

HARAPPA



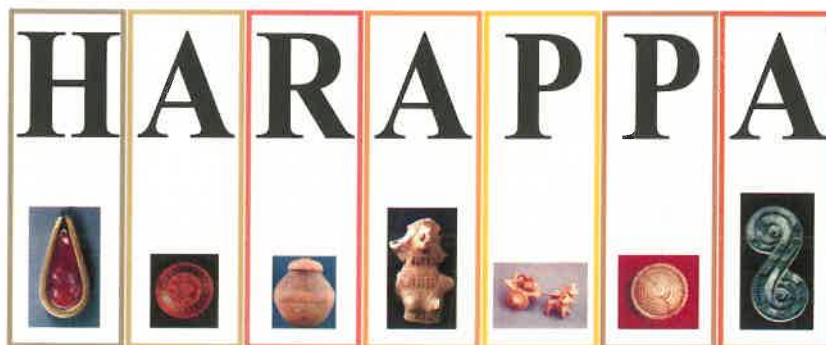
THE CRADLE OF OUR CIVILIZATION

NAZIR AHMAD CHAUDHRY



SANG-E-MEEL PUBLICATIONS, LAHORE - PAKISTAN

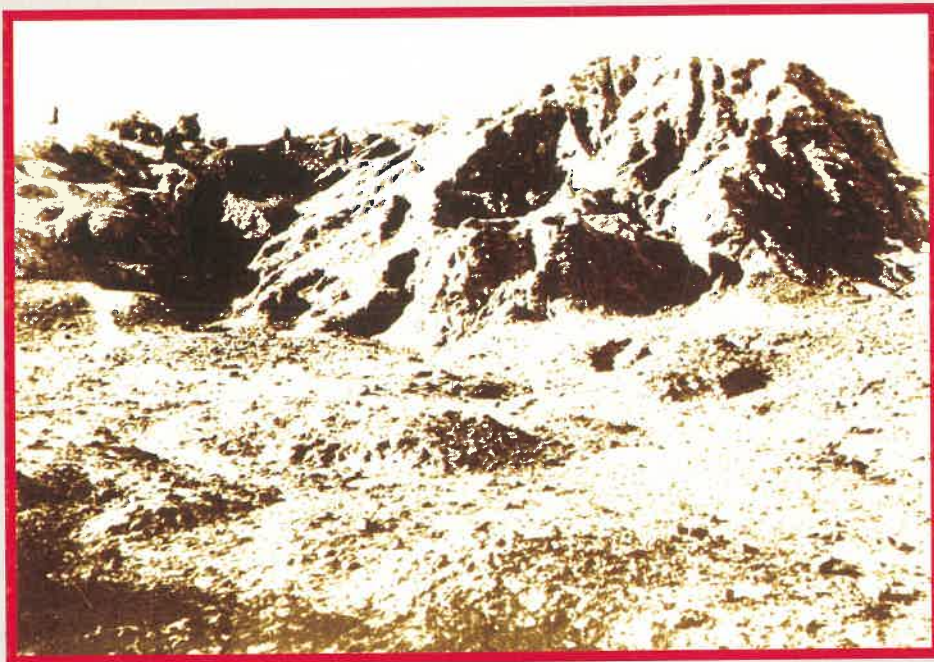
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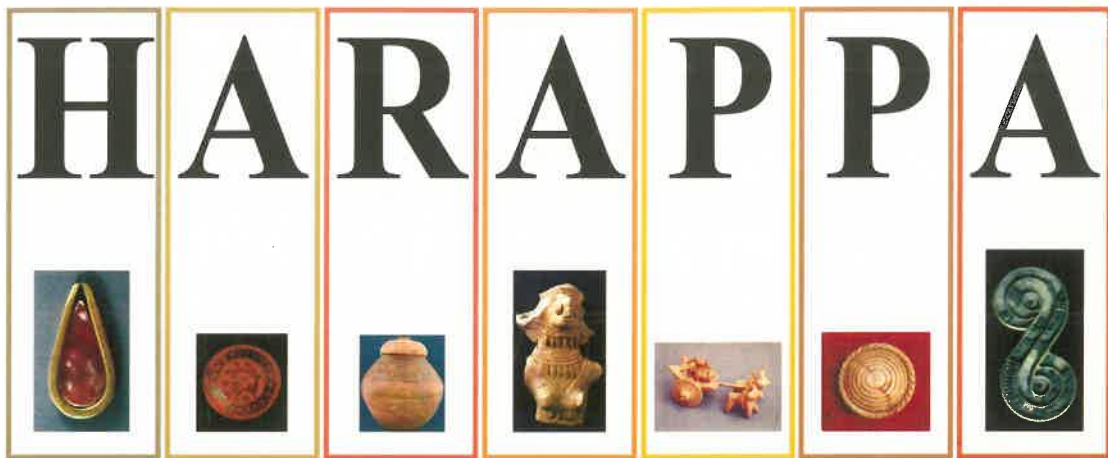


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The northeastern corner of the highest mound at Harappa as it was in 1920.
Archaeological Survey of India, New Delhi.

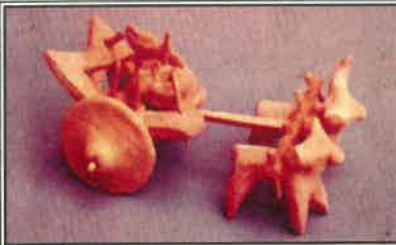
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SANG-E-MEEL PUBLICATIONS
25-SHAHRAH-E-PAKISTAN (LOWER MALL) LAHORE (PAKISTAN)



954.918 Nazir Ahmad Ch.
Harappa: The Cradle of our
civilization /Nazir Ahmad Chaudhry.-
Lahore: Sang-e-Meel Publications, 2002
112p.:Photos.
1. History-Harappa. 2. Pakistan-
History. I. Title.

Book Plan & Design: Zulfiqar Ahmed

2002
Published By
Niaz Ahmed
Sang-e-meel Publications
LAHORE (PAKISTAN)



Printed at
PRINTING PROFESSIONALS
8, Jail Road, Lahore. Pakistan
E-mail: printingprofessionals@hotmail.com



ISBN 969-35-1390-8



SANG-E-MEEL PUBLICATIONS

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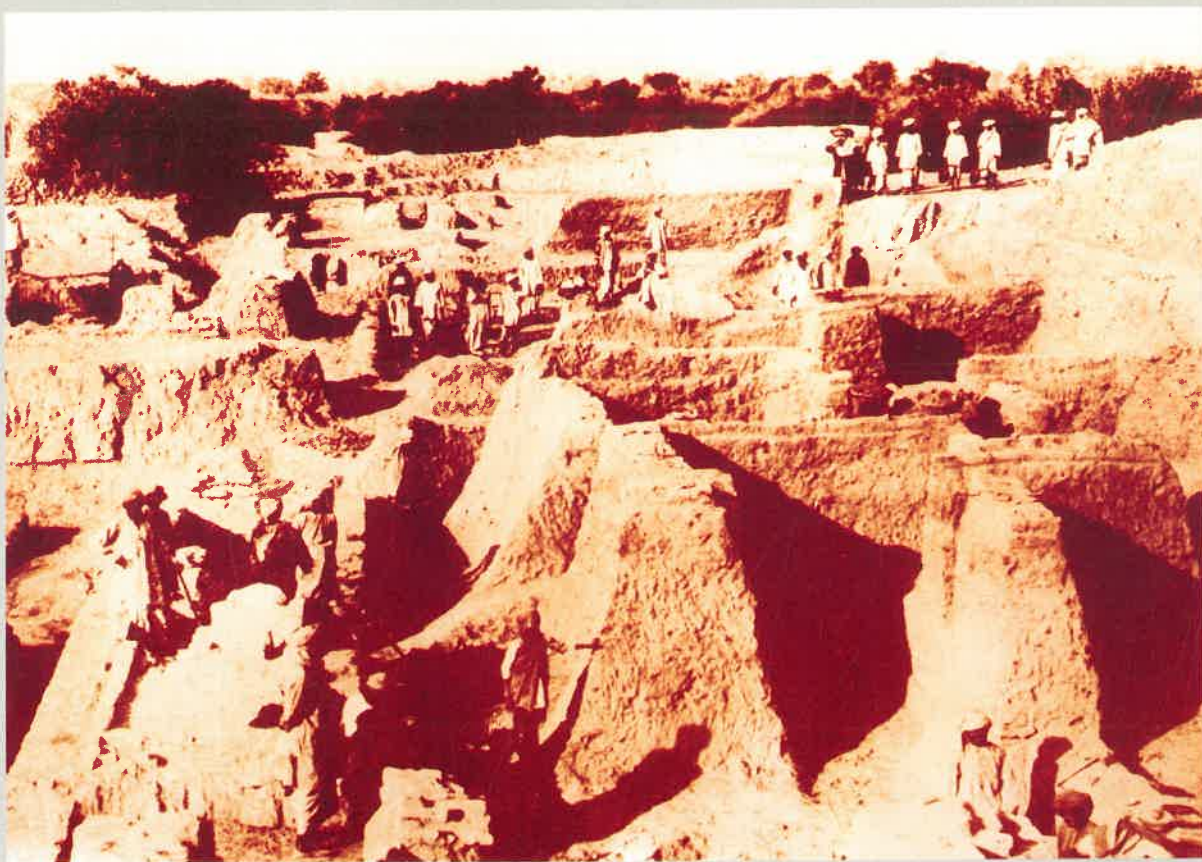
To
Ali, Farid, Varda
their Mama Ji & Baji

PREFACE

Attempting a brief history of any Archaeological site is quite complicated as only archaeologists can claim to possess the true knowledge of facts. But comprehending and understanding a description by professionals is again slightly taxing. It is therefore necessary that a simple narration for the common visitor with basic facts, discovered during excavations, is attempted. Being the successor of a rich and historic civilization of the world, one should be aware of the significant aspects of the Finds at Harappa which are a source of pride for us. More revelations would have been possible at Harappa if the British had not dismantled every-thing to make brick ballast for the Railway. But inspite of all this exploration of Harrapa added a New Chapter in the world history about a culture and heritage contemporary to that of Mesopotamia. The Common Finds in both (Indus and Mesopotamia) areas establish the connections especially the trade, commerce, exchange of artistic works of races whose outlook is un-like our own. Infact it is the Harappan History which got India recognition with a place in the world history.

I gratefully acknowledge the assistance, which I received from Archaeological Library, the Quaid-e-Azam Library and Punjab Secretariat and Archives Library. I gratefully acknowledge what I have borrowed from the writings on Harappa and Indus Valley Civilization by Archaeologists, experts and historians both in Pakistan and abroad. My thanks are also due to my friends Ch. Abdul Rashid, Iqbal Bosan, Mr.Khalid Saifullah, Dr.M.H.Bhatti and Mr.Ramzan Anwar who helped me all along in collecting material. Ch. Naiz Ahmad of Sang-i-Meel Publications also took keen interest in the early publication of the book and I am thankful to him. It remains to thank my children and family who ignored my academic engagements which were always at the cost of their time.



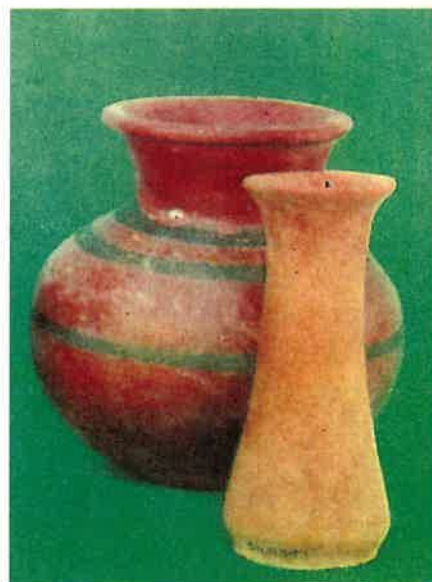


*Excavating the great granary of Harappa.
Archaeological Survey of India, New Delhi.*



Introduction

The Harappan Civilization unquestionably ranks as one of the greater cultures of early ancient world. Its importance stems largely from the fact that it represents first of the successful achievement of civilization beyond the bounds of the land that constitutes the Fertile Crescent. Obviously its cultural contribution is not only to the sub-continent but to the world civilization. Its significance and uniqueness have been lucidly described by the historians, experts and archaeologists all over the world. The Harappan Civilization which is also termed as Indus Civilization began exclusively as a result of successful colonization of Indus Valley by Harappans who won it centuries earlier, succeeding failure by earlier pioneers. Once established, the Harappan people achieved the subjugation of the large valley, adjacent course and borderlands towards north and south. This civilization, however, centered round Harappa and stretched out from western Baluchistan and was termed as most extensive in the pre-classic world. According to one view Harappan Civilization exemplifies vested political experiments before the advent of the Roman Empire. Another view is that although there are outstanding differences, there are general affinities to early Mesopotamia because the evidence, especially the scatter of Indus Seals and other Trifles in the Mesopotamia shows that it traded with its neighbours of Persian Gulf and Central Asia. The Harappan Civilization lasted perhaps over 1000 years varying in its content as little through time as through spaces. However, indications of decay in the late phases can be ascribed due to man caused devastation and climatic reasons. But Archaeologists working on this civilization have on the basis of evidence worked out theories of its chronology. According to Sir Mortimer Wheeler the Harappan Civilization was in full flair in the times of Sargon of Agade (in Mesopotamia) whose date is now determined as 2350 B. C. and that the period 2500-1700 B. C. is here assumed as likely to have comprised of the material available, connected with Harappan Finds. The publication by Wheeler in 1967, stresses upon two major factors pertaining to comparison or association of Harappan material with that of other cultures, in closer contacts with historical records. But one cannot ignore the fact that Harappan Civilization itself is still essentially pre-historic, its contacts with the proto-historic or early his-



toric civilizations of Mesopotamia, Anatolia, Egypt and the Aegean might be useful, but are to be limited in range to lend it more than a shadowy and intermittent protohistoric status. Nevertheless, so far as they go, these contacts are important.

The second source derived from the modern technology now widely familiar in principle, of that by product of nuclear research, the Carbon-14 method of computing the antiquity of organic materials such as charcoal, bones, leather and shells. The method is less exact and reliable than is sometimes believed by its grateful users, and serious anomalies, now under scientific scrutiny, have emerged in its application to the third and early second millennium B. C., a crucial period for the Indus Civilization. But in bulk the method can be allowed a general validity provided that its considerable margins of error are clearly appreciated and kept in view.

However, for the purpose of common visitor to this historic site, suffice it to remark that issue of assigning a certain date to the Harappan Civilization is still problematic. According to experts on record in all the excavated levels of the mounds no signs or indications of gradual evolution in the life of the Harappans stand detected. On the other hand the structural remains along-with other articles, right from the beginning of the digging, show a perfection and discipline in the sense of life and other cultural homology. Unfortunately the (Down-fall) script has not been deciphered which again consists of a few words/letters found on the seals. Infact decipherment of that inscription could have been of great help but in the absence there of only assumptions can be drawn. In the light of these difficulties the conclusions are mainly based on evidence and contacts with foreign contemporary worlds, as already pointed out. The period thus happens to be about 2300 B.C. or around that. The evidence collected by the archaeologists in determining the date consists of steatite seals found at Tell Asmar, bearing elephant without inscription is observed to be clearly of Harappan work-manship. The inscriptions on the seals are also in the Harappan style specially on the seals recovered from Kish. These seals, it is said, bear affinity in shape with seal of early Sumer and Elam. It is, therefore, a commercial contact that the craftsmen of Harappa derived the knowledge of cylinder seals from the Sumerian Craftsmen.

Pottery, as we know, is another major source of determining the level of socio-cultural scene of a given civilization in the field of Archaeology. It has been an important factor indicating the various levels of growth and cultural advancement. The Archaeologists found one knobbed pottery specimens along with seal in Mesopotamia which is not only rare but also does not seem to be the indigenous product. This pottery has its origin in Harappa where the potters used to make such earthen wares. The date assigned to this peculiar ware is about 2400 B.C. Similarly other pottery specimens were found at Tell Asmar, Kish and Susa. In addition to this the etched beads and gold disk beads were used by Harappans. From this it is clear that both these Asian Civilizations of Harappa and Mesopotamia have certain common features and are generally assumed to be in its hey day in 2350 B. C. but

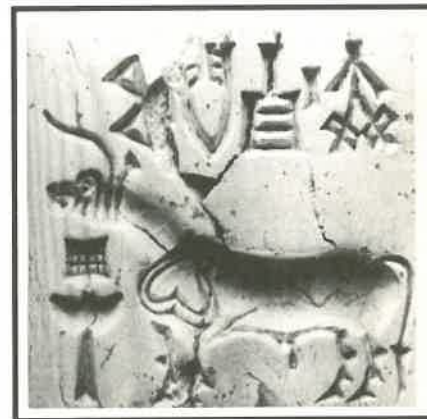


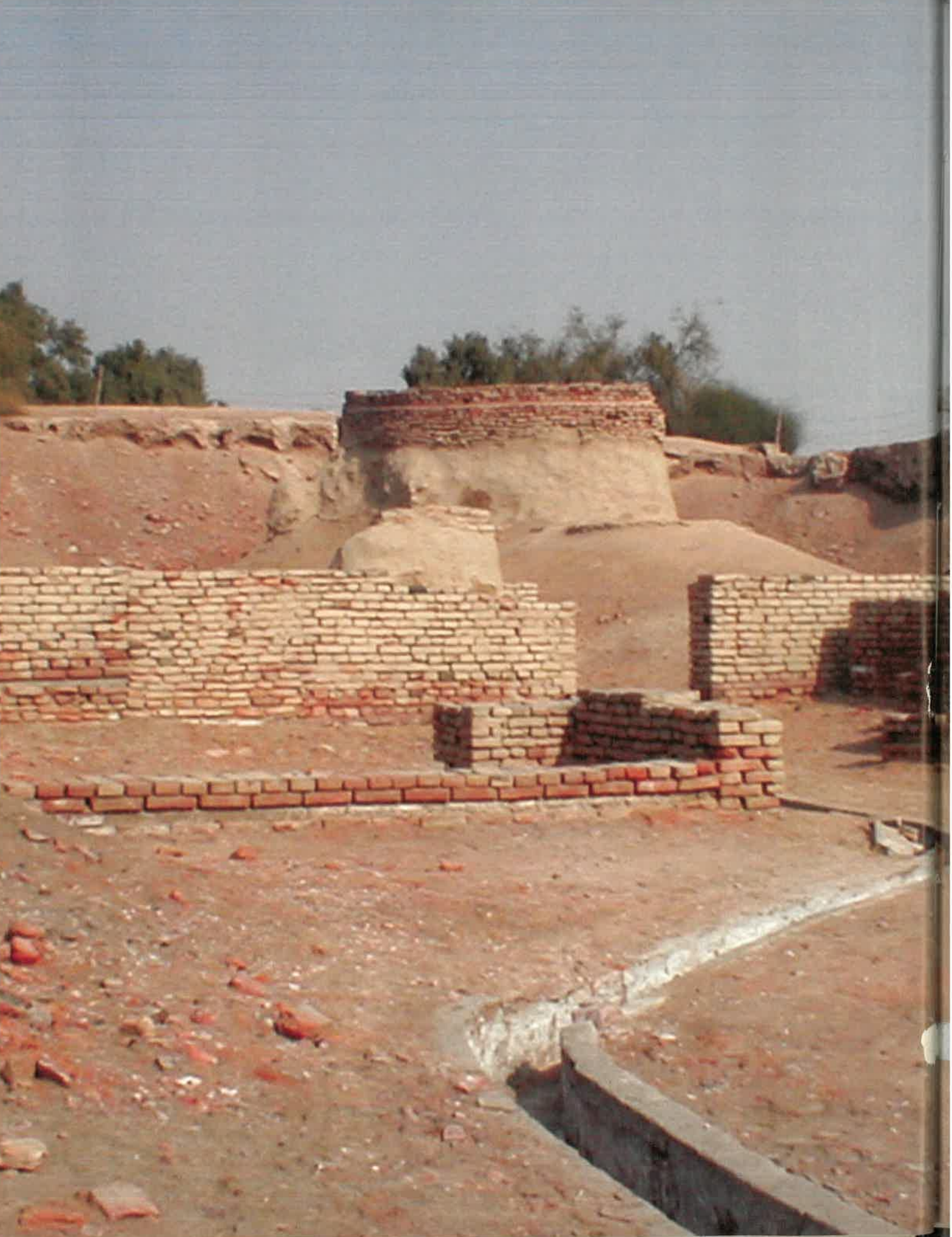
in some cases some writers pre-date the era as 2500 B. C.

The down fall and decay of the Harappan Civilization is still a subject of controversy amongst scholars. Some assume, especially led by the thesis of Sir Mortimer Wheeler, that Aryans from the Central Asia took over the Harappan Empire and the ab-original culture disappeared in due course. This thesis by Wheeler is based on his assumption of some defence wall which he excavated but some experts later on doubted as to whether this was really the fortification wall or base of some other structure. The main reason advanced for the disappearance of Harappan Civilization are assumed to be outside invasion, climatic changes and gradual de-basement of socio-economic fabric of the society. The over burdening and exploitation of agricultural and mineral resources due to increase in the population which ultimately compelled the local population to move and consequential extinction.

As regards the invasion by outsiders, it would require a deep study of the linguistic evidences from the Central Asia together with Hindu religious literature which is attributed to be the basis of the view that Aryans occupied and caused fall of Harappan Civilization. "It seems probable that around 2000 B. C. there was a loose confederacy of tribes spreading from Central Asia to Turkistan who had some common cultural patterns and links with sub-continental empire. The dialectical common characteristics of Indo-European Languages may also provide some common framework. In this connection countries east of the Caspian Sea and south of Russia can be thought as possible centres for evolution and growth of Indo-European Languages amongst earliest agriculturists. In the same category falls the battle equipment and chieftain's warring equipment. The general accepted date for the Rigveda is 11th or 12th century B. C. But on the evidence of the discovery of Mitannian documents about 1380 B. C. with the names of Rigveda gods, the composition of this literature has been pushed back to 1400-1500, B.C. About one quarter of hymns are addressed to Indra in Rigveda, who wields the thunder bolt in his more god-like movements and fights like a hero with bows from his chariot. The opponents, occupying the plains of Punjab, who dares deny Indra's overlodship in heaven and on earth, are described as Dasas or Dasyus. They are formed into groups or states and live in fortified strongholds. They speak strange language and are indifferent to the gods."

Taking into account the evidence of Rigveda, it is presumed that by about 2000 B. C. the people, occupying the tracts of Central Asia, started world-wide movements. A branch of these people, known as Aryans in history, accompanied by Indra their lord, entered Indo-Pakistan Sub-Continent and defeated the original inhabitants of the land. Now the question is that who were actually the inhabitants of the land at that time? As it is generally accepted on the basis of other evidences also that the Harappan Culture was flourishing at the beginning of the second millennium B. C. and there were cities of this culture with strongly fortified citadels and contained among their population a large proportion of proto-Australoids with dark skin and





flat noses and that these cities embraced a sudden and fatal end. "So it may be concluded with some reservation that the victims of this foreign invasion were most probably the inhabitants of Harappan Culture about 1800-1500 B. C'.

In the recently published material on this subject, it has been observed that the military element does not loom large amongst the extent remains but it must be remembered at present that we know very little of this civilization. In fact the implements of copper found so far in Harappan towns are by and large domestic in nature. There does not appear to be any reference of the weapons of the War supposed to have been used by invading Aryans. If that be so without the archaeological finds it will not be fair to assume that Aryans were the cause of destruction of Harappan Culture. This is especially so when we do not find any remains at site. In normal course the onslaught must have certain aims behind and probably it could be occupation of the site by invaders at least temporarily. But the Vedic literature mentioned only the origin of the Punjab whereas Harappan Culture boundaries touched the Middle East, Central Asia and Himalayan countries. In these circumstances there appears hardly any justification to base one's assumption for destruction of Harappan Culture by Aryans.

That being so, one thing is certainly confirmed by the experts that Harappa provided a basis to prove that, Indo-Pak Sub-continent was once at the top of civilizations of the world. In spite of all types of ravages, it has still a charm for the inquisitive historian and scholar in addition to tourists and students.

The book in hand starts with the 1st chapter about discovery of the place. During Ranjit Singh's rule, Harappa was part of Jagir of Mian Dhian Singh. The 1st European traveller who recorded his observations about the mounds at the place, was Mr. Charles Masson. Later Sir Alexander Cunningham visited the place more than once and found it of considerable antiquity. He also recorded his views in the reports. Later Sir John Marshal visited the place and also acknowledged its antiquarian value. But by then the brick robbers had devastated the field. This was mainly by the contractors who were providing the bricks as ballast for the Lahore Multan Railway track. Still the rubble frequently yielded seals and their fragments. In fact it was at the instance of Alexander Cunningham that the area was earmarked and declared as protected for archaeological purposes. So the discovery of the place, the disguised British army-man's observation, later Alexander's description along with John Marshal's remarks and his introduction of the Harappan seal marked the beginning of a new chapter in world history, which gave sub-continent the title of an ancient civilization, once at par with any known culture in the world, around 2000 B. C. period. I have given in detail Charles Masson's background to acquaint the reader, the way the British started combing the country politically, economically and strategically under various garbs. Before much could be done in terms of excavations the contractor laying the railway line robbed the place of bricks and thus divested the place of its real character, features and evidence which was necessary to pen down the true story of the glorious and historic civilization.



*Sir Alexander Cunningham
(1814-98)*



Sir John Marshall

It was really unfortunate. But still with the labour of love by experts, put in, they discovered some seals to trace the history of Harappan life and its boundaries. The second chapter discusses the nature of excavations. After initial investigations which started in 1920-21, John Marshall concentrated on the digging of Mohenjodaro and the work at Harappa was conducted by Daya Ram Sahni and became a routine assignment of Archaeology Department officers. But excavations continued till 1934-35. Lot of material was found, marked and published in the form of reports. Sahni's work was of commitment. In 1931 M. S. Vats discovered and asserted Harappa as older to Mohenjodaro. But due to financial constraints the work did not get the desired attention. It was in 1946 that Sir. R. E. M. Wheeler started further excavations. After examining the available evidence he postulated that millennium 2500-1500 was a possible date for Harappan or Indus Civilization. In his compilation on Harappa the terminal date was considered to be 1500 C. C., which is the conventional date mentioned for the Aryan incursion into India. Wheeler was of the view that end of Harappan Civilization was brought about by Aryans invasions. He, however, later proposed 1700 B. C. as this date. Later, with Radio Carbon method, it was estimated 2300-1750 B. C. The Third chapter is a very brief abstraction of Wheeler's description of Harappan site and his general observations. This gives an idea about the Harappan chronology and excavations.

The next chapter is a simple description taking round the tourists to different parts of the place. It is generally discussed according to archaeological site plan, with brief remarks so that the visitor gets some idea as to which and what is the point, where he is. Chapter five is about the social pattern of life as discussed by various experts on the basis of evidence gathered by them. Of course these are conclusions based on the quality, style and nature of materials recovered at site and interpreted by scholars.

Chapter six is a resume of conclusions drawn about facts and religious characteristics from terracotta, female figures and stone images. There emerges a peaceful image of the people of Harappa. The fire worship and beliefs practised appear to be closer to Hindu mythology.

The 7th chapter is about food and economy, variety of crops grown and use of soil for cultivation. The wheat, barley and millet appear to be the main components of Harappan diet. Crops and crop variation has also been discussed in this chapter.

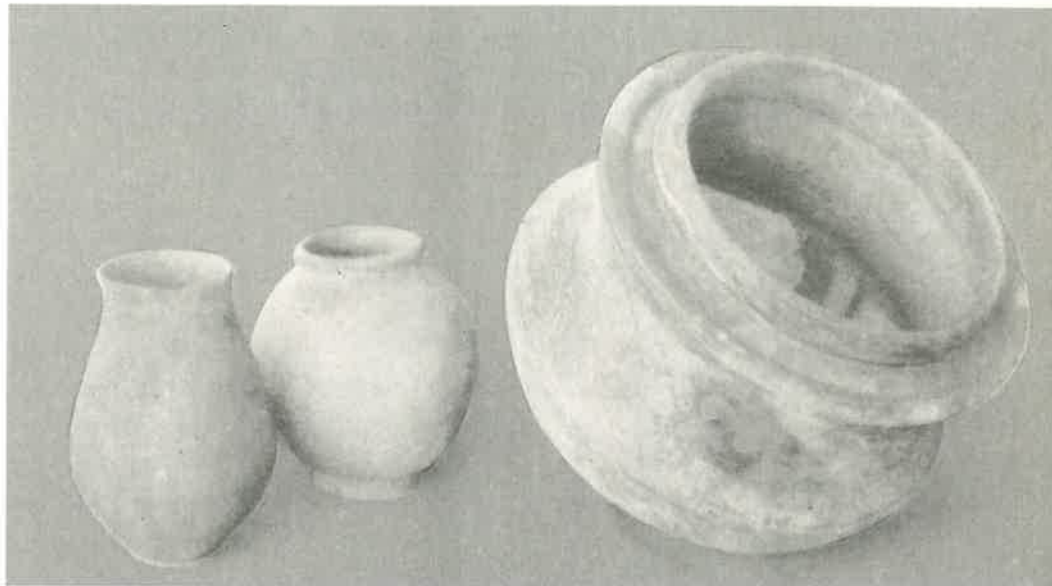
This chapter also depicts brief aspect of the living and economic conditions of the people. Agriculture was the mainstay of life. The Agricultural commodities were neither grown nor managed as at present and essentially could be at initial and pre-mature stage of needs and availability but economy was essentially agrarian along the river sides and rain sites.

The discoveries at Harappa show that it was fairly a well established, advanced society with manufacturing and finishing of goods from metals and minerals to export in addition to its consumption in its own local markets.

The main source of economy of Harappa was the fertile soil due to Indus tributaries which were full of water throughout the year and also providing means of transport. With this advantage, it was possible to produce and distribute the surplus which enabled the people to even exchange the necessary or desirable commodities including finished goods and raw materials from abroad. It is now an established fact that Harappans had a strong citadel which must have strong administration too. This fact is elucidated by workmen's residential areas which are in burnt brick with organized granaries and stores within the fortification with large public places.

Iron was, it so appears, unknown to the people of Harappan cities as copper and bronze (domestic utensils), implements and weapons and ornaments have been found in a large number. There are chisels, axes, saw, knives, spear and arrow heads. A copper razor, like a small rounded chopper with thin handle, along with fish hooks, needles, pans and dishes have also been found. This subject has been academically surveyed in the context of richness of the Harappan Culture and Civilization thousands years back, in 8th Chapter.

