Ancient INDUS Civilization

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FOREWARD

The Indus Civilization- one of the great Civilizations of the Old World- was discovered only as recently as the 1920's and is one of the least well understood of the ancient civilizations. It occupied a vast area, one million square kilometers in all (much larger than either Mesopotamia or Egypt), and had much wider access to the sea, commanding about 1200 kilometers of the coastline in all. It is less well known than the other Old World Civilizations for a number of reasons. One is because the Indus Script has not been deciphered, so we have no documentary information; another is because the Indus Civilization was relatively short lived.

Like the Nile in Egypt, the Indus brought silt bearing floods, which enabled the farmers to cultivate wheat, barley, cotton, fruits and vegetables; rice was also cultivated in the late stage of the Civilization.

The settlement pattern of the Indus Civilization differed from that of other great civilizations. Because of the marked cultural uniformity found throughout the entire huge area of the Indus Civilization, it is often suggested that it was an Empire State, with twin capitals at Mohenjodaro and Harappa.

No one has yet quite explained the sudden appearance in the Indus Valley, ca. 2500 BC, of two large Bronze Age cities in full flower, culturally identical yet four hundred miles apart and with little but villages in between - Harappa in the Punjab, on the Ravi River, and Mohenjodaro, in the south, in Sindh, on the Indus, to which the Ravi is a tributary. Since they are in ground plan alike, they cannot have been of independent growth. They were colonial emplacements. And what is surprising is the extent of their influence. Sir Mortimer Wheeler says 'the Indus Civilization exemplifies the vastest political experiment before the advent of the Roman Empire.' The artifacts with identical characteristic are found from Punjab nearly to Bombay. However, what is more astonishing is the monotony of it all. For they exhibit no development or even variation either from first to last or from north to south, only a small deterioration of standards following the first spectacular appearance. The cities and their civilization break into view, remain without change for a millenium, fade, and disappear like illusions in the night.

The Indus Civilization is remarkable for its town planning and building techniques. In contrast to its buildings, the material equipment of the Indus population was not particularly impressive. They were competent potters, metal and stone workers, but produced few goods comparable to the fine products of Egypt or Mesopotamia. Perhaps their finest artifacts were the etched carnelian beads and engraved steatite stamp seals, the source of most of the inscriptions we have of the undeciphered Indus Script.

The Indus Civilization was not isolated. It had trading links overland with what is now Afghanistan and the rest of India, as well as by sea along the Persian Gulf.

It is clear from the degree of uniformity and planning that it was a highly centralized, presumably hierarchical society, but we have no documentary proof, no wealthy tombs, nothing that is clearly a palace or temple. Whatever its basis, the authority of the Indus rulers did not last as long as in Mesopotamia, Egypt or China. Sometime after 1900 BC, the Civilization collapsed. Traditional explanations refer to invasions by the Indo-European speaking Aryans or to environmental disaster (particularly flooding), but it may represent culmination of internal problems. Whatever the reason, urban life and associated features such as writing disappeared not to reappear on the Indo-Pakistan Sub-continent for several centuries.

In order to find out how the civilizations emerged, we have to turn our attention to the pre-civilized societies that preceded them. Social evolution can be measured in a number of different ways according to whether we concentrate on, say, physical development, technology, subsistence economy or social organization.

The 'hydraulic hypothesis' supposes that the environment played a major role in the emergence of civilizations, possibly even a determining one. We know far less about the agricultural system of the Indus Civilization, though there is no doubt that it depended on the annual flood of the Indus River. No ancient irrigation works survive, since alluvial deposition has raised the land surface. It is presumed that area under cultivation would have been extended by simple lift irrigation using the 'Shaduf', which is depicted on the Indus seals.

The outstanding impression we get from Mohenjodaro and the other Indus cities is of a remarkable degree of Central Planning and Control. The city was laid out like a modern 'new town', and supplied with defences. The drainage and

sewerage arrangements imply a highly organized municipal service. We know little about the city rulers' authority, but about its extent we need have no doubt.

Little is known about the religion of the Indus Civilization, where few religious ruins have been found.

The information became available through the excavations, and the studies of different scholars belonging to the field of Archaeology. Foreign as well as Pakistani specialists have published their views in a scientific way mostly. There are very few books on Indus Civilization, which are written in a simple and interesting way for a wide spectrum of readers.

Mr. Rafi U. Samad has presented a picture of Indus Civilization in a different way, based on analysis of various information provided by the archaeologists and other experts of this field. To bring up interest of general public and the younger generation, it is a must to write informative and interesting books, which are not totally focussed on technical details. I am sure this book is a good addition in the solution of problems pertaining to the mystery of the Indus Civilization, as the writer has tried to provide the reader with some thought provoking ideas in the various chapters of this book.

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PREFACE

The Indus Civilization has remained clouded in mystery for a fairly long time. Its discovery in 1921-22 raised a number of questions to which there were no ready answers. Extensive archaeological investigations in various regions of Pakistan and in India along Pakistan's eastern borders have gone a long way in resolving this mystery. The archaeological investigations have been spread over a very vast area. This spread has provided a deep insight into one aspect of the Civilization, namely, its inherent strength. Through this strength, the Civilization, which emerged in the southern Indus Valley, was able to influence and control the economy and culture of regions more than a thousand kilometers away. However seen from another perspective, the archaeological excavations at several thousand sites, among them more than 1600 sites belonging to the Indus Civilization, produced a somewhat diluted image of the Civilization as a whole. One is left with the impression that the investigations at such a large number of sites, specially by international teams of archaeologists and other scholars, has resulted in diminished effort and allocation of resources to research on critical issues pertaining to the core Indus Civilization. This shortcoming apart, a lot of information has become available through reports published by different archaeological experts working at different sites. In *Ancient Indus Civilization,* an effort has been made to assimilate the material, which has become available from various sources, and provide a broad picture of the Civilization to readers interested in the history and culture of ancient civilizations.

When we view the Indus Civilization in its totality, with ingredients provided by investigations at thousands of sites, Moenjodaro and Harappa emerge as the two pillars of the Civilization, over which the entire Civilization rested. It was in this region that the Civilization took shape in the embryonic phases and finally emerged as a full-blown Civilization towards the middle of the third millenium BC. Chapter-2 provides some information on the environmental factors, which led to the emergence of the Civilization in this region, while, in Chapter-3 we have a peep into some of the incipient cultures in the region and pass on to the development phase of urbanization. These localized cultures and semi-urban societies laid the foundations for the Indus Civilization. In particular the developments at Mehrgarh in the seventh millenium BC were an important milestone on the road to Civilization.

One of the mysteries, which baffled the archaeologists in the early phases of excavations at Moenjodaro and at Harappa pertained to the origins of the Civilization. In these early phases, other known and excavated archaeological sites in the region, belonged to a much later period of around 300 BC. The unexpected discovery of a highly developed Civilization at two isolated sites was something, which could not be explained with the information available at that time. Even subsequent discoveries of Neolithic and Chalcolithic period sites spread over a very vast region did not provide a scientific or a sociological basis for the emergence of the Indus Civilization. In Chapters-4 & 5 new concepts have been developed. These concepts are based on the existence of a Proto-Urban settlement at Moenjodaro in the pre-Indus period and the extraordinary response of the Indus people to the massive destruction of a thriving semi-urban settlement by floods, in the region around Moenjodaro. The massive mobilization of human resources towards planning and building a new city provided the necessary launching pad for the future Civilization.

Chapter-6 deals with the identity of the people who were at the helm of affairs in the Indus State. The chapter basis its conclusions on a study of the sociological developments in the region from the time the first settlement emerged at Mehrgarh. The nature of the Public buildings and the artifacts recovered from Moenjodaro, Harappa and other sites lend support to the theory that the rulers were chiefs of different clans who were economically active in the region.

The Indus Society developed on a totally different pattern compared to societies in other ancient civilizations. Chapters 7 and 8 bring out some of the essential differences. One of the points which emerges is that, although the society was stratified into different professions and income groups, there was no extreme polarization as in the case of the Egyptian and Sumerian Societies. The society prospered because of a balanced market economy, which catered to the needs and demands of all classes of people.

The views expressed in the book on the role of the clergy in the Indus State, and the place of religion in the Indus Society, are also based on a study of the sociological developments in this region, in the pre-Indus era as well in the period after the decline of the Indus Civilization. Here again the Indus Civilization displays features, which were unique in the ancient world. The evidence available on the basis of the sociological study strongly points to a class of priests, which enjoyed a very high status and a position of respect but did not aspire for political

power. This position and attitude of the priests has been a constant feature of the societies in this region, all through the ages, right upto the present times.

From the position taken on various issues as indicated above, emerges the Character of the Indus Civilization. Along with the points covered in the previous paragraphs, two other characteristics of the Indus Civilization stand out. One of these pertains to the high level of achievement in the fields of craft industries and technology. Most scholars agree that the level of technical skills of the Indus artisans was unmatched in the ancient world and craft industries made a major contribution to the overall economy of the State. The second point on which most scholars agree is the fact that the energies of the Indus State were less absorbed by participation in wars or military conquests.

