum

Lithospermum tenuiflorum: Annual herb, decumbent, to 12 inches; Kashmir, 5000–7000 feet, Punjab, western Asia, Egypt, and Greece

Onobrychis dealbata

Orobanche (witches-broom): Root, parasite

Orthonnopsis intermedia

Perowskia abrotanoides (mint): Much branched shrub or under shrub, 2–4 feet; western Tibet, 8000–13,000 feet, Afghanistan, Persia, and Turkomania

Pistacia mutica

Poa bulbosa: Densely tufted grass, 6–16 inches, stems thickened at base; western Himalayas, 5000–9000 feet, western Tibet, 9000–13,000 feet, temperate Asia

Ranunculus talcatus

Salvia spinlsa

Sophora griffithii

Spiraea brahuica

Stocksia brahuica

Suaeadae

Tamarix gallica (tamarisk): Shrub or tree, to 30 feet; sand and gravels near rivers and on low saline soils from all India to Europe and northern Africa

Veronica anagallis: Succulent, perennial herb, 6–18 inches, Bengal, Khasia Mountains, Assam, Deccan Peninsula, Europe, Asia, northern and southern Africa, and North America

Xanthium strumarium (burdock): Weed of waste places; Himalayas south to Ceylon; leaves used for yellow dye, seeds for oil, fruit for medicine.

Zygophyllum atriplocoides

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CATALOGUE DATA FOR CERTAIN ILLUSTRATIONS

PLATES

14. Potters' marks

a. Site Q8, Damb Sadaat II–III (73-4481a)
b. Site Q8, surface (73-4481b)
c. Site Q13, Damb Sadaat II (73-4481c)
d. Site Q8, surface (73-4481d)
e. Site Q8, Damb Sadaat III (73-4481e)
f. Site Q13, Damb Sadaat II (73-4481f)
g. Site Q8, Damb Sadaat III (73-4481g)
h. Site Q8, surface (73-4481h)
i. Site Q8, Damb Sadaat II (73-4481i)
j. Site Q8, Damb Sadaat III (73-4481j)
k. Site Q8, Damb Sadaat II (73-4481k)
l. Site Q8, Damb Sadaat II (73-4481 l)
m. Sites Q8 and Q13, Damb Sadaat II, also Damb Sadaat I (73-4481m)
n. Site Q8, Damb Sadaat II (73-4481n)
o. Site Q8, Damb Sadaat III (73-4481o)
p. Site Q24, surface (73-4481p)
q. Site Q8, Damb Sadaat II (73-4481q)
r. Site Q8, surface (73-4481r)
s. Site Q8, Damb Sadaat II (73-4481s)
t. Site Q8, Damb Sadaat II (73-4481t)
u. Site Q8, surface (73-4481u)
v. Site Q8, Damb Sadaat III (73-4481v)
w. Site Q8, Damb Sadaat II (73-4481w)
x. Site Q8, surface (73-4481x)
y. Site Q8, surface (73-4481y)
z. Site Q8, Damb Sadaat II (73-4481z)
aa. Site Q8, Damb Sadaat II (73-4481aa)
bb. Site Q24, surface (73-4481bb)
cc. Site Q8, Damb Sadaat II? (73-4481cc)
dd. Site Q13, Damb Sadaat II (73-4481dd)
ee. Site Q24, surface (73-4481ee)
ff. Site Q13, Damb Sadaat II (73-4481ff)
gg. Site Q8, Damb Sadaat II (73-4481gg)
hh. Site Q8, Damb Sadaat III (73-4481hh)
ii. Site Q8, Damb Sadaat III (73-4481ii)
jj. Site Q8, Damb Sadaat II (73-4481jj)
kk. Site Q8, Damb Sadaat III (73-4481kk)
ll. Site Q8, Damb Sadaat II (73-4481 ll)
mm. Site Q13, Damb Sadaat II? (73-4481mm)
nn. Site Q8, Damb Sadaat III (73-4481nn)
oo. Site Q8, surface (73-4481oo)
pp. Site Q8, Damb Sadaat II (73-4481pp)
qq. Site Q8, Damb Sadaat III (73-4481qq)
rr. Site Q8, Damb Sadaat I–II (73-4481rr)
ss. Site Q8, Damb Sadaat II (73-4481ss)
tt. Site Q8, Damb Sadaat III (73-4481tt)
uu. Site Q8, Damb Sadaat I (73-4481uu)
vv. Site Q8, Damb Sadaat III (73-4481vv)
ww. Site Q8, Damb Sadaat III (73-4481ww)
xx. Site Q8, Damb Sadaat II (73-4481xx)
yy. Site Q8, surface (73-4481yy)

15. Clay objects of Harappan affiliation

a. Site Q8, Damb Sadaat II (73-3781e)
b. Site Q19, surface (73-3781d)
c. Site Q19, surface (73-3781i)
d. Site Q19, surface (73-3781f)
e. Site Q19, surface (73-3781a)
f. Site Q8, Damb Sadaat III (73-3781c)
g. Site Q19, surface (73-3781b)
h. Site K1, surface (73-3781g)
i. Site B2, surface (73-3781h)
j. Site Q19, surface (73-3781j)
k. Site Q19, surface (73-3781n)
l. Site Q19, surface (73-3781k)

16. Ghul Painted wares

a. Site Q19, surface (73-4498a)
b. Site Q24, Phase 4 (73-4498b)
c. Site Q22, surface (73-4498c)
d. Site Q5, surface (73-4498d)
e. Site Q32, surface (73-4498e)
f. Site Q32, surface (73-4498f)
g. Site Q24, Kili Ghul Mohammad III (73-4498g)
h. Site Q19, surface (73-4498h)
i. Site Q32, surface (73-4498j)
j. Site Q32, surface (73-4498m)
k. Site Q22, surface (73-4498o)
l. Site Q25, surface (73-4498q)
m. Site Q32, surface (73-4498s)
n. Site Q24, Phase 4 (73-4498i)
o. Site Q30, surface (73-4498k)
p. Site Q22, surface (73-4498 l)
q. Site Q19, surface (73-4498n)
r. Site Q24, Phase 4 (73-4498p)
s. Site Q32, surface (73-4498r)
t. Site Q32, surface (73-4497a)
u. Site Q24, Phase 4 (73-4497b)
v. Site Q24, Phase 4 (73-4497c)
w. Site Q32, surface (73-4497d)
x. Site Q32, surface (73-4497e)
y. Site Q32, surface (73-4497f)
z. Site Q25, surface (73-4497g)
aa. Site Q24, surface (73-4497h)
bb. Site Q32, surface (73-4497j)
cc. Site Q24, Phase 4 (73-4497 l)
dd. Site Q32, surface (73-4497m)
ee. Site Q24, Phase 4 (73-4497n)
ff. Site Q32, surface (73-4497o)
gg. Site Q19, surface (73-4497k)
hh. Site Q19, surface (73-4497i)
ii. Site Q32, surface (73-4497u)
jj. Site Q32, surface (73-4497v)
kk. Site Q32, surface (73-4497w)

ll. Site Q30, surface (73-4497x)
mm. Site Q25, surface (73-4497y)
nn. Site Q19, surface (73-4497z)
oo. Site Q25, surface (73-4497p)
pp. Site Q24, Phase 4 (73-4497q)
qq. Site Q24, surface (73-4497r)
rr. Site Q19, surface (73-4497s)
ss. Site Q25, surface (73-4497t)
tt. Site Q32, surface (73-4499a)
uu. Site Q32, surface (73-4499b)
vv. Site Q30, surface (73-4499c)
ww. Site Q32, surface (73-4499d)
xx. Site Q24, Phase 4 (73-4499e)
yy. Site Q30, surface (73-4499f)
zz. Site Q32, surface (73-4499g)
aaa. Site Q32, surface (73-4499h)
bbb. Site Q32, surface (73-4499i)
ccc. Site Q32, surface (73-4499j)
ddd. Site Q32, surface (73-4499k)
eee. Site Q34, surface (73-4499 l)
fff. Site Q19, surface (73-4499m)
ggg. Site Q30, surface (73-4499n)
hhh. Site Q32, surface (73-4499o)
iii. Site Q30, surface (73-4499p)
jjj. Site Q30, surface (73-4499q)
kkk. Site Q32, surface (73-4499r)
lll. Site Q32, surface (73-4499s)
mmm. Site Q32, surface (73-4499t)
nnn. Site Q24, Phase 4 (73-4499u)

17. Possible stamped ware (a, c); stamped ware (b, d–i); mould-made (j–w); appliqué (x–aa); finger-tip decorated (bb–ff); Pishin black-on-red ware (gg–ii)

a. Site Q19, surface, Period B? (73-4507a)
b. Site Q19, surface, Period D (73-4507b)
c. Site Q32, surface, Period B (73-4507c)
d. Site Q32, surface, Period D (73-4507d)
e. Site Q1, surface, Period A (73-4507e)
f. Site Q32, surface (73-4509a)
g. Site Q32, surface (73-4509b)
h. Site Q21, surface (73-4509c)
i. Site Q31, surface (73-4509d)
j. Site Q32, surface (73-4509e)
k. Site Q32, surface (73-4509f)
l. Site Q32, surface (73-4509g)
m. Site Q30, surface (73-4509h)
n. Site Q5, surface (73-4509i)
o. Site Q32, surface (73-4509k)
p. Site Q32, surface (73-4509m)
q. Site Q32, surface (73-4509o)
r. Site Q32, surface (73-4509q)
s. Site Q32, surface (73-4509j)
t. Site Q32, surface (73-4509 l)
u. Site Q32, Quetta Valley, unlocated (73-4509n)
v. Site Q5, surface (73-4509p)
w. Site Q32, surface (73-4509r)
x. Site Q32, surface (73-4510a)
y. Site Q34, surface (73-4510b)
z. Site Q32, surface (73-4510c)
aa. Site Q32, surface (73-4510d)
bb. Site Q31, surface (73-4508a)
cc. Site Q32, surface (73-4508b)
dd. Site Q32, surface (73-4508d)
ee. Site Q32, surface (73-4508c)
ff. Site Q25, surface (73-4508e)
gg. Site P5, surface (73-4485a)
hh. Site P5, surface (73-4485b)
ii. Site P5, surface (73-4485c)

18. Ring ware (a–l); Ribbed ware (m–cc); Rope ware, wheelmade (dd–nn)

a. Site Q19, surface (73-4506a)
b. Site Q19, surface (73-4506b)
c. Site Q19, surface (73-4506c)
d. Site Q31, surface (73-4506d)
e. Site Q31, surface (73-4506e)
f. Site Q19, surface (73-4506f)
g. Site Q31, surface (73-4506g)
h. Site Q19, surface (73-4506h)
i. Site Q31, surface (73-4506i)
j. Site Q31, surface (73-4506j)
k. Site Q19, surface (73-4506k)
l. Site Q19, surface (73-4506 l)
m. Site Q19, surface (73-4505a)
n. Site Q32, surface (73-4505b)
o. Site Q19, surface (73-4505c)
p. Site Q19, surface (73-4505d)
q. Site Q19, surface (73-4505e)
r. Site Q19, surface (73-4505f)
s. Site Q32, surface (73-4505g)
t. Site Q19, surface (73-4505h)
u. Site Q32, surface (73-4505i)
v. Site Q32, surface (73-4505j)
w. Site Q19, surface (73-4505k)
x. Site Q18, surface (73-4505 l)
y. Site Q19, surface (73-4505m)
z. Site Q19, surface (73-4505n)
aa. Site Q19, surface (73-4505o)
bb. Site Q34, surface (73-4505p)
cc. Site Q32, surface (73-4505q)
dd. Site Q32, surface (73-4512a)
ee. Site Q32, surface (73-4512b)
ff. Site Q32, surface (73-4512c)
gg. Site Q32, surface (73-4512d)
hh. Site Q19, surface (73-4512e)
ii. Site Q19, surface (73-4512f)
jj. Site Q32, surface (73-4512i)
kk. Site Q19, surface (73-4512k)
ll. Site Q32, surface (73-4512g)
mm. Site Q25, surface (73-4512h)
nn. Site Q19, surface (73-4512j)

19. Ridge ware (a–j); band ware (k–u)

a. Site Q9, surface (73-4500a)

b. Site Q9, surface (73-4500b)
c. Site Q19, surface (73-4500c)
d. Site Q9, surface (73-4500d)
e. Site Q32, surface (73-4500e)
f. Site Q34, surface (73-4500f)
g. Quetta Valley, unlocated (73-4500g)
h. Site Q32, surface (73-4500h)
i. Site Q25, surface (73-4500i)
j. Site Q25, surface (73-4500j)
k. Site Q19, surface (73-4500k)
l. Site Q19, surface (73-4500 l)
m. Site Q22, surface (73-4500m)
n. Site Q19, surface (73-4500n)
o. Site Q19, surface (73-4500o)
p. Site Q25, surface (73-4500p)
q. Site Q34, surface (73-4500q)
r. Site Q30, surface (73-4500r)
s. Site Q30, surface (73-4500s)
t. Site Q32, surface (73-4500t)
u. Site Q32, surface (73-4500u)

20. Loop and comb incising

a. Site Q19, surface (73-4503a)
b. Site Q31, surface (73-4503b)
c. Site Q15, surface (73-4503c)
d. Site Q32, surface (73-4503d)
e. Site Q19, surface (73-4503e)
f. Site Q32, surface (73-4503f)
g. Site Q34, surface (73-4503g)
h. Site Q19, surface (73-4503h)
i. Site Q19, surface (73-4503i)
j. Site Q15, surface (73-4503j)
k. Site Q31, surface (73-4503k)
l. Site Q31, surface (73-4503 l)
m. Site Q19, surface (73-4503m)
n. Site Q32, surface (73-4503n)
o. Site Q31, surface (73-4503o)
p. Site Q23, surface (73-4503p)
q. Site Q19, surface (73-4503q)
r. Site Q31, surface (73-4503r)
s. Site Q19, surface (73-4503s)
t. Site Q32, surface (73-4503t)
u. Site Q32, surface (73-4503u)
v. Site Q37, surface (73-4503v)
w. Site Q19, surface (73-4503w)
x. Site Q32, surface (73-4503x)
y. Site Q19, surface (73-4503y)
z. Site Q31, surface (73-4503z)
aa. Site Q32, surface (73-4503aa)
bb. Site Q19, surface (73-4503bb)
cc. Site Q19, surface (73-4503cc)
dd. Site Q4, surface (73-4503dd)
ee. Site Q19, surface (73-4502a)
ff. Site Q19, surface (73-4502b)
gg. Site Q19, surface (73-4502c)
hh. Site Q32, surface (73-4502d)
ii. Site Q31, surface (73-4502e)
jj. Site Q19, surface (73-4502f)
kk. Site Q19, surface (73-4502g)
ll. Site Q31, surface (73-4502h)
mm. Site Q32, surface (73-4502i)

21. Glazed wares. Greenish glazes (a–x); yellowish glazes (y–zz); whitish glazes (aaa–ppp)

a. Site Q32, surface (73-4517a)
b. Site Q31, surface (73-4517b)
c. Site Q32, surface (73-4517c)
d. Site Q32, surface (73-4517d)
e. Site Q32, surface (73-4517e)
f. Site Q32, surface (73-4517f)
g. Site Q32, surface (73-4517g)
h. Site Q32, surface (73-4517h)
i. Site Q32, surface (73-4517i)
j. Site Q32, surface (73-4517j)
k. Site Q32, surface (73-4517k)
l. Site Q32, surface (73-4517 l)
m. Site Q32, surface (73-4517m)
n. Site Q32, surface (73-4517n)
o. Site Q32, surface (73-4517o)
p. Site Q30, surface (73-4517p)
q. Site Q32, surface (73-4517q)
r. Site Q30, surface (73-4517r)
s. Site Q37, surface (73-4517s)
t. Site Q37, surface (73-4517t)
u. Site Q32, surface (73-4517u)
v. Site Q32, surface (73-4517v)
w. Site Q30, surface (73-4517w)
x. Site Q32, surface (73-4517x)
y. Site Q19, surface (73-4516a)
z. Site Q19, surface (73-4516b)
aa. Site Q19, surface (73-4516c)
bb. Site Q31, surface (73-4516d)
cc. Site Q31, surface (73-4516e)
dd. Site Q31, surface (73-4516f)
ee. Site Q32, surface (73-4516g)
ff. Site Q32, surface (73-4516h)
gg. Site Q32, surface (73-4516i)
hh. Site Q30, surface (73-4516j)
ii. Site Q19, surface (73-4516k)
jj. Site Q19, surface (73-4516 l)
kk. Site Q19, surface (73-4516m)
ll. Site Q32, surface (73-4516n)
mm. Site Q31, surface (73-4516o)
nn. Site Q32, surface (73-4516p)
oo. Site Q30, surface (73-4516q)
pp. Site Q32, surface (73-4516r)
qq. Site Q19, surface (73-4515a)
rr. Site Q19, surface (73-4515b)
ss. Site Q32, surface (73-4515c)
tt. Site Q32, surface (73-4515d)
uu. Site Q32, surface (73-4515e)
vv. Site Q32, surface (73-4515f)
ww. Site Q32, surface (73-4515g)
xx. Site Q19, surface (73-4515h)
yy. Site Q32, surface (73-4515i)
zz. Site Q32, surface (73-4515j)

aaa. Site Q32, surface (73-4514a)
bbb. Site Q32, surface (73-4514b)
ccc. Site Q32, surface (73-4514c)
ddd. Site Q22, surface (73-4514d)
eee. Site Q18, surface (73-4514e)
fff. Site Q32, surface (73-4514f)
ggg. Site Q32, surface (73-4514g)
hhh. Site Q32, surface (73-4514h)
iii. Site Q30, surface (73-4514i)
jjj. Site Q32, surface (73-4514j)
kkk. Site Q29, surface (73-4514k)
lll. Site Q30, surface (73-4514 l)
mmm. Site Q19, surface (73-4514m)
nnn. Site Q32, surface (73-4514n)
ooo. Site Q30, surface (73-4514o)
ppp. Site Q32, surface (73-4514p)

22. Modern or Islamic wares

a. Site Q19, surface (73-4523a)
b. Site Q19, surface (73-4523b)
c. Site Q32, surface (73-4523c)
d. Site Q34, surface (73-4523d)
e. Site Q19, surface (73-4523e)
f. Site Q19, surface (73-4523f)
g. Site Q37, surface (73-4523g)
h. Site Q19, surface (73-4523h)
i. Site Q32, surface (73-4523i)
j. Site Q32, surface (73-4523j)
k. Site Q3, surface (73-4523k)
l. Site Q19, surface (73-4523 l)
m. Site Q19, surface (73-4523m)
n. Site Q34, surface (73-4523n)
o. Site Q4, surface (73-4523o)
p. Site Q19, surface (73-4523p)
q. Site Q19, surface (73-4523q)
r. Site Q19, surface (73-4523r)
s. Site Q19, surface (73-4523s)
t. Site Q1, surface (73-4523t)
u. Site Q4, surface (73-4523u)
v. Site Q34, surface (73-4523v)
w. Site Q31, surface (73-4523w)
x. Site Q29, surface (73-4523x)
y. Site Q21, surface (73-4523y)
z. Site Q24, surface (73-4523z)
aa. Site Q1, surface (73-4523aa)
bb. Site Q1, surface (73-4523bb)
cc. Site Q19, surface (73-4523cc)
dd. Site Q5, surface (73-4523dd)
ee. Site Q3, surface (73-4523ee)
ff. Site Q29, surface (73-4523ff)
gg. Site Q2, surface (73-4523gg)
hh. Site Q19, surface (73-4523hh)
ii. Site Q1, surface (73-4523ii)
jj. Site Q5, surface (73-4523jj)
kk. Site Q22, surface (73-4523kk)
ll. Site Q3, surface (73-4523 ll)
mm. Site Q3, surface (73-4523mm)
nn. Site Q32, surface (73-4523nn)
oo. Site Q19, surface (73-4523oo)
pp. Site Q37, surface (73-4523pp)
qq. Site Q37, surface (73-4523qq)
rr. Site Q3, surface (73-4523rr)

23. Miscellaneous incised sherds, handles, and lugs

a. Site Q32, surface (73-4501a)
b. Site Q32, surface (73-4501b)
c. Site Q32, surface (73-4501c)
d. Site Q32, surface (73-4501d)
e. Site Q34, surface (73-4501e)
f. Site Q32, surface (73-4501f)
g. Site Q23, surface (73-4501g)
h. Site Q32, surface (73-4501h)
i. Site Q33, surface (73-4501i)
j. Site Q32, surface (73-4501j)
k. Site Q32, surface (73-4501k)
l. Site Q35, surface (73-4501 l)
m. Site Q19, surface (73-4501m)
n. Site Q4, surface (73-4501n)
o. Site Q32, surface (73-4501o)
p. Site Q32, surface (73-4501p)
q. Site Q19, surface (73-4511a)
r. Site Q32, surface (73-4511b)
s. Site Q19, surface (73-4511c)
t. Site Q31, surface (73-4511d)
u. Site Q32, surface (73-4511e)
v. Site Q32, surface (73-4511f)
w. Site Q32, surface (73-4511g)
x. Site Q32, surface (73-4511h)
y. Site Q19, surface (73-4511i)
z. Site Q19, surface (73-4511j)
aa. Site Q32, surface (73-4511k)
bb. Site Q31, surface (73-4511 l)
cc. Site Q19, surface (73-4511m)
dd. Site Q32, surface (73-4511n)
ee. Site Q19, surface (73-4511o)
ff. Site Q32, surface (73-4511p)
gg. Site Q30, surface (73-4511q)

24. Pedestals, bases, and handles

a. Site Q19, surface (73-4513a)
b. Site Q31, surface (73-4513b)
c. Site Q19, surface (73-4513c)
d. Site Q19, surface (74-3513d)
e. Site Q32, surface (73-4513e)
f. Site Q16, surface (73-4513f)
g. Site Q9, surface (73-4513g)
h. Site Q32, surface (73-4513h)
i. Site Q32, surface (73-4513i)
j. Site Q18, surface (73-4513j)
k. Site Q6, surface (73-4513k)
l. Site Q9, surface (73-4513 l)
m. Site Q37, surface (73-4513m)
n. Site Q19, surface (73-4513n)
o. Site Q6, surface (73-4513o)
p. Site Q19, surface (73-4513p)
q. Site Q19, surface (73-4513q)

r. Site Q19, surface (73-4513r)
s. Site Q32, surface (73-4513s)
t. Site Q32, surface (73-4513t)
u. Site Q32, surface (73-4513u)
v. Site Q32, surface (73-4513v)
w. Site Q32, surface (73-4513w)
x. Site Q19, surface (73-4513x)