The excavations at Harappa reveal that various types of pottery was manufactured and used for multifarious functions. The 9th chapter of this book takes a look at the same. There were pots or jars which were used in burials and bodies were kept therein. The dead wore ornaments, shell bangles, necklaces, beads, copper rings and earrings of thin copper wire and all put in with the dead body. Archaeologists also found copper



*Burial Pot and
Grave Pottery*

mirrors, antimony rods, shell spoons and pottery lamps. The burial jars indicate that Harappans did not burn the bodies. The pottery associated with the funeral remains excavated at Harappa differs from ordinary earthen ware found in other cities of the Harappan Empire. The decoration on the pottery e.g. the vegetable patterns and animal representations are peculiar. The objects so discovered from Harappa are evidence of the ancient characteristics of the civilization as it is in pottery that one finds everything from the huge storage jars to a wide range of house hold utensils to tiny delicate domestic containers. The pottery is apparently wheel made and well fired and generally shows a thick red fabric, often treated with bright red slip. The plain types include offering stands, beakers, cups and saucers, goblets, dishes, basins, ladles, cooking pots, water pitchers and heavy storage jars for grain. Though the plain types predominate, painted

ware is not uncommon. The painted designs are executed in black, dark and red slip and consist of foliated and geometrical devices, among which the inter locking circle, vase, comb and scale motifs are most common.

While climate, soil, agriculture produce and hard working population were responsible for the development of a rich civilization in this part of the world, the same factors were also responsible for its down-fall. The heavy floods, earthquakes, over population and most probably as guessed by some experts outside incursions led to the down fall and elimination of Harappan Civilization. The last Chapter takes a look at this aspect of the Harappan Culture.



An Arist's imaginary view of Harappa.

The above are some of the main features of a long extinct civilization, which was only discovered 80 years back in Punjab prior to which there was no clue if the sub-continent was ever abode of any cultured society. The survey indicated in these few pages is purely academically drawn, extracted and abstracted from studies carried out by the experts in the field of archaeology. These studies include findings of Sir John Marshall, Sir R. E. M. Wheeler, Survey Report of Archaeology Department and papers contained in exhaust-tive volumes in Frontiers of Indus Civilization, Ancient cities of the world and Harappan Civilization etc. etc. The

work by Pakistani Archaeologists viz. Dr.M.R.Mughal especially his research on the location of river Ghaggra in Bahawalpur area and paper on decline of Indus Civilization, Dr.F.A.Khan and a number of other scholars is really commendable. The writer being no expert and authority in archaeological studies, the brief and views are based mainly on the above mentioned expert studies and the same is gratefully acknowledged. It is unfortunate that the archaeological sites are not given the right priority they deserve in our country in relation to preservation and excavations. There are many other in Punjab, Potohar, Frontier and Baluch-istan which need to be excavated to find more evidence of our rich culture which is certainly much superior to any known civilization in the history of the world. Archaeology, these days, is considered to be an important part of the Tourism Industry and archaeological sites are marketed as destinations throughout the world. It is really depressing to note that our archaeological locations are the most ignored places without any facilities for visitors and tourists. There is a need to create an awareness in the public and apprise the authorities about the importance of these remains. There is also a definite need to introduce and teach the subject of archaeology at the College and University level so that people are aware of their rich past and can take a genuine pride in their glorious heritage.





Discovery of Harappa

The Cradle of Indo-Pak Civilization

Mr. Charles Masson, was the first foreigner who left some record of his visit to Harappa, came there with a caravan. Before reproducing his observations on Harappa, it will be of interest to know about the nature of his visit and something about his personal curiosities. He is, among the European explorers, must be reckoned as the most enigmatic. For some fourteen years between 1826 and 1840, he wandered through country much of which, both at that period and for many decades afterwards, remained virtually unknown to the world at large. In his account of adventures, in his 'Narrative of Various Journeys in Baluchistan, Afghanistan and the Punjab', he has given very interesting and informative details. Although he occasionally passed himself off as a 'faqir' or a Delhi Mughal, he does not seem to have worried unduly regarding the effectiveness of his various disguises and during his protracted residence in Kabul, between 1832 and 1838 he lived openly as a European. At that time, Europeans were only rarely seen in the lands lying between Herat and the Indus but Charles Masson himself, notwithstanding the occasional unfriendly encounter, met with much kindness and hospitality, mingled with curiosity.

He spoke Persian and a little Urdu but apparently no Pashtu. Prior to 1833, when he began to receive a retainer from the East India Company as a collector of ancient coins and objects d'art, he appears to have lived by his wits and upon the contributions of friends and patrons, although much of the time he was on the verge of destitution. His retainer as a coin collector continued to be paid until 1837 but between 1834 and 1838, he received a regular stipend from the Company as an accredited intelligence agent in Kabul. Of his personality little emerges from his own writings but he seems



to have been regarded by those who came into direct contact with him as a gentle, unambitious creature, content to live a dervish-like existence while devoting his energies to uncovering the ancient history of the land which he had made his temporary home.

The fourteen years which Masson spent in Afghanistan, Sind and Baluchistan covered a crucial period in the history of the region. East of the Indus, in the Punjab, these were the declining years of the great Sikh ruler, Ranjit Singh (1799-1839). In Sind, the authority of the Talpur Mirs was on the wane, while in Baluchistan that of the Khan of Kalat was being eroded at the hands of ambitious local subordinates. In Afghanistan, Dost Muhammad was ruler of Kabul (1826-39 and 1842-63) and was steadily extending his power in all directions but the former Sadozai ruler, Shah Shuja (1803-1839-41), still survived in Ludhiana as a pensioner of the East India Company while his nephew, Kamran (1833-42), remained an independent ruler in Herat. British and, to a lesser extent, Russian influence was beginning to be felt but European knowledge of the local geography and politics remained fairly rudimentary. Masson's *Narrative of Various Journeys* made a substantial contribution to enlarging that knowledge.

Charles Masson was an assumed name, just as his claim to be an American citizen was an assumed nationality. His real name was James Lewis and he was an Englishman, born around 1798. By his late twenties he had been enlisted as a private soldier in the 3rd Troop of the 1st Brigade of the Bengal European Artillery, and since he was employed in classifying and sketching General Hardwick's geological specimens he must have been a person of sufficient intelligence and talent to have attracted the attention of his officers. He was with his regiment at the siege of Bharatpur, which fell to a final assault on 18, January 1826, and it was during the following months, while stationed in the vicinity of Bharatpur or perhaps Delhi, that he and a companion, Richard Potter, deserted and made their way across the arid tracts of Bikanir and Bahawalpur into the Punjab as far as Dera Ismail Khan, where they separated. Potter, taking the name of John Brown and claiming to be an American, as did many deserters from the Company's regiments, proceeded to Lahore and entered the Sikh service. Lewis, perhaps fearing to remain in the Punjab where his presence might have been traced, went on alone to Peshawar, Jalalabad and Kabul.

In later years, Masson spent extended periods of times in the company of British Army officers, and East India Company officials, none of whom appear to have suspected that their companion was a deserter from the ranks. He also sent contributions on the numismatics and archaeology of Afghanistan to the *Journal of the Asiatic Society of Bengal* which reveal a knowledge of French, Latin and Greek, and of the current state of oriental research, presumably acquired by means of friends who transmitted publications to Kabul. All this implies a person of some education. Who then was the real Masson and how had he passed the first twenty eight years of his life? The East India Company's European regiments always included among the private soldiers a handful of social out castes, for whom enlist-

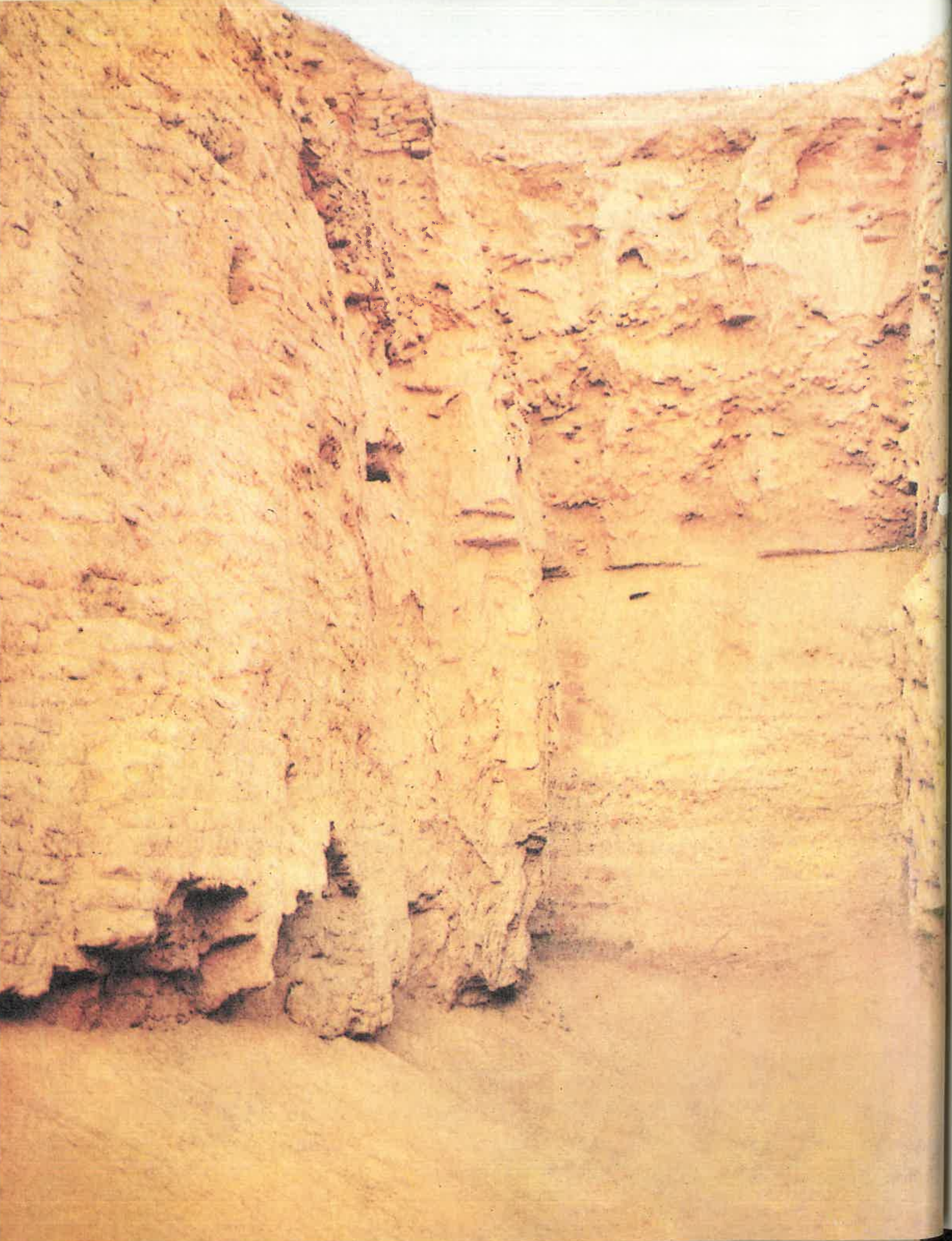
ment under an assumed name was an escape from crime, debt or family misfortune. Much later, they were to be immortalized in Kipling's *Gentlemen Rankers*, Masson probably fell into just such a category, a desperate young man who enlisted in England in the Company's Artillery.

Masson's *Narrative of Various Journeys* describes his wanderings from the close of 1826 until he was drawn into the complicated and controversial train of events which led to the First Afghan War. He spent over two years in Afghanistan.

Masson the polemicist, is a decidedly less attractive figure than Masson the explorer. His modest niche in history has, however, little or nothing to do with his political activities which brought him scant recompense or satisfaction, but rests upon his archaeological discoveries and his richly rewarding *Narrative of Various Journeys*.

Charles Masson after his stay in Lahore left for Multan via Niazbeg, Manga, Harappa, Chichawatani and Tulamba and narrates the journey including description of Harappa. He states that "If I left Lahore with regret, after the favours I had received, I was glad to escape from the oppressive heat, and the plague of flies, more annoying there than at any place I remember to have seen. I had the choice of dropping down the Ravi in boats, or of taking the land route on the eastern bank of the river, by Satgharra and Tulumba; the direct one by Saiyadwala, which I had before travelled, being impassable from rains and inundations. I preferred the land route, and from Lahore rode, 'for I had purchased a small horse' to Niazpur. Here one Juar Singh, a Sikh, took me to the 'dharamsala', and my horse to his own dwelling. As I followed him through the village I had an opportunity of seeing many of the Sikh females, who not expecting an intruder, were taken by surprise, and had not time to conceal themselves. They were generally very well looking. Juar Singh furnished my repast, and in the morning refused an equivalent.

"To Mangah, five cosses distant, there was excellent pasture land; and on the road I was overtaken by a respectable Muhammad party of mounted Bagloches, natives of Mangah. They were gaily attired, with silken shawls, of gaudy colours, loosely bound round their heads, while their glossy black hair, in luxuriant ringlets, and duly oiled, depended upon their shoulders. About two cosses beyond Mangah I found a walled in village, where I put up at a 'takia'. Two or three Sikh villagers had tendered their hospitable offices, when a person arrived with a message from Thakur Singh, a young Sikh Sirdar, encamped near the village. I went to him, and was most civilly received by a handsome intelligent youth, apparently sixteen or seventeen years of age; and, as he was going to Multan, it was instantly agreed that we should be companions for the journey. I left him, promising to be ready in the morning when he and his cavalcade marched. During the night, a heavy shower of rain fell and disquieted me, as I had no place of shelter, my effects were completely soaked. In the morning, proceeding towards the Sikh camp, I fell in with a servant of the Sirdar, whom I accompanied in advance, but leaned, afterwards, that the party was behind. We passed variety of



*Mud brick fortification
of the citadel:
a closer view*



A well with bathing platforms.



A large corbeled drain built to dispose of rain water and sewage.

villages, principally inhabited by Sikhs; and in all of them were substantial brick houses. They had generally small bazars, and around them, more or less, cultivated land; yet the whole country was essentially a grazing one. There is no Sikh family that has not a brood mare or two, and the number of horned cattle was extraordinary. Over the jangal bushes and trees I was pleased to observe, twining and in bloom, the convolvulus major. The Sikhs as we passed along were evidently disposed to be merry at my expense; a Feringhi, for the first time seen amongst them, being natrually considered a rara-avis; and I had reason to congratulate myself that I was in company sufficient to restrain their propensity to mirth. To their honour, it must be allowed, that their villages are particularly clean, and a certain quietude reigns amongst them, which causes the traveller to regret that he passes them so quickly. On reaching the spot intended for encampment, at some distance from a village, we were soon joined by Thakur Singh and his party. My nag was directed to be placed in line with his own horses, and to be taken equal care of, while, I was informed, that I should not be permitted to incur any expense, however trifling, during my stay in the camp. The Sirdar was son to Sham Singh, one of the few old Sikh chiefs not absolutely pauperized by Ranjit Singh. It was said that the father of Sham Singh, by name Nihal Singh, was warlike and powerful, and that Ranjit Singh fearing him, courted his friendship. On his demise, however, the Maharaja alienated much of the family property, Sham Singh being of milder disposition, and therefor less respected. He, nevertheless, enjoys a revenue of three lakhs of rupees, from a tract of country between Lahore and Jamu, and keeps in pay about eight hundred followers, chiefly horsemen. It was now contemplated by Ranjit Singh to unite his grandson, Nao Nihal Singh, (son of Kharak Singh,) with the daughter of Sham Singh. Such an alliance induced flattering expectations, Nao Nihal Singh being presumptive heir to the Sikh throne. This union did eventually ensue, but was dissolved on earth by the death of the young Nao Nihal, occasioned by one of the most surprising accidents it has been the fate of the Sikhs to witness.

"At this time, Thakur Singh was proceeding to arrange differences which had arisen between the Subahdar Sohand Mall and the Khan of Bahawalpur. He was accompanied by his uncle, Khushal Singh, a highly respectable old chief, and, besides his personal attendants and Munshis, had about one hundred and fifty horsemen, a small field piece drawn by bullocks, and six camels carrying swivels. Amongst his followers were a band of musicians, two falconers, and a Brahman, who daily performed some mystic rites connected with his superstitions. One of his Munshis, Haiyat Khan, a well-informed Muhammeden, was directed to see that I needed nothing, as he was supposed to be best acquainted with European habits, and on that account was accustomed to transact business with the French officers at Lahore.

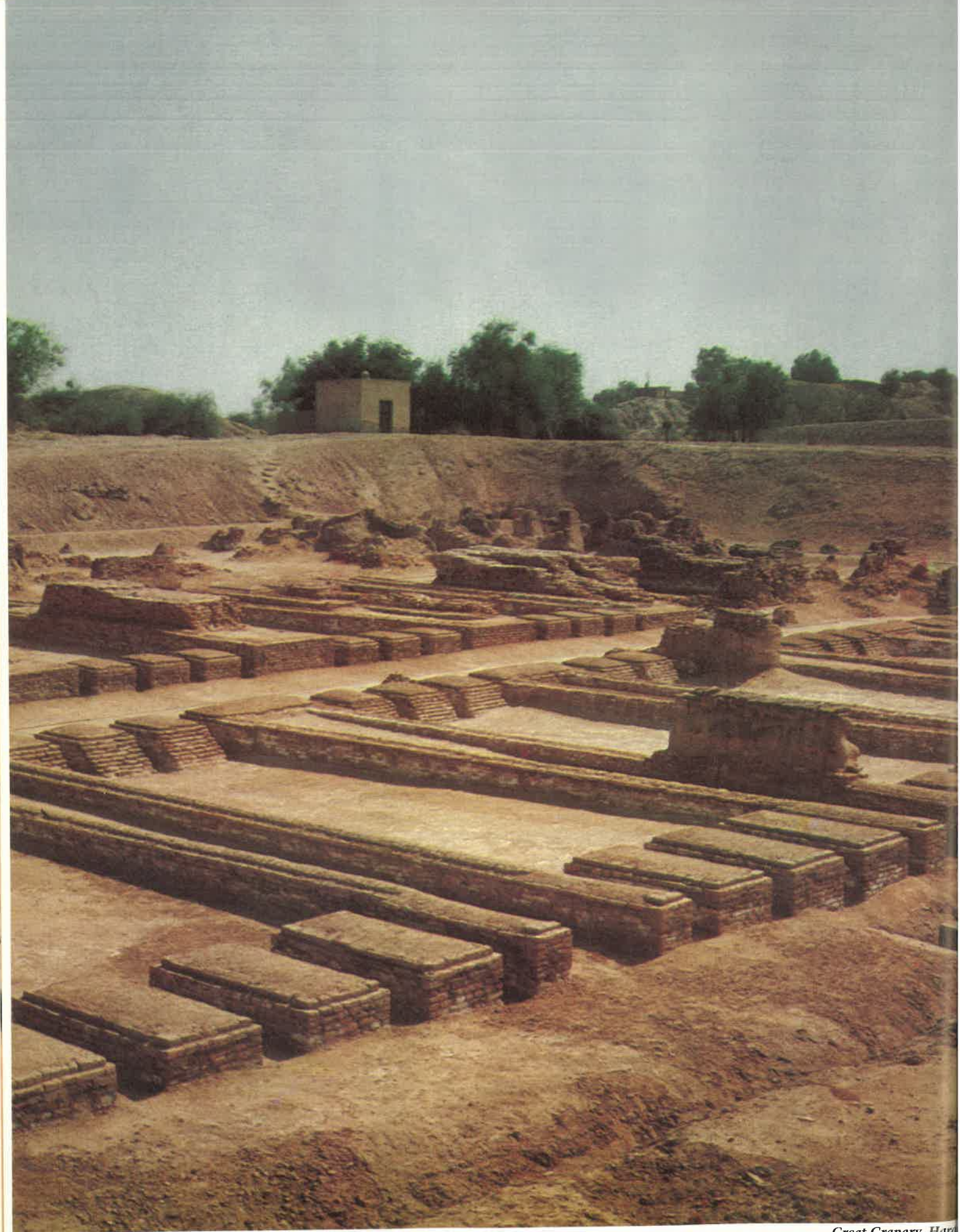
'We made three or four marches, usually of eight or ten cosses each, passing numerous villages with Sikh castles and towers, the largest of which was Satgharra (the Seven Castles), the country abounding in pasture, and the

Jangal more or less wooded. Besides dwarf tamarisks and mimosas, ber and pipal trees only occurred in number, two or three cypress trees being observed near villages. We always halted at some distance from the villages; and a grove of pipals was generally selected, the shade thereof obviating the necessity for erecting tents. This tract of country was held in Jagir by Raja Mian Dhaiyan Singh.'

'On reaching our encampments Thakur Singh always repeated some prayer over a basin of warmed ghee, produced by the Brahman, who alike mumbled something, and at the conclusion dropped into the fluid a pais, or piece of copper money. He was extremely inquisitive on all points connected with Europeans; and during my stay with him I enabled him to arrange a voluminous vocabulary of the English language; he in turn teaching me his Gurus alphabet. I was surprised at his acquaintance with Christian tenets, which I found he had acquired from tracts, translated into the dialects of the Punjab; and he one day asked for an explanation of that portion of the discourse on the mount in which it is stated, "If an eye offend thee, pluck it out," etc. In the evenings a darbar was held, at which the soldiers presented themselves, and saluted with the customary Sikh exclamation of "Wah ! Wah ! Guru-ji ! Fatteh !" or "bravo ! bravo ! oh, Guru ! victory!" Amongst these were one or two of the fanatic Akalies, or immortals distinguished by their dark dresses, and a peculiar energy of manner and expression. At these darbars Thakur Singh always placed me on the same seat with himself and uncle, and held my hand within his, so assiduous was he to show attention, and so politely did he acquit himself.'

'When the periods of repast arrived, the viands, etc. intended for me were placed separately on a kind of tray, and submitted to the young Sirdar's inspection, that he might see no delicacy was omitted which his travelling stores contained, or which could be procured in the neighbouring villages.

'A long march preceded our arrival at Harappa, through jangal of the closest description. East of the village was an abundance of luxuriant grass, where, along with many others, I went to allow my nag to graze. When I joined the camp I found it in front of the village and ruinous brick castle. Behind us was a large circular mound, or eminence, and to the west was an irregular rocky height, crowned with remains of buildings, in fragments of walls, with niches, after the eastern manner. The latter elevation was undoubtedly a natural object; the former being of earth only, was obviously an artificial one. I examined the remains on the height, and found two circular perforated stones, affirmed to have been used as bangles, or arm-rings, by a faquir of renown. He has also credit for having subsisted on earth, and other unusual substances, and his depraved appetite is instanced in testimony of his sanctity. The entire neighbourhood is embellished with numerous pipal trees, some of them in the last stage of lingering existence; bespeaking a great antiquity, when we remember their longevity. The walls and towers of the castle are remarkably high, though, from having been long deserted, they exhibit in some parts the ravages of time and decay. Between our camp



Great Granary, Harappa

and it extended a deep trench, now overgrown with grass and plants. Tradition affirms the existence here of a city, so considerable that it extended to Chicha Watni, thirteen cosses distant, and that it was destroyed by a particular visitation of Providence, brought down by the lust and crimes of the sovereign.

'We were cautioned by the inhabitants, that on the plain we were likely to be assailed by makkahs, or stinging-gnats; and in the evening we ascended the circular mound behind us. There was ample room on the summit to receive the party and horses belonging to it. It was impossible to survey the scene before us, and to look upon the ground on which we stood, without perceiving that every condition of Arrian's Sangala was here fulfilled, the brick fortress, with a lake, or rather swamp, at the north-eastern angle; the mound, protected by a triple row of chariots, and defended by the Kathi before they suffered themselves to be shut up within their walls; and the trench between the mound and fortress, by which the circumvallation of the place was completed, and whence engines were directed against it. The data of Arrian are very minute, and can scarcely be misapplied to Harappa, the position of which also perfectly coincides with what, from inference, we must assign to Sangala. I have made public my convictions on this point, but repeat them, as I doubt not they are just; and the identification of Sangala gives a point from which we may safely calculate upon the site of the celebrated altars of Alexander, which, in all probability, were in the neighbourhood of Pak Pattan, on the Sutlej, two marches from Harappa, Alexander having there gained the high road into India, which was afterwards followed by Taimur.'

'The verification of the site of Sangala is farther important, because, subsequent to its destruction by the Macedonian leader, it again rose into consequence under the name of Euthydemia, clearly referring to a renowned King of Bactria, and which change in its fortunes is supposed to be owing to one of his sons; and we know of no other than Demetrius.'

'Our precautions were vain against the swarms of our tiny antagonists, the gnats, and at sunset they so annoyed us, and particularly the horses, which became absolutely frantic, that we had no alternative but to decamp, and march throughout the night. Towards two or three o'clock in the morning we reached the small village of Chicha Watni, seated on the Ravi.'

Thus, Charles Masson, too, missed the mark by a relatively wide margin; but he is undoubtedly one of the most fascinating characters in the history of Indian archaeology. According to Frank E. Ross, documents in the India Office Library enable us to know that he was not Charles Masson, late of Kentucky, U.S.A. but rather James Lewis late of Captain Hyde's First Brigade of Horse Artillery. Masson (Lewis) had enlisted as a private soldier in the British army and sailed for Bengal in January of 1822 on board the *dutches of athol*. While in service he fought in the siege of Bharatpur, but more importantly was employed by Major General Hardwicke, Commandant of Bengal artillery, to catalog the General's collection of Zoological tan.

specimens. Shortly thereafter, in the summer of 1826, Masson deserted the army and headed west to the Punjab. Over the next twenty years he traveled widely on the western borderlands of the British Empire, reaching the most remote areas of Central Asia, Afghanistan and Baluchistan. Apparently a gifted polyglot he was also keenly interested in geography, customs and political conditions. As Ross has noted:

Masson's work was peculiarly distinctive and valuable. A shrewd observer of all matters, political, economic, scientific and social, he took the role of an Afghan traveller, clad in native garments. He lived and travelled not with the chiefs but with the people, a manner never since duplicated in Afghanistan and a method which gives a peculiar value to his work. There is scarcely a place in the Kabul area which he did not visit and describe. Many of the names and events he mentioned were so unfamiliar to his contemporaries that he was called 'fanciful' (*Calcutta Review* August 1844: 44). For many years his work remained unchecked, but was finally proven to be 'marvelously accurate in geographical detail'. Half a century later, after twice invading and occupying Afghanistan, the British authorities possessed no knowledge of the country that they could not have obtained from Masson. For fifteen years Masson was 'an irreclaimable nomadic vagabond.' His life was constantly in danger. Often he fell among thieves. Once he was stripped of clothes and money and left 'destitute, a stranger in the center of Asia exposed to notice, inquiry, ridicule, and insult. But there was hardship, there were also consolations: occasionally Masson paused in his travels to comfort a lonely female in some far away corner of Asia.

Masson was a man of intense antiquarian interests and he recorded ancient sites wherever he found them. Begram, the ancient Kapisa, summer capital of the Kushans, attracted his interest and he was one of the first to excavate there. By 1834 he had acquired a substantial collection of coins, from this and other exploratory digging, which were donated to the Government of India and transferred to the East India Company Museum in London. It was this collection, and other inscriptional materials from the northwest of Pakistan and Afghanistan, which allowed James Prinsep to outline the Kushan Dynasty. Masson was also an early visitor to Bamiyan where he left the following penciled inscription in a small cave to the west of the larger of the two colossal Buddhas:

"If any fool this high samootch explore
Know Charles Masson has been here before.

Masson's visit to Harappa was followed by another European. It was five years later, in 1831, that Alexander Burnes visited Harappa while in the course of delivering a gift of five horses from the King of Great Britain to Ranjit Singh, and incidentally exploring the Indus River and its tributaries. His observations, not at significant variance from Masson's are:

"About fifty miles eastward of Toolumba, I passed inland for four miles to examine the ruins of an ancient city, called Harappa. The remains are extensive, and the place, which has been built of brick, is about three miles

in circumference. There is a ruined citadel on the river side of the town; but otherwise Harappa is a perfect chaos, and has not an entire building: the bricks have been removed to build a small place of the old name heard by tradition fixes the fall of Harappa at the same period as Shorkot (1300 year ago), and the people ascribe its ruin to the vengeance of God on Harappa; its governor, who claimed certain privileges on the marriage of every couple in his city, and in the course of his sensualities, was guilty of incest. At a later period, Harappa became a Muhammeden town; and there is a tomb of a Saint of the 'faithful,' eighteen feet in length, the assigned, but fabulous, stature of the deceased. A large stone of annular form, and a huge block slab of an oval shape, which lie near the grave, are said to represent the ring and its gem of this departed saint, and to have been converted from more valuable to their present base materials. Where such fables are believed, we must cease to hope for even reasonable fiction. I found some coins in these ruins, both Persian and Hindoo, but I cannot fix its era from any of them."

These two early notices of Harappa seem to have had an historical importance only because they came to the notice of Sir Alexander Cunningham, the first Director General of the Archaeological Survey. In 1875 he reported (Cunningham 1875) that he visited Harappa on three occasions (1853, 1856, and 1872-73). It is at this point that something more than a casual observation about the site comes to light.

His note on Harappa given in the *Ancient Geography of India* (1871) reads as under:-

Whilst Alexander was engaged in the assault of the city just described, Arrian relates that he had dispatched Perdikkas with the cavalry against "another city of the Malii, into which a great body of Indians had fled for safety. His instructions were to blockade the city until Alexander arrived; but the inhabitants deserted the place on his approach, and took refuge in the neighbouring marshes. This city I believe to be Harappa. The mention of marshes shows that it must have been near the Ravi, and as Perdikkas was sent in advance of Alexander, it must also have been beyond Kot Kamalia, that is, to the east or south-east of it. Now this is exactly the position of Harappa, which is situated 16 miles to the east-south-east of Kot Kamalia, and on the opposite high bank of the Ravi. There are also several marshes in the low ground in its immediate vicinity.

Harappa has been described by two well known travellers, Burnes and Masson, and to their descriptions I am not able to add much, although I have been encamped at the place on three different occasions. Burnes estimated the extent of the ruins as "about three miles in circumference, which is one half too much, as the actual ruined mound forms an irregular square of only half a mile on each side, or two miles in circuit." But this comprises only the remains of the walled town, to which we may fairly add the suburbs, or fields now covered with broken bricks and other remains, which would bring the size of the old town quite up to Burnes's estimate. Masson notices a tradition that Harappa once extended on the west as far as

Chicha Watni, a distance of 12 miles, which serves, at least, to show the belief of the people as to the former size and importance of their town.