The absence of a standing army and the general lack of interest in wars and conquests would be seen as a positive feature of the Indus Civilization. In the Chapter on the decline of the Civilization, a view has been expressed that this may have been one of the factors, which hastened the decline of the Indus Civilization. A strong military and political presence in all the regions of the Indus State would have given strength to the State. It would have enforced the economic and cultural bonds between the outlying regions and the central regime at Moenjodaro.

The Chapter on Indus Society provides present state of knowledge pertaining to the Indus Script. The Script remains to be deciphered. An analysis of the characters used in the script has been attempted, which indicates that the script is probably logosyllabic and is linked to the Brahui Script used in the language spoken by a large number of people in Baluchistan and in some areas of Iran and Southern Afghanistan. While nothing can be said with certainty, further research on these lines seems to offer some prospects of a breakthrough.

- Within the limitations imposed by an undeciphered script and present level of excavations and investigations, an attempt has been made in the book to fill in the gaps in our knowledge about the Indus Civilization. This has been done on the basis of analytical treatment of data. Hopefully future research and investigations in the following areas would support the conclusions reached through preliminary analysis of the data, which has been made available by the archaeologists and other scholars: Excavations in unexplored areas of the archaeological sites at Moenjodaro and Harappa. In particular the lowest occupation layers below the citadel mound at Moenjodaro may provide vital information relating to the origins of the Indus

Civilization. Also further archaeological investigations at smaller sites in the lower Indus Valley may provide vital information on the pre-Indus period.

- The Indus Civilization spread eastwards of Moenjodaro and Harappa while the influence of the Civilization on the northern plains watered by the Jhelum, Chenab, Ravi, Beas Sutlej and Kabul Rivers seems to be much less than would normally be expected. It is possible that the racial mix in the northern areas was different from the southern areas where the Dravidians were the dominant majority. This may have created some sort of an artificial barrier to the advance of the Indus Civilization into these areas.

- Linkage of the Indus Script with the script used in the Brahui group of languages in Western Baluchistan, Iran and Southern Afghanistan.

CHAPTER 1

INTRODUCTION

As the bits and pieces of information compiled by the archaeologists and other scholars during the last eight decades are put together, the picture of the Indus Civilization which emerges is one of conceptually modern State. It shows that in the Civilization that took shape almost five thousand years ago, certain concepts were developed on civilized pattern of living, which have withstood the passage of time and are universally accepted in the civilized world of today as pillars of modern Civilization.

The first basic concept embodied in the Indus Civilization was the belief that no one individual had the right to usurp the wealth and resources of the land and use them for his or his family's benefit. Ancient history is replete with stories of mighty kings and conquerors with insatiable egos and limitless cravings for personal glorification at the expense of the rest of the population. In the Egyptian Civilization there was no end to the greed and vanity of the Pharaohs. In order to consolidate their position of might, they developed the image of themselves as a superhuman being, a god who had descended from the heavens to rule the people. The Pharaoh was supposed to return to his heavenly abode after his term in this world had expired, to take his place among the pantheon of gods, who ruled the universe. The Pharaohs accumulated vast treasures, built magnificent palaces for themselves to live a life of luxury in this world and to provide an equally luxurious life in the after world, built huge pyramids which were stacked with food, servants and treasures. To glorify themselves, their family members and their fellow gods, they had huge statues and temples constructed out of stone. In the Sumerian Civilization, the position of the mighty kings of Sumer and Akkad was very much similar. The entire focus of the cities was on the Ziggurat, a temple and palace complex. Everything, which the king required for his life of luxury, was included in the walled complex. Among the Royal Tombs at Ur, was the shaft grave of Queen Shubad, which was full of treasures. Included with the treasures were the skeletons of more than 60 ladies who attended the queen, four harpists and asses. It was the custom that on the

death of the king or queen their attendants and musicians committed suicide and were buried with the royal personage to attend to their royal masters in the afterlife. Nothing like this has been revealed in the extensive excavations carried out at thousands of Indus sites. As we shall see in the subsequent chapters, there is overwhelming evidence to show that the wealth of the cities was distributed among all segments of the society. There were rich people and poor people, but the exclusive hold of one individual or family on the wealth of the cities is nowhere indicated.

The second concept developed in the Indus Civilization was that of planned cities. In most cities of other ancient civilizations, the city grew haphazardly over a period of time. In the Indus cities the concept of town planning was well ingrained and built into these concepts were modern ideas of cleanliness and hygiene. The Indus City was divided into sectors by vertically and horizontally laid out streets and lanes. There was extensive provision for sewerage and drainage facilities, and for systems for disposal of other types of wastes. Included in the layout of the cities were residential sectors with thousands of houses for all sections of the population. The houses were planned on modern lines with provisions for bathrooms, toilets and kitchens, besides bedrooms, courtyards and sewerage and drainage pipelines and channels.

The third basic concept ingrained in the Indus Civilization is the separation of the clergy from the State administration. Religion was a very important part of the spiritual, social and cultural life of the Indus people. It influenced the development of the Indus Culture to a very large extent. Although religious practices remained basically at a very primitive level, the commitment of the priests to seeking enlightenment and relief from misery afflicting this world was commendable. This search for truth and for mastery over the evil forces was through meditation. The role of the priests in the day to day life of the Indus citizens was to provide spiritual comfort; further, through religious ceremonies and rituals the priests promoted cleanliness and purity of thought and actions. There is no evidence to suggest that they craved for power or to indicate their involvement in the affairs pertaining to State administration. These attitudes of the Indus clergy are in sharp contrast to the attitudes of the priests in other ancient civilizations. The basic role of the priests in the Indus society and their position in society was not totally different from their role and position in modern societies.

The fourth basic concept, which characterized the Indus Civilization, was that of unified culture and decentralized form of government. The Indus Civilization was spread far and

wide over widely disparate regions and terrain yet these regions were knit together by common bonds of religion and culture. The script was common, so was the system of weights and measures. The design of the artifacts and the layout of the towns were all very similar. All this uniformity was achieved without the direct interference of the Central regime in the administration of the city-states.

The fifth concept which characterized the Indus Civilization was that of voluntary association of city-states and a desire and inclination towards peaceful co-existence. It was the common economic interests, which kept the different city-states together in a sort of federation of city-states. There is no evidence of war and conquests or forceful occupation of areas or of plunder or extraction of tribute to fill the coffers of the State. There is also no evidence of rebellions carried out by regional governors or of shift of focal point of power from one city-state to another.

The sixth concept was that of a technology oriented, industry based economy. The Indus Civilization attached great importance to development of new technologies and to establishment of craft industries. The Indus craftsmen developed new technologies for mass production of certain items of common use and devised special processes and techniques for making sophisticated items using a wide range of exotic materials. The archaeologists have discovered numerous industrial villages in all regions covered by the Indus Civilization.

History of Excavations

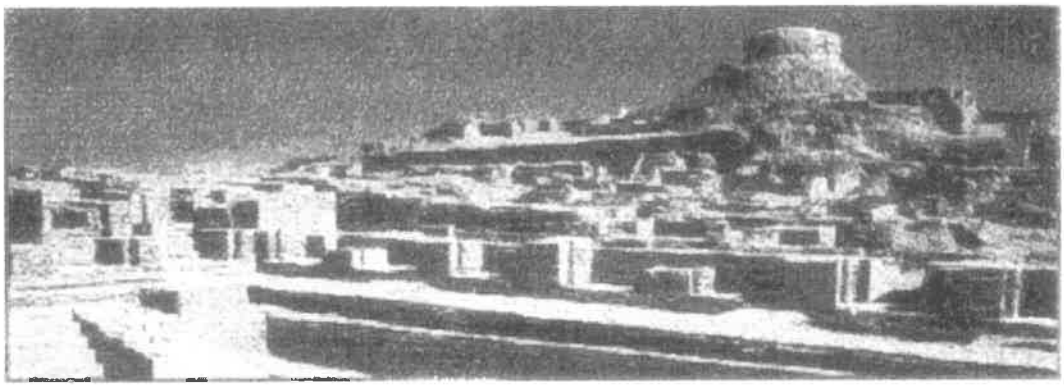
The archaeological excavations at sites belonging to the Indus Civilization commenced in 1921. In the 78 years since the discovery of this ancient civilization in the Indus Valley, our knowledge about the Indus Civilization has been considerably advanced and refined through extensive investigations carried out by several teams of archaeological experts at various sites in and around the Indus Valley. The pioneering work done by the Archaeological Survey Department of pre-independence India in the nineteenth century had provided the first clues of the existence of an ancient civilization at Harappa. The Director of the Archaeological Survey Department of India, Alexander Cunningham, during his initial investigations at Harappa in the second half of the nineteenth century, found square shaped steatite seals with animal engravings and some other artifacts belonging to the Indus Civilization. However he did not realize at that time the importance of these finds. It was left to the archaeological experts working under Sir John Marshall to announce the discovery of an ancient civilization after extensive excavations

at Harappa in 1921 and at Moenjodaro in the following year. The excavations carried out by D.R. Sahni, a member of Sir John's team, at Harappa, provided evidence of a well-fortified city spread over a large area. In the following year another expert, R.D. Bannerji, while carrying out excavations under a Buddhist Stupa on a mound in Moenjodaro, found ample evidence of a well-planned city with baked-brick buildings and fortifications similar to those found at Harappa. Subsequent excavations confirmed the antiquity of these archaeological ruins and the basic parameters of these ancient cities were established before the independence of Pakistan and India in 1947. However the mystery regarding the origin of these cities remained unresolved at that time.