25. Sherds from Pishin Sites P1 and P2

a. Site P1, surface (73-4482a)
b. Site P1, surface (73-4482b)
c. Site P1, surface (73-4482c)
d. Site P1, surface (73-4482d)
e. Site P1, surface (73-4482e)
f. Site P1, surface (73-4482f)
g. Site P1, surface (73-4482g)
h. Site P1, surface (73-4482h)
i. Site P1, surface (73-4482i)
j. Site P1, surface (73-4482j)
k. Site P1, surface (73-4482k)
l. Site P1, surface (73-4482 l)
m. Site P1, surface (73-4482m)
n. Site P1, surface (73-4482n)
o. Site P1, surface (73-4482o)
p. Site P1, surface (73-4482p)
q. Site P1, surface (73-4482q)
r. Site P1, surface (73-4482r)
s. Site P1, surface (73-4482s)
t. Site P1, surface (73-4482t)
u. Site P1, surface (73-4482u)
v. Site P1, surface (73-4482v)
w. Site P1, surface (73-4482w)
x. Site P1, surface (73-4482x)
y. Site P1, surface (73-4482y)
z. Site P1, surface (73-4482z)
aa. Site P1, surface (73-4482aa)
bb. Site P1, surface (73-4482bb)
cc. Site P2, surface (73-4483a)
dd. Site P2, surface (73-4483b)
ee. Site P2, surface (73-4483c)
ff. Site P2, surface (73-4483d)
gg. Site P2, surface (73-4483e)
hh. Site P2, surface (73-4483f)
ii. Site P2, surface (73-4483g)

26. Sherds from Pishin Sites P3, P4, and P5

a. Site P3, surface (73-4484a)
b. Site P3, surface (73-4484b)
c. Site P3, surface (73-4484c)
d. Site P3, surface (73-4484d)
e. Site P3, surface (73-4484e)
f. Site P3, surface (73-4484f)
g. Site P3, surface (73-4484g)
h. Site P3, surface (73-4484h)
i. Site P3, surface (73-4484i)
j. Site P4, surface (73-4485a)
k. Site P4, surface (73-4485b)
l. Site P4, surface (73-4485c)
m. Site P4, surface (73-4485d)
n. Site P4, surface (73-4485e)
o. Site P4, surface (73–4485f)
p. Site P4, surface (73-4485g)
q. Site P4, surface (73-4485h)
r. Site P4, surface (73-4485i)
s. Site P4, surface (73-4485j)
t. Site P4, surface (73-4485k)
u. Site P4, surface (73-4485 l)
v. Site P4, surface (73-4485m)
w. Site P5, surface (73-4486a)
x. Site P5, surface (73-4486b)
y. Site P5, surface (73-4486c)
z. Site P5, surface (73-4486d)
aa. Site P5, surface (73-4486e)
bb. Site P5, surface (73-4486f)
cc. Site-P5, surface (73-4486g)
dd. Site P5, surface (73-4486h)
ee. Site P5, surface (73-4486i)
ff. Site P5, surface (73-4486j)
gg. Site P5, surface (73-4486k)
hh. Site P5, surface (73-4486 l)
ii. Site P5, surface (73-4486m)
jj. Site P5, surface (73-4486n)
kk. Site P5, surface (73-4486o)
ll. Site P5, surface (73-4486p)
mm. Site P5, surface (73-4486q)
nn. Site P5, surface (73-4486r)
oo. Site P5, surface (73-4486s)

27. Sherds and flints from Pishin Sites P6, P7, and P8

a. Site P6, surface (73-4487a)
b. Site P6, surface (73-4487b)
c. Site P6, surfrce (73-4487c)
d. Site P6, surface (73-4487d)
e. Site P6, surface (73-4487e)
f. Site P6, surface (73-4487f)
g. Site P6, surface (73-4487g)
h. Site P6, surface (73-4487h)
i. Site P6, surface (73-4487i)
j. Site P6, surface (73-4487j)
k. Site P6, surface (73-4487k)
l. Site P6, surface (73-4487 l)
m. Site P6, surface (73-4487m)
n. Site P6, surface (73-4487n)
o. Site P6, surface (73-4487o)
p. Site P6, surface (73-4487p)
q. Site P6, surface (73-4487q)
r. Site P6, surface (73-4487r)
s. Site P6, surface (73-4487s)
t. Site P6, surface (73-4487t)
u. Site P6, surface (73-4487u)
v. Site P6, surface (73-4487v)
w. Site P6, surface (73-4487w)
x. Site P6, surface (73-4487x)
y. Site P6, surface (73-4487y)
z. Site P6, surface (73-4487z)

aa. Site P6, surface (73-4487aa)
bb. Site P7, surface (73-4488a)
cc. Site P7, surface (73-4488b)
dd. Site P7, surface (73-4488c)
ee. Site P7, surface (73-4488d)
ff. Site P7, surface (73-4488e)
gg. Site P7, surface (73-4488f)
hh. Site P8, surface (73-4489a)
ii. Site P8, surface (73-4489b)
jj. Site P8, surface (73-4489c)
kk. Site P8, surface (73-4489d)
ll. Site P8, surface (73-4489e)
mm. Site P8, surface (72-4489f)
nn. Site P8, surface (73-4489g)
oo. Site P8, surface (73-4489h)
pp. Site P8, surface (73-4489i)
qq. Site P8, surface (73-4489j)
rr. Site P8, surface (73-4489k)
ss. Site P8, surface (73-4489 l)
tt. Site P8, surface (73-4489m)
uu. Site P8, surface (73-4489n)
vv. Site P8, surface (73-4489o)
ww. Site P8, surface (73-4489p)
xx. Site P8, surface (73-4489q)
yy. Site P8, surface (73-4489r)
zz. Site P8, surface (73-4489s)
aaa. Site P8, surface (73-4489t)
bbb. Site P8, surface (73-4489u)
ccc. Site P8, surface (73-4489v)
ddd. Site P8, surface (73-4489w)
eee. Site P8, surface (73-4489x)
fff. Site P8, surface (73-4489y)
ggg. Site P8, surface (73-4489z)

28. Sherds from the Bolan Area, Site B1

a-aaa. Site B1, surface (73-4494a–4494aaa)

29. Sherds and flints from the Bolan Area, Site B2

a–tt. Site B2, surface (73-4495a–4495tt)

30. Sherds from the Chagai Area, Site Ch1

a–ee. Site Ch1, surface (73-4496a–4496ee)

31. Sherds and flints from the Kalat Area, Sites K1 and K2

a. Site K1, surface (73-4490a)
b. Site K1, surface (73-4490b)
c. Site K1, surface (73-4490c)
d. Site K1, surface (73-4490d)
e. Site K1, surface (73-4490e)
f. Site K1, surface (73-4490f)
g. Site K1, surface (73-4490g)
h. Site K1, surface (73-4490h)
i. Site K1, surface (73-4490i)
j. Site K1, surface (73-4490j)
k. Site K1, surface (73-4490k)
l. Site K1, surface (73-4490 l)
m. Site K1, surface (73-4490m)
n. Site K1, surface (73-4490n)
o. Site K1, surface (73-4490o)
p. Site K1, surface (73-4490p)
q. Site K1, surface (73-4490q)
r. Site K1, surface (73-4490r)
s. Site K1, surface (73-4490s)
t. Site K1, surface (73-4490t)
u. Site K1, surface (73-4490u)
v. Site K1, surface (73-4490v)
w. Site K1, surface (73-4490w)
x. Site K1, surface (73-4490x)
y. Site K1, surface (73-4490y)
z. Site K1, surface (73-4490z)
aa. Site K1, surface (73-4490aa)
bb. Site K1, surface (73-4490bb)
cc. Site K1, surface (73-4490cc)
dd. Site K1, surface (73-4490dd)
ee. Site K1, surface (73-4490ee)
ff. Site K1, surface (73-4490ff)
gg. Site K1, surface (73-4490gg)
hh. Site K1, surface (73-4490hh)
ii. Site K1, surface (73-4490ii)
jj. Site K1, surface (73-4490jj)
kk. Site K1, surface (73-4490kk)
ll. Site K1, surface (73-4490 ll)
mm. Site K1, surface (73-4490mm)
nn. Site K1, surface (73-4490nn)
oo. Site K1, surface (73-4490oo)
pp. Site K1, surface (73-4490pp)
qq. Site K1, surface (73-4490qq)
rr. Site K2, surface (73-4491a)
ss. Site K2, surface (73-4491b)
tt. Site K2, surface (73-4491c)
uu. Site K2, surface (73-4491d)
vv. Site K2, surface (73-4491e)
ww. Site K2, surface (73-4491f)
xx. Site K2, surface (73-4491g)
yy. Site K2, surface (73-4491h)
zz. Site K2, surface (73-4491i)
aaa. Site K2, surface (73-4491j)
bbb. Site K2, surface (73-4491k)
ccc. Site K2, surface (73-4491 l)
ddd. Site K2, surface (73-4491m)
eee. Site K2, surface (73-4491n)
fff. Site K2, surface (73-4491o)
ggg. Site K2, surface (73-4491p)
hhh. Site K2, surface (73-4491q)
iii. Site K2, surface (73-4491r)
jjj. Site K2, surface (73-4491s)
kkk. Site K2, surface (73-4491t)
lll. Site K2, surface (73-4491u)

32. Iron and bronze objects from the Cairn Site, Q10

a–dd. Cairn Site, Q10 (73-4524a–4524dd)

33. Positive casts of fabric impressions on pottery

a. Plain weave, 26 by 15.5 yarn count, Site Q32 (73-4566)

b. Plain weave, 23 by 11 yarn count, Site Ch1 (73-4588)
c. Plain weave, 17.5 by 14 yarn count, Site Q30 (73-4555)
d. Plain weave, 16.5 by 13 yarn count, Site P1 (73-4578)
e. Plain weave, 15 by 11 yarn count, Site P1 (73-4576)
f. Plain weave, 14 by 12 yarn count, Site Q32 (73-4565)
g. Plain weave, 13 by 8.5 yarn count, Site P1 (73-4575)
h. Plain weave, 12.5 by 8 yarn count, Site P1 (73-4573)
i. Plain weave, 10 by 9.5 yarn count, Site P1 (73-4572)
j. Plain weave, 10 by 9 yarn count, Site B1 (73-4590)
k. Plain weave, 9 by 5.5 yarn count, Site Q19 (73-4541)

34. Positive casts of fabric impressions on pottery
a. Plain weave, 8 by 5 yarn count, Site P1 (73-4570)
b. Plain weave, 7.5 by 4 yarn count, Site P1 (73-4569)
c. Plain weave, 6 by 4 yarn count, Site B1 (73-4589)
d. Plain weave, 5 by 3.5 yarn count, Site Q25 (73-4546)
e. Plain weave, 3.5 by 3 pairs yarn count, Site P4 (73-4580)
f. Plain weave, 6? by 3 yarn count, Site Q32 (73-4558)
g. Plain weave, 7.5 by 4 yarn count, Site P1 (73-4569)
h. Plain weave, 42 by 10? yarn count, Site P4 (73-4585)
i. Unknown fabric construction, Site P4 (73-4586)

35. Positive casts of basketry and matting impressions on pottery
a. Coiled basketry, Damb Sadaat III (73-4593)
b. Twill plaited matting, Site Q24, surface (73-4591)
c. Twill plaited matting, Kili Ghul Mohammad III (73-4592)
d. Coiled basketry, Site Q8, surface (73-4594)
e. Coiled basketry, Damb Sadaat III? (73-4597)
f. Coiled basketry, Kili Ghul Mohammad IV (73-4600)
g. Coiled basketry, Kili Ghul Mohammad III (73-4595)
h. Coiled basketry, Site Q8, surface (73-4598)
i. Coiled basketry, Kili Ghul Mohammad III (73-4601)
j. Coiled basketry, Kili Ghul Mohammad III (73-4596)
k. Coiled basketry, Kili Ghul Mohammad III? (73-4599)
l. Coiled basketry, Kili Ghul Mohammad IV (73-4602)

TEXT FIGURES

16. Human figurines of clay
a. Site Q8, surface (original in Karachi; cast, 73-3821)
b. Site Q8, Damb Sadaat II (73-3819)
c. Site Q8, Damb Sadaat II (original in Karachi; cast, 73-3832)
d. Site Q8, Damb Sadaat III (original in Karachi; cast, 73-3820)
e. Site Q8, surface (73-3823)
f. Site Q8, Damb Sadaat III (original in Karachi; cast, 73-3818)
g. Site Q8, Damb Sadaat III (73-3822)

17. Parts of human figurines of clay
a. Site Q8, surface (73-3825)
b. Site Q8, Damb Sadaat III (73-3824)
c. Site Q8, Damb Sadaat III (original in Karachi)
d. Site Q8, Damb Sadaat III (73-3831)
e. Site Q8, Damb Sadaat III? (73-3827)
f. Site Q8, Damb Sadaat III (73-3828)
g. Site Q8, Damb Sadaat III (73-3830)
h. Site Q8, surface (73-3829)
i. Site Q8, surface (73-3826)

18. Parts of animal figurines of clay
a. Site Q8, Damb Sadaat III (original in Karachi)
b. Site Q8, Damb Sadaat III (73-3833)
c. Site Q8, Damb Sadaat II (73-3836)
d. Site Q8, Damb Sadaat III (original in Karachi)

19. Parts of animal figurines of clay
a. Site Q8, Damb Sadaat III (73-3834)
b. Site Q8, Damb Sadaat III (original in Karachi)
c. Site Q8, Damb Sadaat III (original in Karachi)
d. Site Q8, surface (original in Karachi)
e. Site Q8, Damb Sadaat III (73-3846)
f. Site Q9, surface (73-3840)
g. Site Q9, surface (73-3841)

20. Parts of animal and bird figurines of clay
a. Site Q8, Damb Sadaat II (original in Karachi; cast, 73-3835)

b. Site Q8, Damb Sadaat II (73-3838)
c. Site Q8, Damb Sadaat III (73-3839)
d. Site Q8, Damb Sadaat III (73-3843)
e. Site Q8, surface (73-3842)

21. Fragments of house models in clay
a. Site Q8, Damb Sadaat III (original in Karachi)
b, c. Site Q8, Damb Sadaat II (73-3849)
d. Site Q8, Damb Sadaat II (73-3850)

22. Fragments of clay rattles
a. Site Q8, Damb Sadaat II (original in Karachi)
b. Site Q8, Damb Sadaat III (73-3925)
c. Site Q8, Damb Sadaat II (73-3927)
d. Site Q8, Damb Sadaat III (73-3926)
e. Site Q8, Damb Sadaat II (73-3929)
f. Site Q8, Damb Sadaat III (73-3931)
g. Surface, Damb Sadaat (73-3930)
h. Site Q24, surface (73-3928)

23. Clay seals
a. Site Q8, Damb Sadaat II (73-3873)
b. Site Q8, Damb Sadaat III (original in Karachi)

24. Bangles, buttons, and stoppers
a. Site Q8, Damb Sadaat III (73-3863)
b. Site Q8, Damb Sadaat III (73-3862)
c. Site Q8, Damb Sadaat III (73-3865)
d. Site Q8, surface (73-3866)
e. Site Q8, Damb Sadaat II (73-3870)
f. Site Q8, Damb Sadaat I (73-3871)
g. Site Q8, Damb Sadaat II (73-3872)
h. Site Q8, Damb Sadaat II (original in Karachi)

25. Stone and bone beads
a. Site Q13, Damb Sadaat II (73-3867)
b. Site Q8, Damb Sadaat III (original in Karachi)
c. Site Q13, Damb Sadaat II (73-4492)
d. Site Q13, Damb Sadaat II (original in Karachi)
e. Site Q24, Kili Ghul Mohammad III (73-3860)
f. Site Q13, Damb Sadaat II (73-4493)
g. Site Q8, Damb Sadaat III (73-3872)
h. Site Q8, Damb Sadaat II (73-3868)
i. Site Q8, Damb Sadaat II (73-3869)
j. Site Q8, Damb Sadaat II (73-3875)

26. Miscellaneous pottery objects
a. Site Q8, Damb Sadaat II; handle restored (73-3932)
b. Site Q8, Damb Sadaat III (73-3933)
c. Site Q8, Damb Sadaat II? (73-3660)
d. Site Q8, Damb Sadaat II (73-3936)

27. Copper objects
a. Site Q8, Damb Sadaat II (original in Karachi)
b. Site Q24, Kili Ghul Mohammad III (73-3896)

28. Bone awls and points
a. Site Q8, Damb Sadaat II (73-3876)
b. Site Q8, Damb Sadaat I (73-3882)
c. Site Q24, Kili Ghul Mohammad II (73-3880)
d. Site Q24, surface (73-3886)
e. Site Q8, Damb Sadaat II (73-3884)
f. Site Q24, Kili Ghul Mohammad I (73-3878)
g. Site Q24, Kili Ghul Mohammad II (73-3883)
h. Site Q24, Kili Ghul Mohammad I (73-3885)
i. Site Q8, Damb Sadaat III (?) (original in Karachi)

29. Bone spatulas
a. Site Q8, Damb Sadaat II (73-3901)
b. Site Q8, Damb Sadaat II (73-3900)
c. Site Q8, Damb Sadaat II (73-3904)
d. Site Q8, Damb Sadaat III (73-3916)
e. Site Q8, Damb Sadaat I (original in Karachi)

30. Miscellaneous stone objects
a. Site Q24, surface; Damb Sadaat I–II? (73-3890)
b. Site Q8, Damb Sadaat II (73-3892)
c. Site Q8, Damb Sadaat III (73-3894)
d. Site Q8, surface (original in Karachi)
e. Site Q8, Damb Sadaat III (original in Karachi)
f. Site Q8, Damb Sadaat I (73-3887)
g. Site Q14, Damb Sadaat I (73-3888)

31. Stone blades
a. Site Q24, surface (73-4018)
b. Site Q24, Kili Ghul Mohammad III (73-4021)
c. Site Q24, Kili Ghul Mohammad II–III (73-4025)
d. Site Q24, Kili Ghul Mohammad II (73-4022)
e. Site Q24, Kili Ghul Mohammad I–II (73-4020)
f. Site Q24, Kili Ghul Mohammad I (73-4023)
g. Site Q24, Kili Ghul Mohammad I (73-4016)
h. Site Q24, Kili Ghul Mohammad I (73-4019)
i. Site Q24, Kili Ghul Mohammad I (73-4024)
j. Site Q24, Kili Ghul Mohammad I (73-4026)
k. Site Q24, Kili Ghul Mohammad I (73-4017)

32. Stone scrapers
a. Site Q24, surface (73-4033)
b. Site Q24, Kili Ghul Mohammad IV (73-4027)
c. Site Q24, Kili Ghul Mohammad IV (73-4030)
d. Site Q24, Kili Ghul Mohammad III–IV (73-4029)
e. Site Q24, Kili Ghul Mohammad III (73-4032)
f. Site Q24, Kili Ghul Mohammad II (73-4031)
g. Site Q24, Kili Ghul Mohammad I (73-4034)
h. Site-Q24, Kili Ghul Mohammad I (73-4028)

33. Stone choppers and cores
a. Site Q24, surface (73-4048)
b. Site Q24, surface (73-4046)

c. Site Q24, surface (73-4047)
d. Site Q24, surface (73-4043)
e. Site Q24, surface (73-4045)
f. Site Q24, Kili Ghul Mohammad I (73-4058)
g. Site Q24, surface (73-4042)
h. Site Q24, Kili Ghul Mohammad IV (73-4040)
i. Site Q24, Kili Ghul Mohammad I–II (73-4041)
j. Site Q24, Kili Ghul Mohammad I (73-4044)

34. Alabaster sherds

a. Site Q24, surface (73-3945)
b. Site Q24, surface (73-3939)
c. Site Q8, Damb Sadaat II (73-3940)
d. Site Q8, surface (73-3958)
e. Site Q8, Damb Sadaat II (73-3959)
f. Site Q8, Damb Sadaat III (73-3960)
g. Site Q8, Damb Sadaat II (73-3960a)
h. Site Q8, Damb Sadaat II (73-3955)

35. Pecked and ground stone objects

a. Site Q24, Kili Ghul Mohammad IV (73-4066)
b. Site Q24, surface (73-4053)
c. Site Q24, Kili Ghul Mohammad II (73-4054)
d. Site Q24, surface (73-4050)
e. Site Q24, Kili Ghul Mohammad I (73-4049)

36. Stone blades

a. Site Q8, Damb Sadaat II (73-3976)
b. Site Q8, Damb Sadaat II (73-3974)
c. Site Q8, Damb Sadaat (73-3982)
d. Site Q8, Damb Sadaat II (73-3983)
e. Site Q8, Damb Sadaat II (73-3981)
f. Site Q8, Damb Sadaat II (73-3979)
g. Site Q8, Damb Sadaat I (73-3980)
h. Site Q8, Damb Sadaat II (73-3973)
i. Site Q8, surface (73-3975)
j. Site Q8, Damb Sadaat II (73-3978)
k. Site Q8, Damb Sadaat I (73-3977)

37. Stone scrapers and cores

a. Site Q8, surface (73-3984)
b. Site Q8, Damb Sadaat I (73-3986)
c. Site Q8, surface (73-3990)
d. Site Q8, Damb Sadaat I (73-3993)

38. Stone balls

a. Site Q14, Damb Sadaat I (73-4055)
b. Site Q8, Damb Sadaat III (73-4059)
c. Site Q8, surface (73-4058)

39. Stone discs

a. Site Q13, Damb Sadaat II (73-4073)
b. Site Q8, Damb Sadaat III (73-4074)
c. Site Q8, surface (73-4072)

40. Grinding slabs

a. Site Q8, Damb Sadaat II (73-3998)
b. Site Q8, Damb Sadaat II (73-3999)
c. Site Q8, Damb Sadaat I (73-4000)
d. Site Q8, surface (73-4015)
e. Site Q8, Damb Sadaat II (73-4014)