The great mass of ruins is on the western side, where the mound rises to 60 feet in height in the centre. At this point there are several massive walls built of large bricks, which are, no doubt, the remains of some extensive building. The other portions of the mound vary from 30 to 50 feet in height, the mass being formed almost entirely of broken bricks. Tradition assigns its foundation to Raja Harpal, of unknown date, and its destruction to the same western king, of the sixth century, who overthrew Shorkot, and whom I believe to have been the leader of the White Huns. The crimes of its ruler, who claimed the husband's privilege on every marriage, are said to have drawn down the vengeance of Heaven, and Harappa remained uninhabited for several centuries. As the coins that are found in its ruins are similar to those discovered at Shorkot, I think that the two places must have experienced the same fortunes; I would, therefore, assign its downfall to the Arabs, who overran the whole of the lower Punjab immediately after the capture and occupation of Multan in A. D. 713.

Cunningham noted its size (2.5 miles in circuit) and the height of the mounds (40 to 60 feet). He also corrected some of the inaccuracies found in the Masson and Burnes accounts; but more importantly he stated that: "In 1853, and again in 1856, I traced the remains of flights of steps on both the eastern and western faces of the high mound to the northwest, as well as the basement of a large square building". Concerning these remains and others, particularly a large building with rooms on four sides, he went on to say: "but the whole have now been removed to form ballast for the Railway. Perhaps the best idea of the extent of the ruined brick mounds of Harappa may be formed from the fact that they have more than sufficed to furnish brick ballast for about 100 miles of Lahore and Multan Railway". The report on the subject which appeared in the Archaeological Survey of India about Harappa is reproduced below:-

"The ruins of Harappa are the most extensive of all the old sites along the banks of the Ravi. On the north, the west, and the south, there is a continuous line of mounds about 3,500 feet in length; but on the east side, which is only 2,000 feet in length, there is a complete gap of 800 feet, for which I am unable to account. The whole circuit of the ruins is therefore about 12,500 feet, or nearly 2½ miles. The highest mound is that to the north-west, which is 60 feet above the fields. On the south-west and south the mounds range from 40 to 50 feet in height, and on the north side towards the old bed of the Ravi, from 25 to 30 feet. Burnes speaks of "a ruined citadel on the river side of the town," by which I suppose he means the western side, which is the most commanding portion of the ruins. Masson calls it "a ruinous brick castle," and distinctly states that it was situated to the west, on what he erroneously supposed to be a natural rocky height, but which is only an accumulation of masses of brick walls and broken bricks. He describes "the walls and towers of the castle" as being

"remarkably high, though, from having been long deserted, they exhibit in some parts the ravages of time and decay." I believe that Masson's visit was made in 1826; and just five years later, when Burnes was on his way to Lahore, the brick castle was already "ruinous." In 1853 I was informed that Mer Singh, a Sikh, had built a fort at Harappa, some 70 years ago, or about A. D. 1780. Perhaps this was the castle seen by Masson and Burnes.

In 1853, and again in 1856, I traced the remains of flights of steps on both the eastern and western faces of the high mound to the north-west, as well as the basement of a large square building. Here the people say was the site of a great Hindu temple in the time of Raja Har Pal or Hara Pala. But there are no traces of any castle at the present day.

On the same mound, but lower down towards the east, there is a tomb of a Naogaja named Nur Shah, which is 46 feet long and 3½ feet broad. Besides the tomb there were formerly three large stones, which the people believed to be the thumb rings of the gigantic Naogaja. These three stones are now on the plain below. The largest one is a black stone, 2 feet 9 inches in diameter, which is said to have been the nag, or gem of the ring. The other two are each 2 feet in diameter and 1 foot 1½ inch high, with a hole through the middle, 10½ inches in diameter. These are called nal and manka, and are said to be the thumb rings of the giant. They are made of yellow ochreous limestone, and are very peculiar in shape, which is difficult to describe. They may be called undulated rings of stone.

About 70 feet still lower down the eastern slope of the mound there is a small ruined Idgah, which is said to have been built in the reign of Akbar.

On the south face of the southern mound, there are the traces of a large square building with rooms on four sides surrounding a court yard, as in a Buddhist monastery. The walls were very massive; but the whole have now been removed to form ballast for the Railway. Perhaps the best idea of the extent of the ruined brick mounds of Harappa may be formed from the fact that they have more than sufficed to furnish brick ballast for about 100 miles of the Lahore and Multan Railway.

The people refer the ruin of Harappa to the wickedness of Raja named Har Pal, or Hara Pala, who was in the habit of claiming the sovereign's rights at every bridal. At least, in the exercise of this royal privilege, he committed incest with a near relative. Some say his own sister, others his wife's sister, or his wife's sister's daughter. The girl prayed to heaven for vengeance, and then the city of Harappa was instantly destroyed. Some say it was by fire, and some by an earthquake; others say that an invader suddenly appeared, and that the city was taken by storm, and the Raja killed. The period of its destruction is vaguely said to be 1,200 or 1,300 years ago. If the date is correct, the city of Harappa must have been destroyed by Muhammad bin Kasim in A. D. 713, just 1,260 years ago. I am inclined to put some faith in this belief of the people, as they tell the same story of all the ruined cities in the plains of the Punjab, as if they had all suffered at the same time from .

some sudden and common catastrophe, such as the overwhelming invasion of the Arabs under Muhammad bin Kasim. The story of the incest also belongs to the same period, as Raja Dahir of Alor is said to have married his own sister.

'In another place I have advocated the claims of Shorkot to be identified with the city of Po-fa-to, or Po-fa-to-lo, where the Chinese pilgrim halted for two months to study the principles of the sect of Sammitiyas. But I have now visited Shorkot, and I have satisfied myself that it never could have reached the size of 20 li, or upwards of three miles in circuit, which the pilgrim assigns to Po-fa-lo, or Po-fa-to-lo. But the size agrees almost exactly with that of Harappa, and as the position otherwise corresponds, I believe that Harappa must be the very city visited by the Chinese pilgrim. He describes the population as very dense. There were four stupas and twelve monasteries counting about 1,000 monks, besides twenty Brahmanical temples. Near the town there was a large ruined monastery which had been destroyed by lightning.

'I am unable to offer any explanation of the name of Po-fa-to, or Po-fa-to-lo, which M. Julien has altered to Po-lo-fa-to, for the purpose of making it agree with a Sanskrit word, parvata, or "mountain." But as Harappa is in the open plain, this reading does not commend itself for acceptance. The name of Bavanni seems to offer the best equivalent of the first two syllables Po-fa, but Bavanni could never have been even one half the size of the Po-fa-to-lo of Hwen Thsang.

'I made several excavations at Harappa, but the whole surface had been so completely cleared out by the Railway contractors that I found very little worth preserving. My chief discovery consisted of a number of stone implements for scraping wood or leather. Most of them have one edge more obtuse than the other, with a flat surface between; but a few have the two edges alike, with a single ridge between them. They are nearly all made of a dull cream coloured stone, but a few of these are nearly black in colour.

'My excavations also brought to light numerous specimens of ancient pottery, which appears to be a clay spoon or ladle.

'The most curious object discovered at Harappa is a seal, belonging to Major Clark, which was found along with two small objects like chess pawns, made of dark brown jasper. The seal is a smooth black stone without polish. On it is engraved very deeply a bull, without hump, looking to the right, with two stars under the neck. Above the bull there is an inscription in six characters, which are quite unknown to me. They are certainly not Indian letters; and as the bull which accompanies them is without a hump, I conclude that the seal is foreign to India.

'Harappa has yielded thousands of coins of the Indo-Seythians and their successors; but I am not aware of the discovery of a single Greek coin".⁴

The complete details of this abominable act seem to be obscure. In a curious

little book Mr. John Brunton describes his direction of construction of the Sind Railway in the later half of the 1850s (Brunton 1939). His work was faced with the same peril as that in the Punjab where to find ballast. He described the situation, and his solution to it:

'My own servants and tent pitchers amounted in number to 35 for whom tents and provision had to be collected with a supply of camels to carry them. Then there were many horses for riding the marches, so altogether when we collected at Hyderabad, it formed a rather imposing procession. Before leaving I had learnt the position of an old ruined city, called Brahminabad in the "Great Desert" of Scinde, it lay about 15 or 16 miles from the selected course of the left bank line, away in the Desert of rolling banks of sand. I had been much exercised in my mind how we were to get ballast for the line of Railway. If all I heard were true, this ruined city, built of brick, would form a grand quarry of ballast, so I determined to visit it and judge for myself, for we cannot in India any more than in England, trust to hearsay.

He did visit the city and found it an acceptable quarry. At another point in this book Mr. Brunton mentions that his brother Robert was supervising the construction of the Lahore to Multan section of the Western Railway (1939: 83). It seems reasonable to presume, then, that it was Robert Brunton who ordered the dismantling of Harappa, just as John Brunton had at Brahminabad.

The railroad's plunder of the site seems to have motivated Alexander Cunningham to carry out several modest excavations which were apparently quite unsuccessful because of the total disruption of the site. But he did acquire a seal which today can be identified as a reasonably typical Harappan type. This object was the property of one Major Clark and Cunningham had the following to say of it:

The seal is a smooth black stone without polish. On it is engraved very deeply a bull, without hump, looking to the right, with two stars under the neck. Above the bull there is an inscription in six characters, which are quite unknown to me. They are certainly not Indian letters; and as the bull which accompanies them is without a hump, I conclude that the seal is foreign to India (Cunningham 1875: 108).

Cunningham's conclusion concerning this seal is at least something more than a bold assertion, and that he was wrong about its identification, and that of the site as well, cannot be counted against his favor.

The report on Harappa by Sir Alexander was clearly not forgotten. M. Longworth Dames (1886) published a second seal from the site which had been acquired by Mr. J. Harvey, Inspector of Schools. In his one page note he discusses and illustrates Cunningham's (or more precisely, Major Clark's) seal and the new find, as well as some interesting, but obscure bibliography. Still later, a third seal from Harappa was published by J. F. Fleet (1912). This

had been recovered from the site in 1886 by T. A. O'Conner the District Superintendent of Police. Fleet's paper was interesting for two reasons. First, he informed that all three seals could then be found in the British Museum and second, the seal illustrated by Sir Alexander Cunningham is for the first time published as a photograph of the impression and not as Cunningham's drawing.

This short recapitulation of the early notices of Harappa, are sufficient to know that this site, Harappa, was known entity among professionals in Indian archaeology. Sir John Marshall even went so far as to send Henry Hargreaves on an inspection of Harappa in 1914 to determine its potential for excavation since as Sir John noted later: "The desirability of continuing the exploration of the remains begun on so small a scale many years ago by Cunningham was of course obvious from the first" (Marshall 1926: 51). It seems clear that this site, at east, was a place of great interest, deserving the thorough attention of an intensive investigation. Harappa never slipped back into obscurity once Cunningham brought the seal to the attention of a scholarly community. But what follows this, the earliest period of discovery, is in part a story of the Survey's orderly approach to mounting an excavation at Harappa and an unanticipated coincidence.

Sir John Marshall set in motion a process which would end in the acquisition of the mounds at Harappa which seemed to have suffered least. Once this was completed Daya Ram Sahni went to the site to begin excavations. Starting with Mound, he laid a trench nearly 500 feet long and 16 feet wide across the mound. In the course of this work he found two more seals similar to the one published by Cunningham. Sahni also did some digging where architecture assigned to the Mauryan and Kushan Periods was found. By the end of the season Marshall felt confident to state: "Thus, although the results attained so far were undoubtedly meagre, they were important in that, according to Mr. Sahni, they prove that the Harappa seals and their curious pictographic legends belong to the pre-Mauryan epoch; and it is to be remembered that the digging to date has pierced only the topmost levels". This was, of course, a somewhat conjectural conclusion at that time, but it was to be proved correct. It was also of extraordinary importance since it was the first indication that the history of South Asia might be pushed back into the pre-Buddhist, even pre-Vedic era. Lack of funds prevented the Survey from moving vigorously ahead with this work until 1923-24. At this time Sahni expanded his long trench on Mound and opened new exposures. Many significant finds came to light during this excavation, including several more seals. But, the excavation at Harappa was soon to be almost completely, and unexpectedly, overshadowed by Mohenjodaro.

Other details of what he observed at the site in terms of pottery, artifacts or seals are not known. Nor is there any positive evidence of what Mr. Banerji knew of Harappa generally or Marshall's plans for excavation there. It is reasonable speculation, however, to presume that he was acquainted with

the Cunningham report and those articles on the seals which followed it, and it is likely that his position as Superintendent would have made him aware of the Survey's research and excavation program in a general way.

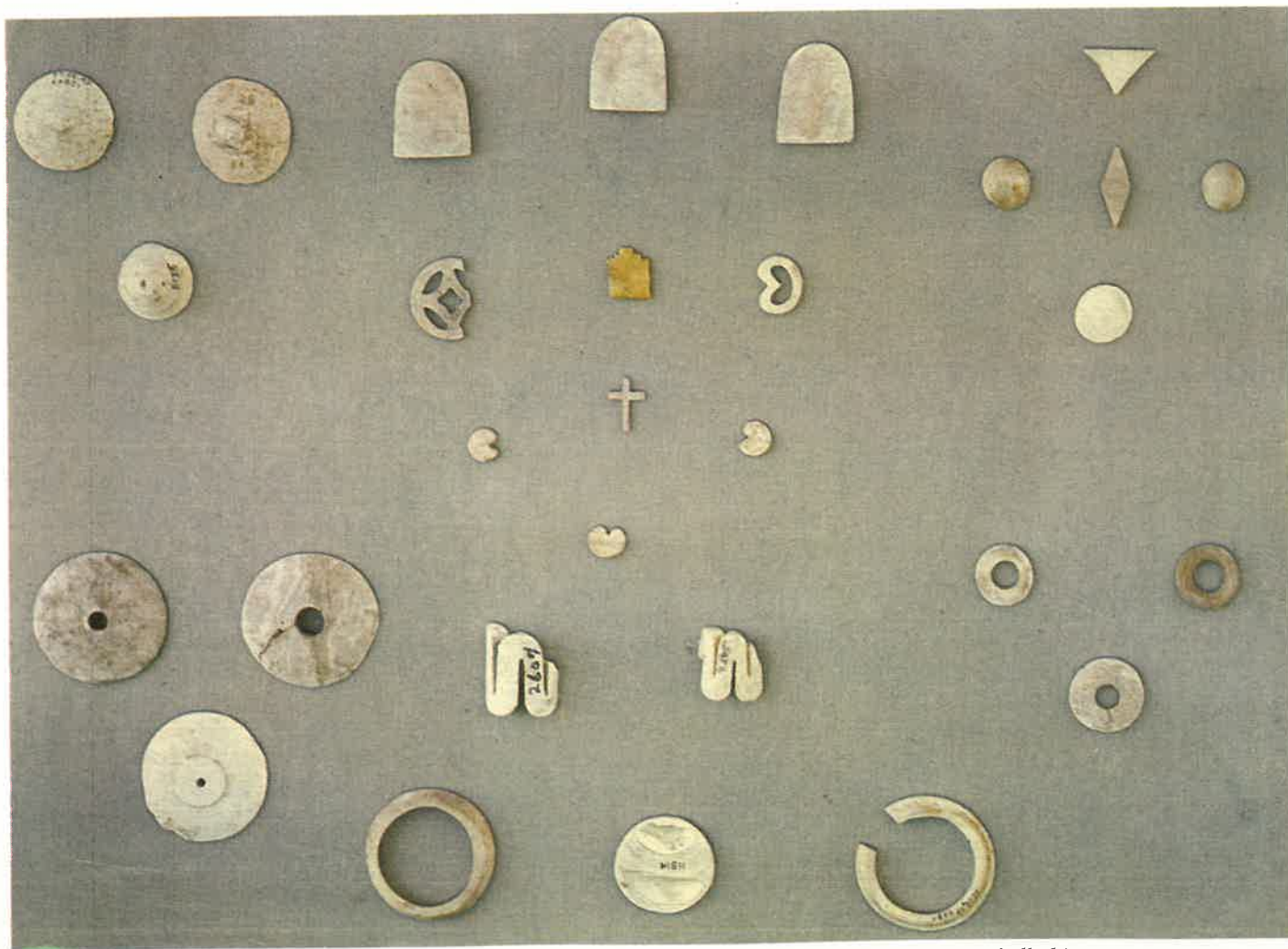


'So impressed indeed was I by their novel character that I lost no time in publishing an account of them in the Illustrated London News, my hope being that through the medium of that widely read journal I might succeed in getting some light thrown on their age and character by archaeologists in other countries. This hope, I am glad to say, was at once fulfilled. In the following issue of the Illustrated London News appeared a letter from Professor Sayce pointing out the close resemblance between these objects from the Indus Valley and certain Sumerian antiquities from Southern Mesopotamia, and a week later there appeared in the same journal a longer article from the pens of Messrs. Gadd and Sidney Smith giving a more detailed comparison of the pictographic scripts and other antiquities found in the two countries. Some of the analogies suggested by these two writers are fanciful, but most of them are undoubtedly correct and there can now no longer be any doubt that the Punjab and Sind antiquities are closely connected and roughly contemporary with the Sumerian antiquities of Mesopotamia dating from the 3rd or 4th millennium before Christ. Simultaneously also the same conclusion was reached by Dr. E. Mackay, Director of the American Expedition at Kish, who in an unpublished letter to me pointed out the similarity between the ceramic wares found at Mohenjodaro and at Kish, and also brought to my notice that a seal identical with those found at Harappa and Mohenjodaro had been discovered in the debris beneath a temple at Hammurabi's time'. From this point the situation was clear. Marshall interrupted his excavation at Taxila to direct the work at Mohenjodaro. He brought Mr. Mackay into the Survey on an adhoc basis and eventually relinquished the direction of the field operation at the site to him. M. S. Vats went off to Harappa to do what he could with that very disturbed site. The Indus Civilization had been discovered and these men began the task of revealing it to the world. The James article on Indian antiquity provided a solution to a small mystery which has appeared in the early discourse on Harappan seals. On September 27, 1924, A. H. Sayce published a letter in the Illustrated London News commenting on Sir John Marshall's first general article on the Indus Civilization (Marshall 1924) which had been published there the week before.





Paste objects, Harappa Museum



Shell objects, Harappa Museum

2



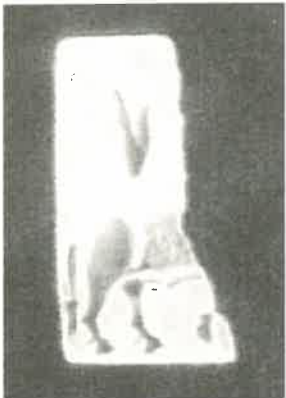
Harappa

Finds & Excavations

Sahiwal, earlier named Montgomery, lies on the main Lahore Karachi Railway line and is almost equidistant from Lahore and Multan. It became district in 1865 by shifting its headquarter from Gogera. It was originally named Sahiwal, on the basis of a small habitation of Sahi or Sahu tribe. After creation of Pakistan, the District was re-named, as Sahiwal. The boundaries of the District have undergone radical changes. The latest is that in the last decade two independent districts have been carved out of it namely, Pakpattan and Okara. Some parts of it have been included in Vehari District. The river Ravi forms boundary on the north and west with District Faisalabad and Toba Tek Singh. The boundary on south, which was previously river Sutlej has changed and new District of Pakpattan borders Sahiwal. From Sahiwal, westwards, is the famous Harappa Railway Station wherefrom at a distance of about of 7 miles lies Harappa, the site and Museum, while it is easily reached by Bus, Tongas and other transport. The soil of Sahiwal is generally of good quality, saline tracts are there but rare, water is sweet and near the surface. Vegetation is abundant and except some river spots is under cultivation which is due to canal water and the modern tube-well technology. It is no longer 'Bar' and instead a very well cultivated rich agricultural district. Short of a few saline specks, the area around Harappa, is very fertile but of course dependent upon artificial irrigation. The place Harappa was known as early as 1826 that there existed ruins of historical interest in Harappa.



A red stone torso.



Charles Masson is supposed to have visited Harappa in 1826 and Burnes five years latter. General Cunningham visited Harappa in 1853 and 1856, and he wrote an account of the mounds there, which was printed in the reports of the Archaeological Survey of India 1875. "The ruins of Harappa," he says, "are the most extensive of all the old sites along the banks of the Ravi. On the north-west and the south there is a continuous line of mounds about 3,500 ft. in length, but on the east side, which is only 2,000 feet in length, there is a complete gap of 800 feet, for which I am unable to account. The whole circuit of the ruins is therefore about 12,500 feet, or nearly 2 ½ miles. The highest mound is that to the north-west which is 60 feet above the fields. On the south-west and south the mounds range from 40 to 50 feet in height, and on the north side towards the old bed of the Ravi 25 feet, to 30 feet." Unfortunately before the archaeologist was in a position to make expert investigations into the contracts and history of these mounds, the bricks of which the old buildings were constructed, proved an irresistible temptation to the gangs engaged in constructing the Lahore-Multan Railway line. General Cunningham observes that these bricks more than sufficed to furnish brick ballast for about a hundred miles of that line. With these bricks are also built the Police Station, Serai (now ruined) and most of the houses in Harappa proper as well as some of those in neighbouring villages.

The discovery at Harappa of the remarkable seal mentioned by General Cunningham, and later of a few more, now in the British Museum, suggested that at this site there existed the remains of a city of very great antiquity and of seemingly quite peculiar culture as the legends on the Harappa seals are one and all totally unlike any other form of script known in India. In his annual report for 1920-21, Sir John Marshall, Director General of Archaeology, India, shows how a beginning was at last made in the exploration of these remains. As he points out, the field is so large that to locate points of real value therein was matter of extreme difficulty. Daya Ram Sahni made a start, however, in 1920-21 and the results, though meagre, were described by Sir John Marshall as encouraging. Most of the mounds were completely honeycombed with the diggings of the brick-hunters. The mounds which appeared to have suffered least from this cause were selected for the preliminary excavations. Some seals were discovered similar to that found by General Cunningham all exhibiting the device of a bull, without the hump so universal in Indian cattle, and legends in the same inscrutable pictographic script. The other objects recovered, though not numerous, all pointed to a high antiquity. These finds established the fact that the upper strata at Harappa related to a period of greater antiquity than has up-to-date been associated with Indian historical investigation, and that there were several lower strata from which it was anticipated that much information could be obtained of the highest value to the archaeologist.

Sir John Marshall gave some indication of the wide field of speculation and

Mohenjodaro in Sind, in the annual report of the Archaeological Survey of India 1923-24. He says that "In the field of exploration, it is natural this year to give the premier place to the remarkable discoveries made by the Department in Sind and the South-West Punjab; for it is safe to say that no such epoch making discoveries have ever fallen to the lot of an Archaeologist in this country. Hitherto India has almost universally been regarded as one of the younger countries of the world. Apart from palaeolithic and neolithic implements and such rude primitive remains as the Cyclopean walls of Rajagriha no monuments of note were known to exist of an earlier date than the 3rd century B. C., when Greece had already passed her zenith and when the mighty empires of Mesopotamia and Egypt had been all but forgotten. Now, at a single bound, we have taken back our knowledge of Indian civilization some 3,000 years earlier and have established the fact that in the 3rd millennium before Christ and even before that the peoples of the Punjab and Sind were living in well built cities and were in possession of a relatively mature culture with a high standard of art and craftsmanship and a developed system of pictographic writing."

He goes on to say that the site at Harappa though manifestly that of a great city covering a vast area and containing many strata of successive buildings, will probably never prove so lucrative as that of Mohenjodaro, for the reason that it was further removed from the main centre of the Indus culture in Sind, and it cannot, therefore, be expected to have been so rich in articles of luxury. Sir John Marshall was not prepared at that time to issue any detailed memoirs on the subject of the excavations. He considered that further progress should be made first. He definitely stated, however, that there could then no longer be any doubt that the Punjab and Sind antiquities were closely connected and roughly contemporary with the Sumerian antiquities of Mesopotamia dating from the 3rd or 4th millennium before Christ.

Excavation work at Harappa was carried on in the next few years. Mr. Madho Sarup Vats succeeded Dya Ram Sahni as from 1926-1927 and had been in charge of the work since then. A small museum was set up on the site with a permanent custodian in charge who used to take visitors round the site and give some account of the antiquities discovered. These consisted mainly of seals (six or seven hundred), vessels, figures and children's toys made of earthenware, and taience, some funerary urns, human and animal bones and a certain amount of jewellery. The objects in themselves, apart from their antiquity, were on the whole of little interest for the layman. No doubt the successive cities at Harappa were abandoned and rebuilt as part of a gradual process of routine, and it would be unreasonable to expect the inhabitants, as each site was abandoned, to have left numerous articles of value lying about. It is believed that the portions of the site that had already been excavated were fairly representative, and although the area which might still be explored is extensive, Mr. M. S. Vats considered that future ex-cavation, unless it penetrates to very early levels is likely in the main to result in no more than corroboration of the evidence already unearthed. Somehow at later stage in 1944 intensive work was done



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cavation, unless it penetrates to very early levels is likely in the main to result in no more than corroboration of the evidence already unearthed. Somehow at later stage in 1944 intensive work was done by Sir Mortimer Wheeler who has written an excellent work on the Harappan Civilization.

Architecturally the excavators have been handicapped, as previously stated, by the depredations of brick hunters, and there is little in what remains of the buildings to suggest anything in the way of beauty of grandeur. The most important architectural discovery appears to be that of a building whose purpose and character is still shrouded in mystery. This building, which as excavated up-to-date, measures 155 ft. x 134 ft., consists of two series of parallel wall opposite each other opening on to a central corridor 24 feet wide. It has been named the Corridor Hall. Excavation in this curious structure has uncovered very few portable objects of interest or importance which suggests that whatever purpose the building was intended to fulfil, it was not devoted to ordinary domestic uses.

But the connection definitely established by these discoveries between the Indus Civilization and the Sumerian Civilization in Mesopotamia is in itself of most absorbing interest. Dr. Langdon, considered that the Sumerians probably descended into the valley of the two rivers in Mesopotamia from the highlands of Iran and Central Asia by the pass in the Zagros mountains known as the "Median Gate" near the source of the river Diyala. In his opinion the entry of the Sumerians into Mesopotamia and Egypt heralded the dawn of civilization in the ancient worlds, and with their decline and disappearance the most talented and humane of the earlier people became extinct. He considers them to have been without warlike ambitions, but with a genius for agriculture (witness the irrigation system of lower Mesopotamia dating from the 5th millenium B.C) and for religious speculation, in which their influence may be said to have permeated the religions of Babylonia and Assyria and to have survived until the last century before our era. In the annual report of the Archaeological Survey of India 1923-24, Sir John Marshall indicated the possibility of India having been the cradle of this civilization. But eight years further work has led him to modify his views in some degree. He published an account of the excavations at, Mohenjodaro in a three volume, book entitled "Mohenjodaro and the Indus Civilization".



"They (the discoveries at Mohenjodaro and Harappa) exhibit the Indus peoples of the fourth and third millenia B.C. in possession of a highly developed culture in which no vestige of Indo-Aryan influence, is to be found. Like the rest of Western Asia, the Indus country is still in the Chalcolithic Age; that age in which arms and utensils of stone continue to be used side by side with those of copper or bronze. Their society is organized in cities; their wealth derived mainly from agriculture and trade, which appears to have extended far and wide in all directions. They cultivate wheat and barley as well as the date palm. They have domesticated the humped zebra, buffalo,

and short-horned bull, besides the sheep, pig, dog, elephant and camel; but probably the horses are unknown to them. For transport they have wheeled vehicles, to which oxen doubtless were yoked. They are skilful metal workers, with a plentiful supply of gold, silver and copper. Lead, too, and tin are in use, but the latter only as an alloy in the making of bronze. With spinning and weaving they are thoroughly conversant. Their weapons of war and of the chase are the bow and arrow, spear, axe, dagger and mace. The sword they have not yet evolved; not is there any evidence of defensive body armour. Among their other implements, hatchets, sickles, saws, chisels, and razors are made of both copper and bronze; knives and celts sometimes of these metals, sometimes of chert or other hard stones. For the crushing of grain they have the muller and saddle-quern, but not the circular grindstone. Their domestic vessels are commonly of earthen ware turned on the wheel and not infrequently painted with encaustic designs; more rarely they are of copper, bronze, or silver. The ornaments of the rich are made of the precious metals, or of copper, sometimes overlaid with gold, of faience, ivory, cornelian and other stones; for the poor, they are usually of shell or terra-cotta. Figurines and toys, for which there is a wide vogue, are of terra-cotta, and shell and faience are freely used, as they are in Sumer and the west generally not only for personal ornaments but for inlay work and other purposes. With the invention of writing the Indus peoples are also familiar, and employ for this purpose a form of script which, though peculiar to Indian, is evidently analogous to other contemporary scripts of Western Asia and the Nearer East.

"But it is in regard to the early civilization not of India alone, but of the whole Ancient Orient that these new discoveries seem likely to revolutionize existing ideas. The importance of the role played by palaeolithic man in India has long been recognised, and from a typological comparison of



Replica of a dancing torso, original in limestone, Harappa Museum



Gamesmen: Harappa.



palaeolithic and neolithic artefacts the inference has been drawn that it was actually on Indian soil that the latter were first evolved from the former. Be this view correct or not, there can be no question that the north-west of India, with its vast, well-watered plains, with its abundance of game, its warm but variable climate more propitious perhaps than now, and with its network of rivers affording ready means of communication and intercourse, must have offered a specially favourable field for the advancement of early society, alike when man was in the hunting stage and later when he had turned himself to agriculture and the domestication of animals or was opening up commerce with distant lands. At present, our researches carry us back no further than the fourth millennium B. C., and have lifted but one corner of the veil that hides this remarkable civilization, but even at Mohenjodaro there are still several earlier cities lying, one below the other, deeper than the spade has yet penetrated, and though the permanent rise of the subsoil water precludes the hope of our ever being able to explore the earliest settlements on this site, it can hardly be doubted that the story already unfolded will be carried still further back on other sites, of which there are a multitude waiting to be excavated in Sind and Baluchistan. One thing that stands out clear and unmistakable both at Mohenjodaro and Harappa, is that the civilization hitherto revealed at these two places is not an incipient civilization, but one already age old and stereotyped on Indian soil, with many millennia of human endeavour behind it. Thus India must henceforth be recognised, along with Persia, Mesopotamia and Egypt, as one of the most important areas where the civilizing processes of society were initiated and developed. I do not mean to imply by this that India can claim to be regarded as the cradle of civilization; nor do I think on the evidence at present available that claim can be made on behalf of any one country in particular. In my view, the civilization of the Chalcolithic and succeeding Ages resulted from the combined efforts of many countries, each contributing a certain quota towards the common stock of knowledge. From the neolithic, if not from the palaeolithic Age onwards the most populated regions were undoubtedly the great river valleys of South and South-west Asia and Northern Africa, where the cold was never intense, where food and water were ready to the hand of man, where pasturage was good, irrigation feasible, and communication easy along the courses of the natural waterways. In each of these river valleys on the banks of the Nile and the Euphrates as on those of the Karun, the Helmund or the Indus, mankind may be assumed to have had equal chances of development, and it is natural to suppose that progress in one direction or another was being made in all these regions simultaneously and doubtless in many others besides. If this view, which is surely the most rational one, be accepted, if we regard this wide flung civilization of the Afrasian belt as focussed in various centres and developed by the mutual efforts of different peoples, we shall better understand how, despite its general homogeneity, it nevertheless comprised many widely differing branches, each of which, in its own sphere, was able to maintain its local and individual character."