Harappa and Moenjodaro are located in Pakistan in the central and lower part of the Indus Valley respectively. After the emergence of Pakistan as an independent State in 1947, the archaeological investigations at these ancient sites continued under the aegis of the Department of Archaeology and Museums established by the Government of Pakistan. R.E Mortimer Wheeler and other archaeologists who were associated with the excavations at these sites in the pre-independence period, continued to be associated with the archaeological work in this region after 1947. As the archaeological investigations in this region intensified, the scope of the investigations was also broadened to include other ancient sites in the Baluchistan, Cholistan, Rajesthan and other regions some distance away from the Indus Valley. A number of international associations and scholars became associated in the investigations. These included the teams led by Walter A. Fairservis Jr., George F Dales, Richard H. Meadow and Mark Kennoyer from the United States of America, Catherine and Jean-Francois Jarrige and Jean-Marie Casal from France, Alexandra-Ardeleanu and Michael Jansen from Germany, Asko Parpola from Finland and Massimo Vidale from Italy. A lot of intensive research and excavations were also carried out by the archaeologists of the Department of Archaeology and Museums, Pakistan. These included Prof. A. H. Dani, Dr. M. Rafique Mughal, M. A. Halim, Farzand Durrani, F. A. Khan, and Dr. Ahmed Nabi Khan. On the other side of Pakistan's eastern border with India, the archaeologists associated with the Department of Archaeology, India, carried out intensive excavations at ancient sites located in Rajesthan, Haryana, Cutch and Kathiawar.

The Spread

The above studies and investigations have been carried out at more than 3000 sites in the Indo-Pakistan Sub-Continent. The investigations have revealed the existence of about half a dozen ancient cities, several



towns and more than a thousand smaller settlements belonging to the Indus Civilization. Each city covered an area of upto three square kilometers and included magnificent public buildings, like the Great Bath, Granaries and Assembly Hall at Moenjodaro, and extensive residential buildings and craft workshops. The artifacts recovered from these sites include thousands of beautifully designed and intricately carved seals and tablets, a large variety of pottery, beads and jewelry, statues and figurines and utility and decorative articles made of copper and bronze. Most of the seals and tablets and a number of other artifacts carried signs and symbols representing the script used by the Indus people. Although this script remains undeciphered, detailed studies and research carried out on the excavated buildings and the artifacts recovered from various sites have made it possible to form a fairly accurate idea of the Indus culture and society.

The investigations have revealed that the civilization was spread over a very vast area of about one million square kilometers. This included the entire area of present-day Pakistan and a narrow strip of land in the Indian regions of Rajesthan, Haryana, Cutch and Kathiawar. The spread of the civilization was considerably more than that of other contemporary ancient civilizations in Sumer (Mesopotamia), and Egypt. Also unlike the Sumerian and Egyptian Civilizations, the Indus Civilization was not confined to a narrow strip of land on either side of a major river, but was spread over areas with widely different topography, located upto 300 kilometers away from the Indus Valley.

The Roots

The excavations at thousands of sites in various regions of Pakistan have firmly established the local origins and character of the Indus Civilization. Initially, the discovery of a highly developed civilization at two, isolated sites of Harappa and Moenjodaro had created serious doubts in the minds of early scholars regarding the indigenous roots of this civilization.

The doubts arose specially due to the fact that, before these discoveries were made, the archaeologists in the Indo-Pakistan sub-continent had been concentrating on ancient Buddhist sites belonging to the period around 400 BC. They were not mentally prepared for the discovery of a civilization in this region dating to thousands of years before the Buddhist period. After the discovery of the ancient cities of Moenjodaro and Harappa, the first reaction was to link these cities to a civilization in Sumer, about which a lot of information had become available by that time. About that time some seals similar to the ones found in Moenjodaro and Harappa were also found from sites in Sumer. This led some scholars to believe that the Indus cities were in close contact with the Sumerian Civilization and were probably an extention of the Sumerian Civilization. From the present state of our knowledge it is quite clear that the Indus Civilzation was a product of the local environment. It had little in common with the Sumerian and Egyptian Civilizations. Whatever trading contacts there were between the Indus and Sumerian Civilizations, they were too infrequent and often indirect because of which there could not be any significant influence of one civilization on the other civilization.

The negation of the concept of imported culture has been further supported by the information, which became available through excavations at various sites in and around the Indus Valley. These sites pertain to the period 7000 BC to 1500 BC. The links and continuity between the pre-Indus period and the Indus period culture, indicate that the Indus Civilization emerged out of an evolutionary process consisting of various stages of developments in this region. The process started in the hills of Baluchistan sometime around 8000 BC. There, semi-nomadic tribes, who spent the summers in the hills and winters in the plains down below, started seasonal cultivation of crops and domestication of sheep and other animals instead of depending on wild plants and wild animals for food. Sheep and grains met their basic needs for food and soon the people started using crude methods to spin and weave the wool from the sheep to make cloth, which met their other basic requirement. The process continued at Mehrgarh, where the first permanent settlement in the region was established around 7000 BC, followed by the emergence of various semi-urban cultures in the Indus Valley during the Chalcolithic period. The process culminated with the emergence of a full-fledged civilization, at Moenjodaro, Harappa and other sites in the Indus Valley around 2500 BC.

The emergence of a highly developed civilization in the Indus Valley had a lot to do with the favorable environment within the region and out-

side. The natural boundaries formed by the mountain ranges on the northern and western frontiers and the Arabian Sea in the south, restricted influences from outside to a very large extent, permitting a relatively interference-free growth of indigenous culture in the Indus Plains. The environmental conditions within these boundaries were highly favorable for growth of settlements. The climate, though on the warmer side, was relatively pleasant compared to extremes of temperatures beyond the mountains. While the regions beyond the boundaries mostly comprised of deserts and rugged mountains, the areas within the boundaries included vast stretches of plains crossed by an extensive system of rivers and mountain streams. Due to these favorable conditions, from the earliest times people have been able to make a comfortable living in this area. Quartzite tools found in the vicinity of Rewat in the Potohar Plateau indicate the presence of man in this region almost two million years ago. Other more refined tools and implements found in the Soan Valley, not far from Rewat, belong to the lower and upper Palaeolithic periods. It is therefore not surprising that one of the earliest permanent settlements anywhere in the world was also established in this region. This settlement was at the site of Mehrgarh in the Kachchi Plains of eastern Baluchistan, about 150 kilometers west of Moenjodaro.

The period of settlement at Mehrgarh lasted for almost 5000 years, from 7400 BC to 2400 BC. Mehrgarh provided the foundations for the future Indus Civilization. Starting from a basic technological level, sustained progress was made over the 5000 years in various critical areas. In the early period the houses were two roomed square blocks with walls made of mud mixed with the reeds and the roof thatched with bundle of reeds, which were available in abundance along the banks of the Bolan River. Subsequently mud-bricks were used for construction of the buildings, which became much larger and portions of the buildings were made up of rooms used for residential purposes, while other sections of the buildings were probably used for storage of grains. Separate buildings with a large number of rooms or enclosures were also constructed in the later period, which were exclusively meant for storage. Continuous improvements were made in agriculture also. These early settlers learnt to make small dams on the streams and built channels to take irrigation water to fields located some distance from the banks of the rivers. They learnt to make better implements for preparation of seed-beds, which vastly improved the yields. They realized very early that clay available along the banks of the river could be utilized to meet their need for vessels from which to eat food and for storing

food and water. Initially the only tools used by him for making bowls out of the clay were his hands and after forming into crude shapes they were dried in the sun. Soon he realized the value of fire for hardening the clay. With practice he began to vary the shapes and forms of his products and his penchant for ornamentation fostered the idea of decorating his ware. The wheel turned pottery produced around 3500 BC had a gray or buff base over which beautiful polychrome geometric patterns were painted. Already in this period pottery production had become a regular industry. Simultaneously other types of craft industries for the manufacture of wide variety of beads and ornaments and for making tools and implements from copper and bronze were also established in the later period at Mehrgarh. As the settlement at Mehrgarh spread and expanded, other settlements emerged in the period between 5000 BC and 3000 BC not only in the immediate vicinity of Moenjodaro but also in the southern Indus Valley. The process of urbanization continued early in the third millenium BC at places like Amri, Kot Diji, Harappa and most likely Moenjodaro, which paved the way for a full-fledged civilization in the Indus Valley and adjacent areas around 2500 BC.

The Character

The civilization first emerged in the core Indus Valley around Harappa and Moenjodaro. The largest group of Indus sites belonging to this period was along the western banks of the Indus River to the south and southwest of Moenjodaro. From here the civilization spread during the next 300 years to the upper Indus plains, the Makran coast and other areas in Baluchistan, Cholistan, Rajesthan, Cutch and Kathiawar. The maximum spread of the civilization was probably around 2200 BC. The metropolitan culture which developed in cities like Moenjodaro and Harappa in the period around 2500 BC, was based on a lifestyle, which was conceptually quite modern and finds no parallel in any other ancient civilization. The entire cities were laid out according to a well thought out plan, which provided for the division of the total area of the city into square and rectangular blocks by 10-meter wide streets and lanes. Different sectors were allocated for residential houses, craft industries, agricultural farms and public buildings. Public drainage and sewerage pipelines and channels ran all along the streets and were connected to the drainage and sewerage systems of the houses. A very large number of small and large houses were constructed in the residential sector to cater to the needs of the entire population. The

houses were made with kiln-baked bricks and were provided with courtyards, bedrooms, kitchen, toilets, bathrooms and stairs leading to the upper floor. The major public buildings were situated on the citadel mound, which was well fortified and protected against floods and marauding gangs.