DESIGNS

Design No.	Location	Catalogue No.
	Kili Ghul Mohammad Black-on-Red Slip	
1	Kili Ghul Mohammad III–IV; Damb Sadaat II	73-3768a
2	Kili Ghul Mohammad III	73-4075
3	Kili Ghul Mohammad III	73-4076
4	Kili Ghul Mohammad III	73-3768b
5	Kili Ghul Mohammad III	73-4077
6	Kili Ghul Mohammad III	73-4079
7	Kili Ghul Mohammad III	73-4078
8	Kili Ghul Mohammad II–III	73-3768c
9	Kili Ghul Mohammad III	73-3768d
10	Kili Ghul Mohammad III	73-4080
11	Kili Ghul Mohammad III–IV	73-3768e
12	Kili Ghul Mohammad IV	Karachi
13	Kili Ghul Mohammad IV	Karachi
14	Kili Ghul Mohammad III	73-4081
15	Surface, Q24	73-4082
16	Kili Ghul Mohammad IV	73-4083
17	Kili Ghul Mohammad IV	73-4084
18	Kili Ghul Mohammad III	73-4085
19	Kili Ghul Mohammad IV	73-4106
20	Surface, Q24	73-4086
21	Kili Ghul Mohammad II	73-4087
22	Kili Ghul Mohammad III	73-4088
23	Kili Ghul Mohammad III; Damb Sadaat I	73-4089
24	Kili Ghul Mohammad III	General type
25	Kili Ghul Mohammad IV	73-4090
26	Kili Ghul Mohammad III	73-4091
27	Kili Ghul Mohammad IV	73-4092
28	Surface, Q24	73-4096
29	Surface, Q23	73-3812a
30	Surface, Q24	73-4480a
31	Surface, Q23	73-3812b
32	Kili Ghul Mohammad III	General type
	Kili Ghul Mohammad Red Paint	
33	Kili Ghul Mohammad III	73-3770a
34	Kili Ghul Mohammad II	73-4093
35	Kili Ghul Mohammad II	73-3770b

Design No.	Location	Catalogue No.
36	Kili Ghul Mohammad IV (?)	73-3777
	Kili Ghul Mohammad Coarse Black-on-Brown	
37	Kili Ghul Mohammad III	73-3768f
	Kechi Beg Black-on-Buff Slip; Brown-on-Buff Surface	
38	Damb Sadaat I	73-4095
39	Damb Sadaat I	Karachi
40	Surface, Q23	73-3772a
41	Surface, Q37	73-3772b
42	Damb Sadaat I	73-3772c
43	Damb Sadaat I	73-3768g
44a	Kili Ghul Mohammad IV	73-4097
44b	Kili Ghul Mohammad IV	73-4098
45	Kili Ghul Mohammad IV	Karachi
46a	Kili Ghul Mohammad III	73-4094
46b	Quetta Valley (unlocalized)	Karachi
47	Damb Sadaat I	73-3771a
48	Kili Ghul Mohammad IV	73-3771b
49	Kili Ghul Mohammad IV	73-4099
50	Surface, Q6	73-3771c
51	Kili Ghul Mohammad IV	73-4100
52	Damb Sadaat I	73-4101
53	Kili Ghul Mohammad IV	73-4102
54	Damb Sadaat I	73-4104
55	Damb Sadaat I	73-4103
56	Damb Sadaat I–II	Karachi
57	Damb Sadaat I	Karachi
58	Damb Sadaat I	Karachi
59	Damb Sadaat I	Karachi
60	Surface, Q24	73-4105
	Kili Ghul Mohammad Black-on-Red Slip	
61	Damb Sadaat I	73-4107
	Kili Ghul Mohammad Fine Red Paint	
62	Damb Sadaat I	General type
63	Damb Sadaat I	73-4108
64	Damb Sadaat I	73-4109
65	Damb Sadaat I	73-4110
	Kechi Beg Polychrome	
66	Damb Sadaat I	73-3772d
67	Damb Sadaat I	73-3772e
68	Damb Sadaat I	73-3772e
69	Damb Sadaat I	73-4111
70	Surface, Q8	73-4112
71	Damb Sadaat I	73-3772f
72	Damb Sadaat I	73-3772g
73	Surface, Q23	73-3772h
74	Surface, Q19	73-4113
75	Surface, Q23	73-4114
76	Surface, Q23	73-4115
77	Damb Sadaat I	73-3772i
78	Surface, Q19	73-4116
79	Surface, Q31	73-4117
80	Surface, Q23	73-4120
81	Surface, Q23	73-4121
82	Surface, Q8	73-4122
83	Damb Sadaat I	73-4118
84	Surface, Q24	73-4119
	Kechi Beg White-on-Dark Slip, Variant 2 (Coarse and Fine)	
85	Damb Sadaat I; Kili Ghul Mohammad IV	73-3769a
86	Damb Sadaat I; Kili Ghul Mohammad IV	General type
87	Damb Sadaat I	73-3769b
88	Surface, Q15	General type
89	Damb Sadaat I; Kili Ghul Mohammad IV	73-4123
90	Surface, Q35	73-4124
91	Surface, Q35	73-4125
92	Surface, Q36	73-4126
93	Damb Sadaat I	73-3769c
94	Damb Sadaat I	73-3769d
95	Surface, Q35	73-4127
96	Damb Sadaat I	73-4128
97	Damb Sadaat I	73-4129
	Kechi Beg White-on-Dark Slip, Variant 1 (Coarse and Fine)	
98	Damb Sadaat I	73-3769e
99	Surface, Q35	73-4130
100	Surface, Q24	73-4131
101	Surface, Q18	73-4132
102	Surface, Q23	73-4133
103	Surface, Q32	73-4134
104	Surface, Q24	73-4135
105	Damb Sadaat I	73-4136
106	Damb Sadaat I	73-4137
107	Surface, Q24	73-4138
	Quetta Ware	
108	Damb Sadaat III	73-4139
109	Damb Sadaat III	Type 73-4480b
110	Damb Sadaat II–III	Type 73-4480c
111	Damb Sadaat II	Type 73-4480d
112	Damb Sadaat II	73-4140
113	Damb Sadaat II	73-4141
114	Damb Sadaat I–II	73-4480e
115	Damb Sadaat II	73-4142
116	Surface, Q8	73-4144
117	Damb Sadaat II	73-4143
118	Damb Sadaat II	73-4145
119	Damb Sadaat II	73-4146
120	Damb Sadaat II	73-4147
121	Surface, Q8	73-4148
122	Damb Sadaat III	73-4149

Design No.	Location	Catalogue No.
123	Damb Sadaat I–II	73-4150
124	Damb Sadaat I–II	73-4151
125	Surface, Q24	73-4152
126	Damb Sadaat II	73-4153
127	Surface, Q24	73-4154
128	Surface, Q6	73-4155
129	Surface, Q35	73-4156
130	Surface, Q24	73-4157
131	Damb Sadaat II	73-4480f
132	Surface, Q24	73-4158
133	Damb Sadaat II	Karachi
134	Damb Sadaat II	73-4159
135	Damb Sadaat II	73-4160
136	Damb Sadaat II	73-4161
137	Damb Sadaat II	73-3628
138	Damb Sadaat II	73-4162
139	Damb Sadaat II	73-4163
140	Damb Sadaat II; Q13	73-4164
141	Damb Sadaat III	Karachi
142	Q13; Damb Sadaat II	73-3631
143	Damb Sadaat II	73-3606
144	Damb Sadaat III	73-4165
145	Damb Sadaat II	73-3798a
146	Surface, Q24	Karachi
147	Damb Sadaat III	73-3798b
148	Damb Sadaat II	73-3776
149	Damb Sadaat III	73-4166
150	Damb Sadaat III	73-4167
151	Damb Sadaat III	73-4168
152	Surface, Q32	73-4480g
153	Damb Sadaat III	73-4169
154	Damb Sadaat III	73-4170
155	Damb Sadaat II	73-4480h
156	Surface, Q8	73-4171
157	Surface, Q33	73-4480i
158	Surface, Q8	73-4172
159	Damb Sadaat II	73-4173
160	Damb Sadaat II (?)	73-4174
161	Damb Sadaat II (?)	73-4175
162	Damb Sadaat II (?)	Karachi
163	Damb Sadaat II	73-4176
164	Damb Sadaat II	73-4177
165	Damb Sadaat II	73-4178
166	Q13; Damb Sadaat II	73-4179
167	Damb Sadaat II	Type 73-4480j
168	Damb Sadaat II	73-4180
169	Surface, Q8	73-4181
170	Surface, Q8	73-4182
171	Damb Sadaat II (?)	73-4183
172	Surface, Q8	Type 73-4184
173	Q13; Damb Sadaat II	73-4480k
174	Damb Sadaat II	73-4480l
175	Damb Sadaat II	73-4185
176	Damb Sadaat I–II	Karachi
177	Damb Sadaat III	73-4186
178	Damb Sadaat II–III	73-3636
179	Damb Sadaat II	73-4187
180	Damb Sadaat III (?)	73-4188
181	Surface, Q8	73-4189
182	Damb Sadaat I–II	73-4190, 4191
183	Damb Sadaat II–III	73-4192
184	Damb Sadaat I	Karachi
185	Surface, Q8	73-4193
186	Damb Sadaat II	73-4480m
187	Damb Sadaat II	73-4194
188a	Damb Sadaat III	Karachi
188b	Damb Sadaat II–III	Karachi
189	Damb Sadaat III	73-4195
190	Surface, Q37	73-4196
191	Damb Sadaat III	73-4197
192	Damb Sadaat III	Karachi
193	Damb Sadaat II	Karachi
194	Damb Sadaat III	73-4198
195	Damb Sadaat II–III	73-4199
196	Damb Sadaat II	73-4480n
197	Surface, Q15	Karachi
198	Surface, Q8	73-4480o
199	Damb Sadaat III	73-4200
200	Damb Sadaat III	Type 73-4480p
201	Damb Sadaat II	General type
202	Damb Sadaat II	73-4201
203	Damb Sadaat II	73-4202
204	Damb Sadaat II	73-4203, 4204
205	Damb Sadaat II	73-3609
206	Damb Sadaat II–III	Karachi
207	Surface, Q8	73-4205
208	Damb Sadaat II	73-4206
209	Damb Sadaat III	Type 73-4480q
210	Damb Sadaat II–III	73-4480r
211	Surface, Q33	Karachi; also see 73-3607
212	Damb Sadaat II	73-4207
213	Damb Sadaat II	Type 73-4480s
214	Damb Sadaat I–II	73-4208
215	Damb Sadaat II	73-3601
216	Damb Sadaat II	73-4209
217	Damb Sadaat II	73-3804a
218	Damb Sadaat II	73-4480t
219	Damb Sadaat II	Type 73-4480w
220	Damb Sadaat II–III	73-4211
221	Damb Sadaat I–II	73-4210
222	Surface, Q8	73-4480v
223	Damb Sadaat II	73-4212
224	Damb Sadaat II	Type of 73-3610
225	Damb Sadaat II–III	73-4213
226	Damb Sadaat II	73-4214
227	Damb Sadaat II–III	73-4215
228	Damb Sadaat II	73-4216
229	Damb Sadaat II–III	73-4217
230	Damb Sadaat II–III	73-4218

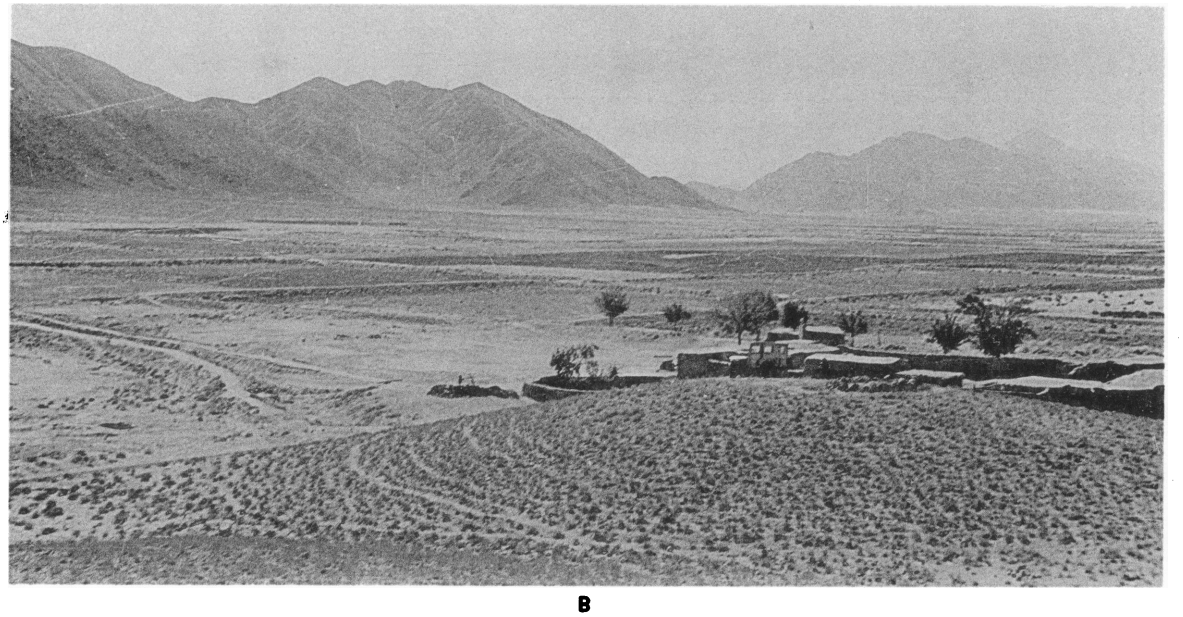
Design No.	Location	Catalogue No.
231	Damb Sadaat III	Karachi
232	Surface, Q8	73-4219
233	Damb Sadaat I–II	73-4220
234	Damb Sadaat II	73-4221
235	Surface, Q8	73-4222
236	Damb Sadaat II	Karachi
237	Surface, Q37	73-4223
238	Surface, Q17	73-4224
239	Damb Sadaat II	Karachi
240	Damb Sadaat II	73–4225
241	Damb Sadaat II	General type and 73-3809a
242	Q13; Damb Sadaat II	73-4226
243	Damb Sadaat III	73-4227
244	Damb Sadaat II	General type
245	Damb Sadaat II	Type 73-3809b
246	Damb Sadaat II	73-4480w
247	Damb Sadaat II	73-4228
248	Damb Sadaat II	73-4229
249	Damb Sadaat II–III	73-4230
250	Damb Sadaat II	73-4231
251	Damb Sadaat II	73-4232
252	Damb Sadaat III	73-4233
253	Damb Sadaat II	73-4234
254	Damb Sadaat III	General type
255	Damb Sadaat III	Karachi
256	Surface, Q8	73-4235
257	Damb Sadaat III	73-4236
258	Damb Sadaat III	73-4237
259	Damb Sadaat III	73-3602
260	Damb Sadaat II	73-4480x
261	Damb Sadaat III	73-4238–4239
262	Damb Sadaat II	73-4240
263	Damb Sadaat II	73-4241
264	Surface, Q8	73-4242
265	Damb Sadaat III	73-3803
266	Damb Sadaat III	73-4243
267	Damb Sadaat II	Karachi
268	Damb Sadaat II	Karachi
269	Surface, Q8	73-4244
270	Damb Sadaat II (?)	73-4245
271	Damb Sadaat II	73-4480y
272	Q13; Damb Sadaat II	73-4246
273	Damb Sadaat II	73-3819
274	Damb Sadaat II (?)	73-4247
275	Surface, Q8	73-4248
276	Damb Sadaat II	73-4480z
277	Damb Sadaat III	73-4480aa
278	Damb Sadaat III (?)	73-4249
279	Damb Sadaat II	73-4251, 4250
280	Damb Sadaat III	73-4252
281	Damb Sadaat II	73-4253
282	Damb Sadaat II–III	General type
283	Damb Sadaat II	Type 73-4480bb
284	Damb Sadaat II–III	73-4254
285	Damb Sadaat II	Karachi
286	Surface, Q8	73-4255
287	Damb Sadaat III	73-4256
288	Damb Sadaat II	73-4257
289	Damb Sadaat II	General type
290	Surface, Q13	Type 73-4480cc
291	Damb Sadaat II	73-4480dd
292	Surface, Q37	73-4258
293	Damb Sadaat II	73-4259
294	Surface, Q8	Karachi
295	Damb Sadaat II	73-4260
296	Damb Sadaat II	73-4261
297	Damb Sadaat II	73-4480ee
298	Damb Sadaat I–III	73-4262
299	Damb Sadaat II	73-4263
300	Damb Sadaat II (?)	73-4264
301	Damb Sadaat II	73-4265
302	Damb Sadaat II	Karachi
303	Surface, Q8	73-4266
304	Damb Sadaat I–III	73-4267
305	Damb Sadaat II–III	73-4268
306	Damb Sadaat II–III	73-4269
307	Damb Sadaat II–III	73-4270
308	Damb Sadaat II	Karachi
309	Damb Sadaat II	Karachi
310	Damb Sadaat II	73-4272
311	Damb Sadaat II–III	73-4274
312	Surface, Q8	73-4273
313a	Damb Sadaat II–III	73-4271
313b	Damb Sadaat II	73-3632
314	Surface, Q8	73-4480ff
315	Damb Sadaat II–III	73-4276
316	Damb Sadaat III	73-4275
317	Q13; Damb Sadaat II	73-3809c
318	Damb Sadaat II	Type 73-3809d
319	Q13; Damb Sadaat II	73-4277, 4278
320	Damb Sadaat II (?)	73-4279
321	Damb Sadaat II–III	73-4283
322	Damb Sadaat I–II	73-4282
323	Damb Sadaat II	73-4281
324	Damb Sadaat I–II	73-4280
325	Damb Sadaat I–III	73-4284
326	Damb Sadaat II	73-4285
327	Damb Sadaat II	73-4480gg
328	Damb Sadaat I–II	73-4288
329	Damb Sadaat II	73-4480hh
330	Damb Sadaat II	73-4286
331	Damb Sadaat II–III	73-4480ii
332	Damb Sadaat II	Karachi
333	Damb Sadaat II	73-4287
334	Damb Sadaat III	73-4289
335	Q13; Damb Sadaat II	73-4290
336	Damb Sadaat II	73-4291
337	Damb Sadaat II	73-4292
338	Surface, Q14	Karachi

Design No.	Location	Catalogue No.
339	Damb Sadaat II	73-4480jj
340	Damb Sadaat II	Karachi
341	Damb Sadaat II (?)	73-4293
342	Damb Sadaat II	73-4298
343	Damb Sadaat II	73-4480kk
344	Damb Sadaat II	73-4294
345	Damb Sadaat II	73-4297
346	Q13; Damb Sadaat II, Kili Ghul Mohammad IV	73-4295
347	Damb Sadaat II	73-4296
348	Damb Sadaat III	73-4300
349	Damb Sadaat III	73-4299
350	Damb Sadaat II	73-4301
351	Damb Sadaat III	73-4302
352	Damb Sadaat III	73-4303
353	Damb Sadaat III	Karachi
354	Damb Sadaat II (?)	73-4304
355	Damb Sadaat II	73-4480 ll
356	Damb Sadaat II	73-4305
357	Damb Sadaat II–III	General type
358	Damb Sadaat II	73-4306
359	Damb Sadaat II	73-4307
360	Damb Sadaat III (?)	73-4308
361	Damb Sadaat II	73-4310
362	Q13; Damb Sadaat II	Karachi
363	Damb Sadaat II	73-4309
364	Surface, Q37	73-4312
365	Unlocalized	73-4311
366	Quetta Valley (unlocalized)	73-4313
367	Surface, Q37	73-4315
368	Damb Sadaat II	73-4316
369	Damb Sadaat II	73-4480mm
370	Damb Sadaat II (?)	73-3620
371	Damb Sadaat II	General type
372	Surface, Q8	73-4318
373	Damb Sadaat III	73-3599
374	Damb Sadaat II	Type 73-3622
375	Damb Sadaat II–III	73-3631
376	Damb Sadaat III	73-4328
377	Damb Sadaat II	73-4319
378	Damb Sadaat III	Type 73-4480nn
379	Surface, Q8	Type 73-4480oo
380	Damb Sadaat II–III	73-4317
381	Damb Sadaat II	73-4480pp
382	Damb Sadaat III	Karachi
383	Damb Sadaat II	73–4320, 4324
384	Surface, Q24	Karachi
385	Damb Sadaat II	73-4323
386	Damb Sadaat III	Karachi
387	Damb Sadaat III	73-4325
388	Surface, Q24	73-4322
389	Damb Sadaat III	73-4321
390	Damb Sadaat II	73-4326
391	Damb Sadaat II (?)	73-4327, 4329
392	Damb Sadaat II (?)	73-4330
393	Damb Sadaat II	73-4331
394	Damb Sadaat II	73-4332
395	Damb Sadaat II	73-4333
396	Q13; Damb Sadaat, II	73-3627
397	Damb Sadaat III	73-4334
398	Damb Sadaat II	73-4335
399	Damb Sadaat II (?)	73-4336
400	Damb Sadaat II	73-4337
401	Damb Sadaat II	73-4480qq
402	Damb Sadaat III	73-4338
403	Damb Sadaat II	73-4339
404	Damb Sadaat II	Karachi
405	Damb Sadaat II (?)	73-4340
406	Damb Sadaat II	73-4341
407	Damb Sadaat II	73-4342
408	Damb Sadaat III	73-4343
409	Damb Sadaat II	73-4344
410	Damb Sadaat II	73-4345
411	Damb Sadaat II	73-4346
412	Surface, Q8	73-4347
413	Damb Sadaat II	73-4348
414	Damb Sadaat II	73-4349
415	Surface, Q19	73-4350
416	Damb Sadaat II	73-4351
417	Surface, Q8	73-4352
418	Damb Sadaat II	73-4353
419	Surface, Q8	73-4354
420	Damb Sadaat I–III	73-4355
421	Damb Sadaat III	73-4356
422	Surface, Q8	Karachi
423	Damb Sadaat III	73-4359
424	Damb Sadaat III	73-4360
425	Damb Sadaat II (?)	73-4358
426	Damb Sadaat III	73-4480rr
427	Damb Sadaat II	73-4357
428	Damb Sadaat II	73-4361
429	Damb Sadaat II	73-4363
430	Surface, Q8	73-4362
431	Damb Sadaat II	Karachi
432	Surface, Q8	73-4364
433	Q13; Damb Sadaat II	73-3605
434	Damb Sadaat II	73-4365
435	Q13; Damb Sadaat II	73-4366
436	Surface, Q8	73-4367
437	Damb Sadaat II	73-4368
438	Surface, Q8	73-4369
439	Damb Sadaat III	73-4370
440	Damb Sadaat III	73-4371
441	Q13; Damb Sadaat II	73-4480ss
442	Kili Ghul Mohammad IV	73-4372
443	Surface, Q25	73-4373
444	Surface, Q19	73-4374
445	Surface, Q9	73-4375
446	Surface, Q8	Karachi
447	Q13; Damb Sadaat II	73-4377
448	Damb Sadaat II	73-4480tt
449	Damb Sadaat II	73-4376