3



Harappa

As explored by Sir Mortimer Wheeler

'Harappa, the cradle of the Indus Civilization, overlies and adjoins the mounds of the ancient city, which appears to have had a circuit of around 3 miles, though the more emphatic mounds occupy a considerably smaller expanse. "There is a possibility, or perhaps, rather, not an impossibility, that in the modern place-name may be recognized the Hari-Yupuya which is mentioned once in the Rigveda as the scene of the defeat of the Vrcivants by Abhyavartin Cayamana. The tribe of the Vrcivants is likewise nowhere else referred to in the Rigveda, but may be connected with Varcin, who was a foe of Indra and therefore non-Aryan. Putting these possibilities together, they may be thought to indicate Harappa as the traditional scene of an Aryan victory over a non-Aryan tribe. The conjecture may give a little specious actuality to our story of Harappa, but is not susceptible to proof and has therefore no serious value.'

Owing to the very thorough depredations of brick robbers mentioned earlier many excavations at Harappa have in the aggregate yielded disappointing results. Nevertheless, it was there that, in spite of the absence of a recovered streetplan, the essential make up of the Indus cities was first recognized. Furthermore, Harappa has produced a hint of an antecedent culture and more than a hint of a succeeding one, and is at present the only Harappan site thus bracketed. In one way and another, the evidence of Harappa checks and amplifies that of Mohenjodaro and broadens the basis of inference.

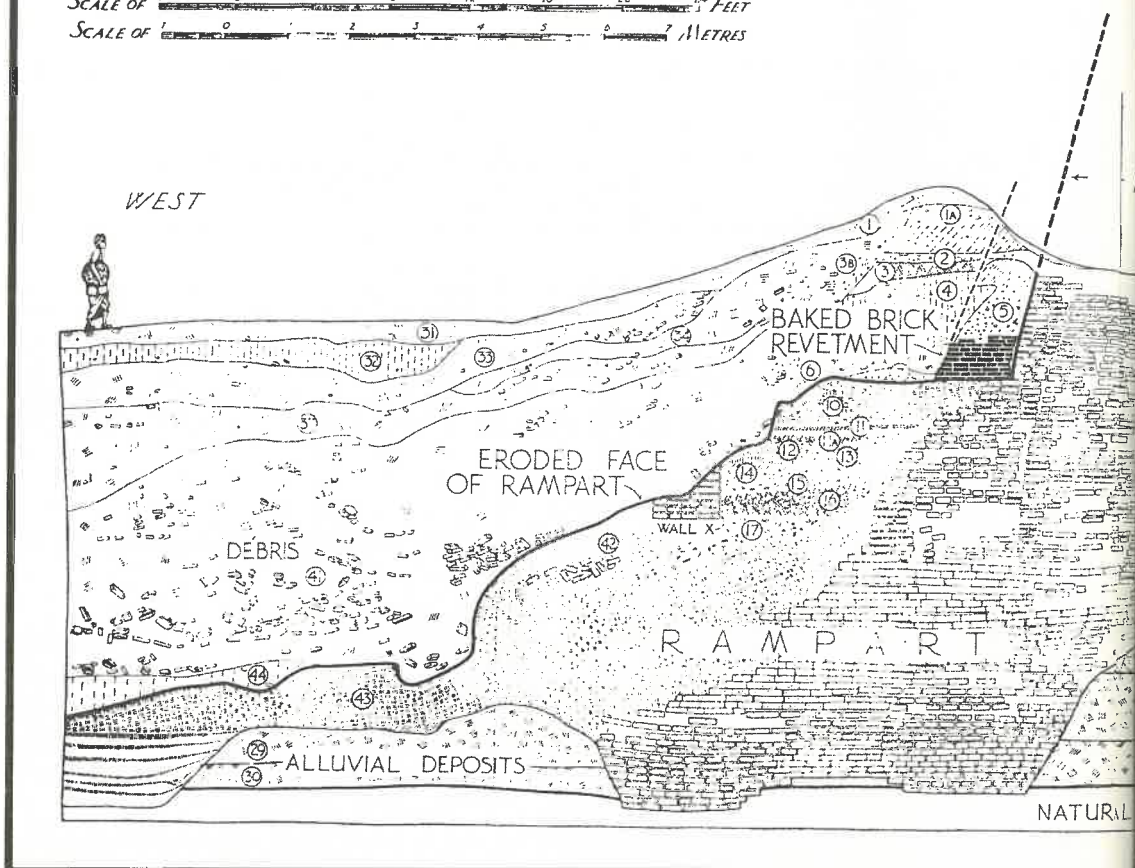
The main features of the plan, the citadel (Mound AB) on the west and the mounds of the 'lower city' (Mound E) towards the east and south-east. To the north, a slightly hollowed belt containing notably verdant crops marks an old bed of the Ravi, which bifurcated hereabouts. Nowadays the river flows farther north, and the adjacent countryside owes to artificial irrigation something of what it once owed to this and other wandering or vanished river arms and with their annual floods. Between the citadel and the river-



HARAPPA 1946

SECTION ACROSS THE WESTERN DEFENCES OF
THE CITADEL (MOUND AB) AT HP XXX

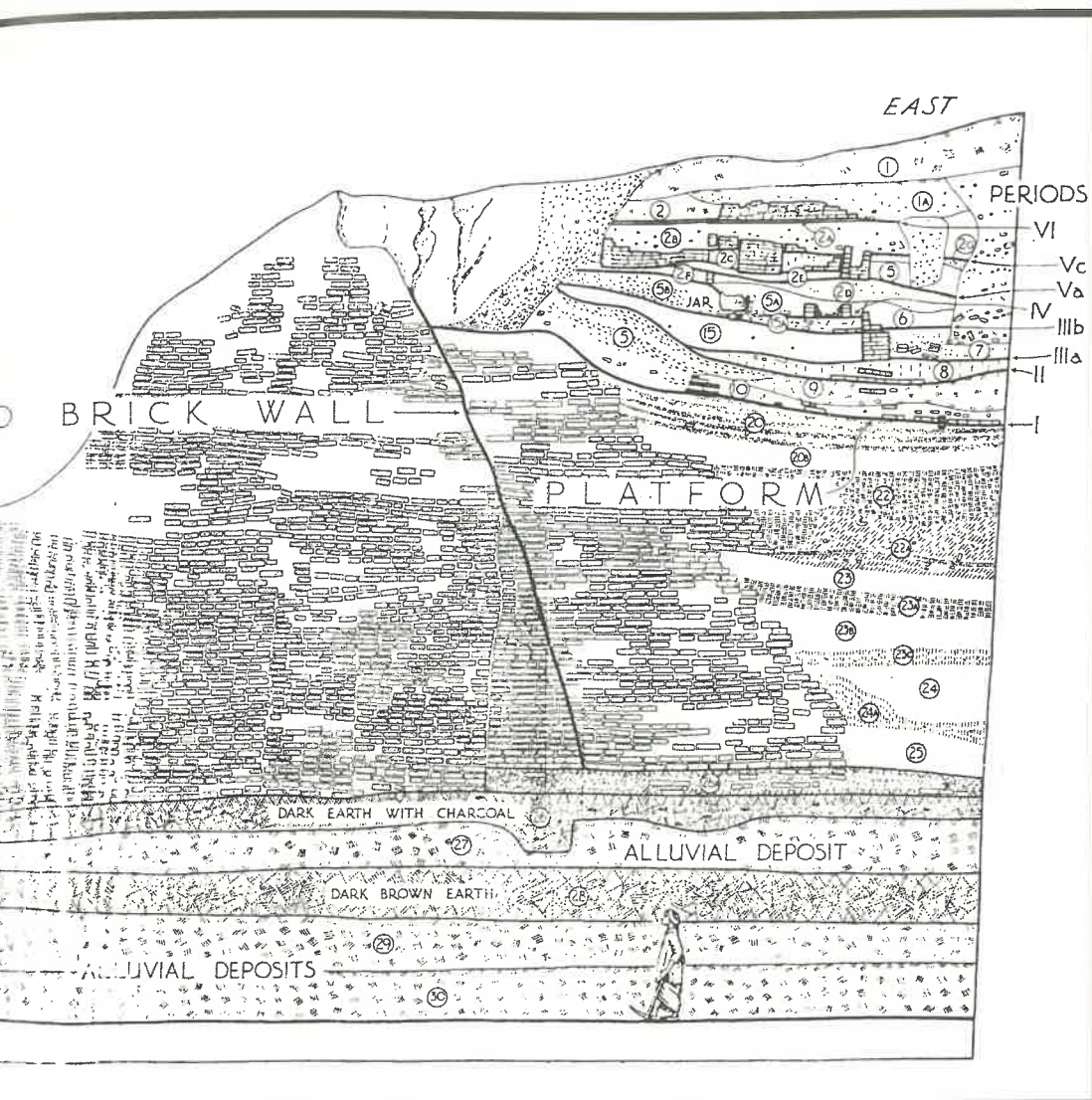
SCALE OF 0 4 8 12 16 20 24 FEET
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bed, Mound (F) was found to contain a remarkable and significant piece of town planning; whilst to the south of the citadel lie the outlying hillock DJ, the Harappan cemetery R 36 and the post-Harappan cemetery H. Away to the south-east, sporadic digging had been carried out in Areas G, but the ragged Mound E and its environs were found by Sir Mortimer Wheeler virtually unexplored until late sixties.

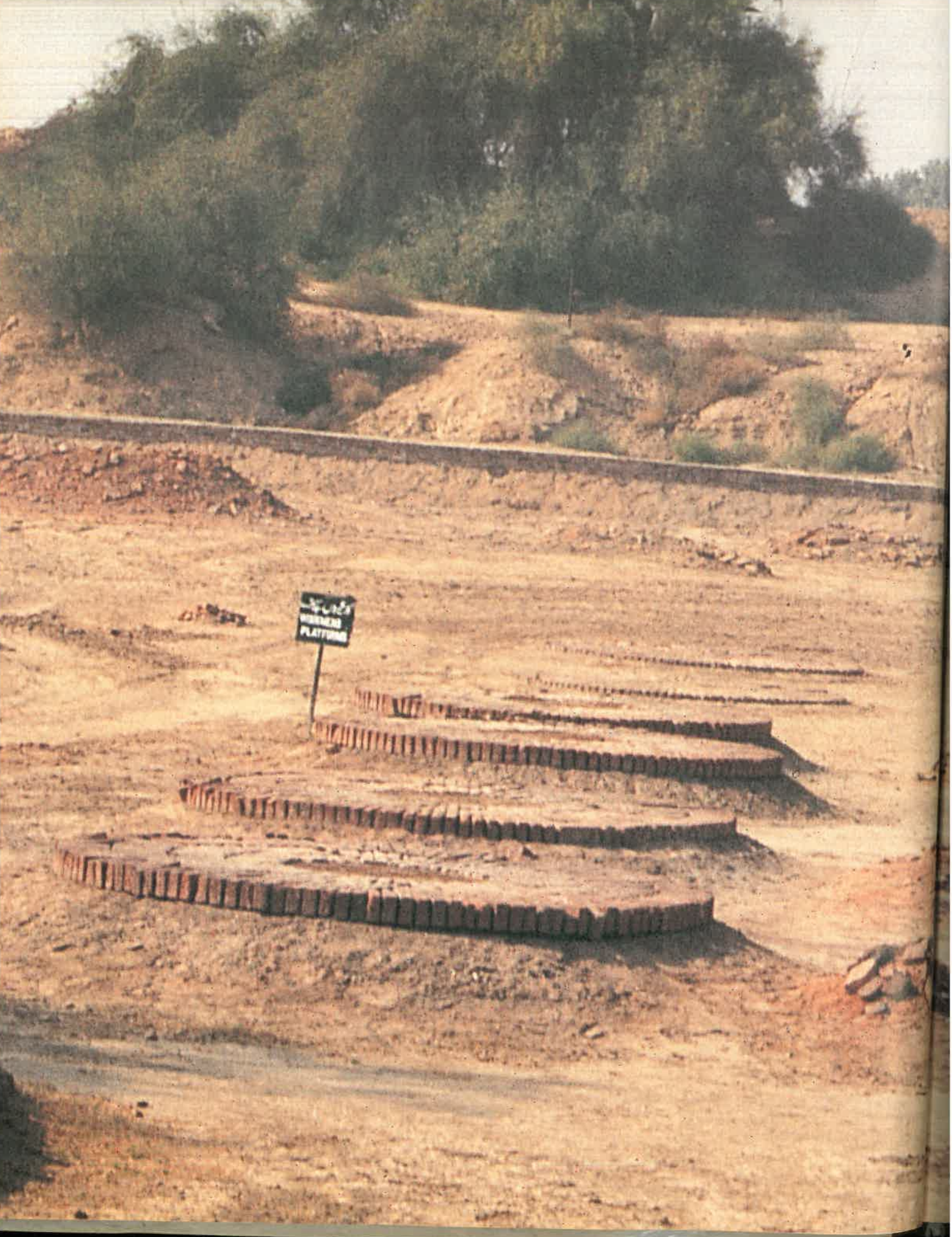
Sir Wheeler gives, priority to the citadel which is roughly a parallelogram on plan, some 460 yards from north to south and 215 yards from east to west. Its general altitude rises slightly from south to north, where the present summit, unfortunately sealed by a Muslim graveyard, is 45-50 feet above the adjacent plain. The buildings of the interior had been raised upon a platform of mud and mud brick centrally 20-25 feet above the former ground level and contained on all sides by massive defences which had been partially explored. Preceding their construction four layers mostly of





alluvium had accumulated on the site, with only a faint hint, in the form of very minute scraps of pottery, of human occupation in the vicinity. Above these lay an occupation layer about 20 inches deep, from which were recovered thirty sherds, noted above and generally comparable with certain of the north Baluch village cultures. All these deposits were then partially cut away by flood or rain, whereafter the construction of the citadel was undertaken by new arrivals equipped with the full Harappan Culture. The monsoon cutting was filled with mud bricks, which were carried up in bricks and mud to form an anti flood 'bolster' or bund, spreading protectively beyond the outer foot of a great defensive wall 45 feet wide at the base and tapering upwards. The main bulk of this wall was of mud brick but there was an external revetment of baked brick 4 feet wide as preserved. The back of the mud brick wall was at first vertical, but insecurity quickly developed and a slope or batter was introduced during the work. Although structurally sec-







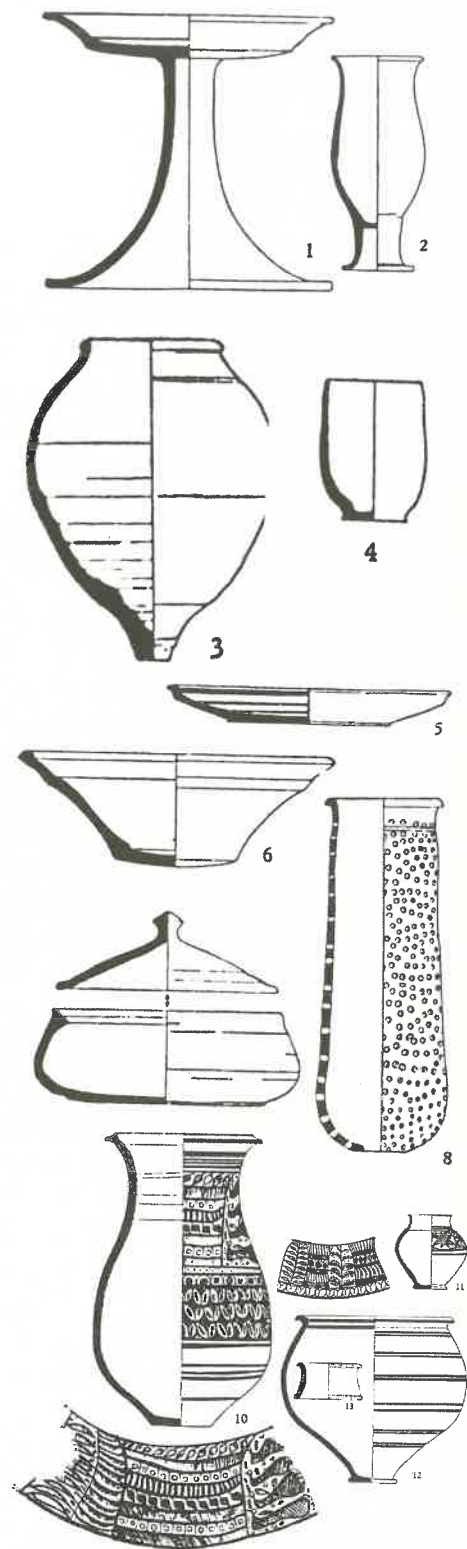
Harappa: Working Platforms

ondary, the internal platform was contemporary with the defences. On it were not less than six distinct phases of baked brick building, mostly representing changes of plan and, it may be supposed, a very considerable stretch of time.

At fairly frequent intervals along the wall were rectangular salients or bastions, some at least of which appear to have risen above wall level. The main entrance would seem to be represented by a marked inlet on the northern side, but this has not yet been explored. On the western side a curved re-entrant in the defences, controlled by a bastion, led to a system of extra-mural ramps and terraces approached by gates and supervised from guard rooms. At the southern end of this system there seems to have been a ramp or stair leading up on to the citadel. It is likely enough that the normal ascent from the flood plain was by steps: "the Harappans were very familiar with the principle of the stair case, and indeed a century ago Sir Alexander Cunningham actually observed at Harappa 'flights of steps on both the eastern and western faces of the high mound to the north-west'". Unfortunately Cunningham did not detail the flights of steps on the surface and by now have doubtless been removed.

To define these, is quite complicated defences one. In addition to the 'village culture' found below them in the main section, at two points fragments of underlying baked brick structures were also identified. Whilst, therefore, there is no indication of any lengthy pre-citadel settlement, there was certainly an appreciable preceding culture. On the other hand, it might also be assented that, as originally built, the defences of the citadel long remained undamaged by the weather, which wore and rounded the exposed surface of the baked brick revetment to a very notable extent. This revetment had been built in the first instance of brick bats rather than whole bricks, and its construction was in marked contrast to that which at last replaced it. The old revetment, if it had not already fallen, was now pulled down to within half a dozen courses of its base, by this time doubtless below the ground level, and was replaced by a new one, carefully built of whole bricks in the finest Harappan style. This excellent reconstruction is particularly evident at the gateway in the curved re-entrant already mentioned, and in the adjacent tower towards the north which was like wise refaced. A third structural phase eventually followed: the defences of the north-west corner were enlarged, and the gateway just referred to was blocked. The obvious inference is that the Harappans were conscious of defence needs.

Of the buildings, which in varying form stood upon the enclosed platform and gradually raised it with accumulating brickwork, flooring and debris, no intelligible fragment is recorded. The excavated areas show that the area was thickly built over, but the plundered remains baffled the excavators. A long covered baked brick drain proceeded eastwards near the centre of the eastern side; towards the southern end was a double-ringed well, and a long line of forty urns, buried in a row alongside a building but of unknown



Pottery from cemetery R 37, Harappa.



Covered drains

purpose. Removing waiting stratas up to the time of Wheeler guided nowhere and only inference could be drawn generally keeping in view the analogy of Mohenjodaro finds as they are held as a concurrent and rather a part of Harappan Culture.

Overlooked by the citadel towards the north, Mound F, 20 feet high, occupies an area some 300 yards square beside the old river bed. Considerable areas of the mound have been dug into, and three important groups of structures have been identified. Towards the south, close to the citadel, is a double range of barrack like dwellings. Further north are remains of five rows of circular working platform; and beyond there is a double range of granaries on a revetted platform. The ensemble shows coordinated planning, and, although the methods of the excavators were not such as to yield stratigraphical evidence due to poor excavations of the requisite intricacy, it may be supposed that the whole layout is approximately of one date. In

other words, we have here a sufficiently clear example of regimentation, significantly within the shadow of the citadel.

The two lanes of small oblong dwellings were incomplete at both ends. These were fronted, backed and separated laterally by lanes 3-4 feet wide, and were apparently encircled by a boundary wall, still partially standing on the northern and southern sides. Each little detached house or tenement was about 56x24 feet overall, and was entered through an oblique passage menace for privacy. Within were two rooms, or a court and a room with floors partially brick paved. Though much disguised alike by brick robbing and by over lying constructions, it is evident that the original scheme was both distinctive and uniform, and was in fact a piece of state planning.



Harappa: A general view of excavated remains.

It may here be added that on and about the site of this locality, at a slightly higher level, sixteen furnaces were found, mostly pear shaped on plan and with major axes from 3 ft. 4 ins. to 6 ft. 2 ins. in length. The fuel used had been partly cow dung and partly charcoal, and the heat, induced doubtless by bellows similar to those used in the countryside today, had been such as to produce intense vitrification of the brick lining. The precise function of these furnaces is doubtful, but one of use could be for melting the metals especially bronze found in the vicinity.

To the north of these living quarters to the ground is littered with a medley of broken walls and floors which have not been intelligibly planned. "Amongst these disjecta, however, not less than seventeen circular brick platforms emerge as a unit, to which an eighteenth was added in 1946 under carefully observed conditions", and further exploration would doubtless

A hundred yards north of the 'platform' area, and itself within a hundred yards of the river bed, lay the remarkable group of granaries which is the key point to the entire layout. These granaries, each 50x20 feet overall, are ranged symmetrically in two rows of six, with a central passage 23 feet wide. They are built upon a podium of rammed mud some 4 feet high, revetted along parts of the eastern and western sides and the whole of the southern end with baked bricks stepped back to form a battered face, like the



revetment of the citadel defences. Incidentally, the continuous along the southern end and the absence of space at the side prove that the approach was towards north, i.e. from the river bank, suggesting the use of water-transport for incoming or outgoing supplies of grain food grains.

The floors of the individual granaries were carried clear of the ground on sleeper walls, three to each unit. In at least two instances the central sleeper had rectangular thickenings as though to carry posts or piers for additional roof support. The purpose of the sleepers, probably, was to provide intervening air ducts to keep the overlying building dry and so to prevent sweating and mildew. The structures were entered from the central passage by short flights of brick steps, and the systematic use of the passage itself for something more than transit is indicated by the presence in it of a number of carefully laid brick floors. As the general level rose outside the area, the air-ducts beneath the floors tended to become choked, and accordingly small projecting air vents, conducting from the higher level, were added at their outer ends. The combined floor-space of the twelve granaries was something over 9,000 square feet, and approximates closely to that of the Mohen-jodaro Granary. The environs of the granary group were covered with buildings at various periods, but nothing can be made of the remains as recorded after excavations.

Looking at the layout of the area as a whole, it is stated that its units consisted of ranges of barrack like accommodation within a walled comp-ound, (ii) serried lines of platforms apparently for pounding grain, and (iii) marshalled array of uniform granaries within easy reach of the river. "Sir Mortimer Wheeler has analysed the Sumerian Culture in relation to Harappan Civilization that the barracks recalled to "the excavator the workmen's village at Tell el Amarna, and he might have added comparable villages at Deir el Medineh, Kahun or Gizeh. But the resemblance is not in reality very close. These Egyptian villages did in fact consist mostly of tiny uniform houses ranged in lines within an enclosing wall, and so far the comparison holds good. But an essential feature of them is their careful isolation. At Tell el Amarna (1369-1354 B.C.) the village, designed to house the tomb makers, was tucked away out of sight, a mile from the fringe of the city. The village of Deir el Medineh (in and after the sixteenth century B.C.) similarly occupied by the tomb makers of the Valley of the Kings, lay apart in a lonely and arid hollow. The village at Kahun and Gizeh were the barracks of pyramid



Section of the mud-brick wall on western side of the citadel.



Baked brick revetment of mud-brick defensive wall of citadel.

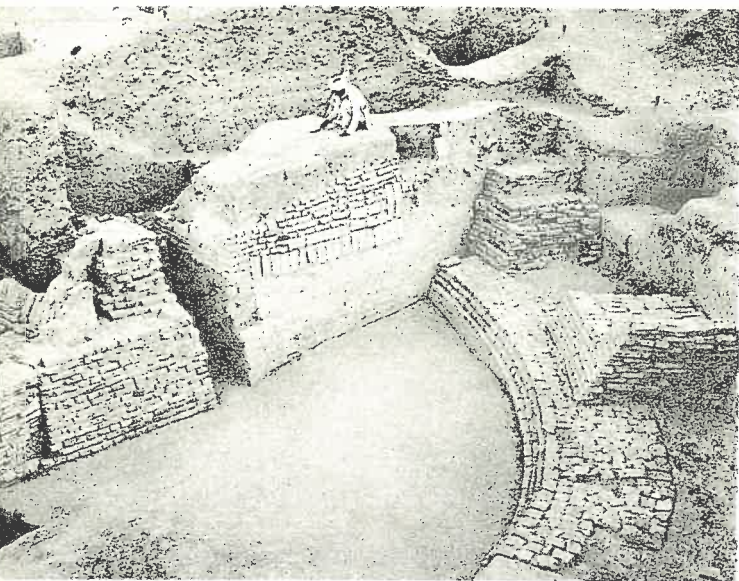




Well and other excavated ruins of Harappa.



Well and other excavated ruins of Harappa.



Blocked gateway on west side of the citadel.



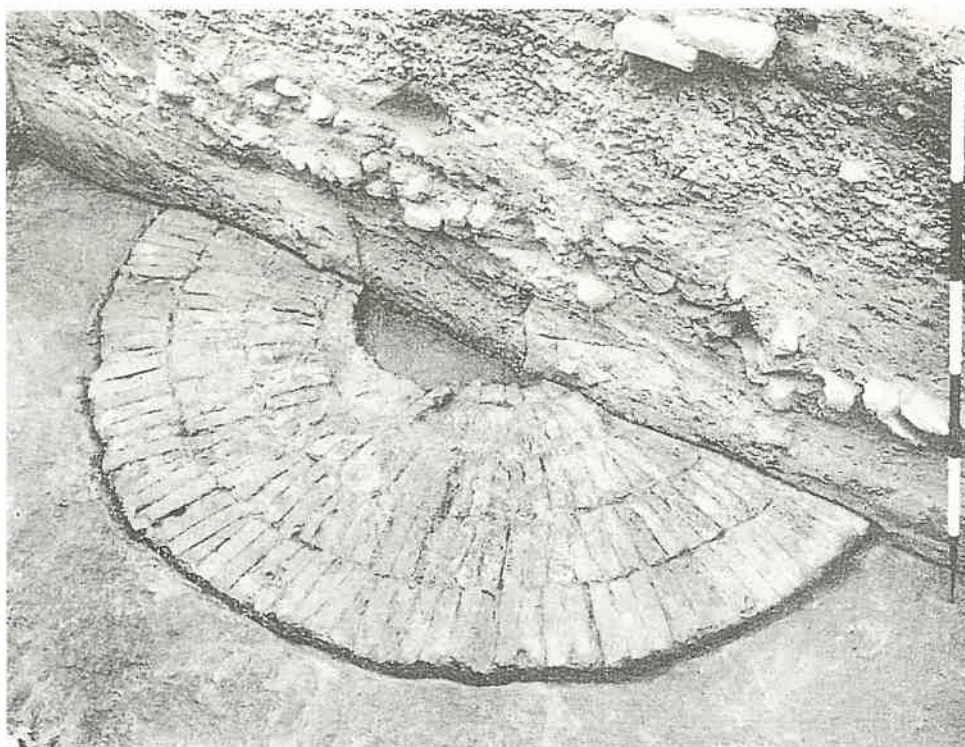
Baked brick revetment of mud brick defensive wall of citadel.

builders. In all these there was doubtless an appreciable degree of compulsion, though the borderline between that and the endemic regimentation of Egyptian life and death is hard to fix. But it may be affirmed of the Harappans that they at least had no excessive concern with mortality, and whatever the function of the occupants of their compound, this was certainly integral with their daily life. Full in the public eye, and more especially in that of the rulers on the citadel, there was nothing furtive in the little Harappan Cantonment. Rather might it reflect a servile or semi-servile element of the sort familiar in the theocratic administrations of Sumer: where the temple of Moon God Nannar at Ur might administer within its precincts, in the name of god and the state, a cloth factory employing ninety eight women and sixty three children, or the temple of Bau at Lagash might control twenty one bakers with twentyseven female slaves, twenty five brewers and six slaves, female wool-pre-parers, spinners and weavers, a male smith and other artisans and officials. This kind of labour organization, with a measure of compulsion never far away, might best perhaps be called in to explain the Harappan layout.