The absence of magnificent palaces and huge statues indicates that the ruling regime was not an absolute monarchy. The ruler of the Indus State was probably a Chief, who was elected by major clans. The nature of the public buildings, the expanse of the city and the type of artifacts recovered from the site, indicates that the seat of Government was probably in Moenjodaro. Different city-states seem to have enjoyed a large degree of autonomy but were politically linked with the central regime. The city-states were bound to the center because the central regime was technologically and culturally more advanced and had developed an effective system for trade and commerce. Some sort of controls may have been enforced on trading activity and use of technology by the central regime, but basically it was the strength of the economy, the superior technological skills and a highly developed culture in the core Indus Valley, which brought the outlying areas to accept the leadership role of the regime at Moenjodaro. The result was a much higher degree of uniformity in the culture of all the regions covered by the Indus Civilization compared to that in other ancient civilizations. The uniformity was apparent in the religious beliefs, script, weights and measures, design of the artifacts, construction of buildings and layout of towns.

Seal with Zebu Motif

The common culture and lifestyle of people in all the regions was achieved without force or coercion, which contributed to a harmonious working relationship between regions spread far and wide. There is no evidence of major wars or conflicts although minor skirmishes and raids may have been a part of the struggle for supremacy within the clans and among different clans. This is also obvious from the fact that in a society in which the level of technical skills was quite high, very little attention was given to development of sophisticated weapons. The orientation of the state seems to have been largely towards trade and commerce and industrial and agricultural activity rather than to-

wards expansion through conquests. The relative peace and harmony is also apparent from the relationships between different segments of the society. There is no evidence of caste system and there were no slaves, who would move heaven and earth to build massive monuments and statues to satisfy the ego of the rulers. The priests occupied an important place in the Indus society. However their role was similar to the role of the priests in modern societies in this part of the world, where they are required to look after the spiritual needs of the people. The priests came from a background of yogis and hermits and were not particularly interested in power. As custodians of temples and other religious places, they conducted religious ceremonies and performed rituals, which were a prominent part of the life of Indus citizens. The religious ceremonies and rituals were religious cum social events and there was participation of all sections of the population in these functions.

The active participation of all sections of the society in the social and cultural life of the cities is also reflected in the types of goods, which were produced in the craft workshops and traded in the markets. A large number of pottery items were mass-produced to cater to the needs of the common man. Ornaments, utensils and other articles were produced in different grades to suit the buying power of different elements in the society. The variety of goods produced and the volume of demand from a highly participative society led to the establishment of a large number of craft industries. A number of towns and villages emerged in which the exclusive or predominant activity was the production of craft items. While fertility of the soil and sound agricultural practices took care of the basic requirements of food, it was the craft industry, which served as the backbone of the economy.

The high degree of technological and artistic skills of the Indus craftsmen and artisans is reflected in the wide variety of articles produced and the type of materials used in their production. The large number of seals recovered from Moenjodaro and Harappa serve as examples of the highly developed aesthetic sense and high quality of craftsmanship of the Indus artisans. About ten different animals including the unicorn, the humped bull and the elephant appear on different seals along with characters and symbols of the Indus script. The magnificent portrayal of the animals and the intricate engravings of the various parts of the animals like the muscles, the curved horns, the genitalia and dewlap are masterpieces of art and skill for which there is no equivalent in the ancient world. After hardening of the seals in heating furnaces, they became very durable and could be used for several stampings on clay without losing their quality.

Another area in which the Indus artisans excelled was the manufacture of beads and ornaments. These beads were produced from a large variety of materials including gold, silver, turquoise, carnelian, agate, marble and steatite. They were cut, drilled and ground to produce different shapes and the surfaces were often engraved or painted with beautiful patterns and designs.

Pottery has been produced in a number of ancient cultures, but the variety of designs, shapes and sizes and the volume of pottery produced in the Indus civilization was unmatched by any other ancient culture or civilization.

The Indus artisans made another major contribution in the field of manufacture of cotton textiles. While linen and woolen textiles had been produced in the Egyptian and Sumerian Civilizations, the Indus craftsmen were the first to use cotton for making textiles.

The Decline

The Indus Civilization began to take shape around 2750 BC. In the period around 2200 BC, it was at its peak. But then the decline started in different regions. The spirit which had launched the civilization began to wane and the will, determination and resolve to break fresh ground was no longer there. One of the reasons for this general attitude of complacency was the lack of competition and inspiration from competing cultures in the region. Early in the third millenium BC, the Indus people had demonstrated a lot of courage and grit in warding off natural disasters by building their settlements afresh and constructing new cities on artificial mounds raised more than 10 meters above natural surface of the soil. They built massive embankments and walls to protect their settlements from floods and raiding parties. But at the turn of the second millenium BC, the will and motivation was no longer there to counter the effects of natural disasters, which upset the natural balance in which the civilization had grown. The Indus people had faced the breakdown of communications and destruction of settlements before with will and fortitude, but early in second millenium that spirit had begun to wane. The drying up of the Hakra-Ghagger River was a very gradual process. If the spirit of the early period of the Civilization had been alive, the Indus people would have adjusted themselves to these gradual changes through gradual shifting of the population to more fertile regions. Basically it was this attitude of complacency which brought about the decline. Archaeologists have found a gradual decline in the quality of construction and artifacts in the upper layers of the excavations. As this decline continued, the bonds, which

had kept the different regions together, became weaker and weaker. The civilization gradually split into a number of regional cultures. These regional cultures did not have the strength to revive the civilization in some other form. By 1000 BC, there was not much left of the Indus Civilization.

Terminology

The Indus Civilization first emerged in the lower Indus Valley. In the centuries, which followed, it spread to other areas away from the main Indus Valley. These areas include the hilly areas of Baluchistan, the Hakra Plains in Cholistan, the Ghagger Valley in Rajesthan and Haryana and the coastal regions of Cutch and Kathiawar. However in the entire period from 2750 BC to 1200 BC, the heart and soul of the Civilization remained in the lower Indus Valley around Moenjodaro and Harappa. Hence the name Indus Civilization has been retained in this book. Indus has also been used as an adjective throughout this book to qualify nouns related to the civilization as a whole and is not meant to have regional connotations. Thus the terms Indus people, Indus artifacts, Indus artisans have been used to describe people, artifacts and artisans belonging to other regions of Indus Civilization also, which are located away from the main Indus Valley.

CHAPTER 2

GEOGRAPHICAL FEATURES AND ENVIRONMENT

The Indus Civilization was spread over an area of one million square kilometers. It covered the northwestern part of the Indo-Pakistan sub-continent from the Himalayas to the Arabian Sea and from the present boundaries of Baluchistan with Iran and Afghanistan in the west to Rajesthan and Gulf of Cambay (Khambat) in the east. It comprised the entire area of present day Pakistan plus a strip 150 about kilometers wide running all along the eastern boundary of Pakistan. It included diverse topographical regions. In the north, there were the highest mountain ranges in the world with picturesque mountain valleys and in the south the coastal plains on the Arabian Sea. In the west, there were rugged hills and desert plateaus and in the east, river valleys bordered by vast desert areas. The central region comprised of vast plains watered by the Indus and Hakra-Ghagger Rivers and their tributaries. These diverse topographical regions played an important part in the development of the Indus civilization. A description of each of these topographical regions is given below.

THE HIMALAYAS AND THE NORTHERN SUB-MONTANE REGIONS

The Himalayas stretch for about three thousand kilometers along the northern boundaries of the Indo-Pakistan Sub-continent. The parallel mountain ranges of the Himalayas, which formed the northern boundaries of the Indus State, were the Karakorams in the northeast and the Hindukush in the northwest. The Karakorams extend from the western limits of the main Himalayas upto the Pamir Plateau. Here the Karakorams

View of the Hindukush Mountains near Chitral. These mountains formed an effective barrier against invasions across the northern boundaries of the Indus State. Also, the coniferous forests along the slope of these mountains were important source for timber for the construction industry.

meet the Hindu Kush, which run in the northwesterly direction upto the western extremities of the entire Himalayan mountain system. The Karakorams and the Hindukush themselves, have parallel mountain ranges covering a width of 80 to 300 kilometers. The inner ranges to the northeast of the Indus plains consist of low hills upto 1000 meters high and separated from the Karakorams by the beautiful valleys of Hunza, Gilgit, Baltistan and Jammu and Kashmir. Similarly towards the northwest, the beautiful valleys of Chitral, Swat and Kohistan separate the inner hills from the Hindukush range. In the middle mountain ranges of the Karakorams and the Hindu Kush, the heights of the mountain peaks range from 2000 to 4500 meters. Historically, this zone has supported the extensive and magnificent forests of the conifers, oaks, maples, laurels and magnolias. The outer ranges of the Karakorams and the Hindukush include high peaks. In the Hindukush range, The Trichmir in the Chitral region rises upto a height of 7600 meters and there are several peaks, which are more than 7300 meters high. Towards the west, in the Karakorams, Mount Godwin-Austin, the second highest mountain peak in the world, reaches a height of 8610 meters and here too there are several mountain peaks with heights in the range of 7600 to 8000 meters.