Design No.	Location	Catalogue No.
450	Damb Sadaat II	73-4378, 4379
451	Surface, Q8	73-4380, 4381
452	Surface, Q8	73-4382
453a	Surface, Q35	73-4480uu
453b	Damb Sadaat II	73-3670
454	Surface, Q37	73-4383
455	Damb Sadaat II	73-4384, 4386
456	Damb Sadaat II	73-4387
457	Damb Sadaat II	73-4388
458	Damb Sadaat II	73-4389
459	Damb Sadaat III	73-4390
460	Damb Sadaat II	73-4391
461	Surface, Q8	73-4392
462	Damb Sadaat II	73-4393
463	Surface, Q8	73-4394
464	Damb Sadaat II	73-4395
465	Q13; Damb Sadaat II	73-4396
466	Q13; Damb Sadaat II	73-4397
467	Damb Sadaat III	73-4398
468	Damb Sadaat I–II	73-4400
469	Damb Sadaat II–III	73-4480vv
	Faiz Mohammad Grayware, Black-on-Gray	
470	Damb Sadaat II	73-4401
471	Damb Sadaat III	73-4480ww
472	Q13; Damb Sadaat II	73-4399
473	Damb Sadaat III	73-4402
474	Damb Sadaat II–III	73-4404
475	Damb Sadaat III	73-4403
476	Damb Sadaat II	73-4405
477	Surface, Q8	73-4406
478	Damb Sadaat II	73-4407
479	Damb Sadaat II	73-4408
480	Damb Sadaat III	73-4409
481	Damb Sadaat II	73-4410
482	Damb Sadaat III	73-4411
483	Damb Sadaat II	73-4412
484	Surface, Q8	73-4413
485	Surface, Q9	73-3794
	Faiz Mohammad Grayware, Red-on-Gray	
486	Damb Sadaat II	73-4414
487	Q13; Damb Sadaat II	73-4415
488	Damb Sadaat III	73-4480xx
489	Damb Sadaat II	73-4416
490	Surface, Q9	73-3787
491	Damb Sadaat II	73-4417
492	Damb Sadaat II	73-4418
493	Damb Sadaat I–II	73-4419
494	Damb Sadaat II	73-4421
495	Damb Sadaat II	73-4420
	Quetta Red-Brown-on-Dark Slip	
496	Damb Sadaat II	73-3778
497	Damb Sadaat II	73-4422
498	Damb Sadaat II	73-4423
499	Damb Sadaat III	73-4424
500	Damb Sadaat III	73-4425
501	Damb Sadaat III	73-3787a
502	Surface, Q8	73-4480yy
503	Damb Sadaat II–III	73-4427
504	Damb Sadaat I	73-4480zz
	Black-on-Red Slip (Quetta Ware Associated)	
505	Damb Sadaat II	73-4428
506	Damb Sadaat I–II	73-4429
507	Damb Sadaat II	73-4430
508	Damb Sadaat II	73-4431
509	Damb Sadaat II	73-4432
510	Damb Sadaar III	73-4433
511	Surface, Q8	73-4434
512	Surface, Q8	General type
513	Damb Sadaat II	73-4435
514	Damb Sadaat II	73-4437
515	Damb Sadaat II	73-4439
516	Damb Sadaat II–III	73-4436
517	Surface, Q8	73-4438
518	Damb Sadaat III	73-4440
519	Damb Sadaat II	73-4441
520	Surface, Q9	73-4442
521	Surface, Q37	73-4443
522	Surface, Q9	73-4444
523	Surface, Q33	73-4445
524	Surface, Q34	73-4480aaa
525	Surface, Q37	73-4447
526	Surface, Q19	73-4446
527a	Damb Sadaat III	73-4448, 4451
527b	Damb Sadaat III	73-4450
528	Surface, Q8	73-4467
529	Damb Sadaat II	73-4449
530	Damb Sadaat III	Karachi
	Polychrome Wares in Quetta Ware Association	
531	Damb Sadaat II	73-4453
532	Damb Sadaat III	73-4457
533	Damb Sadaat III	73-4452
534	Damb Sadaat II (?)	73-4454
535	Damb Sadaat II (?)	73-4455
536	Damb Sadaat II (?)	73-4456
537	Damb Sadaat III	73-4458
538	Damb Sadaat II	73-4459
539	Damb Sadaat II	73-4478
540	Damb Sadaat II	73-4460
541	Damb Sadaat II	Karachi
542	Damb Sadaat II	73-4461, 4462
543	Damb Sadaat II	73-4463, 4464
544	Damb Sadaat II	73-4465
545	Damb Sadaat III	73-4466
546	Surface, Q8	73-4475
547	Damb Sadaat II	73-3773
548	Damb Sadaat II	Karachi
549	Damb Sadaat II	73-4480bbb

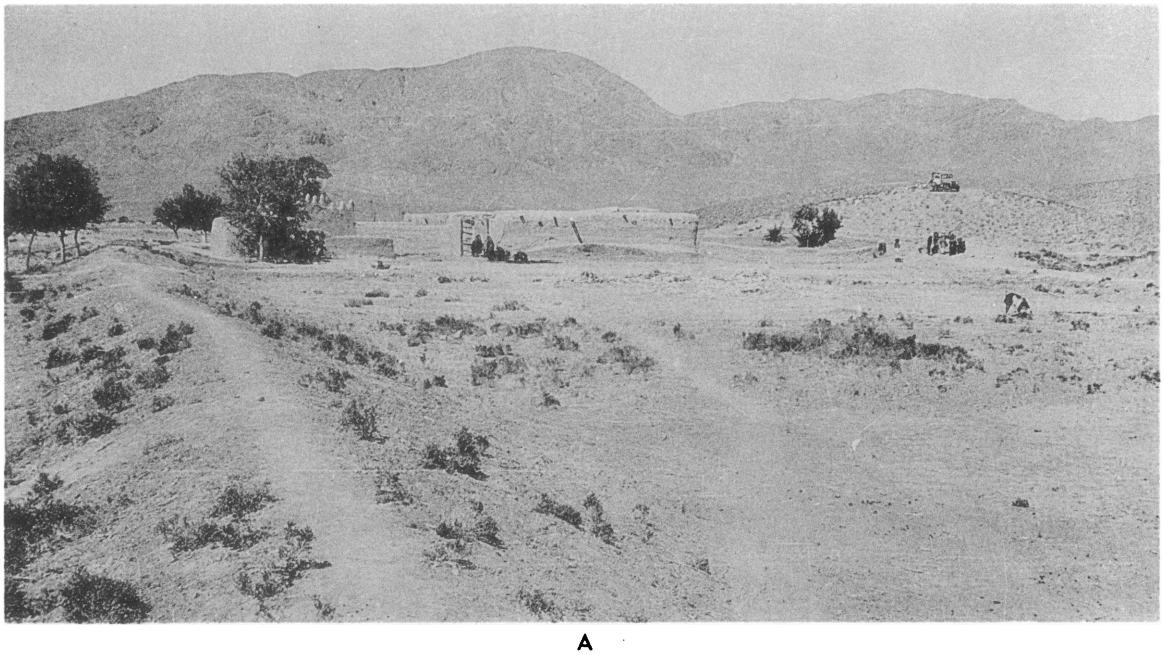
Design No.	Location	Catalogue No.
	Miscellaneous Wares in Quetta Ware Association	
550	Surface, Q25	73-4468
551	Surface, Q25	73-4469
552	Surface, Q19	73-4470
553	Surface, Q19	73-4471
554	Surface, Q35	73-4472
555	Surface, Q37	73-4473
556	Surface, Q19	73-3788a
557	Surface, Q24	73-4480ccc
558	Quetta Valley (unlocalized)	73-4480ddd
559	Surface, Q8	73-4474
560	Surface, Q25	73-4476
561	Surface, Q31	73-4480eee
562	Surface, Q19	73-4480fff
563	Surface, Q32	73-3789a
564	Surface, Q19	73-3781k
565	Surface, Q34	73-4477
566	Surface, Q19	73-4480ggg
567	Surface, Q24	73-4479
568	Kili Ghul Mohammad III (?)	73-4498n
569	Surface, Q32	73-4499
570	Surface, Q22	73-4498c
571	Damb Sadaat III Type	73-4480hhh
572	Damb Sadaat III	73-4480iii

A



B

a. Quetta Valley, looking southeast from Site Q8, Brahui village of Mian Ghundai in foreground
b. Zarakhu Valley, looking northeast from Site Q9. Note well at left of village



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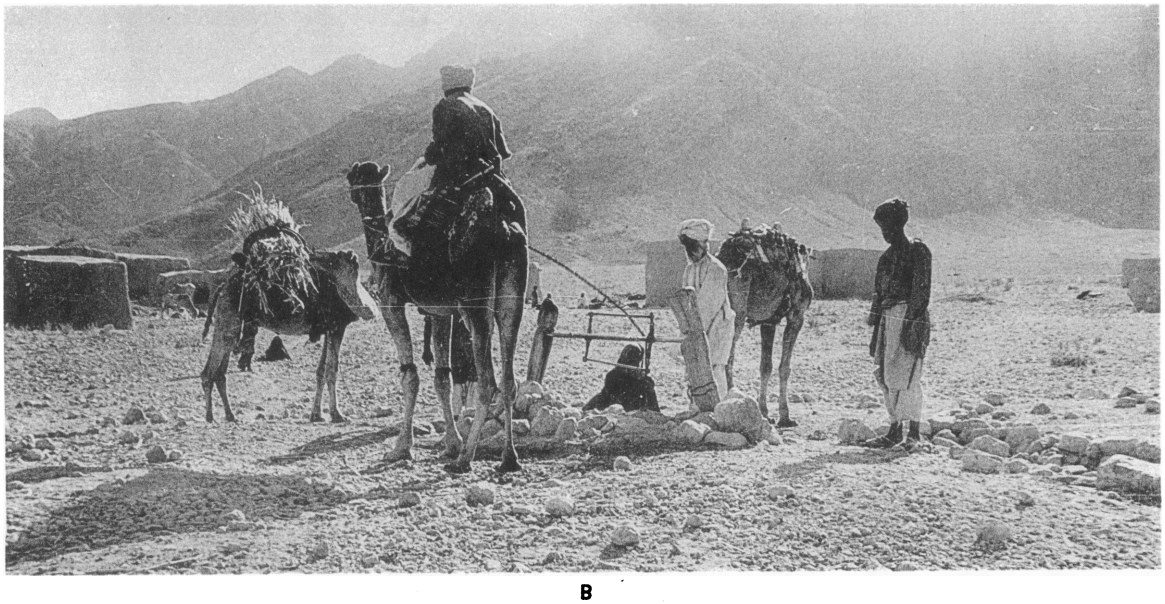
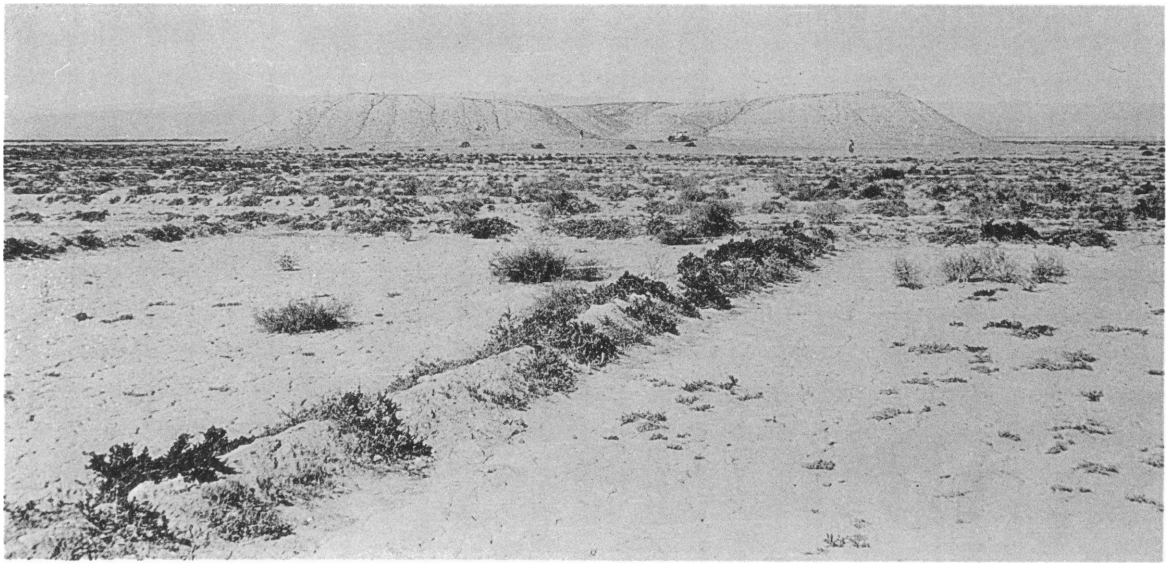


B

a. Proximity of Site Q9 and contemporary village of Faiz Mohammad, Quetta Valley
b. Village well, Quetta Valley



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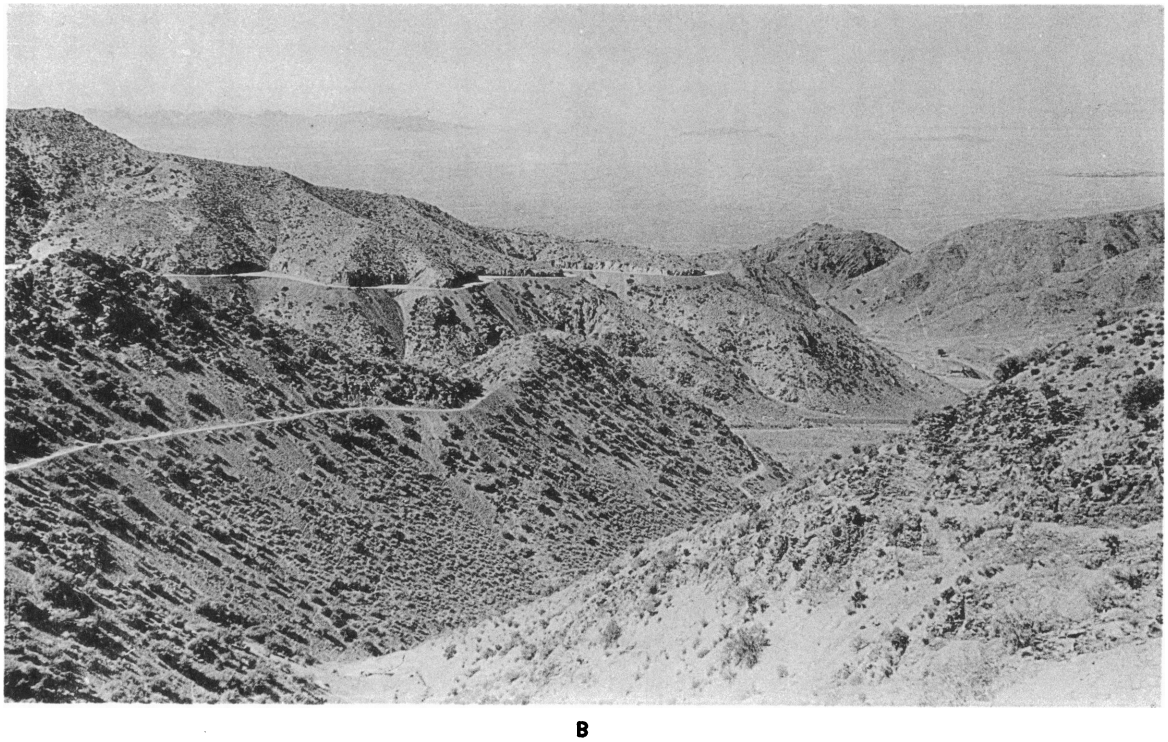
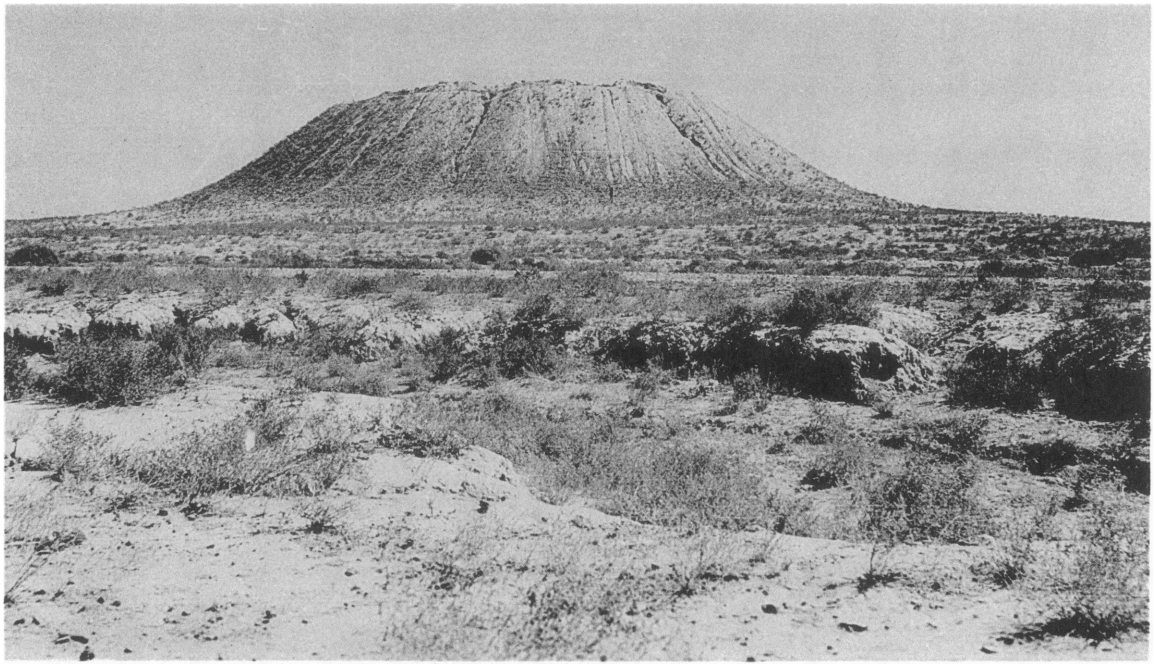


B

a. Flat alluvial plain in Pishin Tahsil; Site P4 in background
b. Khojak Pass with Registan Desert in background; Chaman City lies at extreme right background. Photographed at summit of Khojak Pass, looking north