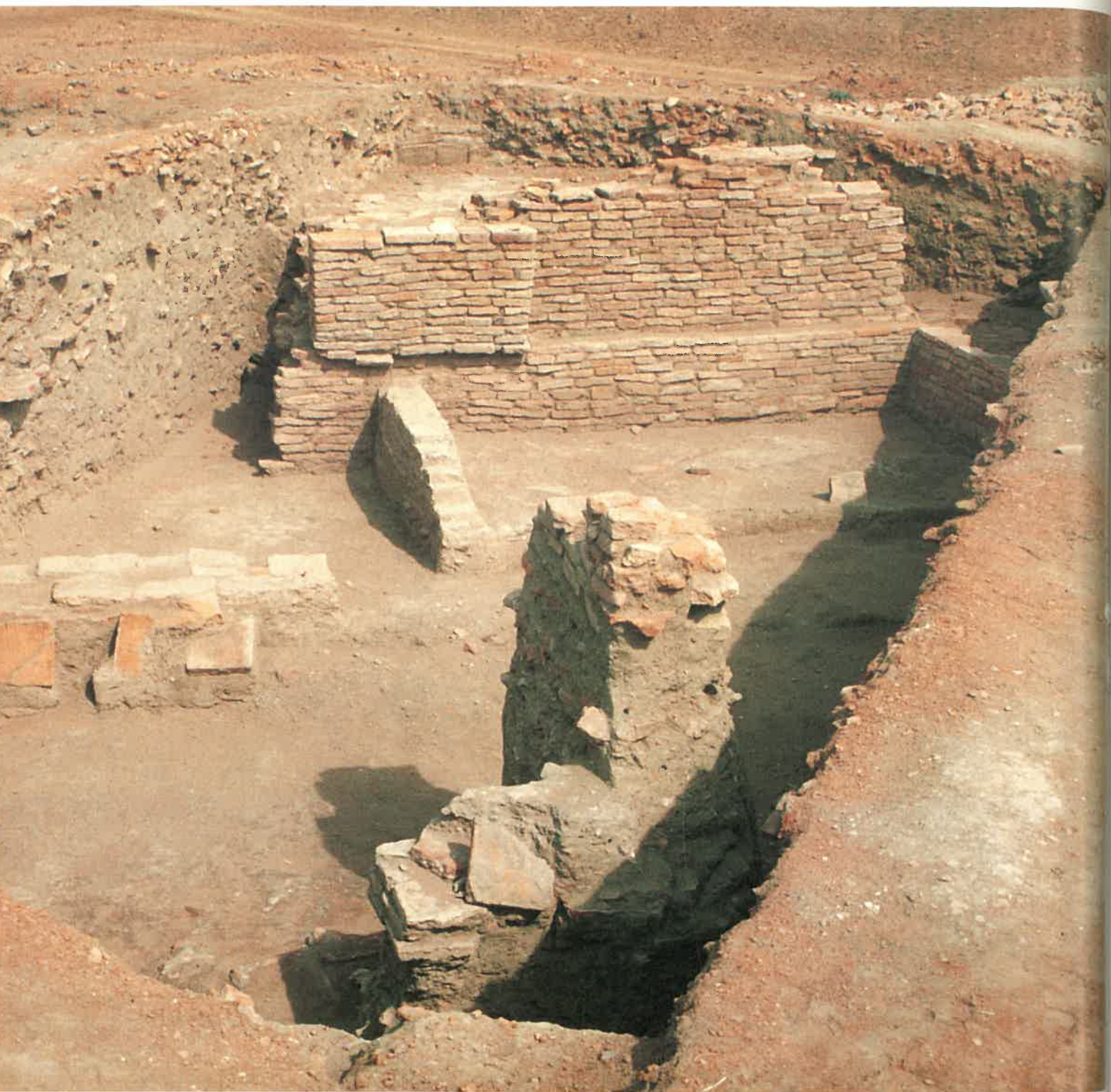
The serried lines of circular platforms for grain, and nearby the state granaries themselves, sufficiently suggest the occupation of the barrack-dwellers. Here (we may imagine) the flow of grain, doubtless the principal source of civic wealth, was regulated and distributed by government officials with their clerks and labourers; and the picture will be amplified when we find that at Mohenjodaro the Great Granary was in the citadel itself. In both instances we may fairly assume that the granaries were replenished by a system of state tribute, and that in some measure they fulfilled in the state economy the function of the modern state bank or treasury. In a moneyless age, their condition at any given moment must have reflected, however partially, the national credit and the efficiency or good fortune of the administration. In the Tigris-Euphrates Valley all the important cities possessed granaries, often of

considerable size. Some were attached to temples, others were situated on the banks of canals (compare the Harappa complex) or dispersed in other parts of the cities. "A text from Ur implies that one of the granaries stored enough barley to provide wages for 4,020 days; another text refers to the commandant of the granary who was responsible for seeing that 10,930 man days' payment was made out of his store, presumably in barley, to meet the wages of workers from the town: the workers included scribes, overseers, shepherds and irrigators. Another text refers to royal barley, to be returned with interest, received by Lulamu from the granary of the canal bank. All these documents are of 2130-2000 B.C., which is unlikely to be far from the optimum period of the Harappan Civilization.

The other finds and constructions there is no tangible evidence for purpose of writing a cultural history. It is worth noting, however, that in Area G, 300-400 yards south of the Harappa Police Station on low lying ground which shows no superficial feature, as many as four 'strata of occupation' (i.e. structural phases) were observed, the inference being that digging alone can determine the real extent of the ancient city. Nearby was found a tightly packed mass of human skulls and bones with pottery which seems to have included both Harappan and cemetery H types. Some at least of the bones had been buried with the ligaments still upon them, but on the evidence available any explanation of the find is highly conjectural. It may be that the bodies were interred unceremoniously after some epidemic or war followed by the inevitable consequences."



A workmen platform, during excavation (north of citadel).



Excavated ruins of Harappa

4



VISITING THE SITE

A General Description

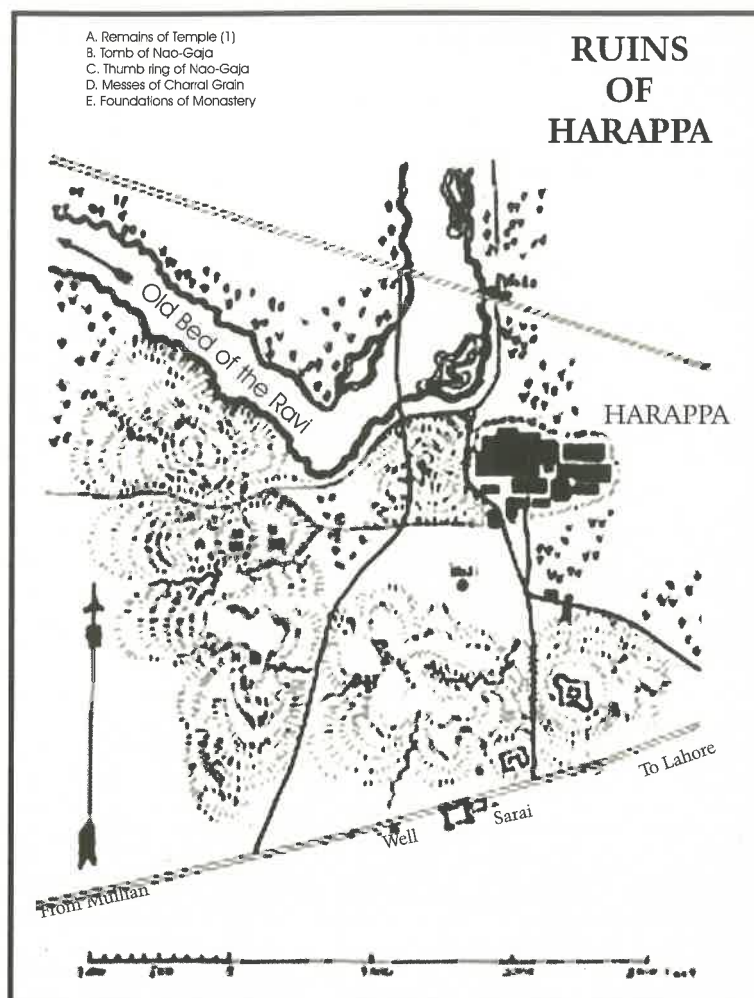
The circumference of ruins at Harappa, is around 4 to 5 Kms. The top mound is on the north west which is 60 feet in height from the ground level. On the south-west and south, the mound ranges from 40 to 50 feet in height and on the north side, towards the old bed of the River Ravi, from 25 feet to 30 feet varying at places.

It is stated that the brick robbers by systematic extraction of bricks before excavations, ransacked over 90 % place to render it impossible to understand the scheme of the actual houses not to speak of the layout of the street and drainage system etc. Further, from the existing features of the excavation, the old city of Harappa may be divided into two parts; the lower and the upper. The lower part consists of the remains at mound E towards the East and South-East where the southern gateway has also been recovered. In the South lies Cemetery R 37, Cemetery H, Area G away to the South-East, and Mound F to the North. The Workmen platforms and quarters and the granary, are towards North and West. The upper part includes the whole of the AB Mound, the citadel area, where the defence wall and the western gateway are situated.

Cemetery 'R- 37'

Arriving Harappa and after seeing the objects on display in the Archaeology Museum, the visitors while proceeding on a tour of the sites at Harappa, on the approach path, may first see the Cemetery R-37 on the left side. This Cemetery was discovered in 1937 and further excavations were also later on conducted in 1944 and 1946. Here about 57 graves of true Harappan period were found. This is the only proper cemetery of "mature Harappa Culture" known at present according to experts.





*Typical ornaments on urns
 from Cemetery H.*

Cemetery-H

Pacing a few steps ahead, there comes Cemetery H. This cemetery shows only various stratas of occupation which are later than the last period of the Harappa mounds. The pottery found here, is distinct from that found on the sites, in shape and decoration work. The painted design contain stars, fish, peacock, oxen and goat etc. Even the painted colour shades slightly differ. Some of the burials recovered from this Cemetery, were considered as 'fractional,' i.e. incomplete collection of bones gathered after the exposure of the body. However, it is not clear whether these were true, 'fractional' burials of merely fragmentary burials disturbed in turn later on. Archaeologists assert, Cemetery H belonged to the people who occupied the site after the end of the Harappan Culture. It may be mentioned that in Area G, on the South-East direction of the Museum, pottery with human remains, had been discovered. Among this ware, the dishes are more closely similar in shape etc. to the offering dishes found in the mounds than those disco-

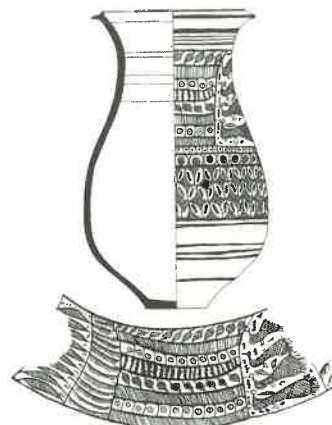
vered at cemetery H. But to draw a conclusion would be premature and further studies are necessary for offering a considered opinion.

Mound A and B

Entering into this area, there may be noted remains of 54 jars located in a row. This row extends for 109 feet from east to west and cuts across the entire width of the trench. These urns are placed against the wall of several houses which stood originally in a line immediately to their south.

Well with double masonry ring

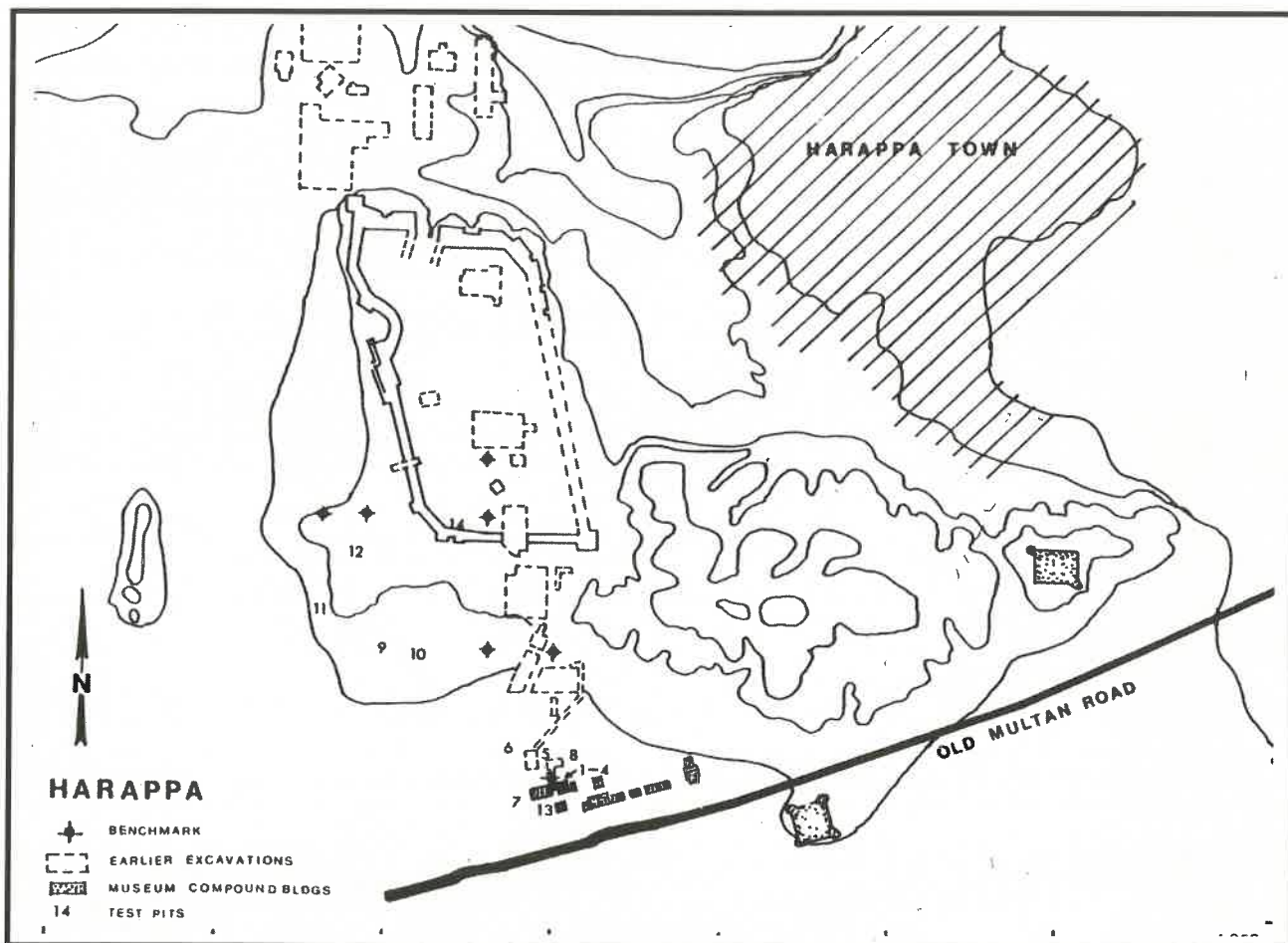
Close to the line of urns, there exists a well with double ring masonry. The outer ring is 7 feet 3 inches in diameter and the inner one 3 feet 9 inches; the gap of 1 foot between them is filled with pure clay. It is twice as deep as any of the other wells so far unearthed at Harappa. This is probably due to the reason of additional strength and safety that this method was adopted.



A vessel from Cemetery R37

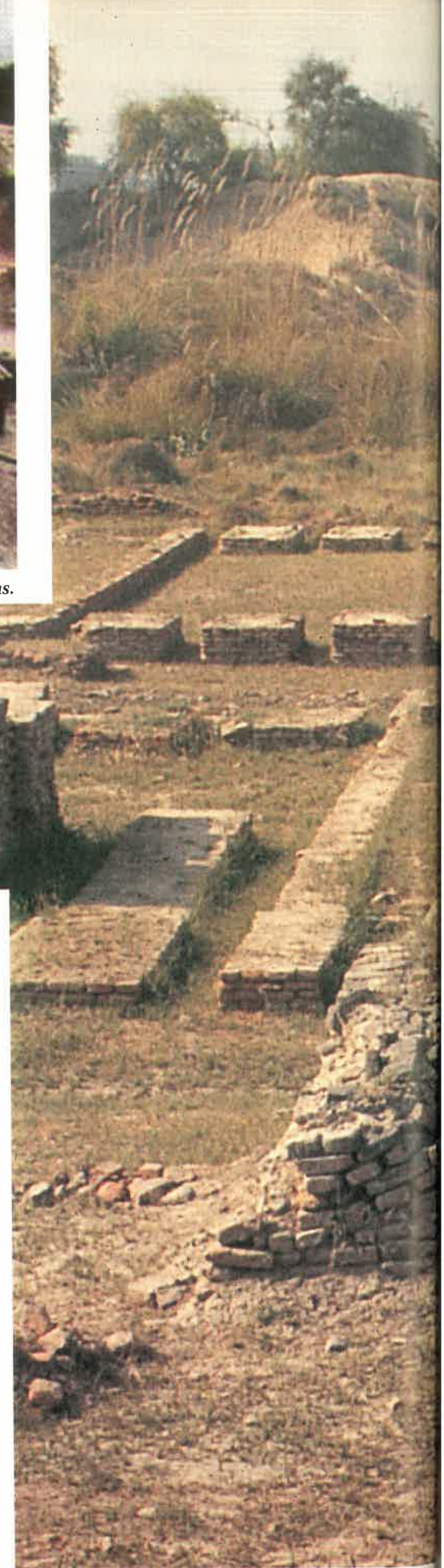
Western Section of AB Mound

Moving further a few steps one finds remains of the western section of this





A large well and bathing platforms.





The Gravel of the Granary

Remains of the state granary.

area. These structures are divided across the middle by an open space. At the west end of this space and running north to south at right angle to it, there is a broad passage near the western limit of the excavations between first two houses. Two small earthen jars, were found at this point. The other important aspect of this area are the remains of an east-west wall on the northern side. Here may be noticed the openings of two small drains which appear one above the other. There is also a water chute with slipping back near the side of the drains. Here exist the remains of an incomplete room where there is a broken drain to its south and also another which used to empty itself down into the drain alongside the channel. Behind these remains, one may notice a large room type accommodation.

The long wall, the channel and the drain openings discussed above, are so managed as to drain away towards the long east through a triangular corner outlet which can be seen.

Fortification

This western section of Mound is the convenient point for the visitors to return to the western side of the citadel where they may study the defence wall exposed in section. Four periods of construction may be observed in the section of the defence wall. Period-I shows the time when the Harappans after their first arrival at the site constructed the fortification and strengthened it by a revetment of brickbats. The Second Period marks the rebuilding of the defence wall when the original revetment was reconstructed with quality bricks of batter thickness. This phase represents the culmination of Harappan Culture. In third phase, the north-west corner was consolidated by an additional salient and the entrances of the western gateway system were blocked. Period-IV probably represents the rough built houses on the site of the western terraces which stand above a layer of debris and are associates with the new ceramic of Cemetery-H.

Continuing the site-seeing, the visitors are advised to go northwards and see the gateway. It is curved entrance in the fortification. The width of the gate appears to narrow down from 8 feet. to 5 feet. as it approaches the fortification wall. It is felt that the probable site of the main entrance on the western flank of the citadel, is a few steps further towards northwestern corner of the defences. According to Sir M. Wheeler, "Relatively modern depredation had reduced the whole area to a shambles such as I have never before encountered on any ancient site. The ground had been ransacked for bricks almost from end to end and top to bottom. Nevertheless, patient and extensive excavation revealed the probable site of the main entrance at point where the mud brick structure of the defensive system was interrupted by a rising passage between lateral walls of mixed mud brick and baked brick. If, as appears likely this was in fact the site of the main western gate, only the sub structure of it remains."



North-East of the Citadel

After a visit of the western gateway, the visitor may turn to the right and proceed to the north-eastern side of the citadel area. There is a tomb of a Muslim saint, Nur Shah. Close to the side of this tomb is a mosque. Not far from this, but at higher level to the west, had been found the remains of flights of steps on both the eastern and western sides of the citadel and also the foundation of a large square building. However, no signs of this reported building now exist as it seems to have been removed by the brick robbers before excavations could start.

From this area, a heap of large undulating stone rings, polished architectural stone pieces and stone pedestals, had reportedly been unearthed. Now the foundation of the square-shaped building as mentioned above and the material evidences coordinated together, may indicate the place of a probable site of prayer or congregation. It is just a matter of assumption to co-relate the story.

On the top of these structural remains, there were found several big sized brick tiles, terracotta panels with human figures, a few cast human heads and pottery spouts showing, a clear workmanship of Hindu period dating to the 4th century A. D. Similar finds were excavated at Mohenjodaro, theirs, declaring to be contemporary and part of the Harappan cultural domain.



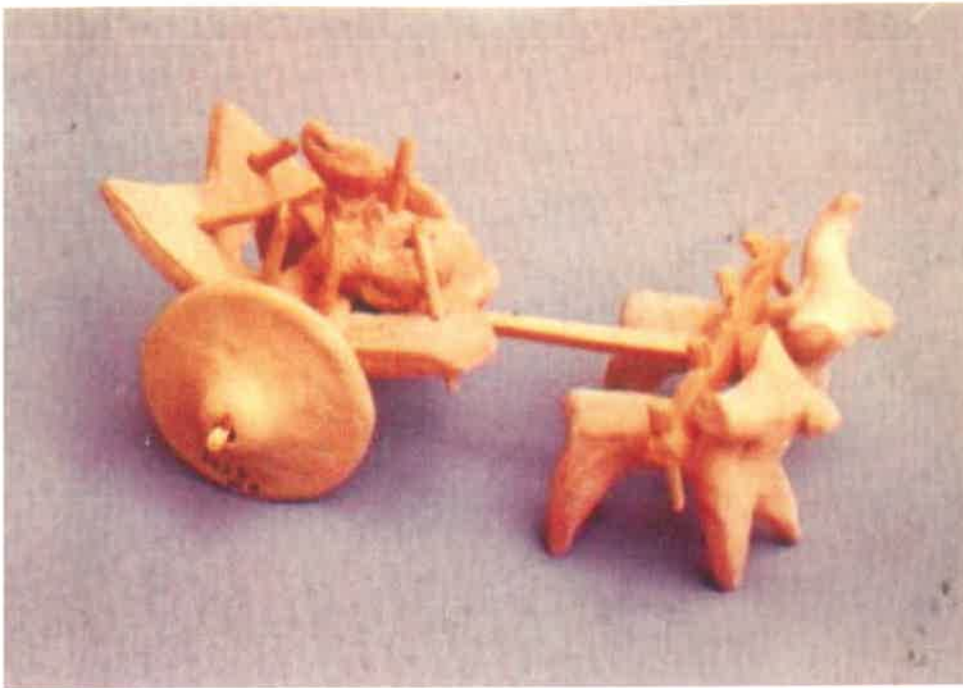
The Mound F

After visiting the citadel area, the visitor may come further north and see the rest of the remains belonging to the lower part of the city. To the right at a low level in the eastern slope of Mound F may be seen the remains of a big house. The plan of eastern part of this house is quite clear while its western part is buried and not understandable.

Trench 1

On the right of the approach path, there is a trench, measuring 224 ft. from north-south by 68 ft. wide. In which, various stratas of living were found. This side has been destroyed by brick diggers and it is not possible to describe. "Among the finds, the most important and interesting from the southern portion of this trench, is an extremely delicate miniature of a two-wheeled copper chariot which has been pieced together from numerous fragments. The chariot is open both from front and back and has a gabled roof. The driver is shown in front on a raised seat, but the animal supposed to be yoked to the chariot, the poles, the wheels and the axle are all missing. The chariot is very small with two inches in height. As an instance of a covered chariot, this is the first example from the sites of Harappan Culture antedating the earliest use of a wheeled vehicle in Egypt by several centuries."





Toy cart.

The workmen quarters

Not very far from trench-1, there is a built up area generally known as workmen quarters to the south-west. To start with seeing these constructions, the workmen platforms and quarters are to be looked at first. These are 20 in number and circular in shape. Each platform is 11 ft. in diameter and consists of a single course of four continuous concentric rings of brick-on edge masonry with a hollow space at the centre equal to the length of three bricks. These are constructed in mud but the pointing is of gypsum. "In the central hollow of one of these platforms, there was found a quantity of burnt wheat and husked barely, while other one offered the evidence of some fragments of straw or husk in centre. It is, therefore, presumed that the platform surrounded a wooden mortar where grain was pounded with long pestles."

A mention may also be made here of a small well which is situated slightly to the north, between platform 4 and 5. Its diameter is 2 ft. 4 inches. The discovery of four large pottery jars lying one above the other near the well, indicated that water was stored in them. The Archaeologists narrate that to its north-west small torso of a nude male figure carved in red sand stone, had been found, adjacent to the platforms, were residential quarters (for the workmen), which are 14 in number. It is here that some jewellery was also found in these quarters. Originally, these houses were all carefully planned. But most of the remains of these houses have disappeared due to removal of bricks by contractors for Railway for the ballast for railway track.



Burial jar.

Furnaces

To the west of the workmen quarters, there may be seen a furnace, it is presumed that the furnaces may have been used for melting the metals for manufacturing various products which were not only conserved in the local market built expiated as well.



The Granary

To the north, one may notice the blocks of the granary. The granary is termed as the best and "most imposing monument at Harappa." This extraordinary monument which measures 168 ft. from north to south by 135 ft. from east to west, was obviously a public building of great importance for the whole city. It is situated in the north-west flank of Mound F. It consists of two similar blocks (Eastern and Western) opposite each other with an open passage 23 ft. wide between them. Each block comprises six halls alternating regularly with five corridors which open only on the outside. Each of these halls is partitioned into four narrow divisions by full length walls which terminate in broader piers at both ends. Excepting the piers, which are made of burnt bricks, the remaining portion of these dividing walls, is made some time of burnt bricks, but more usually of burnt and Sun-dried bricks."

The Archaeologists state that the granary could have been used either for storage or the state share of produce. It may be that when there was no coinage and covering system and taxes were recovered in kind in that case, the rulers must have their store houses.

Another important discovery from this area, was the torso of a dancer, made of dark grey stone and "discovered in the intermediate-I level on the south of hall VI in the Eastern Block."

From the granary site the visitor may return to mound E on the south-eastern side to see more remains of the ancient city. These include the structures of houses, streets and the evidence of copper workshop, the site of the manufacturing of shell and agate beads. It is here on the southern side that a lofty mud brick wall has survived which seems to have encompassed the entire mound. The width of the wall varied from 19'-8" to 29'-7" and may have figured several feet high. At this place, there also exists an imposing baked brick gateway. Both the wall and the gateway belong to the mature Harappan phase of the city.

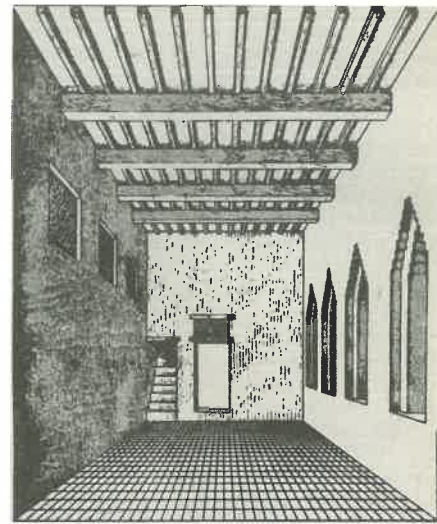
The experts re iterate that the foundation of Harappa City was laid out according to a pre-engineered scheme. But the brick diggers as pointed out earlier, had disturbed the whole site to such an extent that a complete layout of the houses could not possibly be reproduced by the Archaeologists. It is not possible to reconstruct any plan." However, some better left remains indicate that from the earliest times onwards, most of the Harappan lived in houses made of burnt bricks. The size of the brick is 11 x 5.5 to 3 inches with

mud mortar; and gypsum was also used for pointing purposes to add strength to the structure.

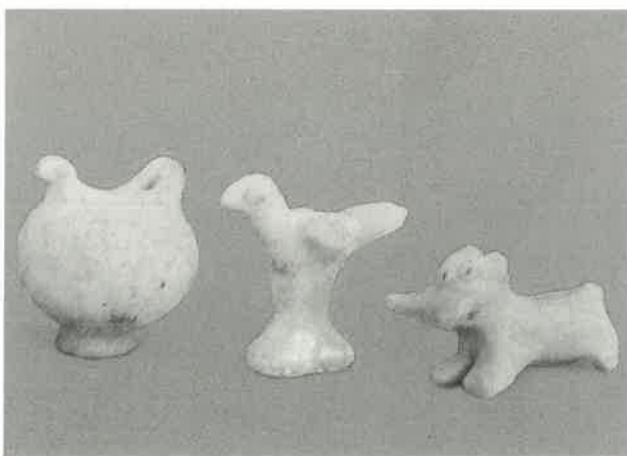
The house floor was usually made either of mud or bricks laid in flat position and also partly executed on edge pattern. The bathrooms were paved with well rubbed bricks, having very fine joints. Bricks laid on edge either on their longer or shorter sides, were used to border the pavements.

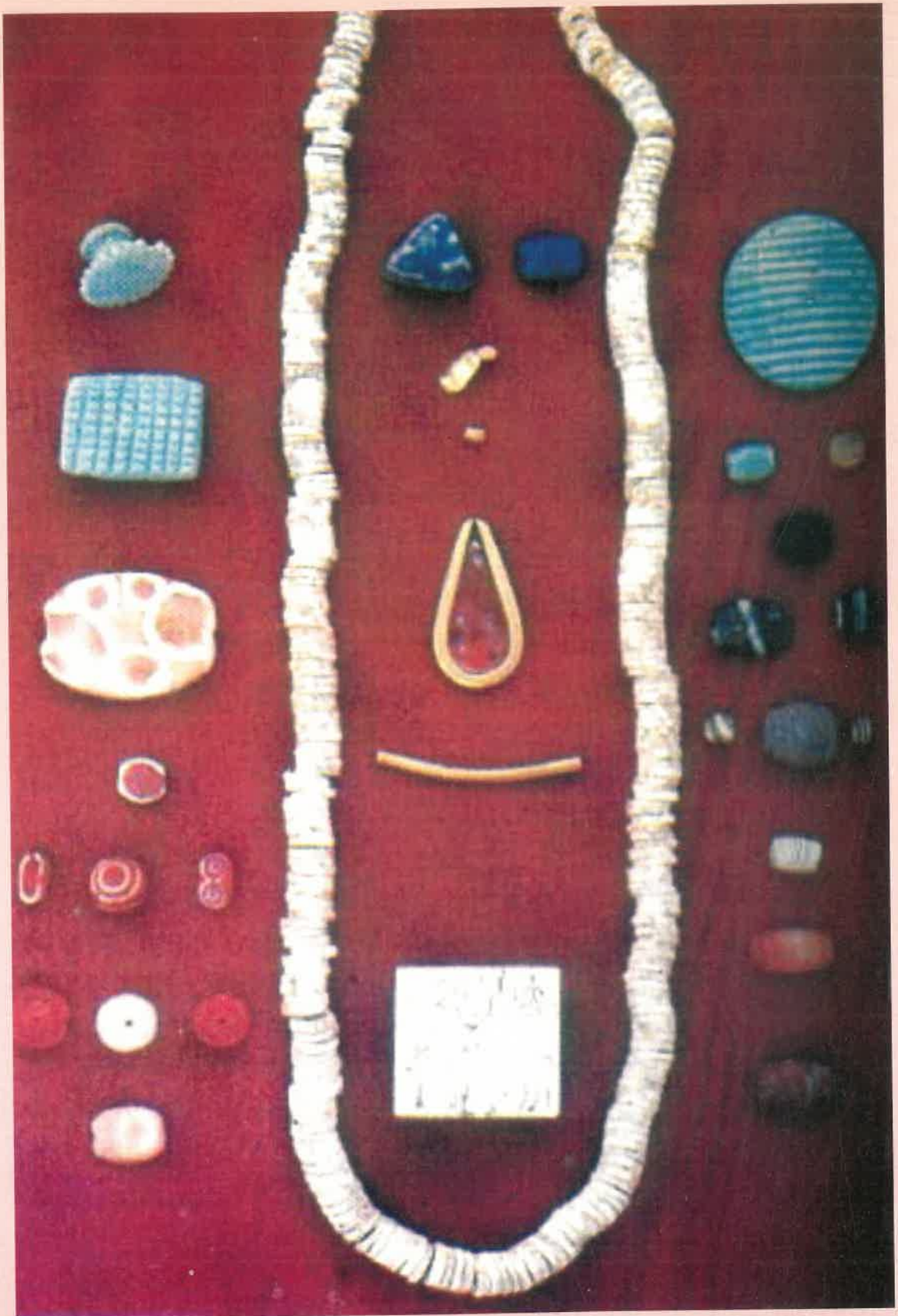
No windows were detected from houses. The remains of houses are of very small height. Interestingly only three instances of stairways have been observed in the excavated buildings. The risers are high and the steps narrow. The drains made of burnt bricks have been found. They are covered either with flat roof, gabled roof or round arch. In some cases, the drains have been kept completely open. In Harappa, during excavations, only six wells were found. These all appear to be public wells and their diameter ranges from 1 feet 10 inches to 7 feet. It is to be noted that the wells found in F-Mound are so small that two people cannot draw water from them at one and the same time. But the diameter of the wells away from the river is bigger. The reason is that the people living close to the river used well water only for cooking and drinking purpose while people occupying the area of the city away from the river, utilized the well water for all purposes and hence the construction of large size wells was a reasonable necessity.