The Himalayas and the sub montane regions at the base of these

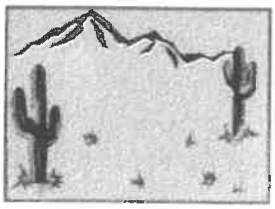
mountains formed the peripheral areas of the Indus Civilization. The river valleys higher up in the mountains have always been thinly populated. These people were more or less isolated from the plains. Their participation and their effect on the mainstream activities of the plains have been minimal. However the mountains themselves created a major environmental impact on the Indus Civilization. The first and foremost was that these mountains were the source of the mighty Indus and Hakra-Ghagger Rivers and their numerous tributaries, which were the mainstay of the Civilization. The second environmental impact was that the barrier created by these mountain ranges protected the regions south of these mountains from the fierce dry and chilly Siberian winds. The resulting climate in the plains was warm and favorable for the rise of the civilization. The third environmental impact was that the height and depth of these mountains made the areas south of these mountains relatively safe from mass migrations from the north. The mountain passes were mostly at heights of 4300 to 4500 meters. The only mountain pass, which was at a lower level, was the historic Khyber Pass in the Hindu Kush range. This Pass connects the frontier town of Peshawar with Kabul, the capital of Afghanistan and this was the route taken by most invaders who crossed into the Indo-Pakistan sub-continent after 600 BC. During the later phases of the Indus Civilization, nomads from Central Asia and Afghanistan, attracted by the prosperity brought by the Civilization, may have moved southwards through this pass in small bands. But these migrations, spread over several centuries, did not create any ethnographic impact in the Indus region until well after the demise of the Indus civilization. Some trade between the Indus cities and trading posts in Afghanistan passed through the Khyber Pass, but by and large the major trade route was through the Bolan Pass in the western regions of the civilization. This was because the focal point of the Indus civilization was Moenjodaro and traditionally the lower Indus valley has been linked with Kandahar and other western and northwestern trading posts through the Bolan Pass.

The mountain streams brought small pebbles of gold and rubies from the sources located in the mountain ranges. These streams became important sources of precious stones and metals for the Indus workshops. Emerald mines are located in the Swat valley but there is no evidence that

these mines were being tapped in the Indus era. Apart from these precious stones and metals, the forests in the slopes of the mountains were an important source of soft and hard timber, which was extensively used by the Indus craftsmen in construction of buildings and for making furniture.

WESTERN MOUNTAINS, DESERT PLATEAU AND VALLEYS

The western region of the Indus



civilization comprised of the present province of Baluchistan On the western extremities this region has common boundaries with Southern Afghanistan and Iran. The Hindukush mountain range forms the northern boundary. The Sulaiman Range and the Kirthar Range form the eastern boundaries with Punjab and Sind respectively. The Makran Coast forms the southern boundary of the province.

The entire area of about 131,000 square kilometers is crossed by several rugged and barren mountain ranges. In the northwest are the extensions of the Hindu Kush, the Toba Kakar Range, the Sulaiman Range and the Central Brahui Range. To the west, there are the Chagai Hills. In the south, are the Makran Coastal Range and the Central Makran Range, which are separated by the Kech valley. And towards the east, there is the Kirthar Range in the south and the Sulaiman Range in the north. The average height of these mountains is about 3200 meters.

The central and western regions of Chagai and Kharan are desert plateaus, which are exposed to bitter winds in winter and sandstorms in summer. There is very little in this region to sustain a settlement of any size. As such the very few people who live here are nomads, who roam around in search of water and pasture for their herds of sheep and goats. The Chagai Hills on the western boundaries of this region are rich in minerals. The copper mines located in this area were one of the main sources of supply of this metal to the workshops located in the Indus cities. Lapis lazuli is also available in this region.

Most of the ancient settlements in the Baluchistan region were located in valleys in between the mountain ranges. The availability of water from the mountain streams and small rivers made it possible for the people inhabiting these valleys to eke out a living through cultivation of crops and maintaining herds of sheep and goats. However very few rivers are perenial. The people living in these valleys led a

semi-nomadic form of life. In the winter they moved to the plains located on the east along with their herds, where they set up temporary settlements along the banks of rivers. In the north the settlements were located in the fertile region around Quetta, upto Chaman in the west and Kalat in the south. In the eastern region of Baluchistan most of these settlements were located in the Zhob River valley and in the valleys south of the Central Brahui Range and west of the Kirthar range. The people inhabiting these valleys developed their own indigenous cultures in the pre-Indus era. The pottery produced in these early settlements in the Chalcolithic era, indicates that these people were in regular contact with settlements in southern Afghanistan and Persian Makran, particularly Mundigak and Bampur. There seems to have been a fair amount of traffic through the Bolan Pass.

The Bolan Pass is a steep gorge in the Central Brahui Range, about 100 Kilometers in length. The maximum height of the Pass is about 1800 meters. The Bolan River, which has its source in the mountains near Quetta, flows through the gorge into the Kachchi Plains in the eastern region of Baluchistan. The Bolan Pass provides a vital link between the Kachchi Plains located on the east of the Central Brahui Range and the Quetta valley. From Quetta the region is connected through the Khojak Pass to Kandahar, an important trading post in Southern Afghanistan.

The Kachchi Plains in eastern Baluchistan played a significant role in the development of the Indus Civilization. In winter, the snow begins to appear on the mountain tops of the Central Brahui Range and the cold wintry winds sweep across the valleys. This harsh weather drives the people living in the valleys to the eastern plains. Here they spend the summers on the banks of the Bolan River, cultivating the land and tending their flocks of sheep and goats. A large number of these mountain folk have continued with this nomadic way of life since the period before settled form of life emerged in the region. However, around 7000 BC, a few families and tribes from these mountain valleys decided to give up their seasonal migrations. They established the first settlements in the sub-continent at Mehrgarh in the Kachchi Plains. These plains are among the most fertile regions in Baluchistan and are strategically located at the mouth of the Bolan Pass. The water from the Bolan River permits cultivation of a wide range of crops in this region all the year around. The Kachchi plains are contiguous with the Indus Valley to the west of Moenjodaro and are physically a part of Sind Province of Pakistan.. During the early period of settled life, the people living in the Neolithic

settlements of Mehrgarh and Nausharo in the Kachchi Plains learnt to increase the yields from the farms through irrigation and better methods of farming the land. They also learnt to produce wheel turned pottery and other craft items. They built houses of mud-bricks and stored food-grains in separate areas of these buildings. The developments made during this early period at Mehrgarh laid the foundations for the Indus Civilization, which emerged in the neighboring region around Moenjodaro in the third millenium BC.

Two other eastern mountain ranges of Baluchistan have been the source of a number of streams and small rivers, which have provided water to the plains in Punjab and North West Frontier to the east of these ranges. From the Sulaiman Range the Luni River and other streams provide water for cultivation to the Dera Jat area located between the Sulaiman Range and the Indus River. Towards the north of the Dera Jat area, the Gomal River provides fertility to the Gomal Plains. The Gomal and Zhob Rivers, which originate in the Kakar Range, join to form the main Gomal River near the border with Afghanistan. From there the Gomal River flows eastwards through the Gomal Pass to join the Indus River near Dera Ismail Khan. The important Indus towns of Rehman Dheri and Gumla are located in the Gomal Plains and Dera Jat area.

THE INDUS PLAINS

The Indus Plains constituted the most important region of the Indus Civilization. The Indus River, which waters these plains, covers a distance of 2880 kilometers from its source in Tibet to its outlet in the Arabian Sea. From the point where the river enters the plains, the land slopes gently from a level of about 300 meters above sea level to sea level over a distance of about 1800 kilometers.

The Indus Plains need to be considered in two parts. In the northern part all the major tributaries of the Indus River run parallel to the main river for considerable distances before joining the main river. The southern part of the plains are reckoned from the point where all the tributaries have merged with the main Indus River at a point called Panjnad and from there only the main Indus river flows through a relatively narrow river valley before entering the Arabian Sea.

The Northern Indus Plains:

These plains cover an area of about 150,000 square kilometers, 500 kilometers long and 300 kilometers wide. The Indus River after passing through Tibet, the Karakorams, Kashmir, Gilgit and the Hazara region in Pakistan, enters the Indus Plains at a point called Attock Khurd. Here, the Indus is joined by its major western tributary the Kabul River. The Kabul River enters the Plains somewhere near Peshawar from Afghanistan. After travelling for about 100 kilometers, through the Peshawar and Charsadda region, it reaches Attock Khurd. From there, the Indus flows along the western boundaries of the plains, before it joins its major eastern tributaries at Panjnad. The five major eastern tributaries, the Jhelum, Chenab, Ravi, Beas and Sutlej flow hundreds of kilometers parallel to the main river before they merge with each other or join the main river. During their journey across the plains, the Indus and its tributaries span a width of about 300 kilometers. The Sutlej River was originally not a part of the Indus system. Sometime in early second millenium BC, it changed its course, moving westwards, first to capture the Beas River and then join the main Indus River near Panjnad. The major tributaries of the Indus River are major rivers in their own right and their impact on the topography and economy of the northern Indus Plains has perhaps been more than that of the Indus River. This is because the eastern tributaries of the Indus River flow through the heart of the plains, while the route taken by the main river is through rocky and hilly terrain. Also for considerable distances the level of the water in the Indus River in this section remains well below the level of the adjacent plains, making it difficult to use this water for irrigation purposes. One other topographical variation in the northern region, which is noteworthy, is the Potohar Plateau, which covers an area of about 10,000 kilometers south of Rawalpindi. As no major river flows through this plateau, this region is totally dependent on the rainfall for its agriculture.