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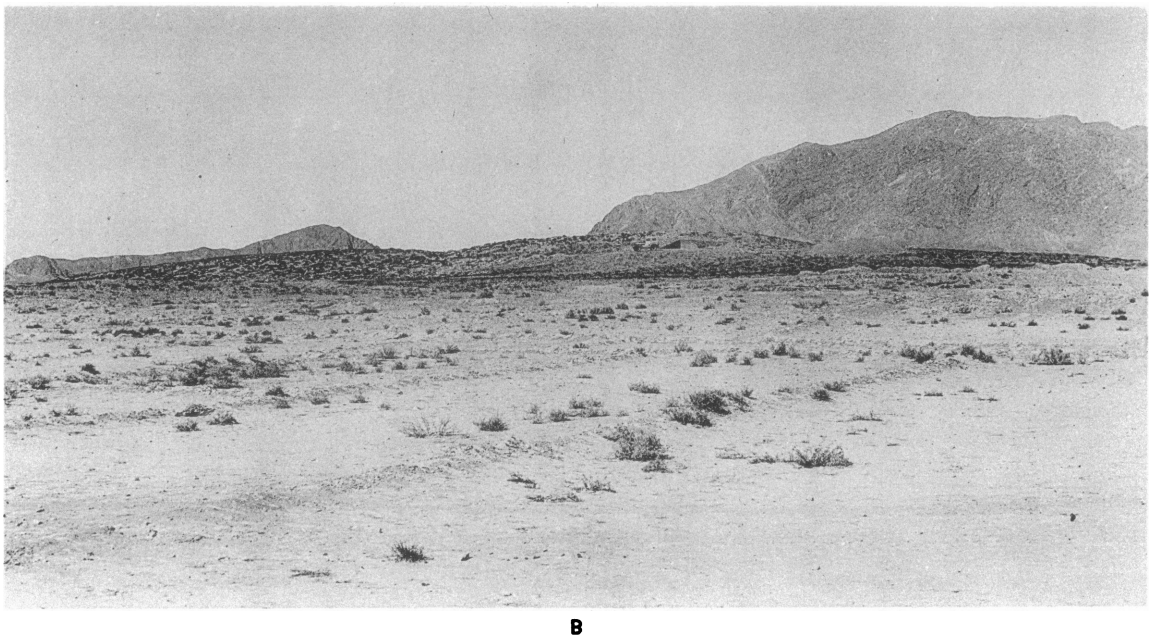
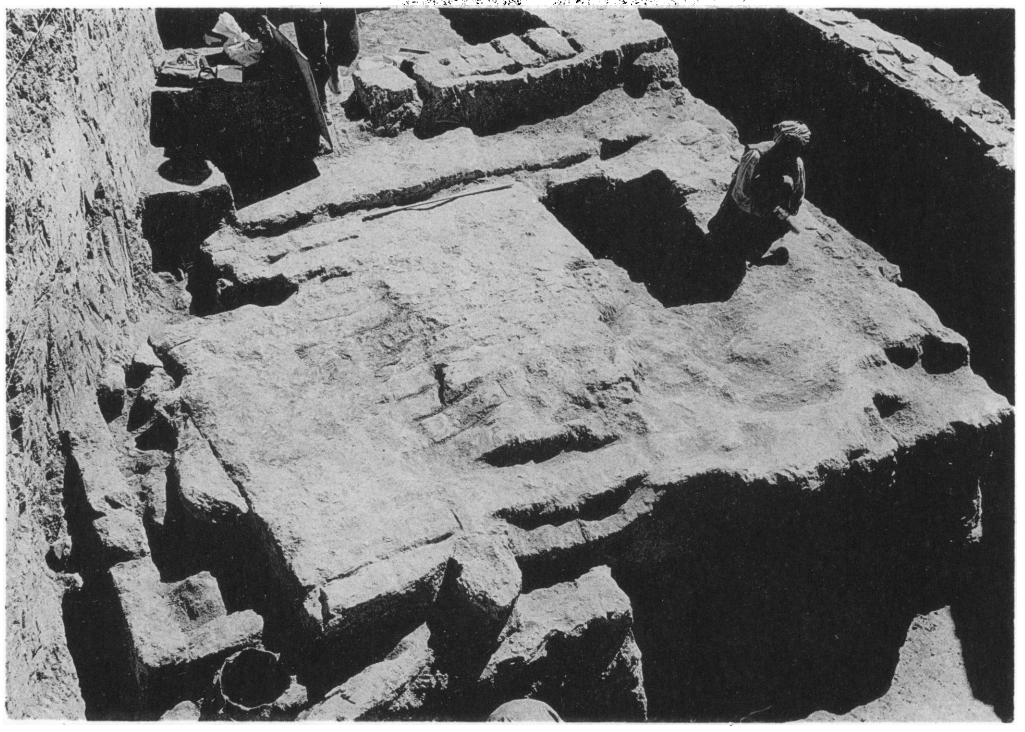
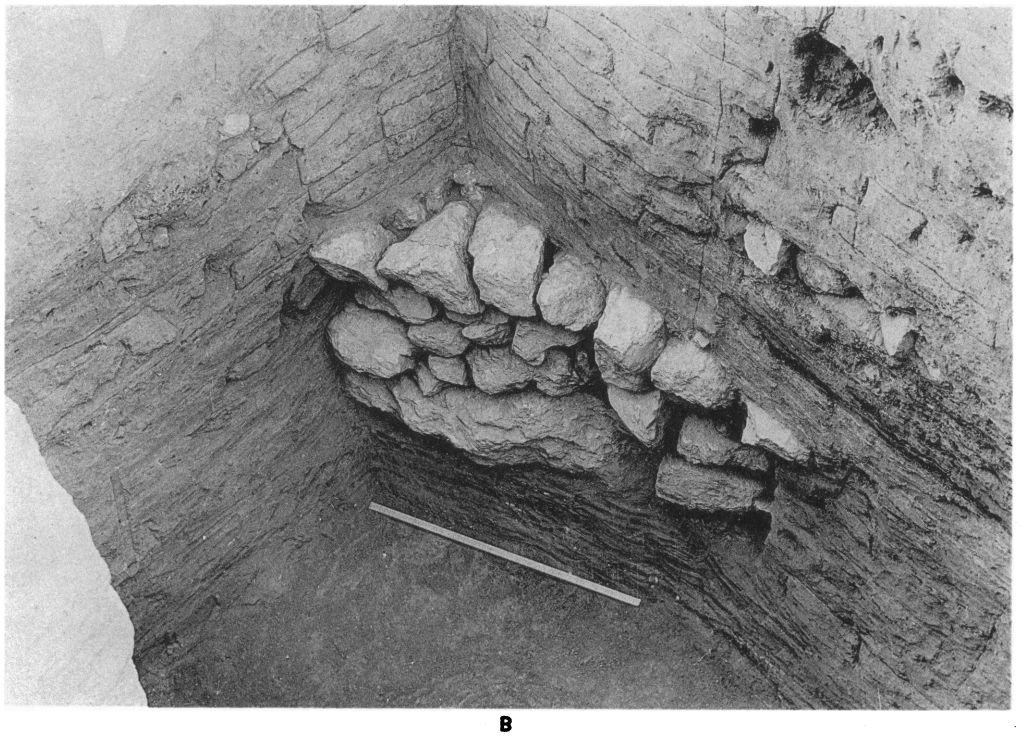


B

a. High mound of Safid Ghundai (Site P1), Pishin Tahsil
b. Low mound of Kili Ghul Mohammad (Site Q24), Quetta Tahsil. The excavation is to right of "jeep"

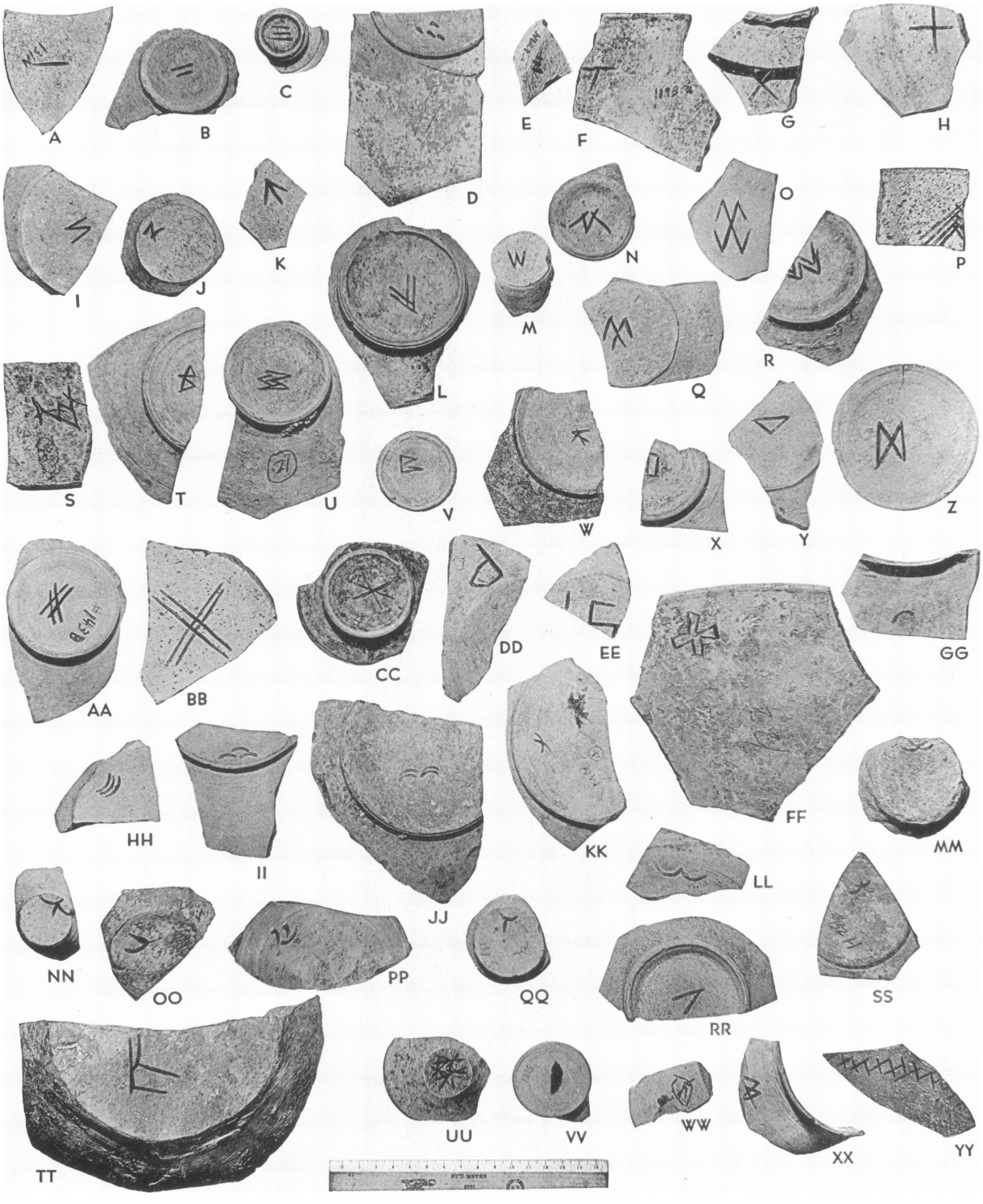


A

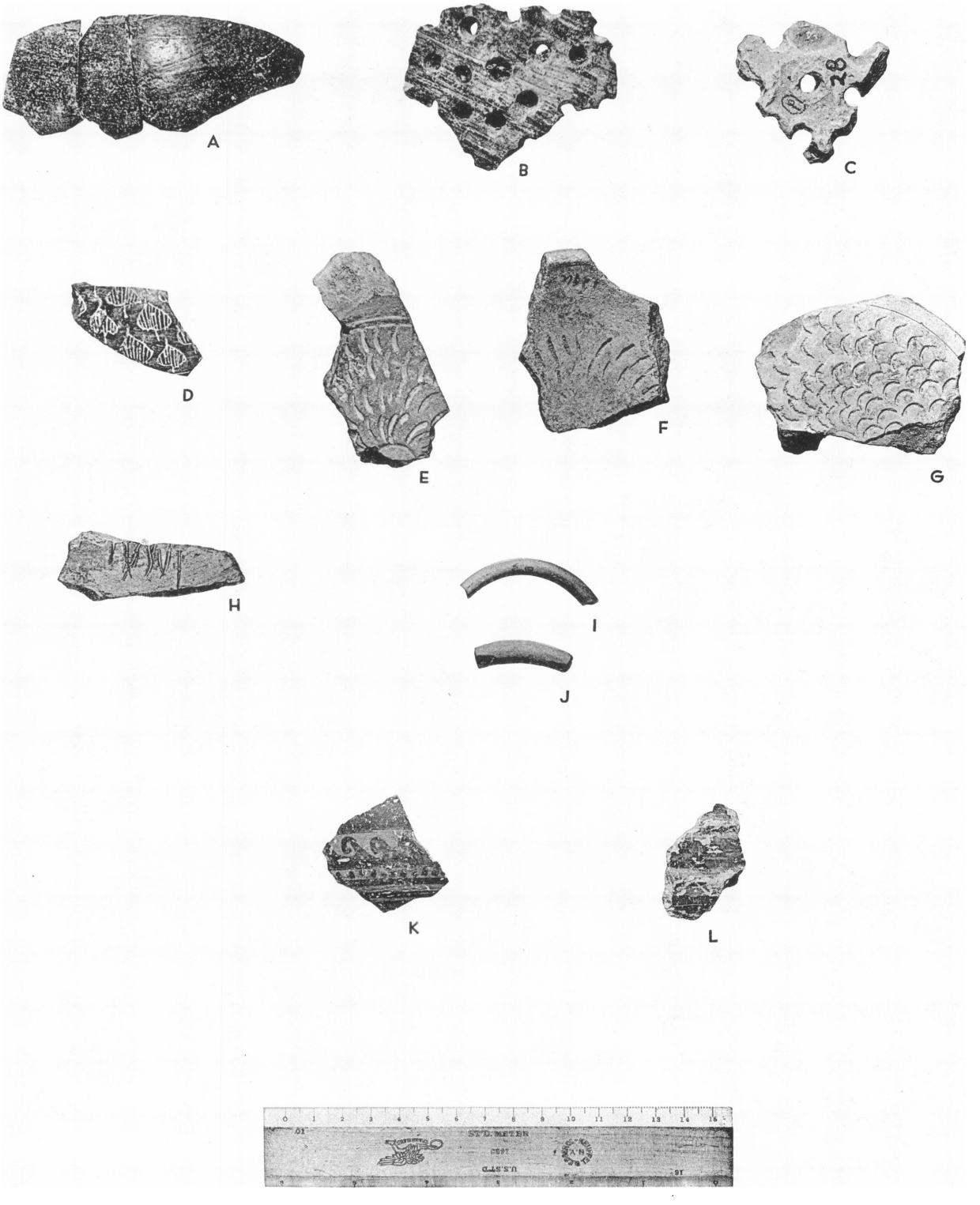


B

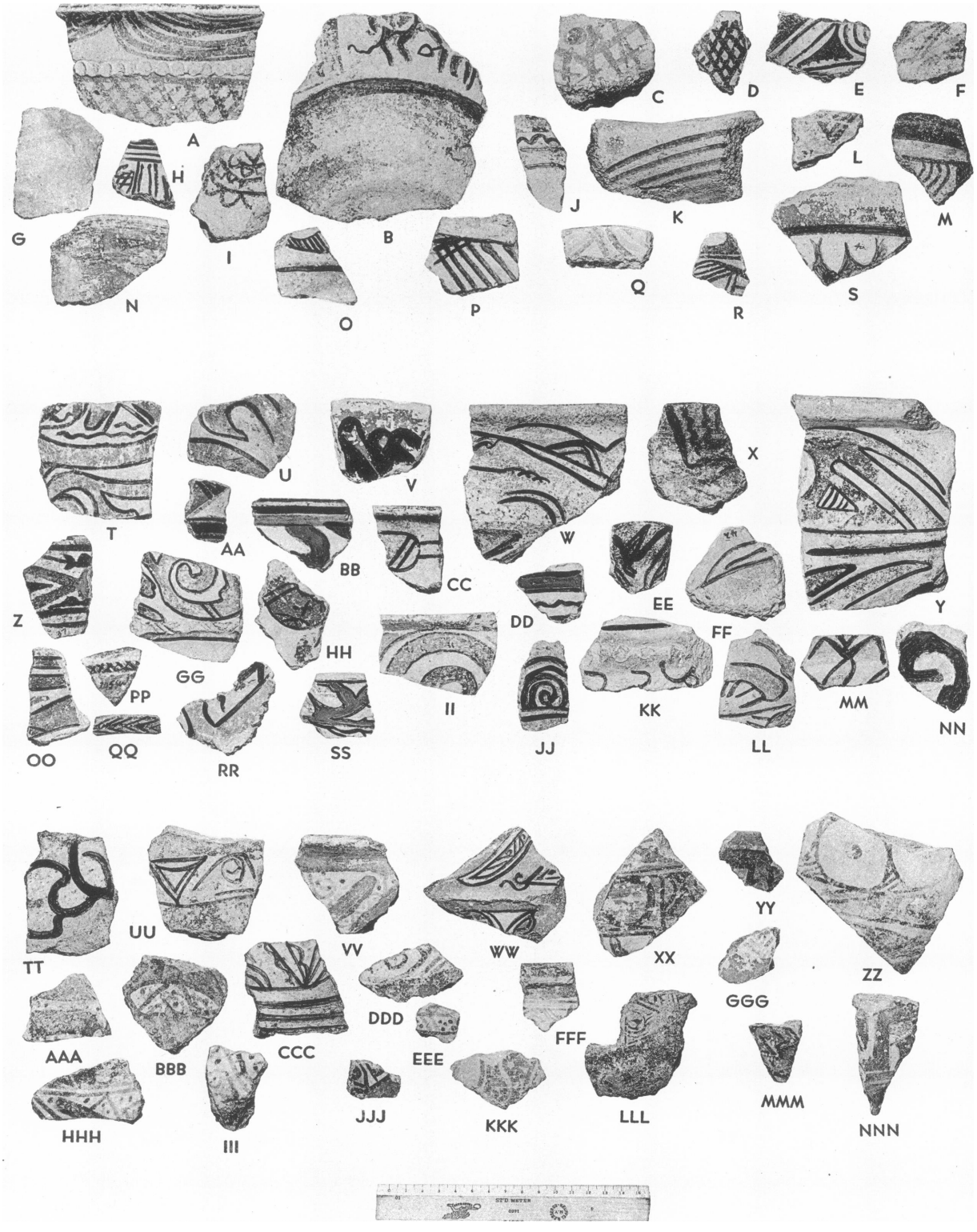
a. Mud-brick "platform," Group B, Site Q8; bread oven in left foreground
b. Stone wall in Cut 1, Test A, Damb Sadaat I group. Note superimposition of Damb Sadaat II mud-brick walls



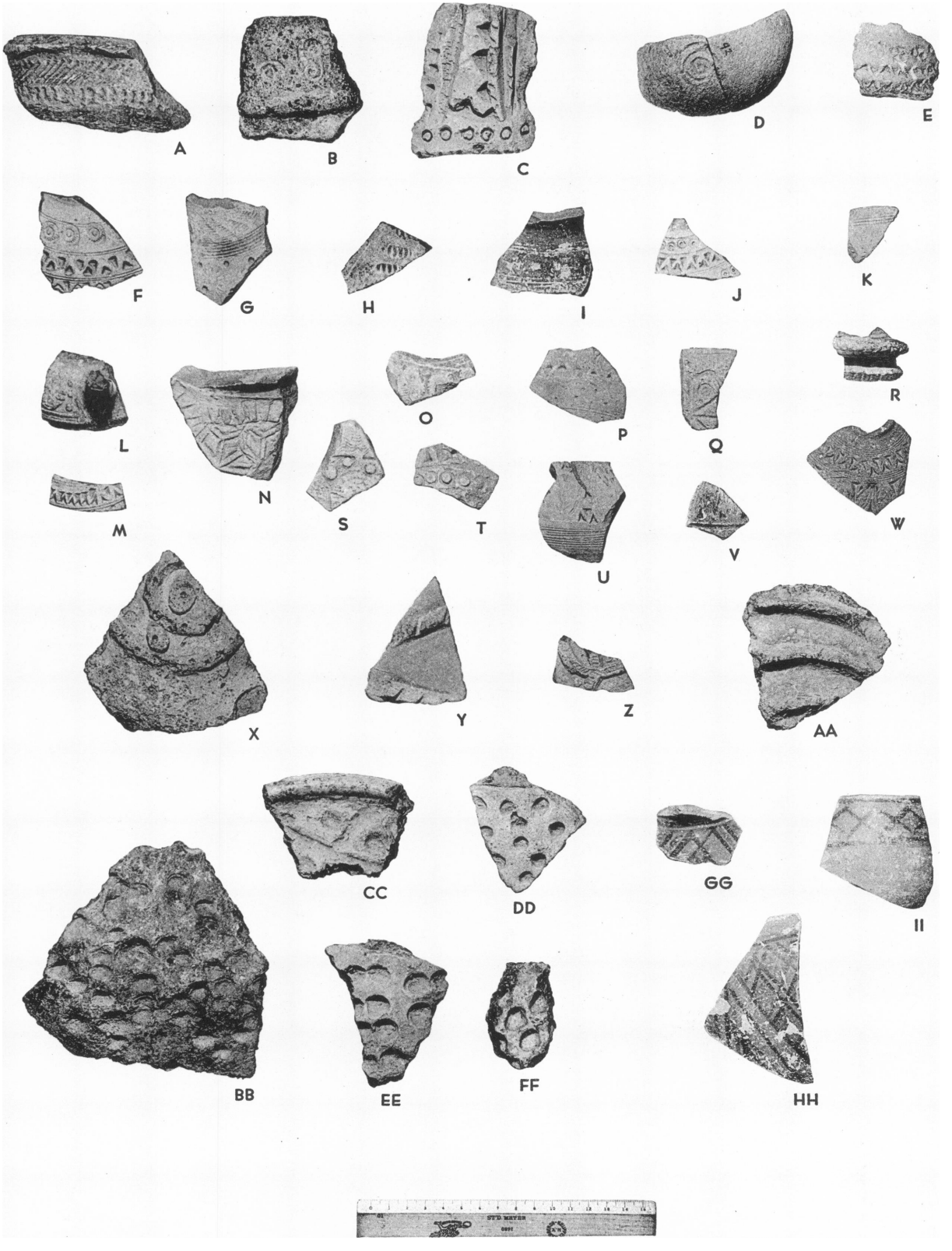
Potters' marks



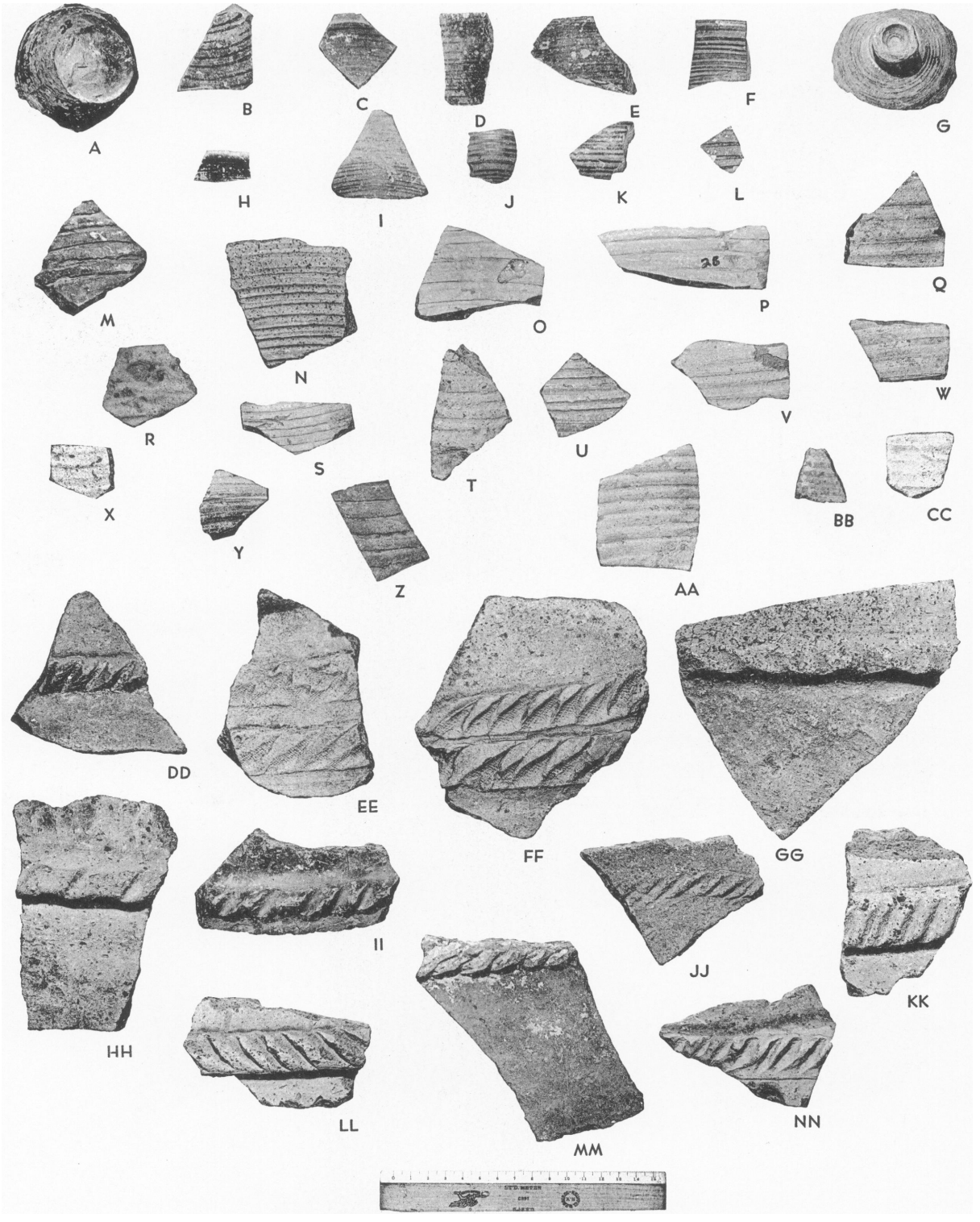
a–j. Clay objects of Harappan affiliation. k, l. Londo ware