This brief survey reveals almost a complete city life well organised and closely knit in the system in vogue in the far flung towns of Punjab which are representative of ancient city state pattern of life and culture. The housing, the layout of public and private places is an evidence of a culture and civilization which was in no way inferior to the present one. The Harappan Civilization is extended over a much longer area than Mesopotamia and Egypt and may be older in age. It could be a fore runner of theirs, as well.



Interior of a Harappan House.





Ornaments from Harappa, made with different materials and technologies.

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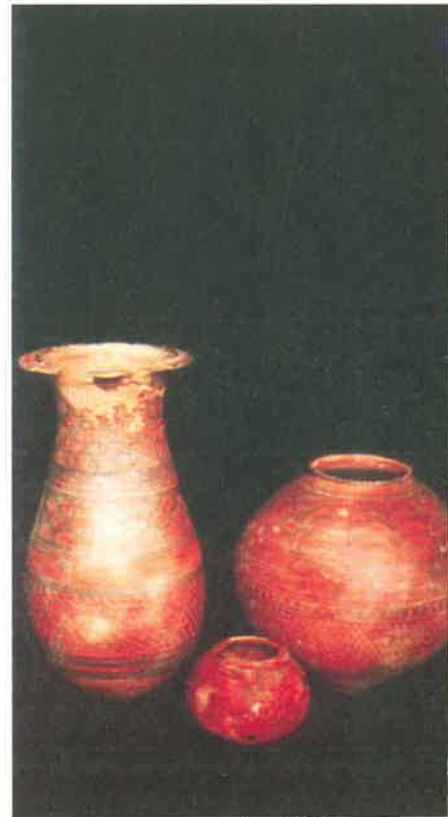


HARAPPAN SOCIAL & POLITICAL LIFE

A well knit functional interaction between social and religious subsystems, as it exists now between society, economy and politics, has always been in all human societies, except of course, for the stone age. The Harappan social life therefore cannot be interpreted apart from religion and politics. It is clear by the degree of specialization estimated on the basis of craft and technological advancement, population size and the focus of economic subsystems, ritual areas, ceramic centres, etc. all of which we learn from archaeological excavations. This is true not only for urban communities, but also for surrounding rural ones. "In fact, while small villages may indicate a single lineage organization, and segmented large villages suggest a multi-lineage social organization; in large towns and cities, the existence of several classes suggests that these were probably organized on a kinship and hereditary basis. Urban social complexity is indicated also by the cemeteries (associated with different grave goods, etc.), and their variations which reflect different family sizes; such social implications are indicated by the variation of house types (in the room sizes, types of hearths and locations, other domestic objects found in actual location), and so on. Socio-political patterning is suggested by the manner in which secular and sacred structures are located."

Ecology

Archaeological evidence may also be examined within the framework of ecology. For instance, at very simple levels of society, religion is often almost entirely ritualization of ecology, because it helps to placate nature and natural processes in order to secure the best results. But, on moving from the nomadic to semi-sedentary and sedentary agricultural societies, there is ritual elaboration; there now exist rituals for such occasions as harvesting, sowing and ploughing. All these rituals, we may reasonably presume, are likely to have been present in the Harappan Culture. Thus, as the exploitation and mobilization of ecological surroundings gathers



momentum increased energy being harnessed in greater proportions, religion (and rituals) transit from a level of the ethnic to that of a universalizing system. This is what happened when urban areas came into existence, for now hereditary priesthood with political authority was formed. Rural areas become associated with urban religious systems, increasing the number of agricultural rites and rituals; such as fasts, and other sacrifices as well as domestic rites for individuals.

The location of archaeo-historical sites, of monuments and other structures in the context of ecology is very informative, in terms of the interaction of landscape with religious expressions. For example, the orientation and density of sacred structures, the manner in which cemeteries are utilized and so on, tells us about religious differentiations. This is because, in simple ethnic religions, ecological relationships are intense with nature, plants and animals and sacred structures are neither widely nor consciously distributed.

At any rate, what we learn from such studies is that in complex ethnic and universalizing systems or religion, as perhaps was the Harappan; one diffused patterns of structures over a wide area are seen to function, both as administrative, political, as well as religious authority. In this case, at the village level, household and other objects may also be seen as functions of the same socio-religious diffused patterns. The presence of sacred areas, at Harappan sites, clearly indicate this different pattern, as we see from the evidence of ritual structures and elsewhere, the 'bath' and the 'pool'; and so on. The absence of singled out gods, deities, unusual religious monumental structures is clearly marked in the Indus Civilization. It indicates the absence of strong unitary religious or politico-religious authority such as that of king of Autocratic regime (both religious or political).



Funerary Remains and Their Interpretation

About funerary and burial practices in terms of ethnographic parallels, it is briefly assumed that funerary data forum, a significant indicator of conservatism. But this is certainly not true, for one culture may incorporate both burial as well as inhumation practices, including cremation. Moreover, different rituals exist on the basis of status, sex and age; and many societies often change their practices when they move from one ecological region to another. This is for purely functional reasons since no society is static over a given period of time; and while in some religious beliefs and funerary customs change, in others this may not be so. Therefore, by seeking historical and ethnographic parallels, such insights may provide us with ideas about funerary practices of the Harappans. Consequently, while these arguments do not provide actual proof, they do provide us with multiple possible explanations. These explanations, become possible alternative to be re-analysed and tested, for validity again in the field.

Finally, archaeologists have often differentiated burials in terms of their 37.

orientation and direction explaining them in terms of spiritual or cosmic beliefs. However, orientations may be merely in relationship to the village, to the sun or to the moon, or even as in the case of Egypt, according to the flow of the river. Thus, these and other broad generalizations may be applied to the evidences of the Harappan Civilization. About 57 graves of true Harappan Culture, were uncovered in a cemetery at Harappa, which is known as Cemetery R37. The bodies placed in the graves, with a very few exceptions, were in north-south direction and the head towards the north. These graves are extensive enough to accommodate also an average of 15 to 20 burial pots, in some cases the number was even 40.

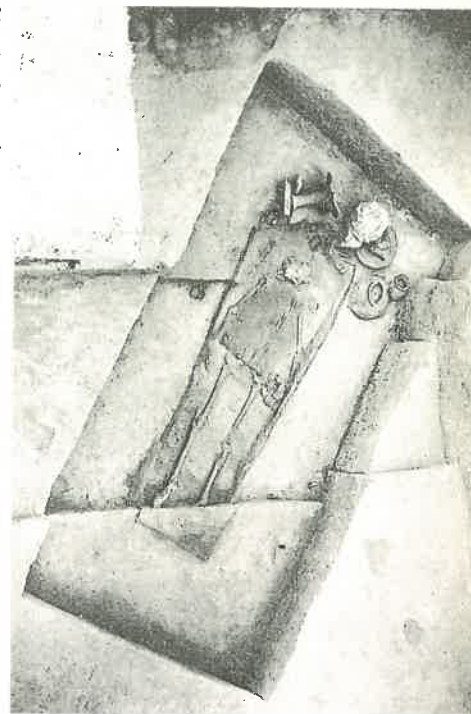
Out of these graves, the most significant is a burial which is the only one of its kind so far known from Harappan Culture. The body has been placed within a wooden coffin, 7 feet long and 2 to 2½ feet (towards the head) wide. From the available feature of the body, it is apparently of a female. It is thus evident that the custom of burying the dead in graves prevailed among the people.

Apart from this, a good number of post cremation burials with the contents of small vases and other articles have also been found in residential qtrs., bodies and bones also found in the streets and under the drains. An amazingly long row of 54 broken urns, evidently buried beneath the surface of a lane, was discovered at the southern edge of Mound AB, laying in a line extending from east to west. It is presumed, cremation was also a produce. The ashes of the dead might have been thrown into the rivers and only an urnful offering was buried in the house of the dead. This shows that the disposal of the dead was not subjected to one particular custom and idea, but a combination of different views was in vogue and followed. More precisely, this may show the transitory stage that one idea was gaining popularity and the other gradually disappearing.

The Peasant Society

While an important characteristic of the Harappan Culture is its urban life, surrounding villages, as well as the ones in the hinterland, are no less important in understanding socio-economic life. This is because, rural areas have not only supported but have often contributed to the socio-cultural development at the urban-rural level. Consequently, generalizations about peasant societies need to be understood at the level of human evolution, at the same time distinguishing urbanization in terms of industrial and pre-industrial towns. But the fact remains that all cities are built upon peasant society albeit the relationship at the pre-industrial level is quite different to the one which exists in the industrial age.

The peasantry is a wide ranging complexity, starting from simple settlements to very large ones that are indirectly or directly linked to complex urban groups by a series of networks. These networks exist even at the hunting and gathering levels, for these societies are also linked both to





Terracotta toy cock

villages and cities. In short, these network exchanges clearly imply their participation in the wider economic, religious and other systems, no society can exist completely isolated specially in the context of a civilization.

However, while all these linkages are based on complex socio-kinship relationships at simpler levels, at urban levels, the socio-cultural and politico-economic linkages are more complex. For example, in the case of Harappa, networks were probably governed by centralization, and some control of the means of production, labour and exchange of goods and services. Governance was by both, economic and political systems of productive organization, which enforce economic controls that provide other incentives. All these facts are present in all forms of pre-industrial market economy, which thrives on surpluses produced by the peasants. In other words, a division now exists between the non-producers who control and are in authority, and those which represent large segment of the population of agricultural areas. It may be noted here that, even though the basis of subsistence economy continues to be the same as before, yet it is the complexity of organization and the existence of subsystems within the larger urban rural system that clearly demarcates this stage of civilization, as the Harappan one. In short, peasants are involved and governed by factors which are outside the direct needs and way of life; and, in return for their surpluses, they receive other goods and services of a non-agricultural nature.



We have thus to imagine these kinds of networks of exchange of goods, ideas and labour; all of which are more than likely to have been essential for the functioning of the Harappan Civilization, forming the core of its existence. This is how large cities have flourished from the beginning, except until the time when industrial economy brought in full fledged commercial enterprise in these areas. Bearing in mind this stage of evolution, concomitant socio-political developments must be in existence in the Indus Civilization.

Agriculture and Food

The modern town of Harappa, near by the Archaeological mound which now has about 50 thousand population, is about one 8th of the area under the remains of the bounded city. From the available features of these old remains, the ancient city seems to be very congested indeed. On the basis of this assumption, the city might have population of over 2½ lacs of people which can be imagined in terms of history in 2000 B.C.

The people, besides hunting fish, birds and beasts, depended mainly on agriculture. This fact is supported by the discovery of municipal or state granaries where grains were stored under a well regulated scheme. The people of Harappa cultivated wheat, barely and date-palm, evidence of which has also been found during excavations at Harappa and Mohenjodaro. Peas and sesamum were also sown. Besides, there may be

identified coconut fruit and dates which are drawn on the pots found at Harappa. Moreover, the city of Harappa which possessed natural and favourable river system, must also have had ample vegetation especially near the banks of rivers.

Evolution and Civilization

In the interpretation of socio-political life, it is essential to discuss the origin of the Indus Civilization in the scheme of general evolutionary process whereby village communities were transformed into cities. The origin is to be discussed not in the sense of inspiration or ideas, but within the broad features of how urban societies came into being as socio-cultural processes. Urbanization being related to significant economic interchanges represents radical socio-political change. This exchange of trade, material goods, etc., was correlated to socio-religious and political ideas that influenced the regions ranging from the Indus Valley, and even beyond. The role of intermediary regions which gave impetus to trade, the control of exchange of raw material, metal technology and various goods is no less important. In short, all this implies evidence of an efficient means of production in metal technology and alloys, etc., which were systematically exploited, leading to the formation of non-agricultural classes, and the development of some form of commercial or socio-political authority. This happened in the village also, for the peasants were now closely associated with urban areas. These inferences are supported by the evidence of complex planning which is revealed in Harappan cities, further implying interdependence of various groups within some common framework of socio-political ideas. At the moment there is insufficient evidence for a single, supreme authority that governed the entire civilization. But clearly each city and its associated villages did require a social ruling class which could maintain discipline in socio-civic life.



It is worth recapitulating briefly, the kind of economic-technological changes which are characteristic of this stage of the evolution of urban life. For instance, apart from ruling classes there were merchants, traders and others who carried out commerce both internally and with foreign areas (implying several go betweens, between the main authorities and the masses.) As stated earlier, since one of any other form of coercion is not seen, it suggests some socio-religious means of sanction, which provided incentives to various classes to maintain their positions, by hereditary primogeniture means. In any case, we know that till the beginning of industrialization, such socio-religious means were the major controlling factors that enabled this continuity of tradition, or craft, technology and other occupations. This heritage was passed from father to son, and also maintained the special social identities which sustained the general structure of society. This was also the case in rural settlements. It is these kinds of systems of ideas of socio-religious and political control which were probably present with variations



not only throughout the Harappan Culture but also in the neighbouring areas towards West Asia.

It is clear that civilization was not invented in one area and then spread to the other, nor was there a simultaneous explosive emergence. Instead, cities, towns and villages ranging at a certain point of time from West Asia to the Indian subcontinent were interaction within various civilizational spheres at the levels of cultural, economics, technology and socio-politics. We may thus say that there was, by Harappan times, a system of common ideas which prevailed over a vast area not only in the main Harappan areas but also in the neighbouring areas of the subcontinent, beyond the Harappan sphere of influence.

The above general propositions may allow us to deduce and infer the intangible socio-political aspects of Harappan Civilization.



The Harappan Civilization reflects a highly developed civic life, that has been described as monotonous because of the rigid regularity of standardized block after block of burnt brick houses with broad main streets (the drains are well planned and kept clean, and so on), along with a pictographic script (as yet undeciphered). City settlements range in an area of five to seven kilometers in circumference and many of these general features were also present in Mesopotamian cities. But in Harappan cities, characteristically absent, are any 'special' monumental structures. Several Harappan features are present in what has been called the Pre-Harappan settlements. Even villages have maintained continuous uniformity, and have common patterns. But archaeological evidence does indicate regional differences both at Pre-Harappan and Harappan sites. Among the variations noticed are ritual objects, gods and deities, fire altars, etc. But, by and large, there is uniformity of material products, general planning, etc., which is reflected in the cities, public buildings, defence walls, large fortifications, granaries and standardization of material equipment through mass production. This is despite the regional diversity for, on the whole, there is some uniformity of pattern. This implies that not only Pre-Harappan but also the classical Harappan tradition of city planning and its concomitants have been found in a very widely separated area.

In interpreting socio-political life, this uniformity of patterns, as briefly mentioned above, has suggested to Wheeler (1968, 1969) and many other scholars, that there was a central empire with a kind of authoritarian government or a totalitarian regime, which the dullness, uniformity and simplicity perhaps indeed implies superficially, of a disciplined society.



6



RELIGION OF HARAPPANS

Coming to the traits of religion, ritualism, etc. our information on this complex problem is based largely on seals, terracotta female figurines with elaborate head dresses, a few stone images and aniconic objects, all commonly known at Mohenjodaro and Harappa. Amongst these objects, seals alone are found throughout the area of spread of this civilization. Some of these according to experts may have served ritualistic purpose: but there is no uniformity in their occurrence on the sites. Excepting two lone examples from Banawali, no female terracotta figurines of the mother goddess with an elaborate head dress have been found at any other excavated site. No fire altars have so far been reported from Harappa or Mohenjodaro. Although definitive evidence about the religion of the Indus Civilization still eludes us, it is reasonable to argue that from available evidence, it would appear that the religious beliefs and practices of the Indus people varied from region to region.

The Archaeologists and historians presume that the people at Harappa must have been very peaceful and following a non-interfering straightforward living. According to reports the Harappan Culture represents a very perfect adjustment of routine human life and ideas to a specific atmosphere that could only have resulted by enlightened efforts through ages. The people had a well defined philosophy of religion. They had a number of gods and goddesses and every one of them was different to be for a different purpose.

From time immemorial, tree worship had constituted an integral part of the religious philosophy of Indo-Aryans. In Hindu mythology, several ceremonies have been connected with the cult of "pipal" tree. For instance, on a certain day Lakshmi, the goddess of wealth, is supposed to take up her abode in it and the Hindus walk and walk round the tree, saying prayers. Women



make offerings to it in the hope to have a male child. The origin of the sanctity of this tree is traced back to the period of Harappan Culture. A large collection of seals and painted pottery from Harappa and Mohenjodaro represents figures of the "pipal", "acacia" and "sangri" more often than some other trees of uncertain identity. They were believed as heavenly plants, and supposed to be inhabited by divine beings. The pipal was considered the abode of supreme deity of the Harappan Culture. Both the pipal tree and unicorn were intimately connected with the pipal god, the prototype of the Vedic Prajapati (later Brahma) and were held in the highest esteem.

Since the Harappan Empire was concurrent and contemporary with Mesopotamia, regarding the importance of acacia, mention may be made to the earliest Sumerian documents which show that they had a tree of life which they worshipped and to which an interesting legend had also been related. That their national hero, Gilgamesh, travelled to the underworld to fetch this divine tree in order to bring back to life his dead friend Eabani or Eakidu. From a number of representations on Harappan seals, it is apparent that the people of Harappan Culture, had their tree of life in acacia and also a Gilgamesh like hero often shown grappling with bulls or tigers. So it is evident that mutual contacts developed between Sumer and the Indus Civilization in the Early Dynastic period. Most of the writers on the subject connect the religious produces to the vedic period, culture and their parches.

The buffalo headed god had also an important place in the religious philosophy of the Harappans. In him may be recognized the Vedic god Rudra and the historic Pasupati form of Siva, as there are some common points which apparently relate the buffalo headed god with them. However, it is more logical to regard Pasupati Siva as a lineal descendant of the Vedic Rudra whose many distinguishing qualities and character he rightly inherits. In this context, it is generally assumed that the Harappans and the Aryans had their first contacts in Vedic times and as a usual matter the first exchange of ideas between the two races, must also have developed about that time. Hence, the buffalo headed god is more likely to be the representation of the Vedic Rudra than of the historic Siva.

Numerous terracotta female figures with peculiar appearance suggest the worship of mother goddess in some form or the other. The small clay figures probably blessed the private household shrines of the Harappans. Such a cult was widespread in time and space and its representations go back to an undetermined past in Western Asia, Elam, Mesopotamia and Asia Minor.

The discovery of large stone cones has also proved beyond doubt that lingam worship was among the many beliefs related to religion some assuming and corrupting as some and origin of life.

Another important phase of religious philosophy is the frequent representations of Swastika on the seals. It is still considered as a venerated symbol among the Hindus and on all important occasions, it is customary



to invoke Ganesha, the god of good luck, by drawing him on the Veda in the form of Swastika. It is thus most likely that this symbol had also secured such a sacred position in the religious philosophy of the Harappan period.

Besides, there are other miscellaneous evidences which have thrown sufficient light on the religious beliefs of the people of Harappan Culture. For example, there are several clay tablets which represent male deity, another shows a river gushing out of a goddess's womb.

Several religious ceremonies were also observed by the people which connected with dance and bathing and duly regarded among the rituals because both the priests and common people, took regular ablutions at stated time.

All these conceptions look very very old and do not exactly correspond to the early Vedic Hinduism. For instance, the thunder holding Indra, is believed as the most powerful god in early Vedic period but not represented in the Harappan Culture. Similarly, the tree spirits and female deities played very ordinary role in the Vedic philosophy and phallism, worship of the procreation organs was totally unknown to the people. Somehow, the seals of Harappan Culture do not depict the horses which had a prominent place in the practical life and in the philosophy of Vedic Hinduism. It had essential association with life and living and practically as a means of transport, agriculture, communication and even food at times.

The experts however hold and observe that the philosophy of religion originated by the people of Harappan Empire or derived from their ancestors some similarity of beliefs practiced and inherited in modern Hinduism. As such, modern Hinduism may possibly be conceived as an incorporated frame-work of old and new ideas. It is generally felt that Hinduism and the cultural tracts before the arrival of Aryans had many similar characteristics which after a necessary transformation with time and invader's influence adjusted and contrived in the subcontinent. The above view which have of course been extruded from various somas tend to indicate that the Harappan religious culture was dominated by Hinduism or like that. The view had been also originally been floated by Sr. M. Wheeler and assumed by various writers especially the archaeologists across the border who have discovered various other sites in Indian Punjab and Rajasthan. They interpret the Harappan Civilization totally hinduised which may not be totally correct although there might be some of its traces or may be such evidences were of later period which succeeded the original Harappans and the culture of this land.





Different terracotta figurines from Harappa reveal the diversity of ethnic groups and life style.

7



FOOD & ECONOMY OF THE HARAPPANS

Knowledge of the Harappan Culture complex has expanded enormously during the late over 50 years through explorations carried out in the Subcontinent. A fairly large number of new sites have been discovered some of which have widened the geographic expanse of the Harappan Empire far beyond its earlier limits. In spite of this, knowledge of the food economy of this domain has not progressed very far. This may be attributed to the lack of carbonized food grains at many of the sites, the rare examination of potsherds and terracotta cakes, techniques problems and to the non availability of ancient plants.

There is almost no information on the food economy of the Pre-Harappans as compared to that of the Harappans (from Harappa, Mohenjodaro, Chand-udaro, Lothal and Rangpur period II).

The presumption that food grains from any level or site of the Harappan Culture suggest that the food economy of a particular civilization may well be true; but ought to be supported by evidence. After all, there could have been shifts in the food economy over the course of time at a particular site because of cultural contacts or the domestication of wild progenitors. There could also have been different food economies in the various parts of this vast empire, unless it had a uniform climate suited to the cultivation of a particular group of crops. The socio-economic disparities inferred for the Harappans may have, as today, led the elites to exist on superior crops, leaving the poorer classes of the society with inferior foods. There are thus many implications with far reaching significance involved in the study of



ancient crops with regard to the life and culture of the Harappans.

Some information on the food economy of the Harappans is given in excavation reports and papers in specialized journals which do not have a wide circulation. In view of the importance of the food economy, and its implications, it is imperative to assemble all the data that is available to gather general information for the reader. Howsoever inadequate the information is, it still provides a wide spectrum view of the plant economy of the Harappans which suggests variability in crops grown in various parts of the empire. The analysis of the modern environment, and of the corresponding modern crops, has also yielded very valuable information. In all this information gives some idea of Harappan cultivation methods, their cropping pattern and the possibility that they used manors for the reclamation of the saline/alkaline soils and the like.

"Modern wheats from cultivated fields in Baluchistan were examined by Howard in 1916. They showed a baffling array of types with a large number of intermediate forms. He found that the distinction between, based upon glume and grain shape, broke down. It is not known if variability was observed in this Pre-Harappan material. The species possess dwarfing genes at the Sand Cloci which govern their characteristics.

"For diversity of opinion on the botanical identity of Harappa wheat it has been held by experts that the identified wheat came from two jumps: (1) No.5346A, NDF, Great Granary Area in Square I 9/15, depth five feet, in association with Stratum III, (2) No.12387 V from a trench on southern edge of Mound AB in association with Stratum II. The barley, No.3429 came from Extension Pits I and II in Mound AB, depth Six feet, in association with Stratum III. The peas, No.8366 came from the hollow of circular Platform P8 in Trench V. Finally a lump of charred sesame, No.8827, was found in Trench V, Mound F, depth six feet, in association with Stratum III. But Factual information on the remains of food plants is so scanty and widely scattered that it allows neither the reconstruction of the sequential development of the food economy from the Pre-Harappan to the Late Harappan nor does it provide information on the changing food economy at a particular site through the passage of time and through phases of evolution and devolution of the Harappan Culture.

It has become apparent, howsoever insufficient the evidence is, that in themselves the food grains from Harappan sites could have provided the Harappans with a balanced vegetarian diet: carbohydrates derived from cereals like wheat, barley, millets, etc. proteins from peas, chickpea, Vigna and horsegram, and fats from seeds of sesame and mustard. They were also consuming the fruits of jujube. One believes that there were probably other food plants as well, but certain evidence is lacking. Were they not hunting. Were they not conserving fish as a food item especially when the city was located on riverbank. How do we assert they could be vegetarians only.

Crop Variation

"The presence of wheat at Mundigak, predominantly wheat, with some barley, at Mohenjodaro, and Harappa, wheat at Banawali, exclusively barley at Kalibangan, the millets Setaria and Eleusine at Surkotada, and possibly rice at Rangpur and Lothal would suggest that the food economy in the vast Harappan Empire was not a uniform feature; rather, it varied geographically. We cannot overlook, however, the fact that complete information on their food economy still escapes us. But, broadly speaking, the Harappan situation compares well with the modern food economy in Western South Asia. This vast region is presently characterized by a variety of climates from arid to subhumid, with gradation both in temperature and precipitation. There is a variety of soils as well. The Harappan crops suggest that a similar situation existed during those times. It is unlikely that the vast region was uniformly wet or dry as is usually believed. The crops presently grown in Harappan domain lying in Pakistan can be briefly listed as under wheat, rice, cotton, Bajra, barley, Jawar, Cheena, Swank, Millet varieties. The inferred geographical variability of Harappan crops, if factual, should indicate environmental variability during the Harappan times. The environmental analysis of the comparable modern crops discovered from the Harappan Empire should make this point.



Wheat

Although largely restricted to an area with annual precipitation between 37 and 110 centimeters, a little wheat is grown in regions with less than 22.5 centimeters of rainfall. The rain should be well distributed during the year. Irrigation is essential in desert soils. River alluvium is poor in nitrogen, humus and phosphorus as compared to Indus alluvium which is loamy or sandy loam, alkaline and rich in phosphorus and potash but poor in organic matter and nitrogen. Alluvium yields a good wheat crop, with or without irrigation. Water is a great limiting factor for agriculture.



Many local wheat varieties are tolerant of adverse soil conditions. Also being drought tolerant they are grown in areas of low soil fertility with little precipitation. Triticum sphaerococcum particularly, is highly resistant to drought, which explains its former widespread cultivation in north-west. It requires a cool climate at the time of sowing but sufficient warmth devoid of high humidity at the time of grain formation. Desiccating hot winds affect its growth adversely.

Barley

Being both heat and drought resistant, barley is grown in areas too dry or too saline to carry a satisfactory wheat crop. It is the most profitable crop where saline or alkaline conditions prevail. It requires moderate precipitation and sunny weather. It is tolerant of alkalinity, frost and drought and is less exacting in its nutritive requirements than wheat. It is also grown

without manuring. Barley is grown with wheat in the Punjab. It is also grown mixed with gram.

Owing to barley's higher digestibility coefficient, it is regarded as inferior for human consumption. Because of little or no gluten, its flour is mixed with that of wheat to make bread (chapattis).

Sesame

An essential article in Hindu religious ceremonies, this seed requires a warm climate and cannot withstand frost, continued heavy rains or prolonged drought. Waterlogging is highly detrimental to sesame which thrives best on sandy loams like the sandy semidesert soils, or clayey soils or on black cotton soils. It is a rotation crop with wheat, gram, cotton, ragi, jowar, etc. It is also grown mixed with bajra, jowar, cotton, etc., as a measure against total loss. Manuring is done in the mixed cropping pattern.

Rice

Usually suited to regions where rainfall is adequate, it can be grown in tracts with rainfall below 200 millimeters, provided it is compensated with adequate supply of water. Waterlogged conditions are most suitable.

This concise environmental analysis, along with the discussion of crops still grown in Baluchistan, Sind, Punjab, etc. where extremely low rainfall, drought and adverse soil conditions still prevail, makes interesting reading. Water is a great limiting factor in these regions and some sort of irrigation must be practiced. The proximity of river alluvium, if exploited for cultivation, should offset this limiting factor. For the Harappans, exploiting flood plains along the rivers for cultivation, water was indeed not a great limiting factor. There is, thus, reason to believe that the precipitation pattern during Harappan times was much like the present, and irrigation, mostly natural, was used along lines of the present day farming practice.

The presence of the most drought resistant wheat (*Triticum sphaerococcum*) in the rest of the Harappan Empire also suggests the prevalence of drought conditions during Harappan times.

This analysis leads to conclude that environmental variability, much as is seen today, also existed in Harappan times.

Ways of Cultivation

The contemporary observation by some experts that wheat and barley, the principal food grains on the flood plains of Punjab, were cultivated without ploughing, manuring or providing additional water, may be the manner by which the Harappans grew these crops. Fields may also have been surrounded by earth embankments, possibly along the banks of natural flood channels. The natural fertility of the alluvium was exploited together with the



annual inundation, just as is done today. This is supported by the absence of tools used for agriculture in the Harappan sites. There is no factual evidence for either a rake or a harrow; although some believe the latter to have been used.

In this connection it is interesting to note that latest research experiments, have recently shown that tilling the land is not essential for the germination and growth of crops like wheat and maize. Tilling is required only for weed control. To achieve this minimum tilling a bullock drawn till planter sufficient to shear off the soil crust and stubbles, open a furrow, sow the seeds and apply fertilizer in a single run. The bullock cart was known to the Harappans. Perhaps they used it for minimum tilling.