The Southern Indus Plains:

After the Indus passes through the Salt Range at Kalabagh, the gradient becomes very low, about 4.8 centimeters/kilometer. From this point onwards the gradient of the land is higher compared to that of the riverbed, about 13cm/kilometer. Consequently the water level rises steadily making the area particularly vulnerable to floods. Furthermore due to low gradient the sedimentation rate is high, which has been responsible for raising the level of the surrounding plains substantially. After Panjnad, the point where the Indus River merges with its major eastern tributaries, the water in the Indus River increases substantially. In the Indus era there were no major dams across the rivers and no interconnected network of canals and barrages, which control and divert the water in the Indus River and its tributaries in the upper Indus valley these days. Thus the water flowing through the Indus River in the lower Indus valley included all the water of the Indus River and its major tributaries. This larger quantity of water available in the southern regions, together with the fact that the terrain in the south was much smoother and even, made the impact of the river system somewhat different than that in the northern region. On the one hand it was easier to tap the water through canals taken out from the main river all along its route. On the other hand the large quantity of uncontrolled water flowing through the Indus River in the summer season together with the evenness of the terrain, made the southern Indus valley more liable to damage by floods. However, inspite of the constant danger of floods, most of the settlements in this region were established on the banks of the Indus River or within a strip of land 30 kilometers on each side of the river. This was because the annual rainfall was too little for the people to eke out a living through the practice of agriculture. The flooding by the river in a way helped agriculture by bringing in alluvium and enriching the soil, which greatly increased the crop yields. Due to fertility of the soil and because of the navigability of the river a large number of settlements emerged along the western banks of the Indus in this region in the Chalcolithic era. In the Indus Civilization period these settlements developed into towns and cities. Among these were Moenjodaro, Amri, Chanhudaro and Ghazi Shah.

In ancient times there was a heavy growth of long blade grasses and reeds all along the banks of the river. Also the area outside the flood plains was thickly forested. These forests were rich sources of timber for the construction of buildings, making of furniture and for use as fuel in the brick kilns. A large number of animals also inhabited these forests and grasslands. These included the

elephant, wild boar, tiger, various varieties of deer, and reptiles. Domesticated animals included the zebu bull, goats, sheep, buffalo and pigs. Fish and fowls were also available in plenty to provide a large variety in the food resources.

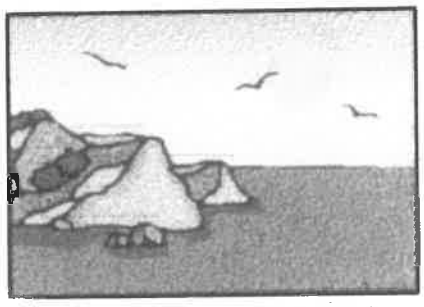
THE HAKRA-GHAGGER RIVER VALLEY

The geological investigations carried out in the eastern regions of the Indus Valley Civilizations have revealed that in the third millenium BC there was another river, which ran parallel to the Indus River to the east of it. This was the Hakra-Ghagger River, which had its source in the Siwalik Range, which are a parallel range of the Himalayas facing the plains. The Hakra-Ghagger River flowed east of the Indus River and exited into the Arabian Sea not far from the Indus Delta. The River is known by the name of Hakra in the lower section south of Fort Abbass in Cholistan, and Ghagger or Saraswati in the northern section of the river in Himachal Pradesh and Rajesthan. The Sutlej River flowing to the west of the river was its major tributary and there was another tributary to the east. Dr. Rafique Mughal, who carried out extensive investigations on the archaeological sites in the Cholistan region, is of the view that the Hakra river was a perennial river in the period 4000 to 2750 BC. During this period a number of pre-Indus sites were established along the banks of this river. At about the time when the Indus Valley Civilization was emerging in the core Indus Valley around Moenjodaro, the water supply to the northeastern section of this river, known as the Ghagger River, began to be reduced considerably due to the silting up of the river. The Sutlej River was cut off from the Ghagger River just before it entered the Cholistan region but continued to feed the Hakra River south of Fort Abbass. The reduced flow into the Hakra River and further silting up of the river bed in the southern Cholistan region, dried up the river bed between Derawar in central Cholistan and the Arabian Sea. The Hakra River instead of flowing into the sea ended up in an inland delta of a lake, south of Derawar. Thus a large number of settlements continued to survive during the Indus era. In the south, these settlements received water from the Sutlej River, while in the north the reduced supply from the Ghagger River and the continuing supply from the Sutlej River ensured the growth of large number of settlements in the Indus era. These settlements had been established in the Hakra-Ghagger River Valley in the Chalcolthic period. As the Indus Civilization spread eastwards around

2200 BC, these small settlements in the Hakra-Ghagger Valley grew into small towns and cities. Among the more prosperous Indus towns and cities which were located in this region were Kalibangan, Banawali, and Rakhigarhi in the Ganganager District of Rajesthan and Ganweriwala and Derawer in the Cholistan area east of Bahawalpur. This prosperity in the region continued till about1600 BC. About this time, the silting up of the Ghagger River was complete, which turned the southern areas of Rajesthan into deserts. The water, which originally flowed through the main Ghagger River, was diverted to its two main tributaries, the Sutlej and the Ur-Jumna Rivers. The consequent increase in the volume of water in the Sutlej River resulted in the river changing its course westwards. In this process it captured the Beas River also and the reinforced Sutlej River took a course to the east of the route taken by the original Beas River and to the west of its original route. The route taken by the Sutlej is through Sulemanki, then east of Bahawalpur before it joins the Indus River at Panjnad. The Beas River originally flowed through Chunian and east of Harappa before it joined the Chenab River near Panjnad. After the Beas River merged with the Sutlej, just northeast of Pakistani border town of Kasur, the dry bed of the Beas River south of Kasur caused a shift in the population eastwards towards the bank of the Sutlej River. The changing of the course of the Sutlej River dried up the southern portion of the valley in Cholistan. By 1200 BC all the settlements in this region had been abandoned and people moved towards more fertile regions in the west or to the Jumna-Ganges basin in the east.

The above major geological changes in this region had a major impact on the Indus Civilization. The Indus Civilization had brought a lot of prosperity to the Hakra-Ghagger River Valley in the period around 2200 BC but this prosperity gradually faded away. The silting of the Hakra-Ghagger River Systems and the resulting changes in the route of the Sutlej and Ur-Jumna Rivers not only destroyed all the elements of the Indus Civilization in this region, it also had disastrous effect on the civilization in the core Indus Valley.

THE COASTAL REGIONS



Along the southern boundaries of the Indus Civilization were the coastal areas of the Arabian Sea. The Indus Delta is formed south of the town of Thatta, where the river divides into almost a dozen channels and

COASTAL REGIONS

The 1000-kilometer coastline along the Arabian Sea became an important element in promotion of external trade during the Indus Civilization period. The ports along the Indus Delta connected the coastal stations with the inland regions along the banks of the Indus River. Because of this trade important trading posts like Balakot, Sotka Koh and Sutkagen Dor located west of the Indus Delta, became reasonable sized towns.

The coastline is extremely rugged and there is acute shortage of drinking water over long stretches. The exceptions were in the regions near the coastal stations, which were located on the banks of streams flowing into the Arabian Sea. These streams connected the coastal stations to river valleys in the interior.

The widely dispersed coastal stations all along the inhospitable Makran coastline facilitated trade through camel caravans with the coastal regions of Iran right upto the border of Iran with Mesopotamia. However a more efficient communication link was provided by sailing boats, which connected the Makran coastal stations with the Oman peninsula and further through the Persian/Arabian Gulf with Bahrain, the Arabian littoral region and the Mesopotamian ports at the mouths of the Euphrates and the Tigris.

Besides the importance of the Coastal Stations along the Makran coastline to the external trade of the Indus Civilization with the Mid-East, these coastal stations grew in importance due to their craft industries for bangles and ornaments made from shells. The finished ornaments as well as shells in the raw form were supplied to inland areas along with other items like dried fish.

creeks. The Delta covers about 7500 square kilometers of flat land over a coastline of about 200 kilometers. Some channels of the Indus Delta were navigable for large sea going vessels in ancient times. To the west of the Indus Delta there is the 800-kilometer long Makran Coast leading to the border with Persian Makran. To the east of Karachi, the Indus Civilization covered the coastal regions of Cutch and Kathiawar.