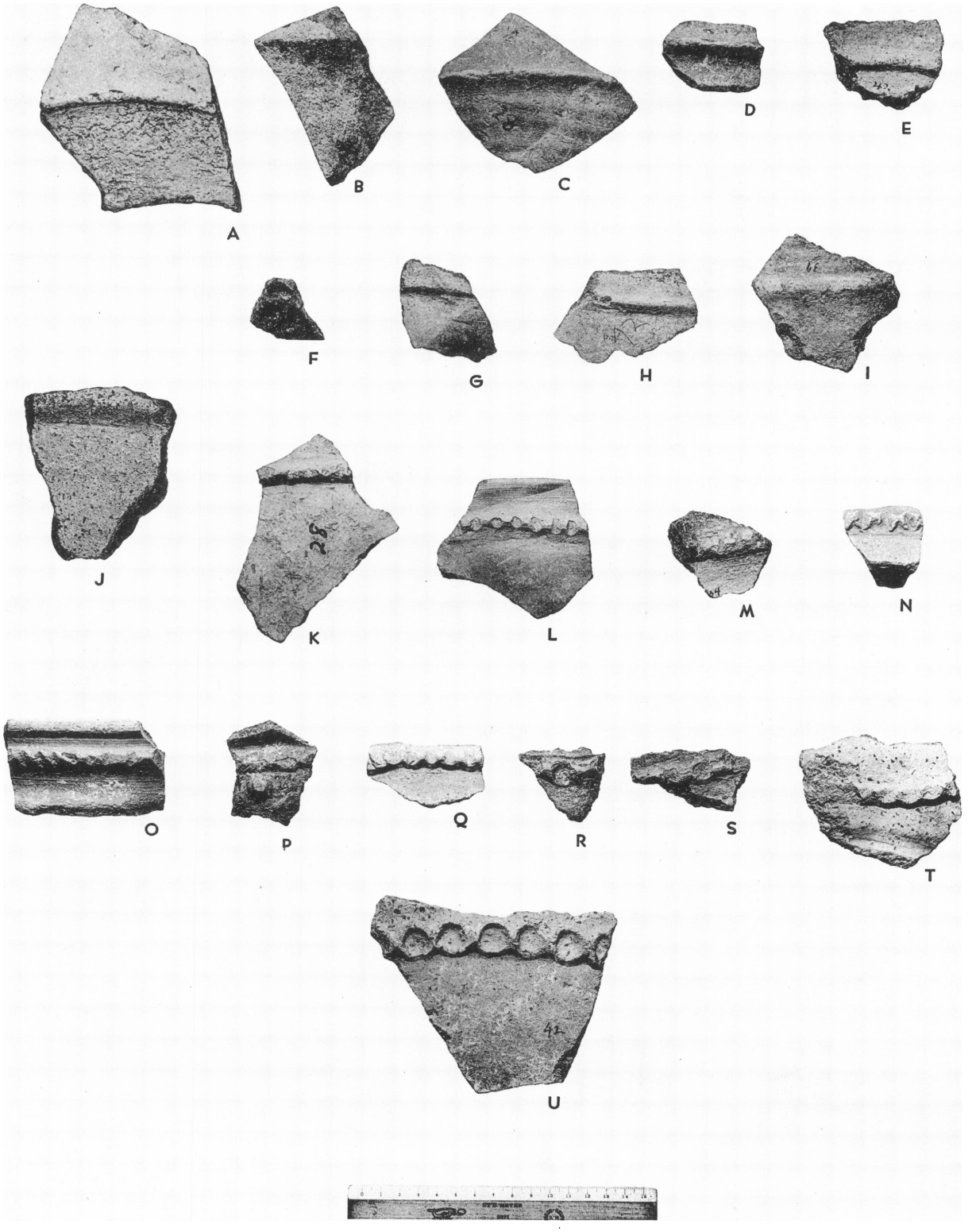
Ghul Painted ware



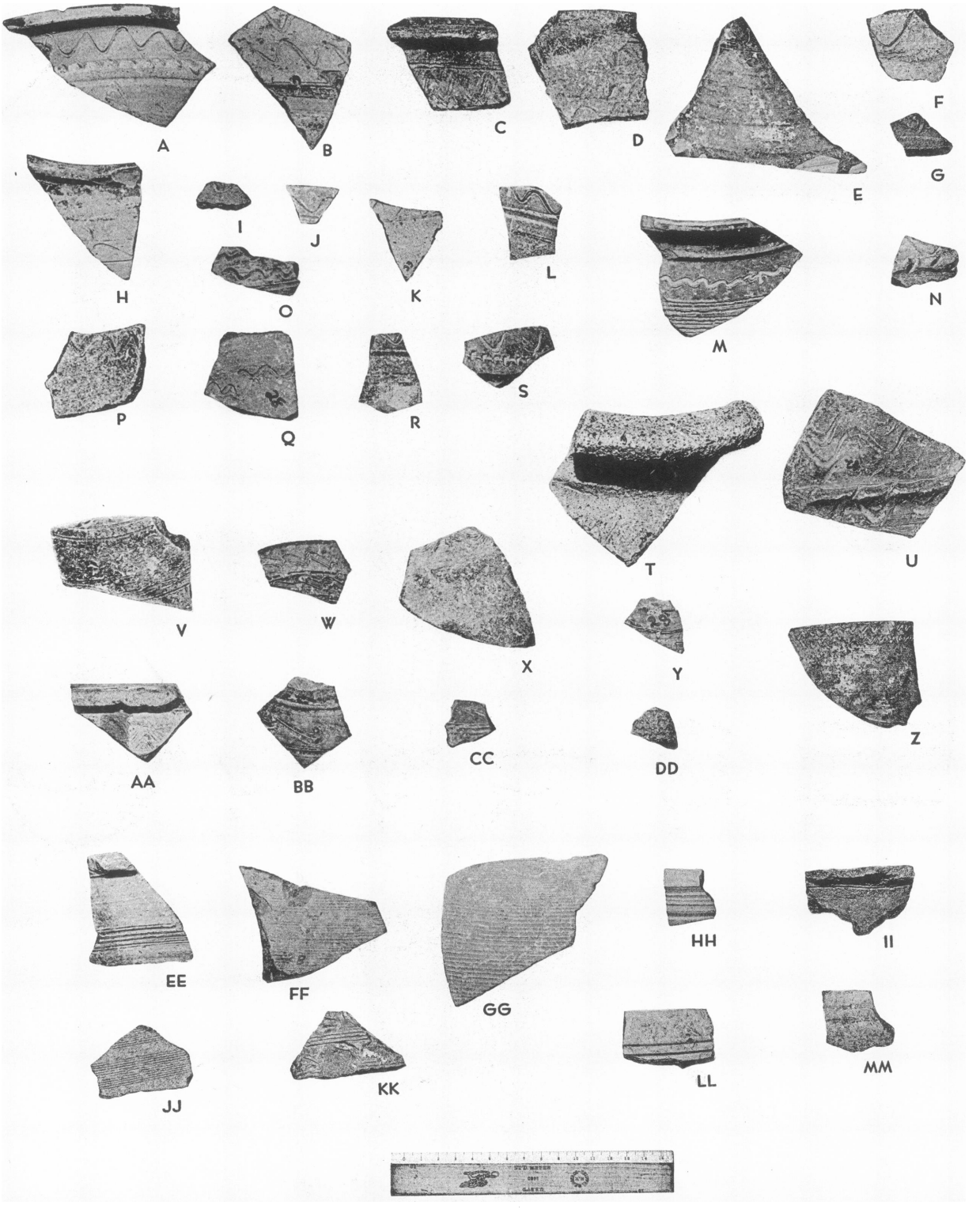
a, c. Possible stamped ware. b, d–i. Stamped ware. j–w. Mould-made. x–aa. Appliqué. bb–ff. Finger-tip decorated. gg–ii. Pishin black-on-red ware



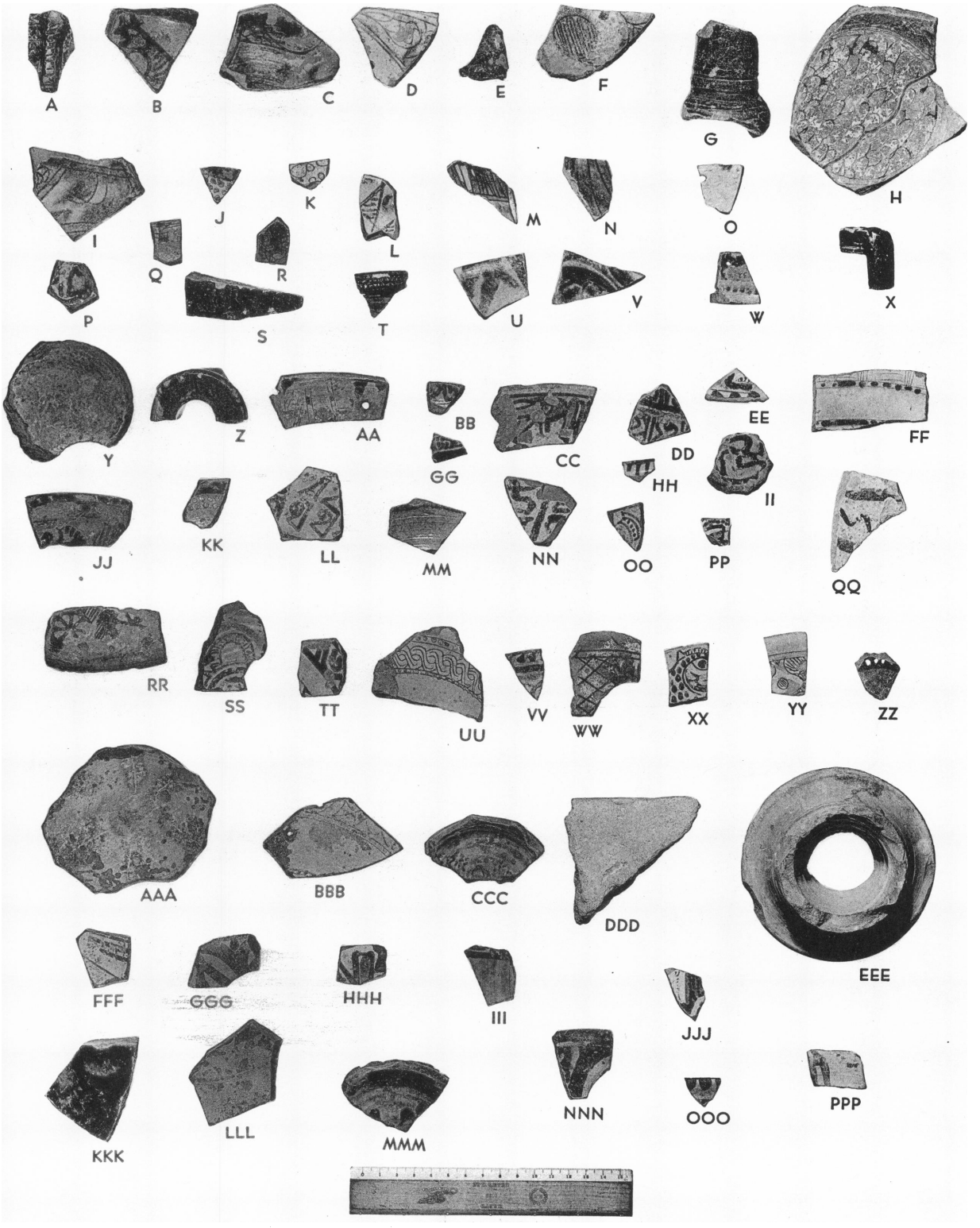
a–l. Ring ware. m–cc. Ribbed ware. dd–nn. Rope ware, wheelmade



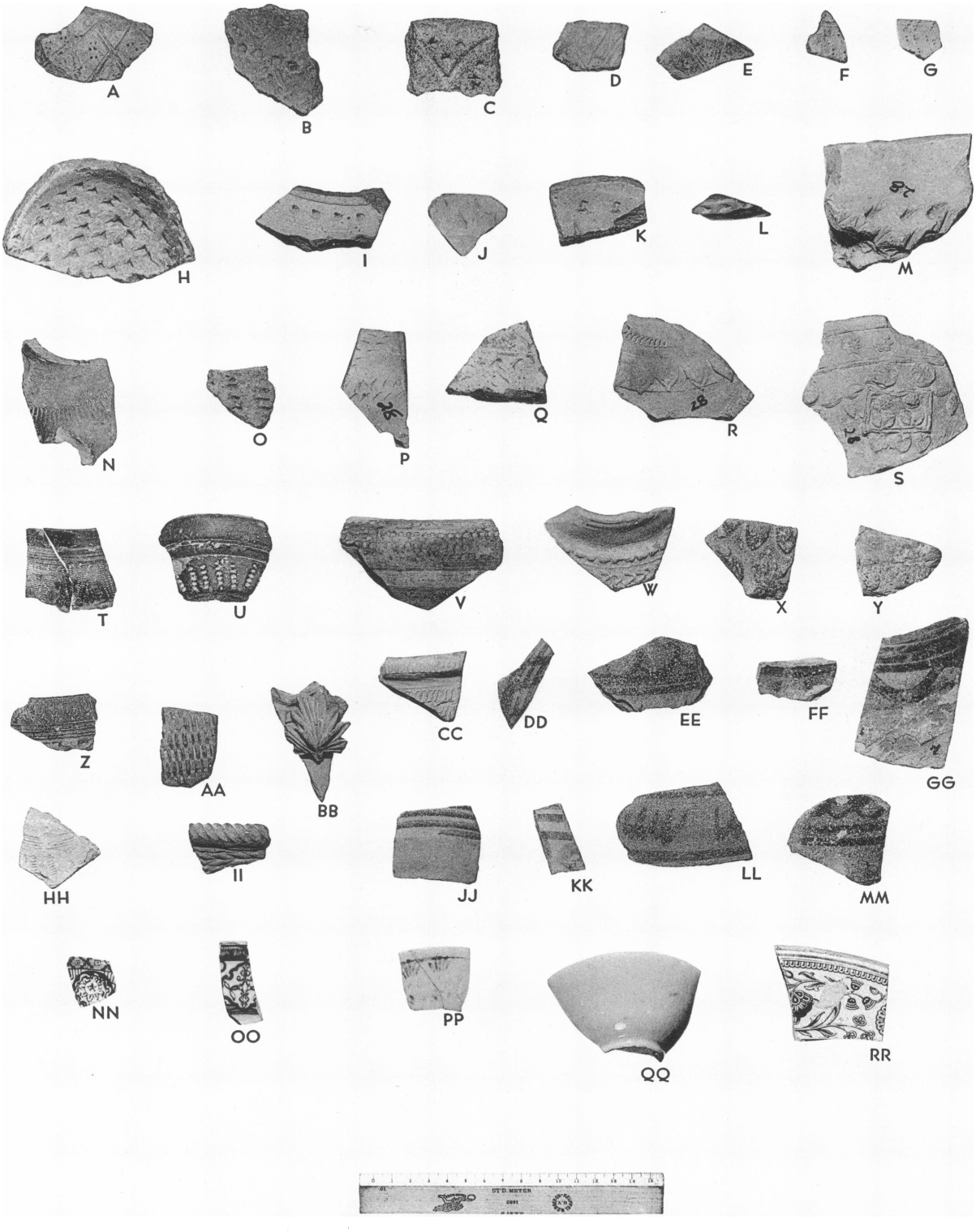
a–j. Ridge ware. k–u. Band ware



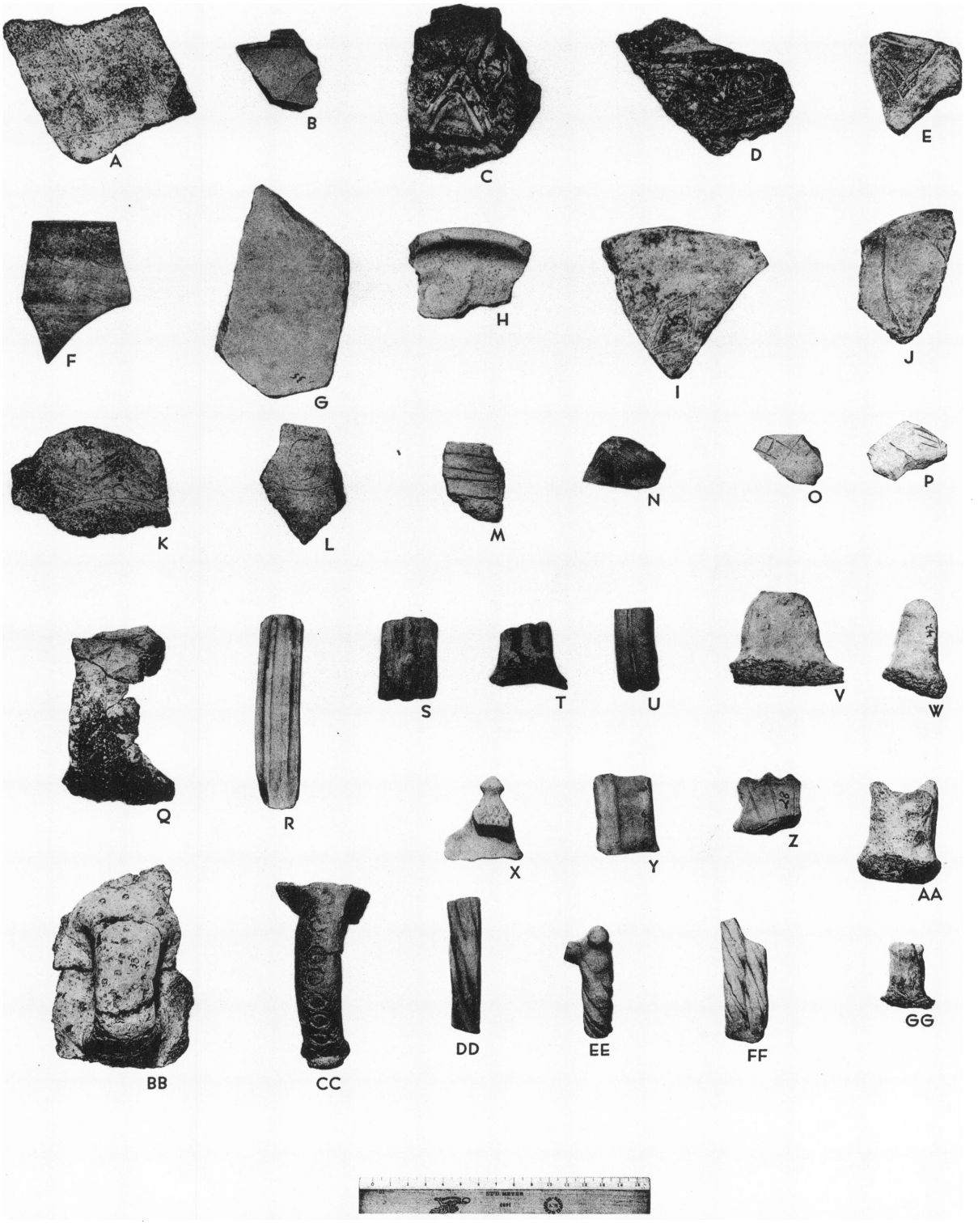
Loop and comb incising



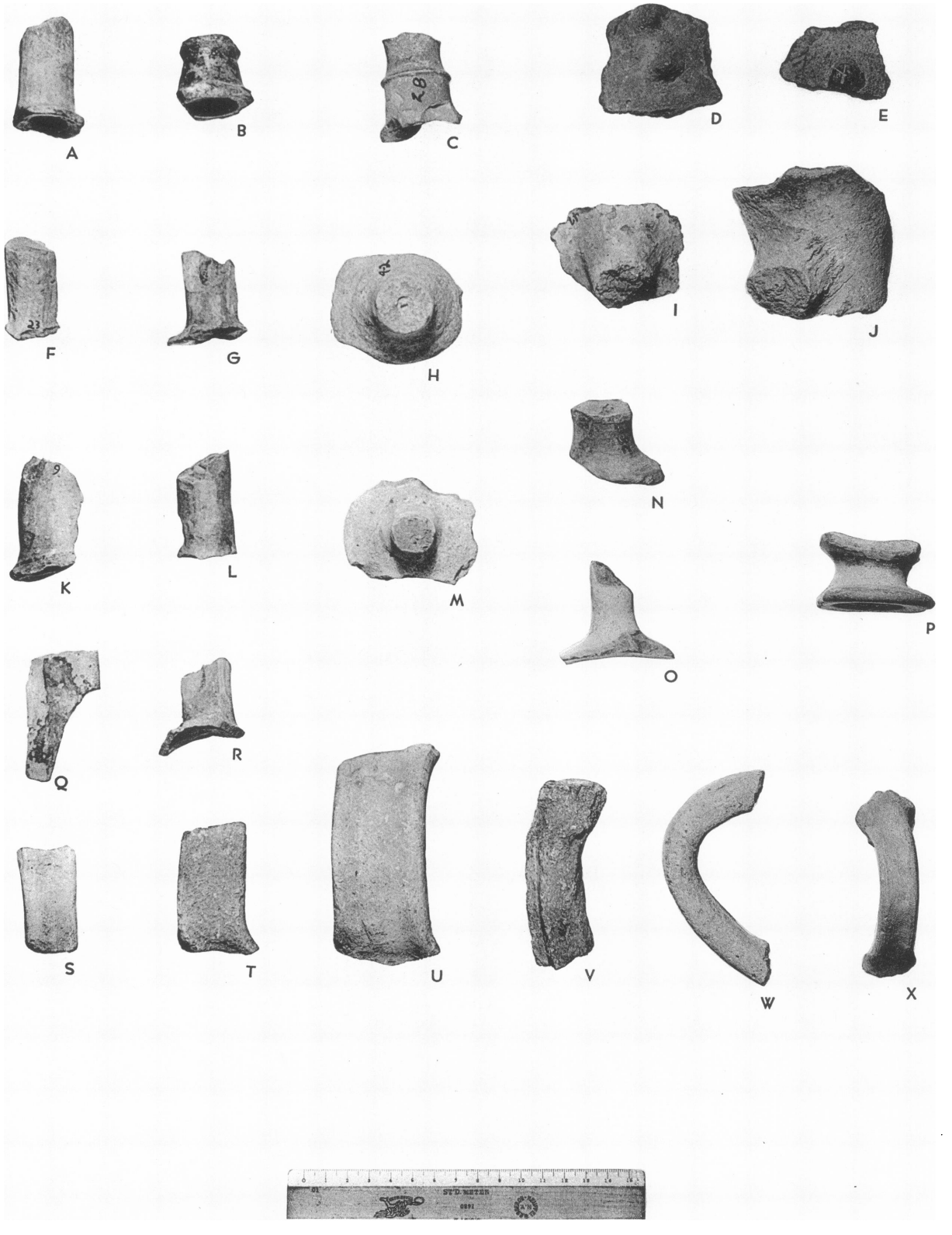
Glazed wares. a–x. Greenish glazes. y–zz. Yellowish glazes. aaa–ppp. Whitish glazes