We continue to be unaware of the cropping pattern and the rotation practices of the Harappans. However, the Kalibangan (Indo) furrowed field suggest mixed cropping. The same may perhaps be suggested by the mixture of wheat and barley, gram and other grains in the samples from Mohenjodaro and Chandudaro. But the proportion is about 20 percent in the Chandudaro sample. The mixed cropping of cereals, like wheat and barley, is practiced even today in the Punjab, an insurance against weather hazards so that if wheat fails to ripen, the hardier barley is sure to yield.

Further, the occurrence of grains of both wheat and barley in the granaries suggests that bread was made from a mixture of both since barley flour alone has little or no gluten and is highly unsuitable for the purpose. Alcoholic drinks may also have been prepared. The dish-on-stand was perhaps used for this purpose.

The most ancient records of wheat, barley, gram and Pisum are known from Western Asia and Southern Europe (Greece). Their earliest occurrence in the Indian Subcontinent and Afghanistan predates the OCP Ware Culture. The introduction and spread of these crops beyond the borders of the Harappan Empire should indeed be attributed to the Harappans.

"Whether the Harappans acquired these crops from Western Asia, or they were domesticated in northwestern India by the cultures preceding the Harappans, is a matter that remains to be settled. The recent archaeobotanical discoveries in Greece have shown that the region for domestication of wheat and barley extended far beyond the Fertile Crescent. It is interesting to note that northwest India is included by cytogeneticists (Darlington and Janaki Ammal 1945) in the vast center in which wheat and barley are believed to have been domesticated. Deeper digging and boring in this region are sure to provide important information in this matter.

"Rice is a crop for which the oldest records are now available from the Neolithic of Koldihwa dated by radiocarbon to 7000 years B.C. It was obviously then diffused to the east and west. The Harappans who came in contact with the OCP Ware peoples, or the Neolithic peoples of North India,

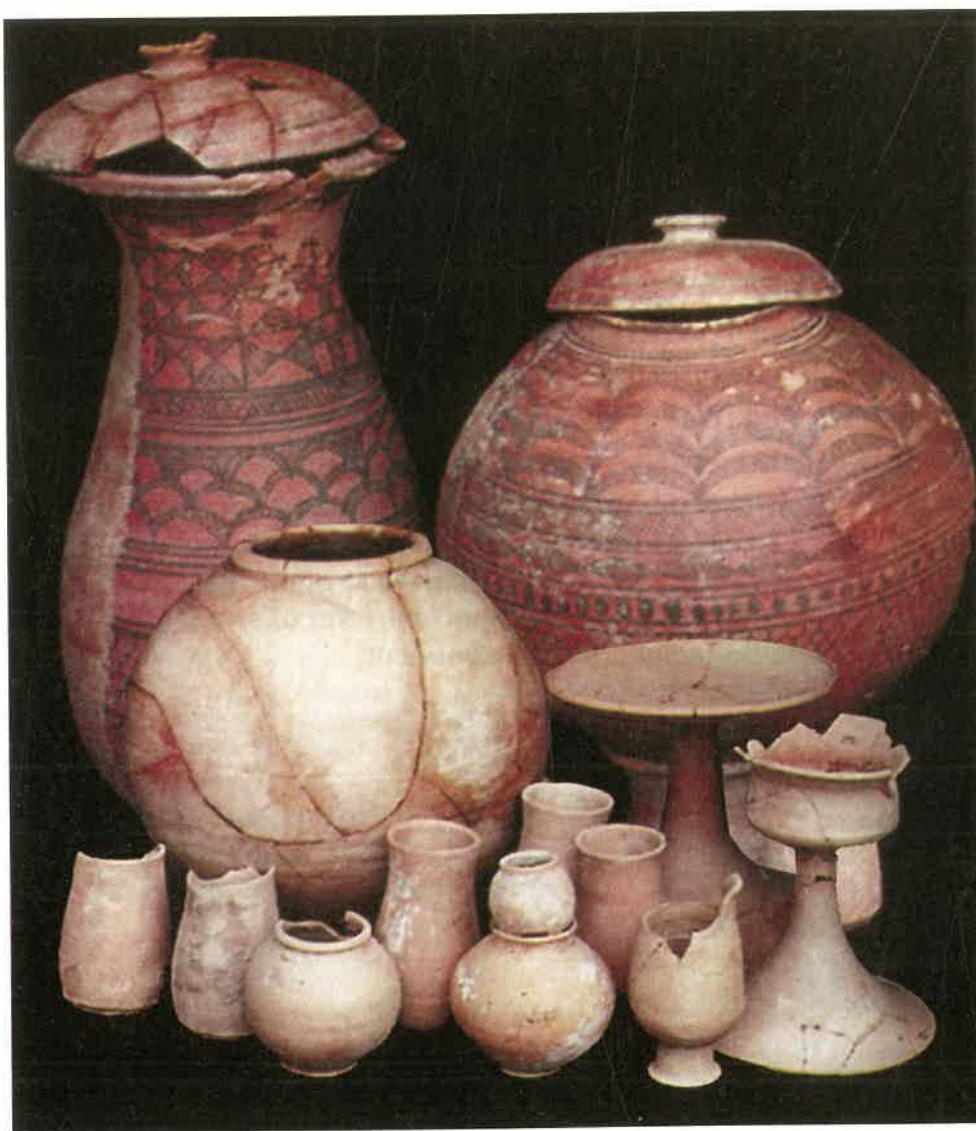


Goblet bearing stamp.



influenced the latter food economies with wheat and barley, but did not take advantage of rice. The evidence at the present stage suggests that the Harappans did not introduce this crop into their own empire. It can be hoped that the examination of pottery from all the known Harappan sites, and from fresh excavations, will soon throw more light on these observations.

Today, wheat and barley are predominantly cultivated along with bajra, sorghum and gram in the region formerly occupied by the Harappan cultural zone. Rice is grown comparatively less. A comprehensive examination of pottery and carbonized materials is certain to bring out more information on the Harappan food economy. This information will take us a long way toward a clear understanding of the various aspects of the food economy discussed here. But all there are assumptions based on some finds and existing entries.



Different regional shapes and painted motifs of Harappa pottery.



HARAPPAN TRADE IN METALS & MINERALS

The Harappans, like the Sumerians, made many articles fashioned from a variety of metals and minerals including semi-precious stones. Sumer is the area most closely identified with the Harappan Culture. They like the Sumerians, were involved in a complex trading system which allowed them access to these metals and minerals and the means for their internal distribution. The primary sources for the products appear to have been Baluchistan, Afghanistan, Iran, Central Asia and the lands bordering the Persian Gulf as well as interior, peninsular India. Two major units of production and distribution were used by the Harappans to strengthen their trade and commerce. The raw materials were procured from neighboring and areas of distant places, and the other worked for the distribution unit which served outside markets.

There is a frustrating paucity of mineralogical data on Iran, Afghanistan, Pakistan, and neighboring countries. Nevertheless, the known source areas for the metals and semiprecious stones which have been found at Harappan sites, e.g. lapis lazuli, turquoise, steatite/chlorite, carnelian, gold, silver, lead, copper and tin had been plotted. In the process it has been shown that the exploitation pattern was essentially regional. The distribution pattern of rare minerals and metals was centralized.

SEMI-PRECIOUS STONE

Lapis Lazuli

Lapis lazuli was in great demand in Mesopotamia where it was used for personal adornment and for the decoration. It was also prized by the Harappans. This stone is first documented during the Pre and Early Harappan times and it continued to be used through the Late Harappan Period. Beads of lapis lazuli have been found in Baluchistan at Nal, Mehi and Shahi Tump. In the greater Indus Valley, Rahman Dheri, Sarai Khola, Jalilpur, Gumla, Amri, Mohenjodaro, Chanhudar, Harappa and Balakot have yielded the lapis lazuli beads. The trading importance of lapis lazuli cannot be denied since it has been found on all the important excavated Harappan sites, beginning from the Pre-Harappan times. The source areas for this semiprecious stone are eastern Siberia, the Pamirs and an area near Lake Baikal; Afghanistan i.e. Badakshan and a few Iranian sources. The eastern Siberian sources do not produce as fine a quality of stone as the one used by the Harappans. Further, these sources were probably beyond the practical





reach of the Harappans due to the great distance. These are located in the Kerano Munjan District of Badakshan Province in the Hindu Kush.

It is a reasonably established fact that Badakshan was supplying lapis lazuli to the whole of West and South Asia. Discovery of the Harappan trading posts at Shortugai, near Ai-Khanum in Afghanistan indicates that the Harappans were present in this region and were familiar with this source. It appears that during the Pre-Harappan times the lapis trade was in other hands, possibly the people of Shahr-i-Sokhta, and when the Harappans came, they took over (Gupta 1979). Archaeological evidence at Sokhta also shows that by 2300 B. C. the trade in lapis had declined considerably there. This is possibly a reflection of Harappan activity. Cuneiform texts from Mesopotamia (Leemans 1960), which list lapis as one of the commodities coming from Meluhha, further affirm the contention that the Harappans were fully involved in the lapis trade. They probably brought this material up the Makran Coast to Sutkagendor and shipped in from there to Mesopotamia, and places like Shahdad in Kirman. To reach Shahdad they may have used the Bampur Valley and the Kirman gap. Thus, the Harappans appear to have been the primary exporters, and not the consumers, of lapis and lapis objects, and this is the reason that Harappan towns have yielded the stone, but not in an appreciable quantity.

Turquoise

Only a few Harappan sites have yielded turquoise, and it does not appear to have been a very popular item with them. It is not found in India though there are literary sources of the historical period which state that it could be found in the Ajmer Hills of Rajputana. Mohenjodaro, Rahman Dheri and Mehrgarh which are so far to be the only sites to have yielded turquoise and these were just few in the form of bead. This may indicate that the Harappans obtained the finished beads and not the raw material. In other words, turquoise may not have figured as an item in organized trade.

"Turquoise comes from the mountainous territory of the inner Kyzyl Kum and the mountains of Ilak (Karamzar) in ancient Khodjent located along the upper reaches of the Syr Darya in Central Asia. According to Hole, Flannery and Wright during prehistoric times turquoise came from the well known sources near Nishapur in Iran. Several deposits have also been reported between Kirman and Yazd and there is evidence of early working at these sites. Carmaina was a source of turquoise. Marco Polo also mentions the presence of turquoise in Kirman. But the turquoise so amply available in Iran, the Harappan towns did not make more extensive use of it."

Steatite

Alabaster, carnelian and steatite/Chlorite are not very useful commodities for the study of trade because they are relatively widely found in Iran, Pakistan, India and Saudi Arabia. The extensive use of steatite for making vases, seals, beads, figurines and decorative objects found on almost all

Indus sites suggests that there was a regular trade of this material with Harappan cities. It also indicates that the stone was readily available in the neighbouring regions.

"Another promising steatite source is in northern Baluchistan and the adjoining areas. The Zhob District has two localities, the largest of which occurs about 50 Kilometers north of Fort Sandeman. There is evidence that these were mined in the ancient past. Chlorite is available in the Kirman region of Iran, near the Soghum Valley."

"The Harappans appear to have been very much aware of the Kirman sources and the workshops at Yahya and Shahdad. This is evident from the vessels at Mohenjodaro and etched carnelian beads at Shahdad and Yahya as well as the Harappan characters on a potsherd from Yahya.

Carnelian

The use of carnelian for beads and pendants was fairly common amongst the Harappans. Almost all Indus sites have yielded carnelian beads in a variety of forms. "Of them, those of etched carnelian are worth particular note since they crossed the borders of India to reach Mesopotamia and Iran. This stone is widely available in India. The only well known Iranian carnelian source is in the dry branches of the Helmand River in Seistan near Shahr-i-Sokhta. The absence of any Harappan remains in the Seistan area makes it difficult to assess the possible Harappan knowledge of this source."

"A cylinder seal of Gudea of Lagash refers to bright carnelian, copper, tin and lapis lazuli which could be from Meluhha (Leemans 1960). If Meluhha can be taken as the area of the Harappan Civilization, then it was exporting carnelian, probably by exploiting Indian sources. But other mines may have been involved as well. The discovery of etched carnelian beads at Mesopotamian and Iranian sites (Susua, Shahdad and Tepe Yahya) demonstrates, however, that carnelian beads were in demand in the West Asian Markets."

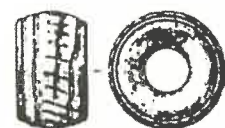
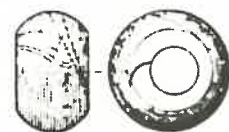
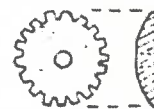
METALS

By Harappan times metallurgy was a refined technique. Gold, silver, copper, tin and lead were all available to Harappan smiths which is proved in the various excavation zone.

Gold

Gold objects and ornaments have been found at Mohenjodaro, Harappa, and Rahman Dheri, etc. Gold was widely available in sub-continent. A majority of Indian rivers have gold in their sands, although only in very small quantity when washed. According to Marshall, the Kolar mines may have supplied gold to the Harappans.

Iran, Afghanistan and Central Asia also have several important gold sources which may have met Harappan demand. Literary sources give some clues to these ancient deposits. It is found in small quantities near Kandahar. So also





Carnelian and gold pendant.



Double spiral brooch with steatite and gold inlay.

does it come from the north side of the Hindu Kush. The other sources are the streams draining the Kuh-i-Baba, the streams in Kohistan and above Laghman and Kunar. However, the richer sources lie in Central Asia. South of the Caucasus, in Armenia, the famous metal workers, the Chalybes, are credited with rich mines. This probably means the deposits near the Taldjen River, ente to Artwin. Other traditional gold bearing areas are the Urals, Siberia and the Far East. Gold is washed in many places in the Karakoram and in the beds of a number of rivers of Central Asia. The Muruntau mountains in the Kyzyl Kum desert had the largest deposit of gold. This proves that the region (the Oxus basin northern Hindu Kush) was as important and the Middle East for gold as it was for lapis lazuli. Incidentally, the Harappan trading posts at Shortugai are also in the same region. Harappan contacts with Central Asia are now beyond doubt especially after the discovery of Harappan pottery in Namazag, a Harappan inscribed seal at Altin Depe, comparable ivory objects at Altin Depe, and a close similarity in a few copper artifacts. Thus, the role of Shortugai as transit camp is made self evident. The Harappans were evidently supplying ivory to Central Asians, either as raw material or in the form of finished goods. What is important to infer is what the Harappans got in return. It might have been gold.

Silver and Lead

Silver was another important metal known to the Harappans. It was apparently quite popular with the Harappans living at Mohenjodaro and Harappa. Silver was used for making vases and ornaments, such as bracelets, bangles and beads. The sources of this metal are difficult to ascertain. As far as the Harappans were concerned; however small quantities of silver were frequently found in conjunction with lead at a few places in India. Another silver source, possibly the most promising for Mohenjodaro and Harappa, was in Afghanistan and Iran. Lead mines, which could have been a source for silver as well, are situated in Faranjai in the Ghorband valley of Afghanistan and are common in southern Afghanistan, especially at Hazara-Jat. Well known silver mines are also known to have existed near the head of the Panjsher Valley in the south-eastern Hindu Kush and in the vicinity of Herat.

The lead ores were mined during the Harappan period. This metal was added to copper to increase the intensity of molding and has been extensively reported in Harappan artifacts. It was rarely used for making utensils and ornaments. The finds of lead at Harappa and Mohenjodaro include only a lead vase and a lead dish.

Lead might have been used mainly as a smelting flux. This is evident because of the discovery of copper ore together with a small piece of lead in a bricklined pit in a house at Mohenjodaro. That lead was available in India, has been noted above. Afghanistani and Irani sources were, however, also quite important for the Indus.



Harappan metal ware

Copper

Copper is not too useful for the study of trade as it is widely distributed in both Iran and India. It was very popular with the Harappans and they used it for many purposes. In fact, there is not a single site which has not yielded copper objects. This indicates that it was readily available and in abundance and, therefore, was not a precious or rare item.

"The wide distribution of copper ores in India, Baluchistan, Afghanistan, Central Asia, Iran were actually the crease when these were used by the Harappans. It is obvious that the whole Harappan area is not likely to have obtained copper from a single source, and the pattern of impurities in copper attests this. For example, the copper at Mohenjodaro and Harappa contained nickel and arsenic while Lothal copper is arsenic free. Several copper sources are known in India. The Rajasthan mines are at Khetri. Singhana, Kho-Dariba (Alwar), Delwara Kirovli (Udaipur) and Debari (Udaipur). Of these, Khetri is the most important for two reasons. First, a close comparison of the impurity patterns derived from the spectroscopic analysis of the Harappan artifacts and various ores shows that there is a close correspondence with the Khetri mines. Indus arrowheads and pottery of the third millennium B.C. from Ganeshwar. This suggests that Khetri-Ganeshwar copper mines were exploited as the source for this metal since Khetri is only 60 kilometers from Ganeshwar. The copper at Mohenjodro and Harappa may also have come from the Khetri area or from Afghanistan as discussed later while Lothal copper probably came from another sources, possibly Oman."

"It is almost impossible to believe that the Khetri mines were supplying copper to all Harappan sites. Alternate sources, probably exploited by the Harappans, are on the western frontiers in Baluchistan, Afghanistan and Iran. There are copper deposits in Zhob District, Robat and Shah Bellaul area of Baluchistan. This metal has also been located between Ziarat (Quetta District) and Sohan (Sarawan Subdistrict) but it is not known that they were mined during Harappan times. Huan Tasng mentions copper mines in Afghanistan and ancient working have been located near the





Safed-Kuh between Kabul and Kurram. Shah Maqsud also contains rich mines of copper ore and it is said that Nadir Shah exploited them. Rich ores are also said to occur at Nesh, 100 Kilometers from Kandahar. Other localities are Tezin, east of Kabul, Musal in the Shadkani Pass and the Silwatu Pass.

Iran is also rich in copper, and metallurgy and has a long tradition of going back to the fifth millennium at Tal-i-Iblis in Kirman. The best mines are in Kirman, Sabzwar and Cahr Daud near Meshad, Kaleh near Astrabad and in the Elburz mountain districts of Kashan, Kohund and Isfahan etc."

It is difficult to say which of these deposits were definitely exploited by the Harappans. It should not be difficult to comprehend, however, that people as adventurous as the Harappans, who crossed over to Mesopotamia and ventured to Central Asia for trade, could have exploited several of them, some possibly indirectly through intermediaries. In short, it can be said that both Indian sources and those on the western borderlands are most likely to have been directly exploited by the Harappans. Those in the more remote areas of Iran or Central Asia may have served as "markets" from which Harappans obtained this metal in return for finished goods or raw materials.

Tin

Copper was in extensive use during Harappan times. But tin was also known and they used it to make tin based bronze. Nothing definite is known about tin in the Pre-Harappan tool assemblage; however Stein's findings in Baluchistan suggest an awareness during the Pre-Harappan times regarding the hardening property of tin. During the Harappan Period tin was frequently used; but even at this time it was a precious commodity as is evident from the finding of bronze scraps, stored along with other valuables in copper vessels both at Harappa and Mohenjodaro.

Since the data on bronze are very limited, few conclusions can be drawn. However it has been observed Harappans used tin-based bronzes in preference to those of arsenic or other compounds. In this respect their preference differed from that of their successors, the Copper Hoard people. These folk used arsenic when they produced the few bronze tools, known of from their sites. In fact, in Post-Harappan contexts tin is very scarce for more than a millennium.

Trade Mechanisms

The procurement of raw materials is the first stage in trade. This may involve long distance travel as seems to have been the case during the Harappan period when traders used to undertake substantial journeys to obtain the raw materials as well as to carry the finished goods to local and foreign markets. However, the controlling authority of the Harappan trade is still not fully established. Whether the trade was state organized or private enterprise has yet to be ascertained. But one thing is clear: a number



of groups must have been actively engaged in the business operations. This may have been a very complex affair involving not only the procurement of raw materials from distant areas but also large scale production and distribution of manufactured goods. These are operations which must have involved a number of different commercial towns or units doing different things.

A few Harappan groups specialized in the procurement of raw materials while others produced various goods at specialized centers. Harappa may have specialized in making metal tools while Mohenjodaro took on other metal objects, textiles, and the like. Chandudaro specialized in bead making and seal engraving, while Lothal was also involved in bead making.

Places like Sutkagendor, Sotka Koh, Balakot and Lothal came under this category. They were mainly established to send consignments in various directions, particularly to West Asia.

'Raw materials would have been the main concern of production centers if trade was to be carried out only in finished items. However, this was not the case with the Harappans since they are likely to have been involved in exporting both raw materials, including timber for boat making, as well as finished goods, such as etched carnelian beads. After obtaining materials from their source areas they may have taken them directly to the port for shipment to foreign markets. For example, lapis lazuli from Badakshan may have been taken to Sutkagendor in its raw form. This appears to have been the case because on the one hand finished items of lapis are very rare at Harappan sites, and on the other, there is circumstantial evidence from the location of Shortugai sites (near Badakshan) and the absence of lapis lazuli working at Shahr-i-Sokhta from about 2000 B.C.

'Looking at these resource areas in terms of locational proximity to the Harappan Culture area it can be suggested that the Harappans living in Sind were exploiting sources on the south-western frontiers (Baluchistan and southern Afghanistan). Northern Iran and Central Asia were then exploited mainly by the Harappans of the Punjab.

'For certain materials, like lapis lazuli or turquoise, there was no other choice except to go to Afghanistan (Badakshan), Iran (Nishapur) or Central Asia (Kyzhl Kum area). These resources must have been the monopoly of a few selected groups, either privately sponsored or sponsored by the state.

'Since only a few sites have yielded turquoise it appears that it was not a very popular item with the Harappans. Whatever may have been the reasons for this, one thing is certain, the Harappans did get the turquoise from their western frontier regions. They had no source of their own. The mountain territory of the inner Khzhl Kum and the mountains of Ilak (Karamazar) in ancient Khodjent, and along the upper reaches of the Syr Darya in Central Asia all had good turquoise deposits. Deposits with the evidence of early work are also located near Nishapur and between Kirman and Yazd. The Harappans may have obtained this stone from Central Asia but the Iranian





Shell bangles.

sources cannot be ruled out completely. But there is another likely possibility. There are very few turquoise items in the Indus: a few beads from Mohenjodaro, Rahman Dheri and Mehrgarh. Since Mundigak and Shahr-i-Sokhta had turquoise production centers, these places may have been the sources for the sites, particularly when there is definite archaeological evidence of Harappan contact, at least with Mundigak.

'The sources of minerals and metals in Afghanistan, Iran and Central Asia may have been more or less monopolized by one or another of the Harappan groups: those in the Punjab. The other groups may have been getting their items through them.

'The seven Harappan settlements at Shortugai on the confluence of the Oxus and Kokcha in the Hindu Kush area is evidence which seems to indicate that the Harappans of the northern region established trading posts to monopolize trade in raw materials from northeast Iran and Central Asia. In the absence of detailed reports on the Shortugai excavation one is not sure about the raw materials traded by the people of these sites. But the location to the north of the lapis mines, and at a crucial point on the trade route connecting northern Iran and Central Asia with India, suggests that they were controlling items other than lapis. Gold and tin, which also came from Central Asia and Northern Iran, may have been involved as well.

The analysis shows that Harappan copper objects have arsenic, nickel and lead. As one knows, the Afghanistan sources also contain arsenic, nickel and lead and, therefore, it may be possible that these sources were used. After all Indus-Afghan contacts were regular. The Harappans of Sind and Punjab, therefore, are likely to have exploited the mines of Afghanistan. The frequent use of steatite for making various objects leads one to believe that there was a regular flow of this mineral to the Harappan cities.

The most promising sources for steatite is northern Baluchistan and the area around Fort Sandeman. This zone might have supplied steatite to the Sind, Punjab area. Another piece of evidence which adds to the credibility of the Baluchi sources is the scientific analysis of the stone vases from sites in Syria, Mesopotamia and Iran. It shows that the stone for these objects came from several different sources. It has also been proved beyond doubt that the Sumerian chlorite is different from the Yahya chlorite and that the former is much more like that coming from the east of Yahya. Baluchi sources might thus have been exploited by the traders to fulfill Mesopotamian demand.

It may be re-iterated that the natural resources used by the Harappans were widespread and abundant and, with enormous choice in source areas. These facts determined the exploitation pattern which was, by and large, regional and Harappa as the centre of all this economic and commercial activity.

9



HARAPPAN POTTERY & TOOLS

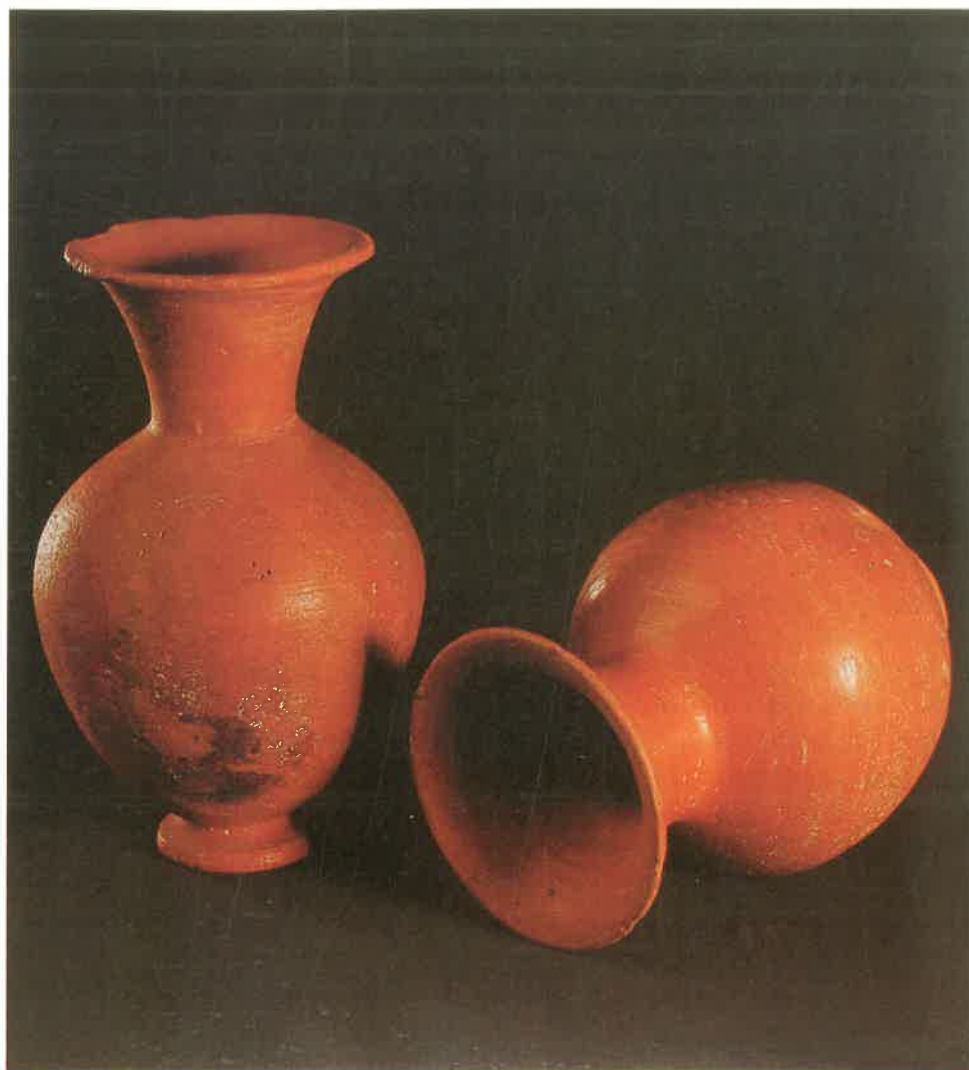
Of all the sources in re-constructing the history of the glorious heritage of Harappan Culture, pottery has been an important artifact and source material. The baked pottery has all along been the main and original source of information and a strong evidence of various stratas of the cultural formations. It has been mainly instrumental in determining the period of a similar prevalent culture in various parts of the Harappan Empire and adjoining countries around. It also reveals the cultural and artistic progress and achievements of a definite era of a cultural synonymy. The various types, the uses, the decoration patterns and designs are an evidence of the level of a social and economic level of a society at a given time.



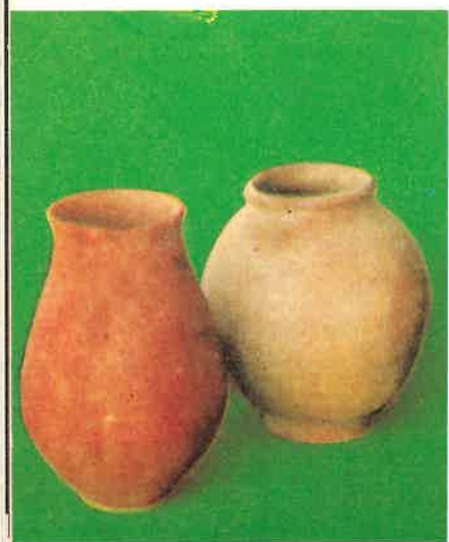
Earthen globular vessels from Harappa.



A klin of Harappan period.



Vase shaped vessels.



The production of pottery was the most flourishing industry as a necessity during the Harappan period. It is wheel made having fine composition with black paint on bright red ground. The pottery exhibits a large variety of jars and vases intended for storage of food. Popular designs painted on the ceramic show pipal leaf shape, motifs, chess board and other patterns. The most remarkable among the pottery vessels from Harappa, represent scenes with human figures and animals or birds overall.

There is an interesting category of pottery where the designs are painted in several colours. Painting in two colours, usually black on red, is often noted on the wares from Harappan finds as well as other sites like Mohenjodaro, Zhob Valley in Baluchistan or Amri in Sind, Rahman Dheri, Sarai Khola etc. But the polychrome wares from the sites of Harappan Empire which are painted in red and green on a buff slip or that from Sind showing naturalistic scenes with birds and animals in black, white and red on yellow ground, are indeed rare in this ancient region except for similarity in respect of yellow



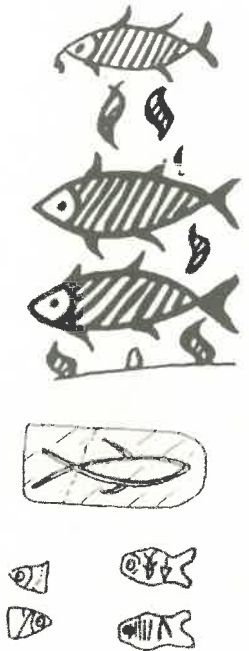
Dish with animal motifs.

colour with the Nal Collection of painted wares.

Further to this, Archaeologists have found in excavation the simple and plain wares also which include offering stands, cups, saucers, beakers, goblets, dishes, water jars, jar covers, heaters, flesh rubbers and ring stands and similar items.