All along the Makran Coast the surface is uneven, with a number of ups and downs. Except for a short distance of about 100 kilometers between the Indus Delta and the mouths of the Poralli River about 60 kilometers west of Karachi, the entire western coast is lined with barren hills as in the case of central and western Baluchistan. The rainfall is negligible and, except at the outlets of a few mountain streams and small rivers, there is acute shortage of drinking water. The few mountain streams or rivers in the western section of the Makran Coast connect the Kech valley, which is located between the Makran Coastal Range and the Central Makran Range, to the sea-coast. Among the prominent rivers in this section, are the Dasht Kaur River and Shadi Kaur River. At the mouth of the Dasht-Kaur River there was an important pre-Indus trading post of Sutkagen Dor, which grew into a small, fortified town in the Indus era. Similarly at the mouth of the Shadi Kaur River was another important trading post of Sotka Koh. Both these trading posts were carrying on trade in the pre-Indus era with the Oman Coastal Stations across the Arabian Sea. In the Indus era these trading posts or small towns served as stops in the route of the sailing boats plying between the Indus Delta ports and Oman and Mesopotamia. These sailing boats sailed fairly close to the coast and during their westward journey sailed into these trading posts to load and unload trade goods from the hinterland and also to replenish their supplies of fresh water and food. Another important coastal station, Balakot, was located near the mouth of the Poralli River about 65 kilometers from Karachi. Balakot was connected to the fertile valleys west of the Kirthar Range. Also through the ports at the mouths of the Indus River, Balakot supplied shells and dried fish to inland settlements, including Moenjodaro and Harappa.

To the east of the Indus Delta were the coastal regions of Cutch and Kathiawar (Saurashtra). This area was less rugged and arid compared to the Makran Coast. A number of important trading posts were located on this coast, which served as outlets for resource areas located in the hinterland. The minerals, semi-precious stones and shells from this region were processed in the craft workshops located in the core Indus Valley. Sailing boats from important coastal towns of Lothal and Dholavira may have sailed up the Indus from the Indus Delta to towns and cities located inland.

THE CLIMATE

Most scholars agree that there has been no major change in the climate of this region during the last 10,000 years. There may have been some minor effect on the climate due to exploitation by man. The clearing of vegetation to make way for settlements and cultivation of crops may have had some effect. Similarly the artificial methods used for irrigation and the grazing of animals would have altered the topography of the region to some extent. But by and large the overall climatic conditions in the region remained unaltered.

The variation in climate of different regions covered by the Indus civilization would have more or less remained the same as we find today. The coastal regions around Karachi have short mild winters from December to February and warm weather during the remaining nine months. The means of daily maximum and minimum temperatures in this region, when calculated over a period of one year, are around 32 degrees and 20 degrees Celsius. In the lower Indus valley the summers are particularly severe with the maximum temperature reaching 48 degrees Celsius. The means of daily maximum and minimum temperatures in this region, when calculated over a period of one year are around 34 degrees and 19 degrees Celsius respectively. The upper Indus Valley has four regular seasons; cold winters, with the minimum temperature around 4 degrees Celsius, short autumn and spring, and hot summers with temperatures reaching 46 degrees Celsius. The mean of daily maximum and minimum temperature, calculated over a period of one year, are 30 degrees and 17 degrees respectively. In the Potohar Plateau near Rawalpindi and in the areas at the foot of the Himalayas, it is relatively cooler and in winter the minimum temperatures reach below freezing point.

Most of the regions in the core Indus Valley receive rains from the monsoon winds. However the rainfall is scanty and insufficient for agricultural production. The only exception is the Barani Zone between Rawalpindi and Jhelum. Here the annual rainfall is around 1750 millimeters, which is sufficient for cultivation of a variety of crops. In the Plains the sparse rainfall has to be supplemented by water from the rivers. During the rainy season and in summers, when the snow melts in the mountains, sufficient water is available for cultivation of crops. In ancient times seasonal flooding of the rivers enriched the soils every year, which made cultivation of food crops and industrial fiber possible. In addition a wide variety of irrigation schemes were employed in different regions of the Indus Civilization. In the low-lying areas along the Indus Valley main canals from the banks of rivers took water inland for further distribution through a network of secondary canals. In other regions

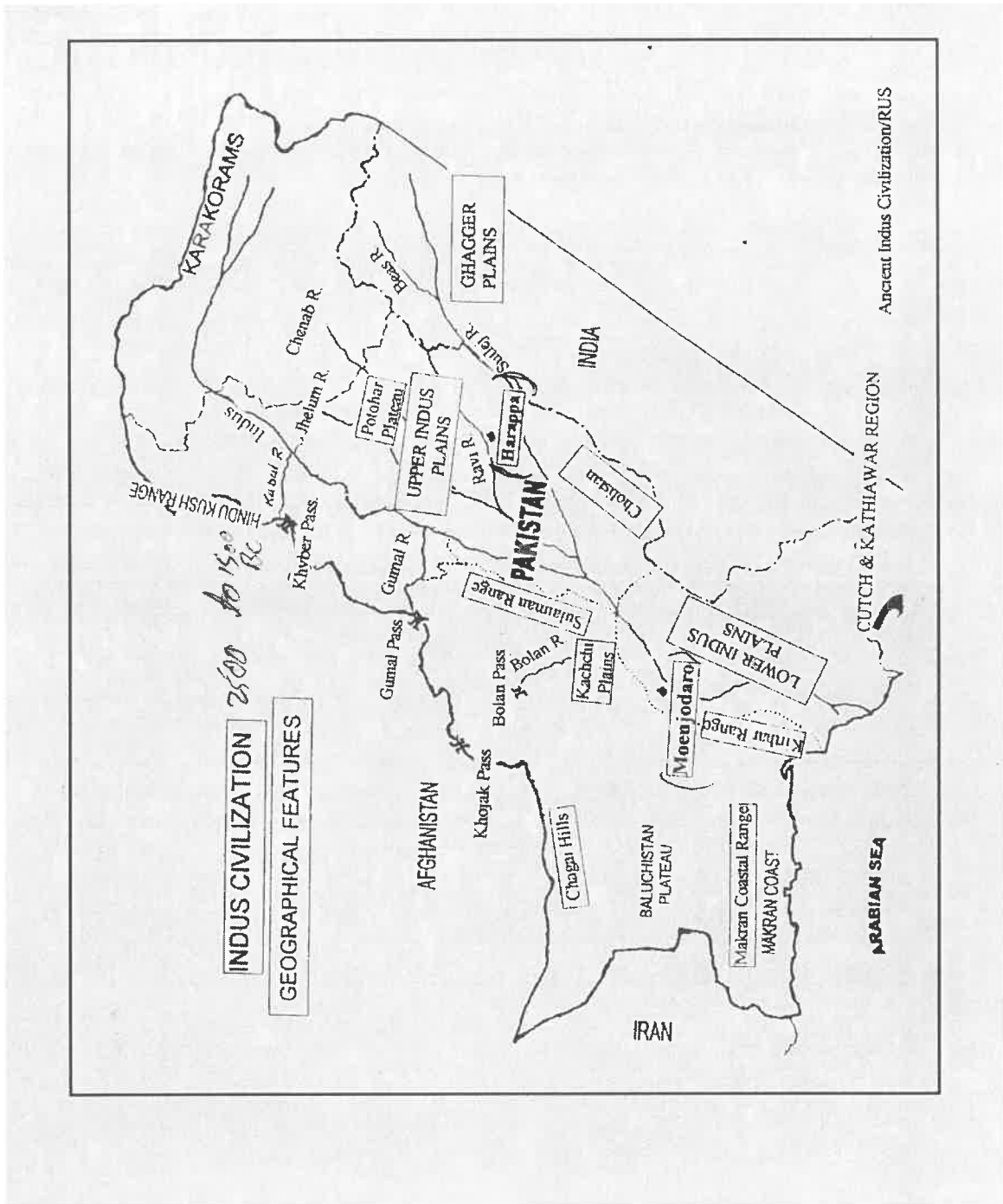
along the Indus Valley a variety of lifting devices like the water wheels were used to lift water to the fields. In some remote areas water from the wells was used for irrigation while in the hilly areas the water in the mountain streams was controlled with the help of walls and dams and diverted to the fields. Systematic watering of the vast expanses of arid land in different topographical areas brought large areas under cultivation, which made it possible for the cultivation to spread far and wide into areas remote from the riverine valleys.

Saraswati or Hakra-Ghagger River

The Indus era and pre-Indus era settlements in Rajesthan, India, just east of the border with Pakistan, were located on the banks of the Ghagger River. Due to silting, the flow into the river ceased after 1500 BC. One end of the dry bed of this river is located near Marot in Cholistan. The dry bed runs eastwards through Fort Abbass, Anupgarh, Suratgarh, Hissar and Jind. Its headwaters were probably located in the Siwalik Hills or near Mount Kamet. The dry bed of another branch of the river connects Hanumangarh to Suratgarh. Most of the settlements were located near the northern boundary of Ganganager District of Rajesthan with Indian Punjab.

On the Pakistan side of the border, in Cholistan, the river is called Hakra. The dry bed of the river links Fort Abbass to Derawar Fort. There is no concrete evidence of the river flowing into the Arabian Sea at least in the period 3500 to 1500 BC. Probably the river flowed into an inland lake near Derawar. It is generally believed that a stream from the Sutlej River provided sufficient water to the Indus settlements around Derawar till the end of 1500 BC. After 1500 BC these settlements were abandoned and people moved towards the Jumna basin.