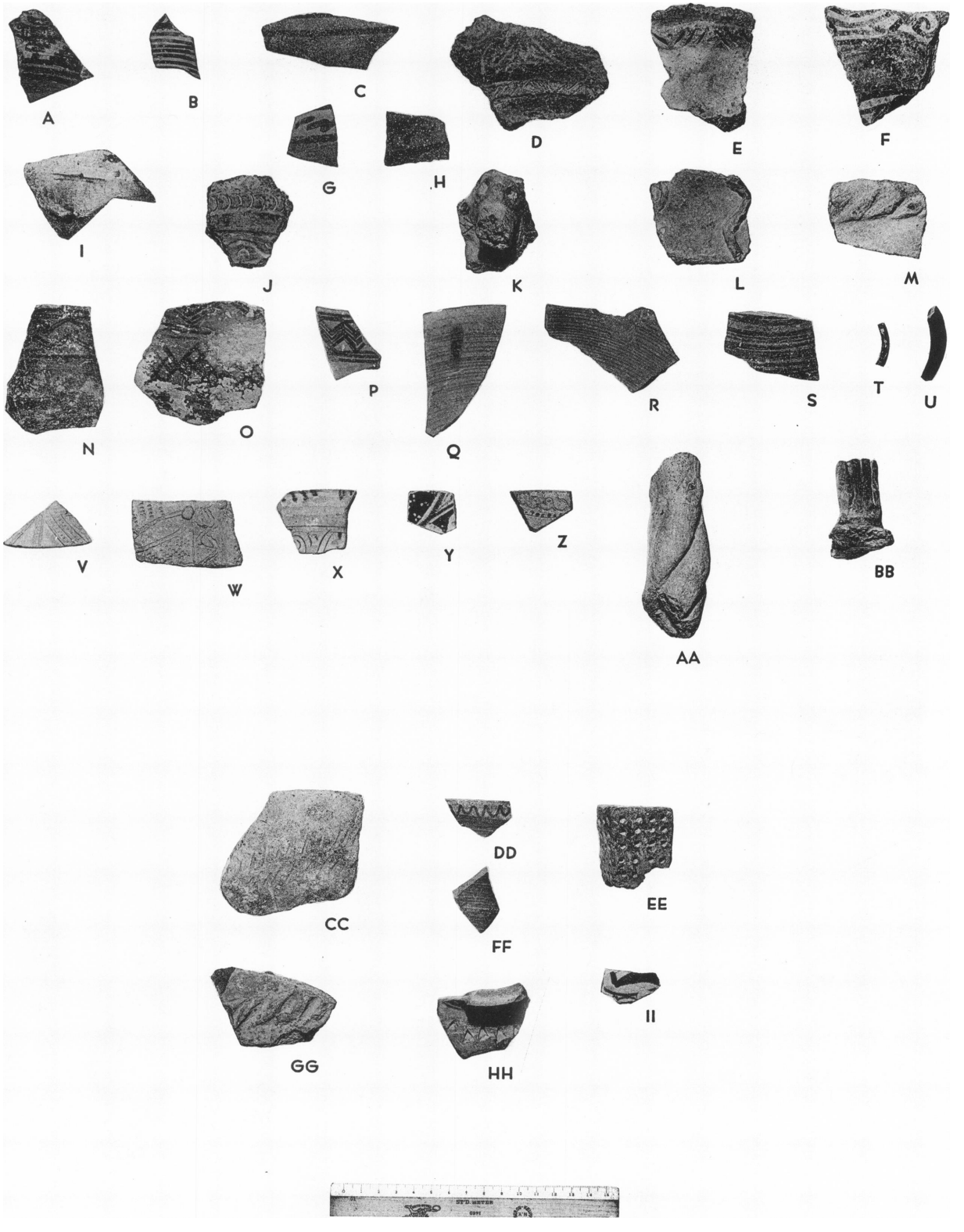
Modern or Islamic wares. a–g. Incised and punctate. h–m. Wedge incised. n, v, cc. Roulette stamped. o–q. Dash incised. r, s, w–y. Mould-made. t, u, hh. Comb-tooth. z. Stamped. aa, bb, ii. Maple ware. dd–gg, jj–mm. Black-on-red micaceous. nn–rr. China



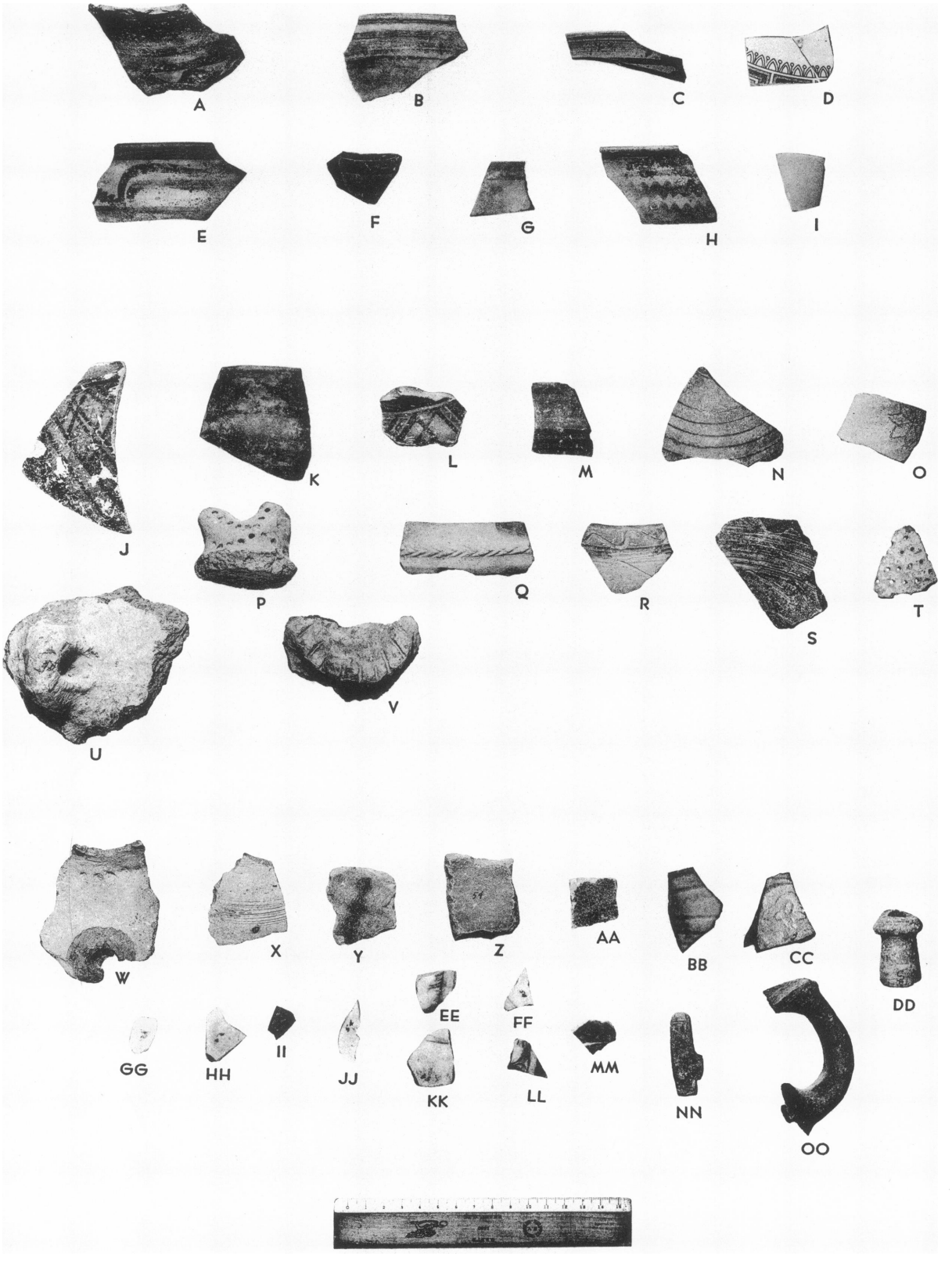
Miscellaneous incised sherds, handles, and lugs



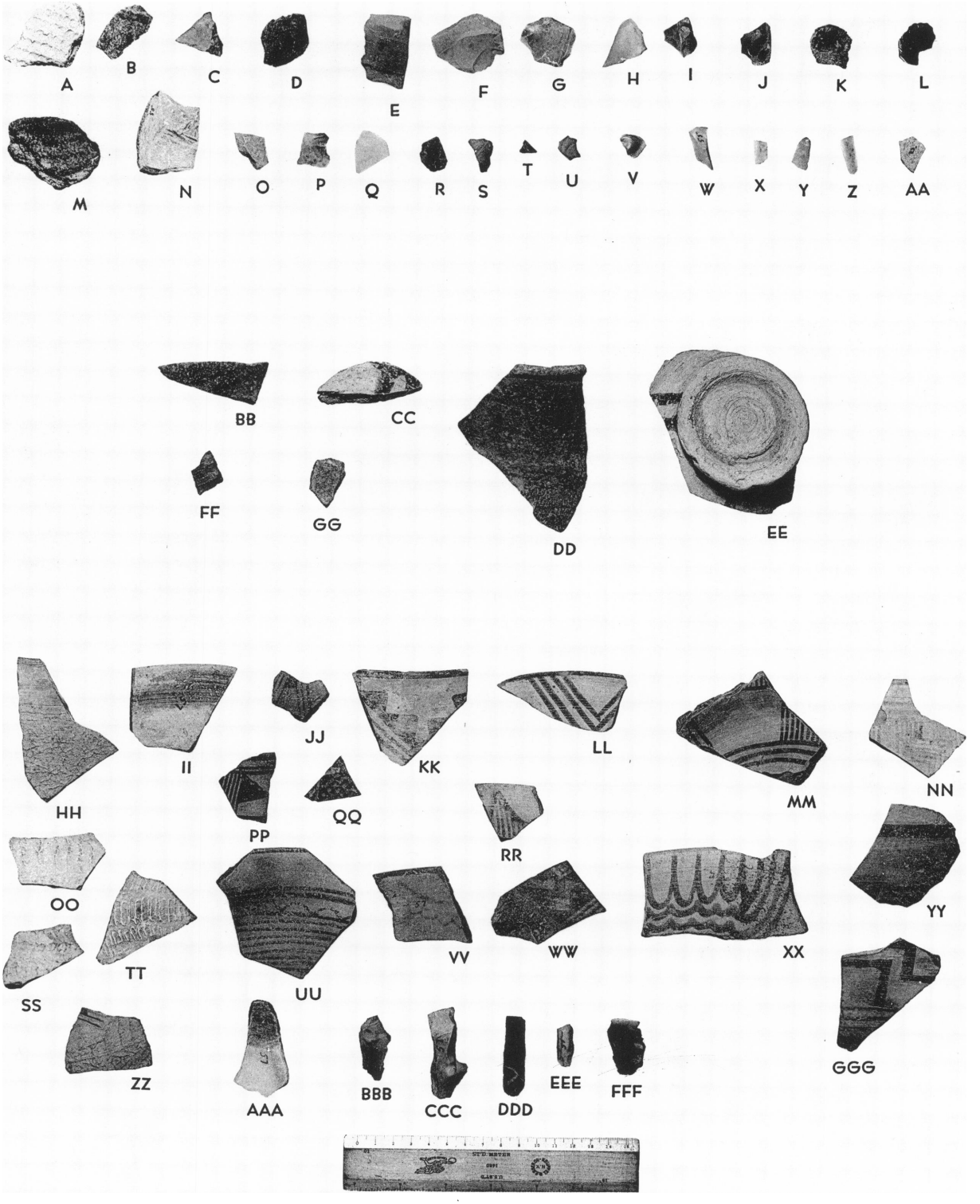
Pedestals, bases, and handles



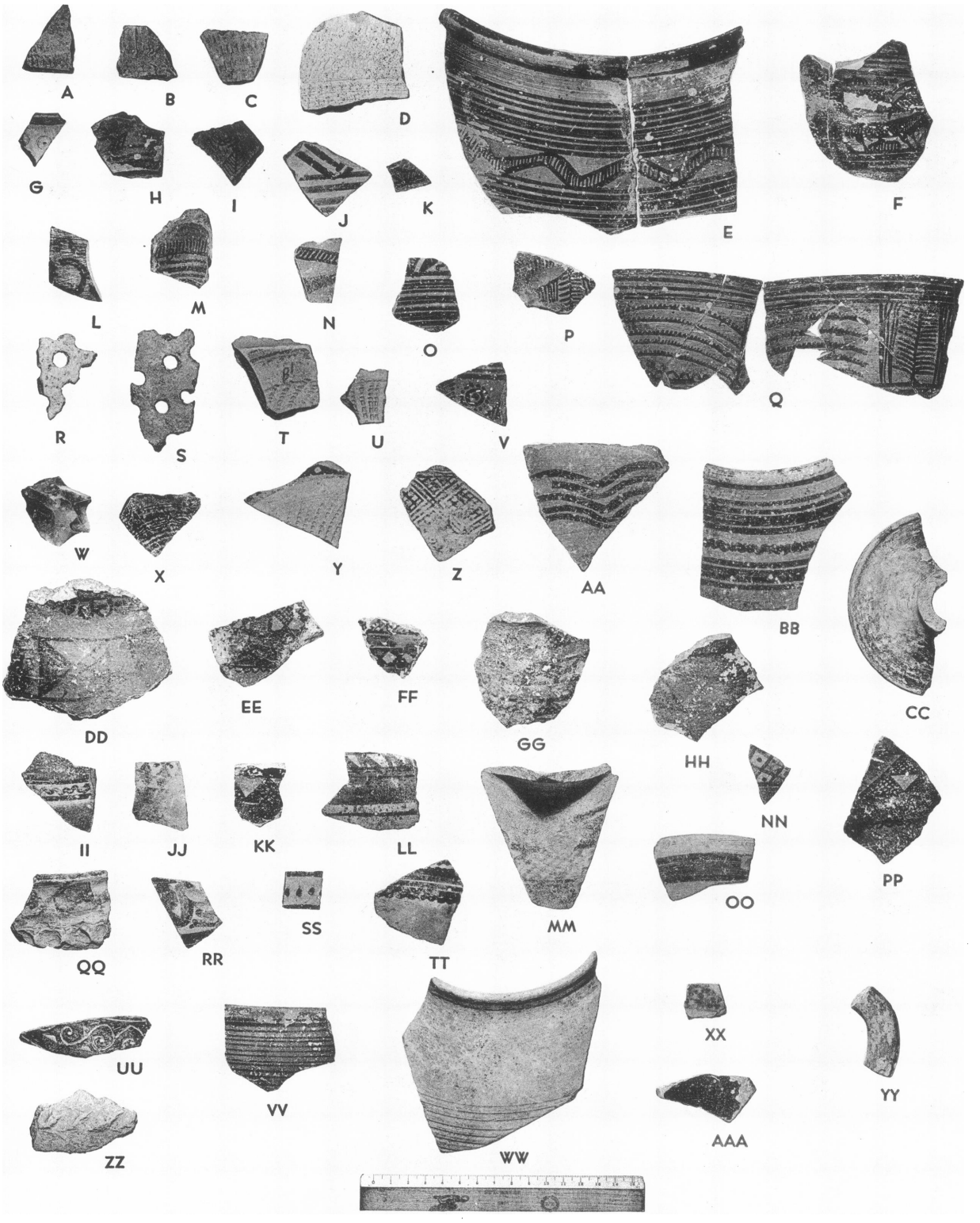
Sherds from Pishin Sites P1 and P2



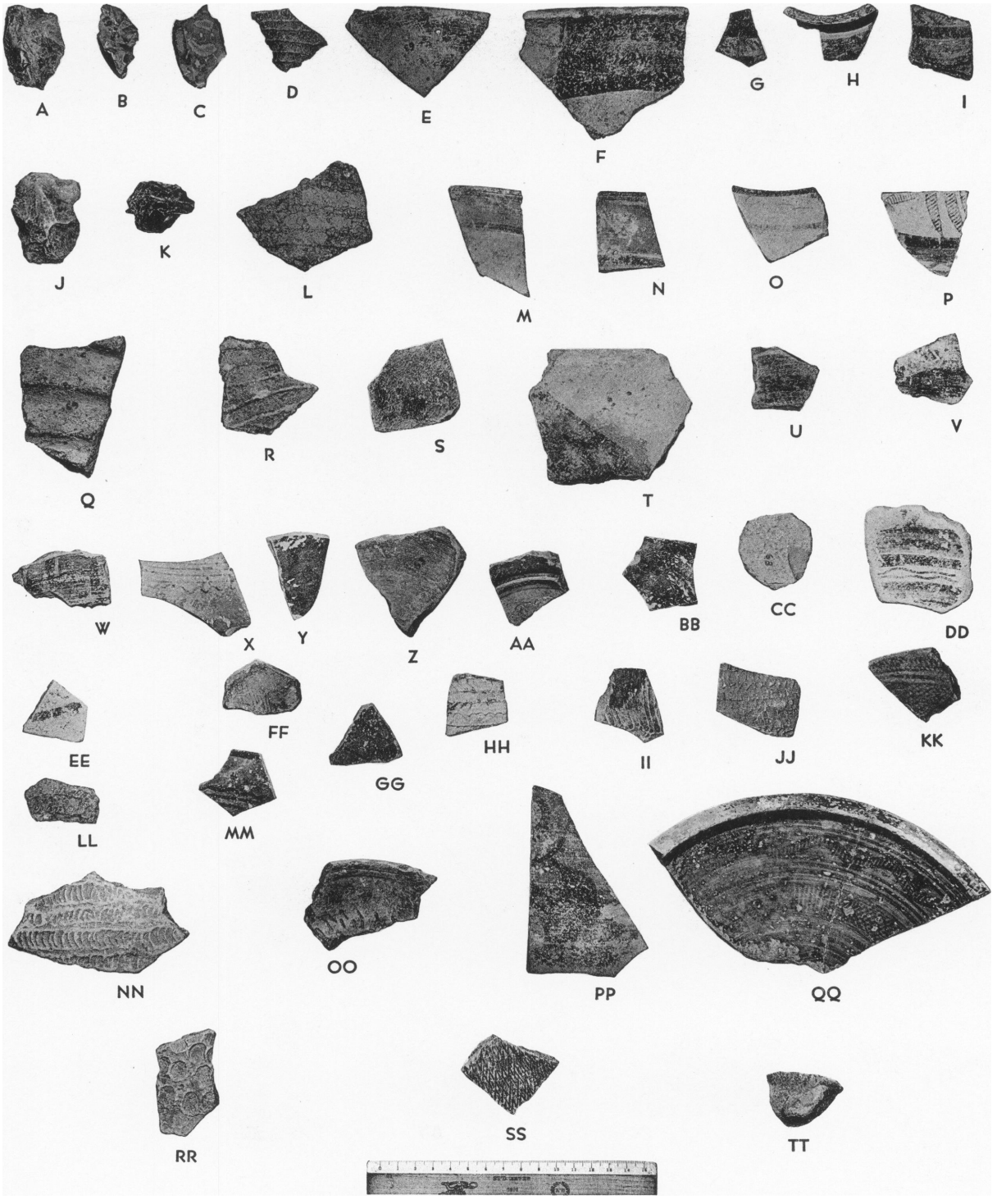
Sherds from Pishin Sites P3, P4, and P5



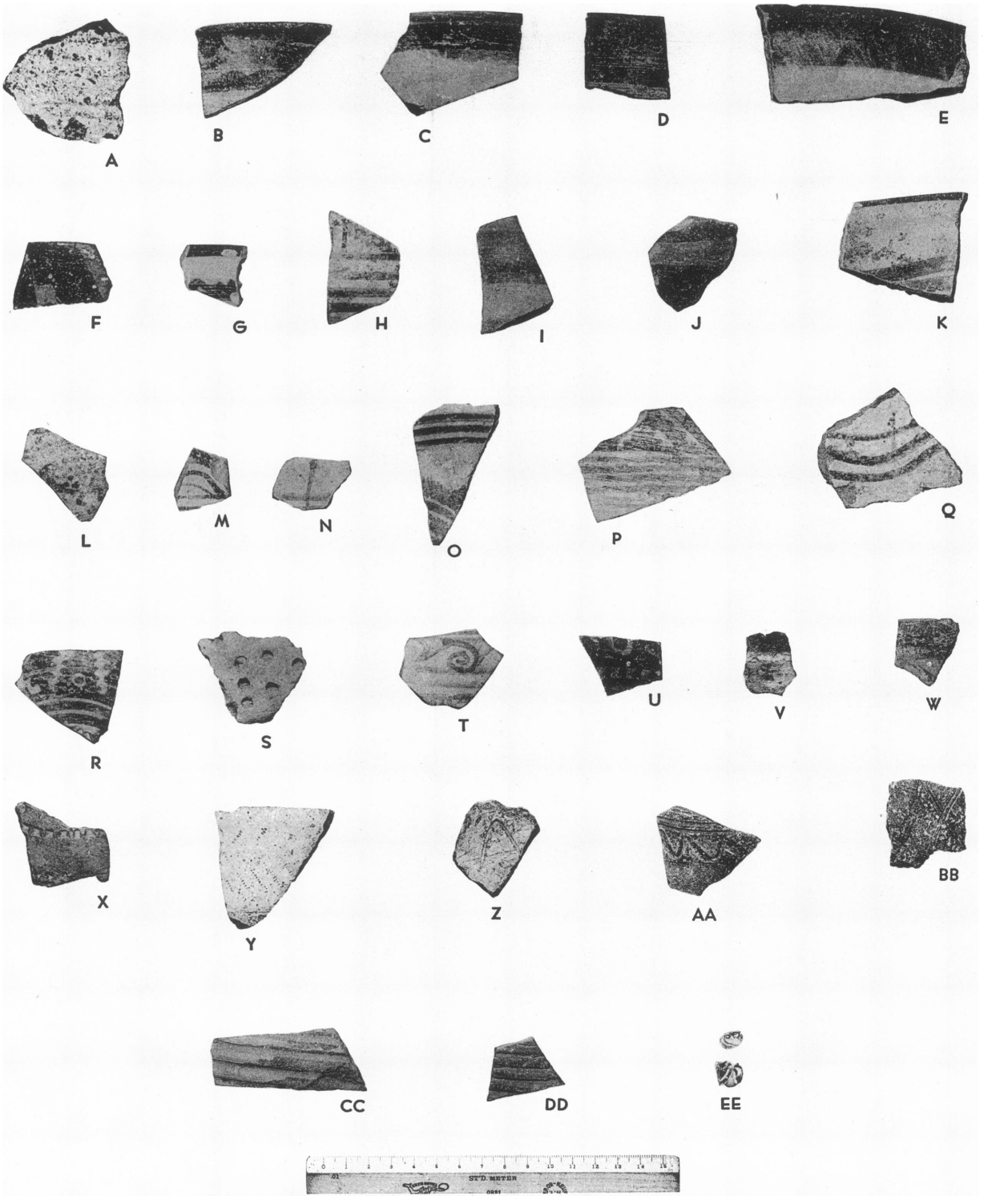
Sherds and flints from Pishin Sites P6, P7, and P8