A class of pottery from Cemetery-H at Harappa which is known as Post-Harappan Cemetery, includes burial pots, dishes, offering stands, plates and saucers. The common designs shown on this pottery, are star, fish, peacock and goat. Besides, a number of scenes depicted on the burial pots, represents some mythological beliefs. The latest excavation by Archaeologists in Hakra Ghagra region and even across the border have mainly formed their findings on the basis of pottery and at times some other artifacts.

A general survey of Archaeological material published so far on Down fall of Indus Civilization both in Pakistan and India use pottery as the basis in propounding theory of the development and growth of various cultural patterns especially as connoted by design which were indicative of social concretions obtaining in the county.



Pot with peacock motif.

No metal or ore reserves existed around Harappa proper but the traders brought the raw material from adjoining countries where mineral reserves were found. Experts say there were some areas in Afghanistan and Iran where from usually metals were brought. Sometime same raw material was traded with Central Asian States and Mesopotamia. These materials were finished and put to various industrial and other uses.

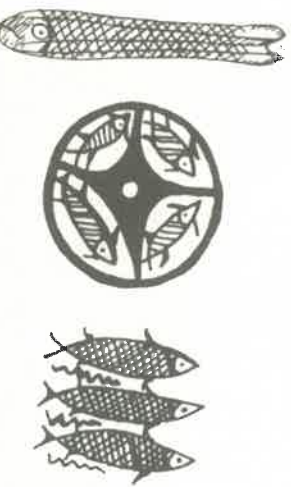
The people were skilled workers for metal technology and in some respects superior than their Egyptian and Sumerian fellows. They made articles and items for their immediate day to day use and purposes. The articles made of copper and bronze include bow and arrow, blade axe, spear heads, daggers etc. Other articles made of metal were hatchets, sickles, saw, chisels and razors. Knives and celts were made sometimes of metals, sometimes of chert or other stone.

For domestic purpose, they used mostly pottery and copper vessels including cooking pots, plates etc. The use of silver pots was very rare. Lead and tin were also applied in the manufacture of articles, but the latter only as an alloy in the preparation of bronze.

The idea of making sword was not familiar among people, however, the identity of sword has been recognized in a number of copper articles.



Urn with skull and bone fragments.



Funerary urn from the cemetery.



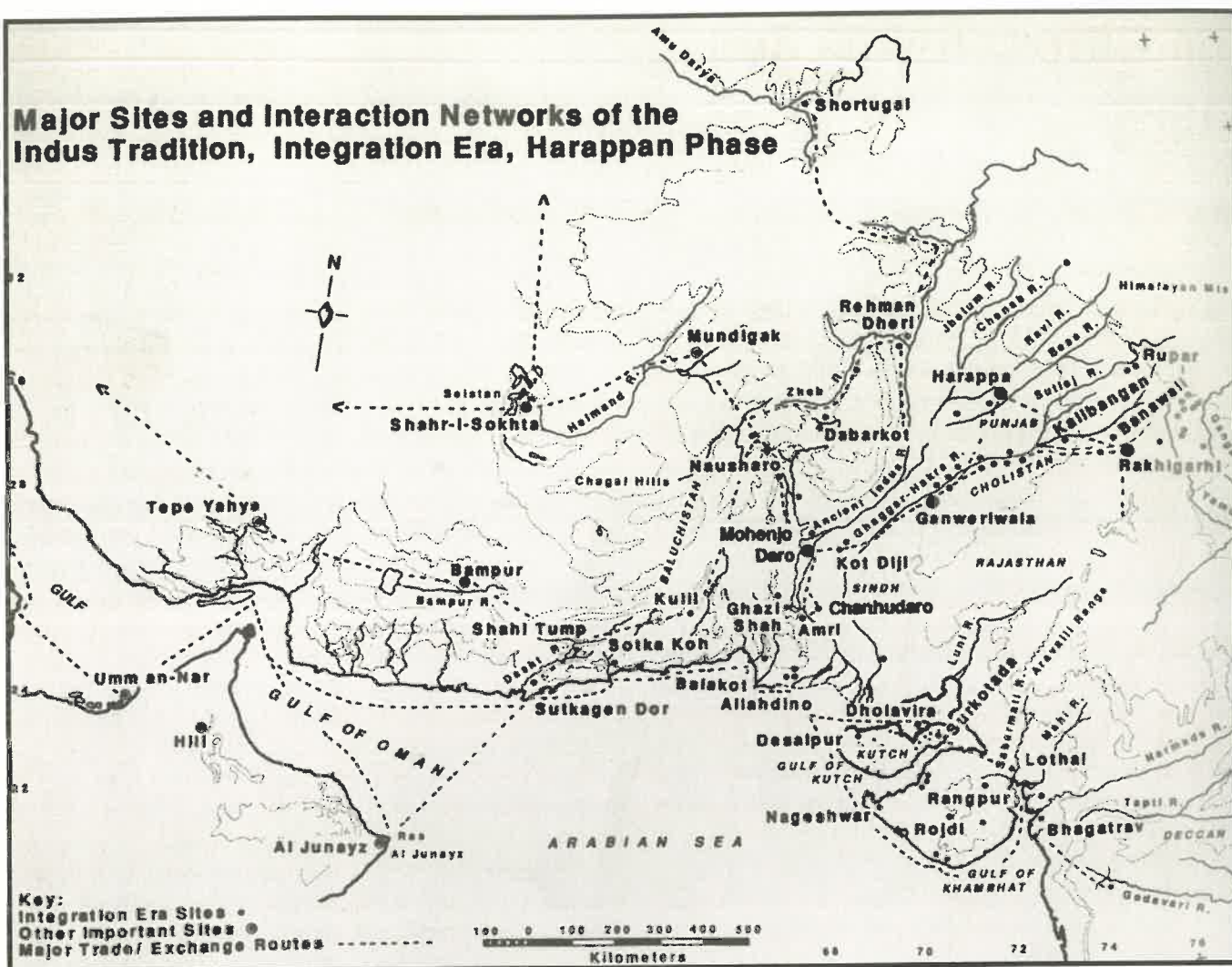
EXTINCTION OF THE HARAPPAN DOMAIN

There is a consensus, among most recent writers that the development and continuation of an urban culture, centred upon the Indus plains and extending into other regions generally associated with the Harappan system during the third millennium B.C., must have depended upon a fine balance of political, social, economic and environmental factors being successfully achieved and maintained. Some progress has been made in understanding the social and economic aspects of the urban sites from evidence provided by their excavation, and in extending this approach to the cultures as a whole. The political aspects of the culture, both internal and external, are still obscure, and are likely to remain so until more direct evidence can be obtained from archaeology or from reading the script. The environmental and wider ecological aspects of the entire culture have received relatively little attention from archaeologists, although there is a considerable body of evidence from various sources on this subject. Environment is a basic part of any culture, and some understanding of it is essential in order to comprehend the ecological balances upon which its economy is built. Environment also plays an important part in forming the character of a culture. In many ways the role of the environment is negative rather than positive, for it will always set certain ultimate limits upon the achievements of a community by making developments in certain directions either impossible or uneconomic. On the other hand, a community can only realize the full potential of its environment as and when other factors, such as size of population, level of technology and social development allow.

The Harappan region consists of the Indus plains of Sind and Punjab; various ancilliary or adjacent regions, such as the Kachhi plain and Las Bela district to the north-west of the Indus; the Indo-Gangetic divide, the course of the Saravati river, the upper course of the Yamuna where it enters the plains to the east; Saurashtra and the plain of Gujrat to the south. The character of surrounding regions, i.e., the Himalaya and Karakoram ranges in which the Indus and all its major tributaries rise, the Thar Desert on the south-east, and the arid mountain ranges to the north-west of the Indus must be taken into account.



Major Sites and Interaction Networks of the Indus Tradition, Integration Era, Harappan Phase



No environment is static, least of all that of the Indus system. All environments are continually changing as the result of the interplay of natural forces, today and during historic and later prehistoric times, nearly always further modified by the activities of man. How far human activity affected the environment in earlier prehistoric times, before the advent of widespread domestication of animals and crop cultivation is a matter for careful investigation in any given situation. In general there is more and more evidence that hunters, gatherers and early pastoral communities had a considerable effect upon their environments, both unintentionally and intentionally, as for example by burning grassland and forest. However, in the case of Harappan domain, the factors causing environmental change may be mainly determined as under:-

Tectonic Activity

The uplift of the Himalayas affected the piedmont region and the plains in a whole variety of ways, some fundamental to the economy and life style of

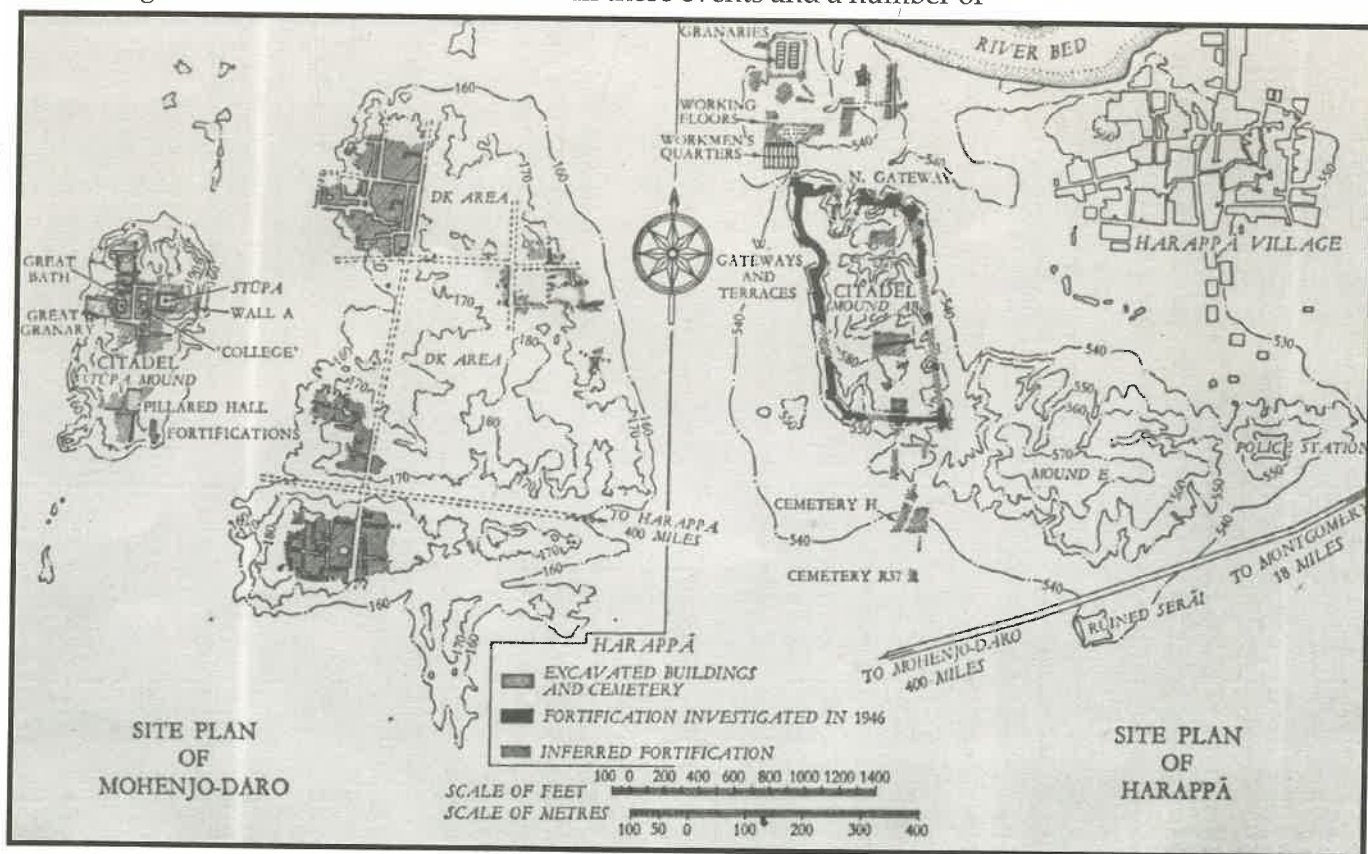
the human population. There are two principle categories of change of this kind observed in the topography of the region today that must have fundamentally affected its agriculture and urban development during Harappan times, and influenced the extent to which archaeological evidence of this period has survived. These are (1) changes in the courses of the major rivers, and (2) changes brought about by the accumulation of silt carried down during periods of spate from upstream and deposited in the course of regular inundation of the plains, and more widely by exceptional floods.



Hero Grappling with Tigers.

Changing River Courses

The Indus plains today are so extensive that even in years of above average flooding, the entire plain is not inundated, but only certain area. Today alterations in the channel and excessive flooding are largely controlled by dams, barrages and an extensive system of irrigation canals, but this was not the case in Harappan times. Then settlements were exposed to the full effects of changes far upstream as well as locally. A large area could also be deprived of its inundation water; by the reduction in the amount of water available due to the loss of a major tributary. Conversely, the capture of a new tributary such as the Sutlej or the blocking off of the Hakra as an outlet for excess flood water could have an equally devastating effect by increasing the floods lower downstream. All these events and a number of



Comparative layout of Mohenjodaro and Harappa.



Pl. 94 Map showing extent of Early and Late Harappan sites in the Greater Indus Valley



The tomb of Baba Noor Shah, Harappa.

other have been suggested as hypothetical causes of the abandonment of settlements. At present, none can be proved to have coincided with the end of the city, but each is an example of the kind of change that appears to have been taking place during historic and prehistoric times, and must be regarded as part of the totality of the Harappan environment.

The building up of the Plain

The next major environmental factor that needs to be taken into consideration from the point of view of the development of the Harappan Culture is the process of building up the plain by the process of aggradation, or deposition, of alluvial material by the main river. The important point is that this process appears to have been going on at a significant rate, estimated at approximately two metres per millennium.

The steady deposition of alluvium must have covered many features of the landscape of the Harappan valley besides abandoned settlements, and caused it to become increasingly flat and featureless. The filling up with alluvial deposits of the trough between the mountain ranges on the north-west and the low plateau and hills of the Thar on the south-east, in which the lower Indus flows, must also have resulted in a lateral expansion of the

plain. These and other factors must have tended to make the river more mobile and generally unstable. With a wider plain for the flood water to spread over, the chance of a settlement losing its inundated land stoned have increased.

Earth Quakes

Tectonic movements of changing river courses must have been associated with earthquakes, some on a scale to have serious consequences for settlements in the plains. The whole region is in the earthquake zone today, and has been subject to severe earthquakes in historic times, as witness the Quetta earthquake of 1935. Another example is the earthquake that led to the inundation of the Rann of Kutch, and drowning of the small town of Sindhri, and the appearance of the 'Allah bund' in the eastern part of the Indus delta in 1819. There can be little doubt that such events must have been part of the environmental background of the Harappan world, but whether they tended to be more or less frequent and severe than in recent times is, on present evidence, only a matter for speculation. It is, however, a matter that should be investigated especially in relation to the decline and abandonment of the major Harappan cities.



Recently it has been shown the events such as this in the region of the Indus delta, while undoubtedly related to major tectonic events and processes, as already indicated, are more locally and directly due to relative changes in level of grabens of blocks of the earth's crust along certain fault lines. This is perhaps induced in part by the weight of accumulated silt causing some blocks to subside. The result in such a situation is that more silt accumulates in the area of subsidence, until, as in the case of the Rann of Kutch, the sea ceases to cover the area except at certain seasons of the year, on the occasion of particularly high tides, etc., and in due course the block may sink again and the whole cycle will be repeated. Events like this may have had a fundamental effect on the Harappan environment, especially on the extent to which the sea penetrated the present delta region, and even the lower Indus plains at times, and conversely areas of the delta now submerged were exposed and available for settlement, or for seasonal use by pastoralists, fishermen, etc.

Climatic Change

There is evidence from various sources that minor fluctuations of climate have taken place in the region during the Holocene. These appear to have taken the form of slight alterations in the amount and distribution of rainfall throughout the year. One such period of somewhat more humid conditions is thought to have coincided with, and probably contributed to the achievement of the Mature Indus phase. The onset or return of more arid conditions appears to have contributed to its decline. Even a slight amelioration of arid conditions such as we see today would have increased the availability of

surface water, game and pasture for domestic animals, and probably made possible dry (i.e. non-irrigated) cultivation of cereal crops, other food plants and cotton on parts of the plain not subject to inundation. It would also render large areas along the margins of the Thar and in the mountain valleys to the west suitable for grazing sheep, goats and cattle; areas that are virtually unusable today except briefly following exceptional rains. This in turn would allow the fertile alluvial soil of the plains to be reserved for cultivation wherever necessary. It would also encourage the growth of more and larger trees where only small trees and bushes thrive today. The supply of readily accessible timber and firewood would be increased; and so would the supply of game, all kinds of edible wild fruit and plants, and probably honey. If we are right in assuming that the wild animals depicted on the Indus seals, which include elephant, tiger and rhinoceros, were all indigenous to the region, their presence supports the kind of improvement in the environment we have indicated. The gallery forest along the banks of the Indus would have probably been much like the undisturbed stretches we see today, and with less human interference would have provided a suitable environment for buffalo (also shown on the seals) and other animals and birds.



Worship for a Tree-goddess.

A marginally higher rainfall would increase the forest cover on the hills and in the interior valleys to the north-west of the Indus plains. Under climatic conditions such as we see today but without the excessive timber cutting, firewood collecting, grazing animals, etc., many areas would carry considerably more forest and woodland than they do. This is demonstrated by areas that have escaped over exploitation, either by accident or design; by the quantities of timber still being exported from remote areas of the North-West Frontier Province; and by description of the Punjab and the North-West Frontier given by travellers throughout the nineteenth century. Alexander Burnes describes a tiger hunt, in the jungle only a few hours ride from Lahore in 1832 (Burnes 1834). Later in the century there are description of dense woodland on either side of the road going north from Peshawar to the Khyber Pass, in which malefactors hid. Today Harappa is surrounded by agricultural land; the area, through which the road is going (west from Lahore) is devoid of anything larger than an occasional trees, with nowhere for anyone to hide. In Swat and Dir, on the other hand, where the rainfall is a little higher, and the pressure on the land a little less, sizeable trees can still be seen on the hillsides. An overall increase in vegetation would be accompanied by an increase in soil cover and corresponding capacity for soil and water retention. This, in turn, would induce a more even flow throughout the year in the tributaries of the lower Indus, with less flash flooding. Rivers, such as the Bolan which now loses itself in the Kachhi plain and fails to reach the Indus, may then have been active instead of merely potential tributaries, and the dead drainage systems of the Thar, now blocked by dunes, may have functioned, at any rate during certain season of the year. More regular through flow and better local drainage would tend to reduce the tendency to

salinity in the region as a whole.

Human Activity

The effect of many present day activities upon the landscape is much the same in certain respects as a natural increase in aridity. There is also evidence that the same was true in the past, certainly in limited areas and perhaps more generally. The most obvious and immediate effect of any human settlement, large or small, upon its environment is signs of wear on the surrounding soil and vegetation.

Any settlement or regularly inhabited place also has some wider influence upon its environment. Grazing herds of domestic animals, often not indigenous to an area, can modify the natural vegetation considerably; so can regular selective killing or driving out of certain wild species because they are desirable for food, compete with domestic animals or prey upon them. The cutting of trees, bushes, etc., for timber, firewood, and fodder for animals has an even more direct impact. As part of a mixed agricultural, pastoral and hunting based economy, clearance for fields is likely to be of a limited and rather temporary nature. This is because as land becomes exhausted or otherwise unsuitable for cultivation, the tendency is to abandon it and clear new ground. The old cultivated areas are then allowed to revert to wild vegetation. Such secondary growth, however, is seldom if ever identical with what went before it. Nearly always it is further modified by grazing livestock eating the young trees before they can establish themselves; by the loss of residual islands of single or interdependent groups of species surviving from earlier climatic regimes; the rapid takeover of certain weeds and other factors. Often clearance of land is far more widespread than is strictly necessary for the cultivation being achieved by burning tracts of forest, woodland, bushes and long grass indiscriminately. Areas not immediately utilized for cultivation may then be left alone, and after a few months the fresh growth of grass and young plants will attract wild animals such as deer and other species desirable for food, or provide rich grazing for domestic animals. This process is known to alter the plant population. It can turn forest or woodland into open grassland, or denude it of vegetation altogether.

Any modification of the flora of a region is bound to be reflected in its animal population, although local forest clearance may do little more in the first instance than drive the wild animals away from areas of settlement, and reduce their numbers somewhat. We know from historical records that until well into the last century, the plains around Indus and Ravi and adjacent regions, particularly to the south and east, were rich in wild life, including species highly prized for food such as Nilgai and other kinds of deer. Lion, tiger, leopard, rhinoceros, camel, onegar (wild ass) and wild pig have all been recorded in the region. The immediate environs of the Indus and its tributaries must have provided an ideal environment for buffalo, as already



*Fight between Horned Man
(Tree-god?) and Horned Tiger.*

pointed out. The seals of the mature Harappan period represent several of these species, and also elephant and at least two kinds of cattle.

The establishment of the earliest settlements must have set in motion processes of change or modification in the environment of the region similar to those observable today. These may have been somewhat counter balanced by the amelioration of climate thought to have taken place at or near the beginning of the Mature Indus phase. The larger, more specialized agricultural and urban communities of the Mature Indus period must have stepped up these processes, increasing pressure upon their immediate environment in each case. As the various processes indicated, extended more wisely the plain as a whole must have changed in character. One of the most positive indications of this is the change in lithic tool assemblage that takes place with the emergence of the Mature Indus culture. The wide range of artifact types seen at Early Indus sites, varying somewhat from site to site but always appearing to provide a toolkit suited to the many needs and activities of a self-supporting subsistence economy, gives way to a much more limited and more specialized kind of equipment.

The lithic toolkit of the Mature Harappan city dweller consisted almost exclusively of long, straight, parallel sided blades which appear to have been professionally made and imported to the cities from sources of high quality material.

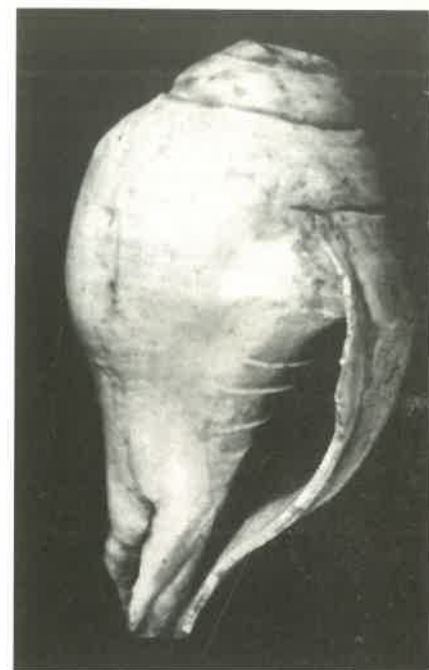
The environment of the early and mature Harappan Cultures was dominated by two factors; the Indus River system and the desert. It was and is the combination of these two contrasting elements that from the character of Sind and the lower Punjab, the hub of the Harappan world. Added to these is a third factor, heat, for these are regions of minimal or non-existent rainfall and high temperatures throughout the year. Indeed the rainfall is so low and the rate of evaporation so great that much of the region would be completely arid and quite unsuitable for animals or man were it not for the rivers. The Indus and its tributaries are the only source of water for all purposes, domestic, agricultural and industrial. In addition, the inhabitants of the Harappan cities must have depended upon the rivers for fish which appears to have formed a significant element of their diet, and to some extent for transport. The narrow corridors of gallery forest on each side of the river, and the somewhat wider belts of inundated land (now cultivated by irrigation) beyond make the united Indus, where it flows through Sind, appear like a long sinuous oasis. Higher up, the contrast between the immediate surroundings of the rivers of the lower Punjab and the intervening arid country is not quite so strong.

The alluvial plains were the focal region where the main urban sites of the Mature Harappan period were located, and cereals, many other food plants and cotton produced. They also provided the materials from which the bricks, both burnt and unburnt, used in building of the cities were made; the



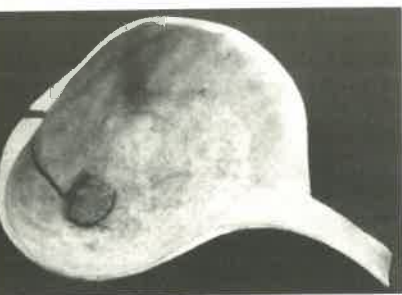
clay for making the characteristic Harappan pottery and many other objects. One basic material the plains did not provide was stone, which was substituted in the form of baked or unbaked clay.

During Early times when population pressure must have been low and again during the Mature phase when the climate is thought to have been rather more humid than it is today, there was probably rather more vegetation on the margins of the Thar and on the western margins of the plains than at present. Given this situation there would have been no lack of game, ample grazing for cattle, buffalo, sheep and goats, the domestic animals that appear to have played a prominent role in Harappan economy. Camels do not appear to have played a part in urban or agricultural life as such, although their bones have been recorded at certain sites, but they may have had an important role in long distance trade and transport. Predatory animals must have been a very real danger to people and animals. All livestock must have had to be carefully guarded, especially at night, and travellers and traders no doubt went in groups or convoys (caravans) for safety.



There is ample evidence that many more exotic items were brought from more remote regions, which meant their being transported long distances through the mountains or the desert. Semi precious stones, especially agate which was extensively used in Harappan jewellery, came from not too distant surrounding areas. The craft of bead making reached its height in Mature Harappan times, and was one of the long distance exports of the period. Copper was available also at not very great distance, but seems to have played a somewhat minor role in the basic economy of the culture. Gold which was also re-exported in the form of jewellery, came from farther afield, as did a number of luxury items such as lapis, turquoise, conch shell, etc. Such things, although playing their part in building up urban life and trade, cannot be said to be part of the environment as such. Perhaps the need to transport them for long distances across the surrounding deserts played its part in forming the attitude and outlook of the Harappans. Obtaining such items, converting them into marketable good, and re-exporting them by sea or land routes to other major cultural centres, such as Mesopotamia and the Oxus region, must have been one of the factors that enabled the urban centres to build up and maintain themselves at a level that, in its turn, put increasing strain on the local environment and its natural resources.

Psychologically as well as physically, the river system and the desert must have dominated the lives of the Harappans. Their environment was hazardous and unpredictable, perhaps most of all for those who dwelt in the larger cities. They were subject to the vagaries of the river that might sweep them away; to earthquakes, local floods and water shortages; perhaps also to famine, disease and military attack. Smaller, more mobile communities could move away with their flocks and herds, and escape some of these calamities, but they too were subject to drought, pestilence and predatory



animals. However, cultured, wealthy, technically competent, administratively efficient or commercially sophisticated they became; however they strove to master their environment, no individual or community in the Harappan world could avoid being constantly confronted, and forced to come to terms with the Indus River, upon which all aspects of daily life depended.

The Harappan Culture was a highly complex structure, and depended upon a number of factors being kept in a state of balance. The most basic of these factors was the environment upon which the structure, consisting of a number of interdependent groups and communities was built up. Probably the most important element was the system that held them all together and enabled the whole structure to function harmoniously. So long as all the essential elements were there, the Harappan way of life continued. When one major factor changed, whether it was an environmental factor or a breakdown in the system, it must have been like removing a brick from an arch.



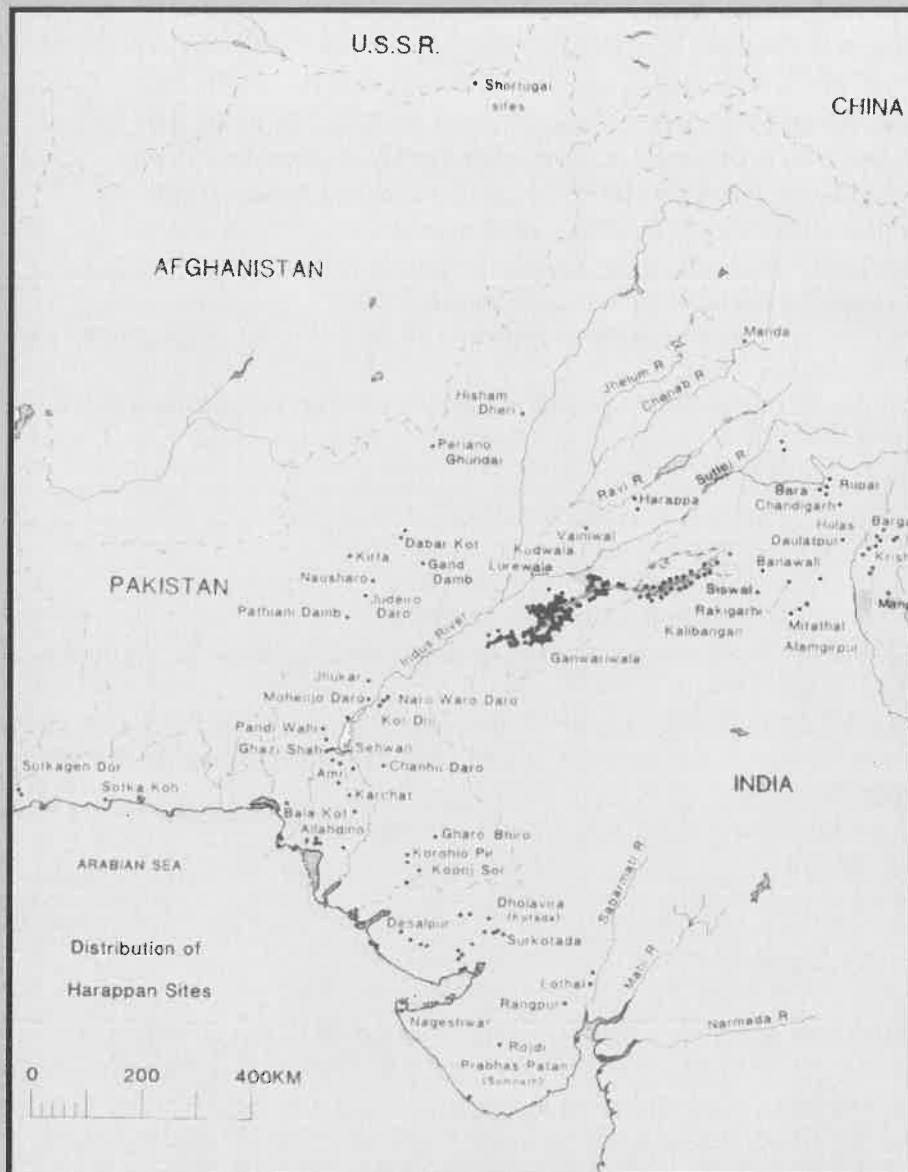
Terracota tiny mask of tiger-human diety.

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