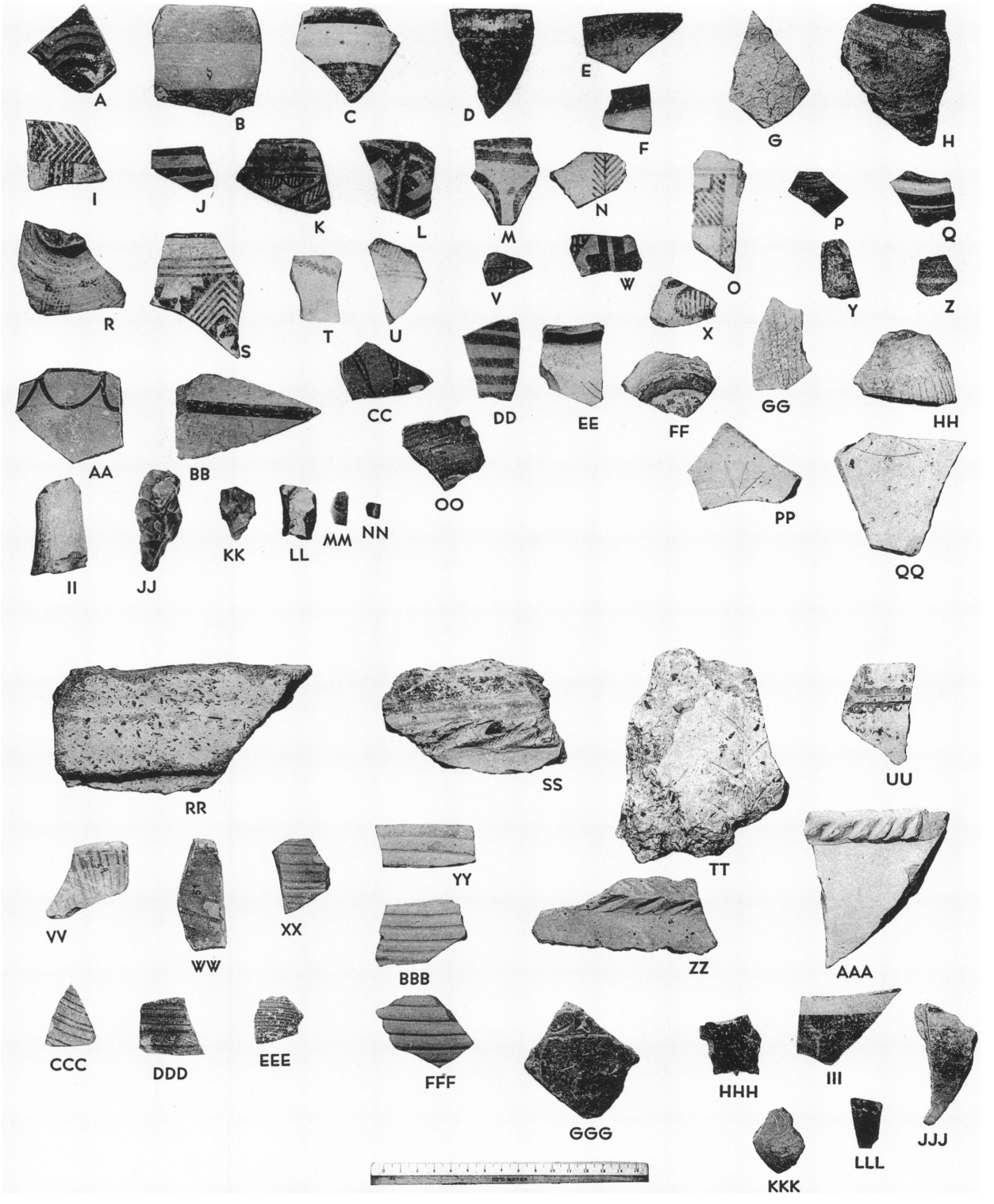
Sherds from the Bolan Area, Site B1



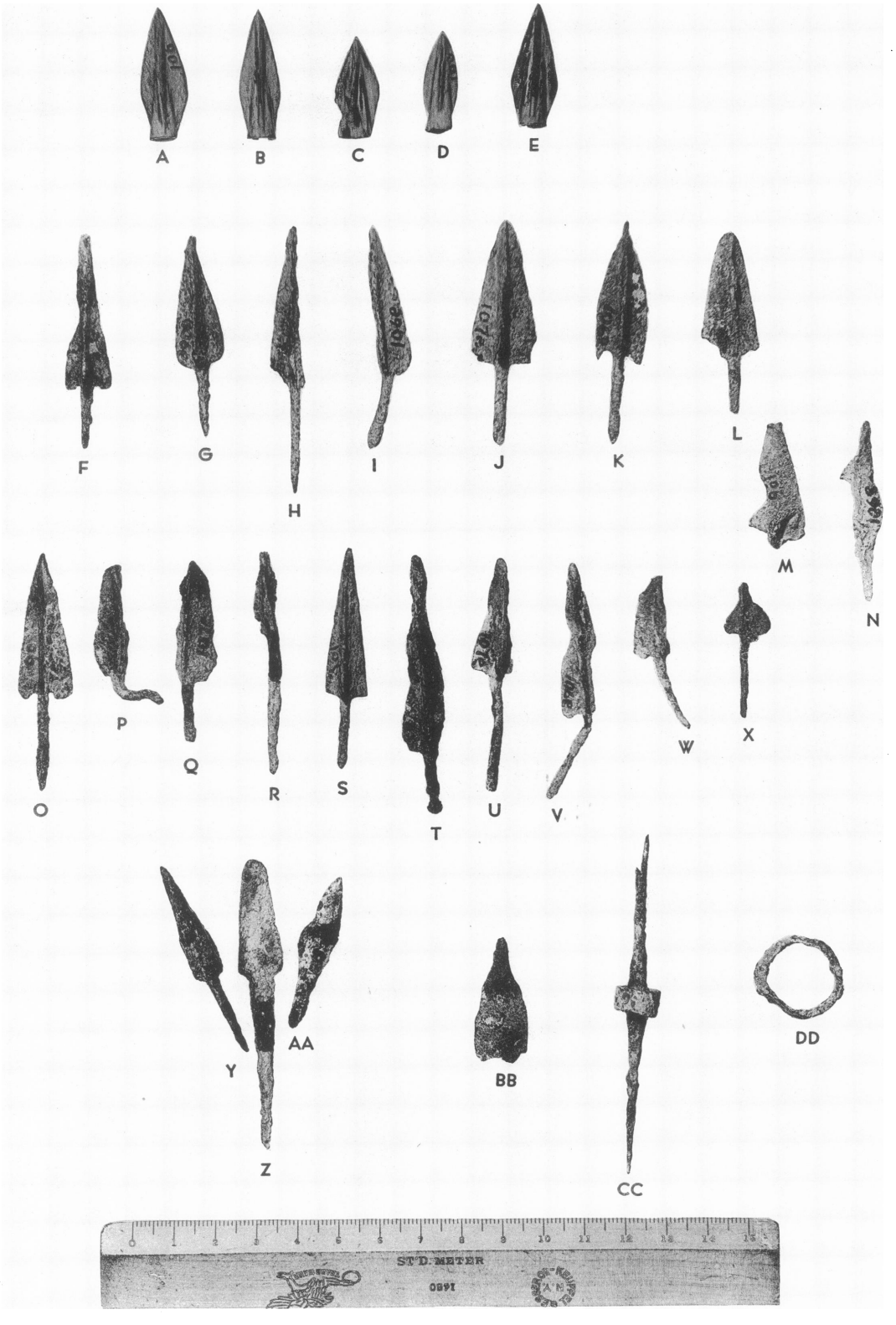
Sherds and flints from the Bolan Area, Site B2



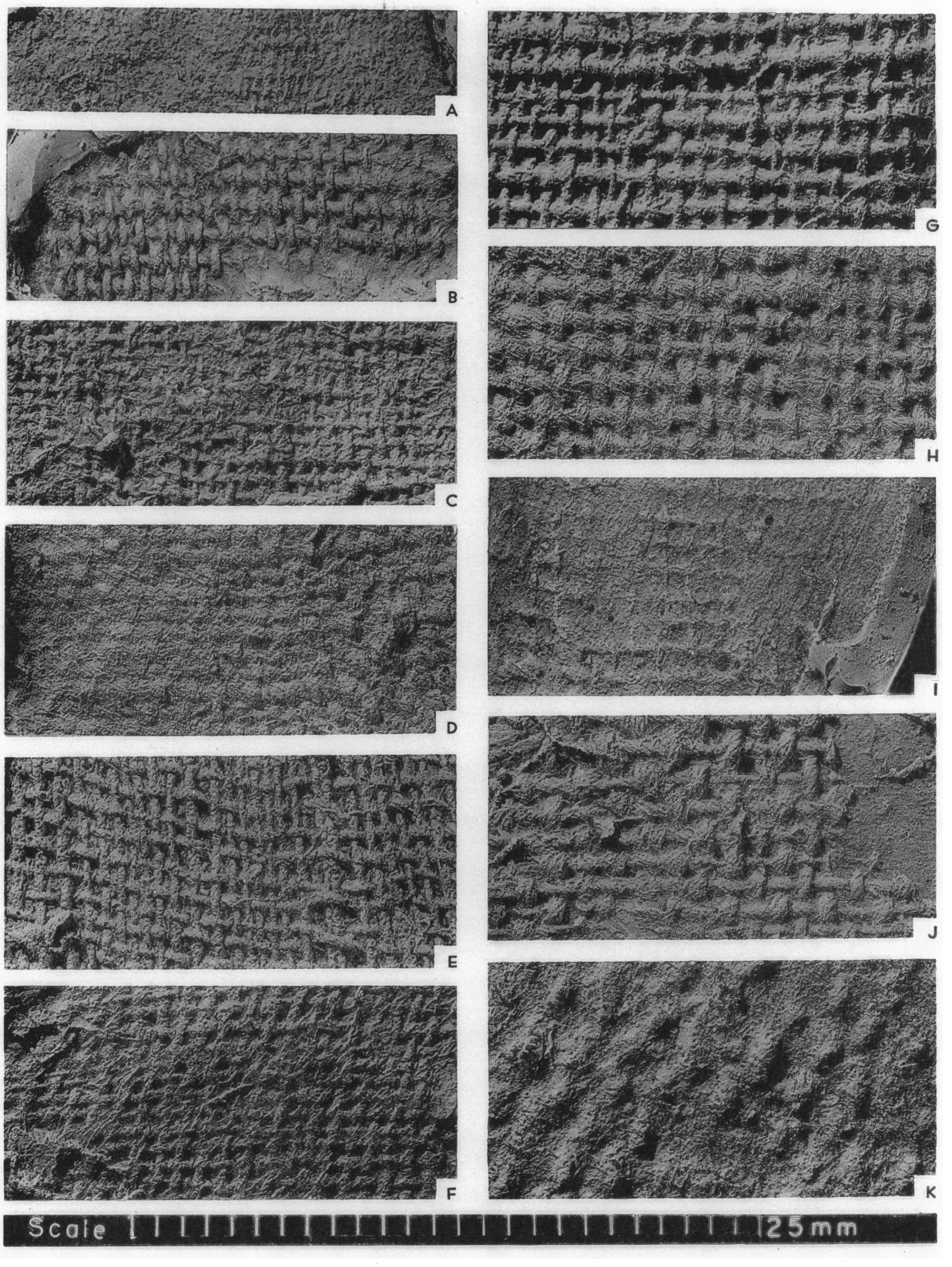
Sherds from the Chagai Area, Site Ch1



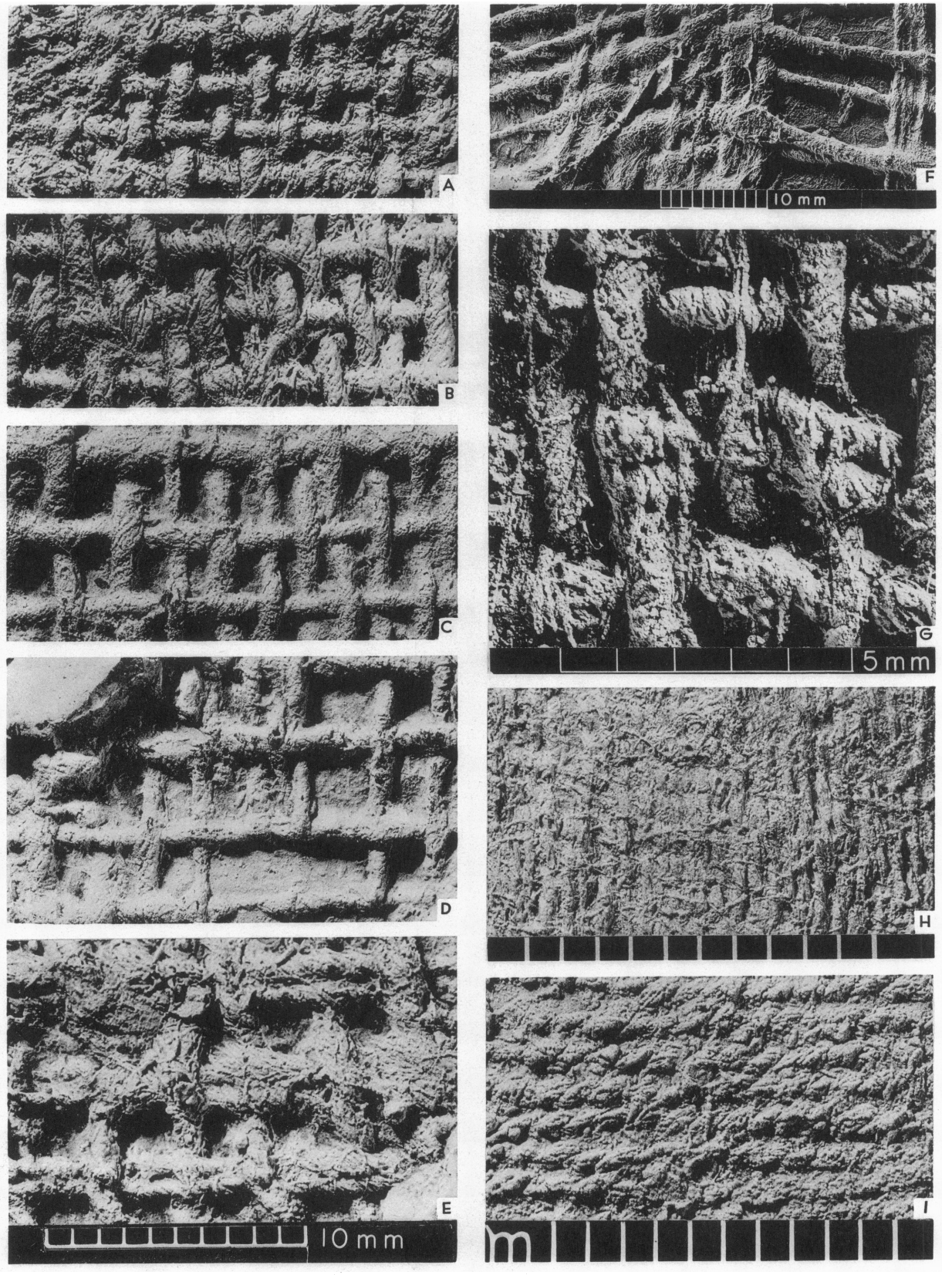
Sherds and flints from the Kalat Area, Sites K1 and K2



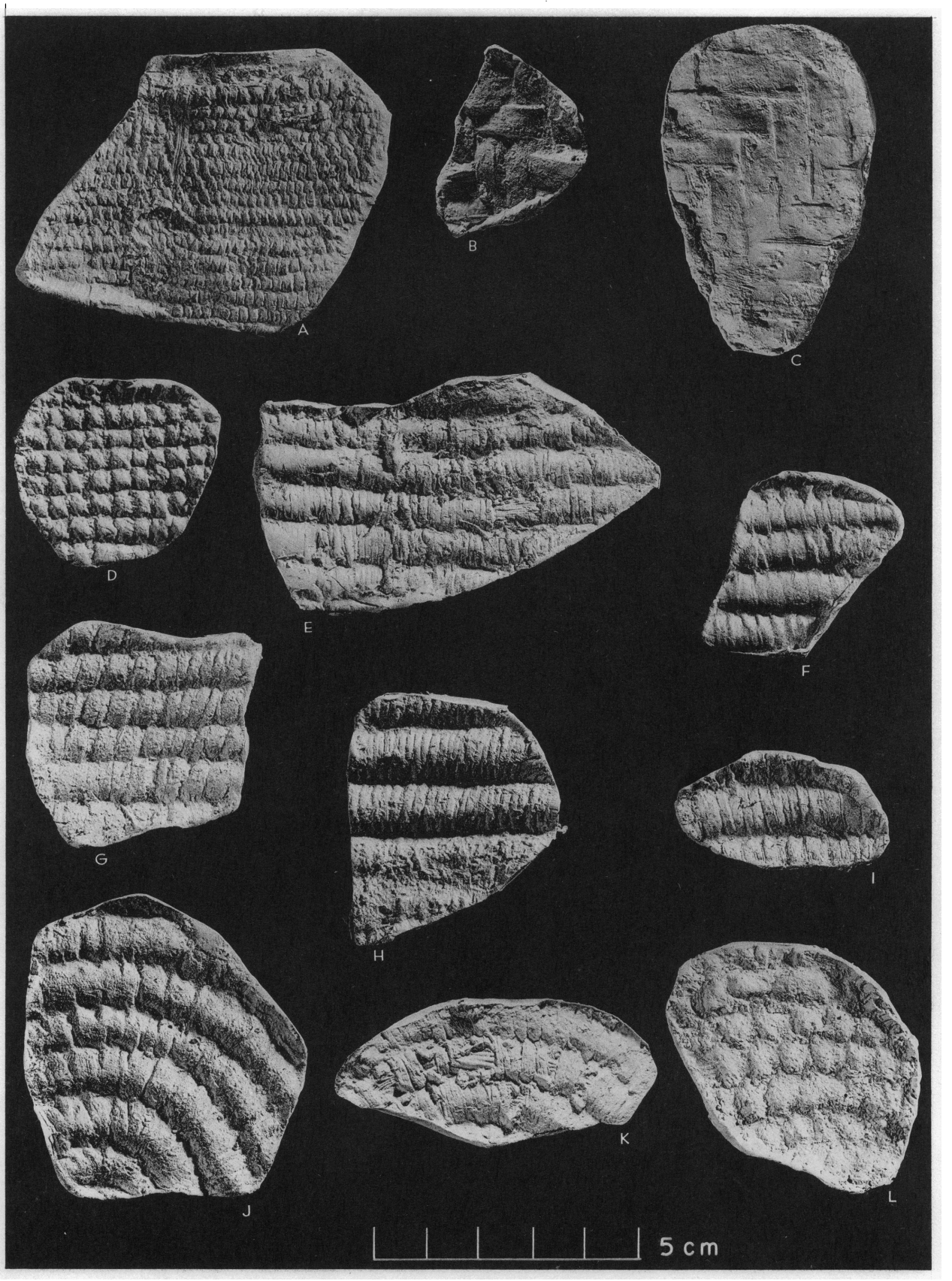
Iron and bronze objects from the cairn site, Q10



Positive casts of fabric impressions on pottery



Positive casts of fabric impressions on pottery



Positive casts of basketry and matting impressions on pottery

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