Many scholars believe that the Ghagger is the same as Saraswati River. This seems unlikely. Saraswati River has its headwaters near Mount Kamet near India's border with Tibet, from where it runs eastwards to join the Alaknanda, an eastern tributary of the Ganges. If Saraswati River were to join the Ghagger River in ancient times, its course would have to be southwards from its source instead of eastwards. This seems highly improbable. The likelihood is that Saraswati and Ghagger were two different Rivers, both having their source near Mount Kamet.


INDUS CIVILIZATION
GEOGRAPHICAL FEATURES
KARAKORAMS
HINDU KUSH RANGE
Indus
Kabul R.
Khyber Pass.
Jhelum R.
Chenab R.
Ravi R.
Sutlej R.
Potohar Plateau
UPPER INDUS PLAINS
Harappa
GHAGGER PLAINS
INDIA
PAKISTAN
Cholistan
Gumal R.
Gumal Pass
Sulaiman Range
Bolan Pass
Bolan R.
Kachchi Plains
Khojak Pass
AFGHANISTAN
Chagai Hills
BALUCHISTAN PLATEAU
Moenjodaro
Kirthar Range
LOWER INDUS PLAINS
CUTCH & KATHIAWAR REGION
Ancient Indus Civilization/RUS
Makran Coastal Range
MAKRAN COAST
ARABIAN SEA
IRAN

CHAPTER 3

EVOLUTIONARY PHASES OF THE INDUS CIVILIZATION

Pakistan, the country where the Indus Civilization took shape about 5000 years ago is a relatively new country; the name first appeared on the maps of the world about half a century ago, in 1947 to be precise. However the history of the land is very old. It goes to the time long before man first began to cultivate crops and domesticate animals. The history begins two million years ago when hominids roamed about over the plains watered by the Indus River. This early appearance of man in this region is indicative of an environment in which early man felt comfortable and could meet his basic requirements of food with relative ease. The favorable environment, which was described at length in the previous chapter, was conducive to the appearance of hominids in this region in the early Palaeolithic period. The evidence for the presence of Homo erectus in this region has become available in the form of crude stone tools found in large quantities in the Potohar Plateau region around Rewat on the outskirts of Islamabad. These earliest crude stone implements were made by flaking quartzite. Modern scientific methods used to date these tools indicate that these tools are about two million years old. This discovery is of great significance as it indicates that outside Africa it was in this region that Homo erectus first appeared. The early man gradually improved these tools and implements as his method of hunting and gathering improved. This is indicated by better quality heavy butted hand axes found in the valley of Soan River near Rewat, which date back to the lower Palaeolithic period between two million and 100,000 years ago. Other stone implements belonging to upper Palaeolithic period around 30,000 BC, have been found from the Rohri Hills in the lower Indus valley. More refined methods were used in the

making of these implements. These included indirect percussion techniques and use of soft hammers to produce sharp edged blades and scrapers used by the hunters and gatherers to earn their livelihood.

In the period 30,000 to 10,000 BC, the nomads from the regions to the west of the Baluchistan Plateau may have started to move towards the Indus Plains. A certain amount of mixing of races may have been taking place as the hunters and gatherers roamed across different regions of the Indus Plains in search of more diversified sources of food.

Around 10,000 BC, major development towards settled form of life took place in the region. From dependence on wild plants and animals, a move was made towards organized farming in the river valleys in the hilly regions of northwestern Baluchistan and in the plains. The hunters and the gatherers selected spots along the banks of mountain streams and in the plains, where they started cultivation of crops of selected cereals and domestication of sheep and goats. In this way he overcame the uncertainties associated with gathering and hunting for food on a day to day basis. In the spots, which they selected, water was easily available. Further the semi-permanent settlements, which they built out of mud and reeds served to protect them against the wild animals as well as the vagaries of weather. Agriculture brought a great change in the life of these early settlers. It fixed them to their homes and to the soil. For some time, instead of constant wanderings from place to place, these semi-nomads resorted to seasonal migrations. They spent their winters in the plains down below and returned to the settlements in the hills during summer. This semi-nomadic life taught them the basics about cultivation of crops, rearing livestock, making vessels out of clay and building houses out of mud and reeds. In the early period, when the practice of agriculture was still in the elementary stage, these semi-nomads continued with their hunting and gathering to supplement the local food resources. In due course some of these nomads gave up their seasonal migrations altogether and established the first permanent settlement in the Kachchi Plains.

THE MEHRGARH PHENOMENON

Mehrgarh is located in the North Kachchi Plains at the mouth of the Bolan Pass, in the Baluchistan Province of Pakistan. It was here that settled life first emerged in the 8th millenium BC. Mehrgarh is the earliest settlement in Middle and South Asia and one of the first settlements anywhere in the world. The emergence of a settled form of life at Mehrgarh is one of the major milestones in the

history of mankind. Due to wide-ranging benefits accruing out of organized social life, these early settlers influenced and inspired the growth of a vast number of settlements in the surrounding areas during the late Neolithic and early Chalcolithic periods. By virtue of its location at the mouth of the Bolan Pass, Mehrgarh set in motion a process of interaction between the regions of eastern Iran, southeastern Afghanistan, Pakistani Baluchistan and the Indus plains. The cultural and economic links so established initiated the migration of Brahui-related Dravidians from the less hospitable regions of Iran and Afghanistan to the fertile lowlands east of the Baluchistan Plateau and ultimately to the Indus Plains. The vastly enhanced opportunities for growth offered by the favorable environment in the Indus Valley motivated these new settlers to exploit to the maximum the local resources, leading to rapid development of the region.

The archaeological investigations at Mehrgarh have been carried out by French Archaeological Teams under the direction of Catherine and Jean- Francois Jarrige since 1974. Through extensive excavations, spread over more than two decades, this team has been able to establish a cultural sequence for habitation at this site over a period of about five thousand years. The period of occupation at this site has been classified into eight different phases. Out of these eight phases, Periods I and II are Neolithic, Periods III to VII belong to the Chalcolithic era, while Period VIII belongs to the Bronze Age.

The excavations belonging to Period I have been carried out in area designated as MR ¾. Depending on the finds, this period has been further divided into Period I-A and Period I-B.

Period I-A covers the occupation from the end of the 8th Millenium to about 6000 BC. This period is aceramic as there is no evidence of production of pottery during this period of occupation. Mud-bricks were used to build houses in this first village. These houses were square or rectangular in shape and were divided into about four compartments. These houses were probably used for residential purposes as well storage and were scattered in an irregular fashion over a small area. This period marks the beginning of a process through which domestic plants and animals were established as the main sources of subsistence. The seed analysis carried out by L. Constantini in 1979 indicates that several varieties of wheat and barley were cultivated during this period. The barley varieties were 2-row wild barley, 2-row-hulled barley, 6-row naked barley and 6-row naked short barley, while the wheat varieties were einkorn, emmer and hard wheat. Charred remains of

Zizyphus (jujube fruit) and Phoenix (dates) have also been found. All these grains and jujube fruit were harvested in the spring season, while dates were harvested in autumn. A detailed analysis of faunal remains belonging to this period has been carried out by Richard H. Meadow. These studies indicate a marked shift from dependence on wild animals to domestic cattle (zebu, humped bull), goats and sheep. By far the major portion of the bones found from this area belonged to the domestic cattle. The few bones of wild animals belong to gazelle, blackbuck, deer, wild boar, wild water buffalo, wild sheep, goats and onagers. Various graves have been found belonging to this period, which indicate that the burials were usually accompanied by animal sacrifices. The sacrificed animals and some other belongings of the deceased were buried alongside the dead. The ornaments recovered from these graves include necklaces, headbands and bangles made of steatite and shells, and occasionally carnelian and turquoise. Steatite and limestone beads were produced in local workshops while beads of semi-precious stones were probably traded with wandering folk and gatherers from different regions.

The succeeding period dating to between 6000 and 5500 BC is classified as Period I-B. This period was Early ceramic, as the production of hand-made pottery commenced during this period. Clay was used to make containers used for storage of grains, food and water and for plates and bowls used for serving food. There was no basic change during this period in the type of houses or layout or orientation of buildings. Wheat and barley continued to be cultivated in the flood plains of the Bolan River along with jujube fruit and dates. Towards the end of this period the reliance on domestic cattle, goats and sheep for food, skins and bones for making tools, was complete and there was hardly any evidence of wild animals among the faunal remains (Richard F. Meadow-1985).

Period-IIA and Period-IIB correspond to occupation during 5500-4700 BC. This period is classified as Neolithic ceramic because it was in this period that local production of hand made pottery increased considerably and towards the end of this period wheel-turned pottery began to be produced. The intensification of pottery making activity is apparent from the large number of pottery pieces of various shapes and sizes, found in area MR ¾ belonging to this period. The buildings belonging to this period continue to be the cell type structures as in period I, however the number of compartments increased. Use of reeds and wood is indicated in the construction of roof and upper parts of these structures. The transition towards a more developed economy is also indicated by the types of crops being cultivated during this period.

Two new varieties of wheat were cultivated during this period, the bread club wheat and the shot wheat. Also the low yielding two-row varieties of barley were totally replaced by the 6-row varieties. Thus the yield of the food-grains improved (Richard F. Meadow 1989). The cultivation of crops was usually done on the flood plains of the Bolan River. In this period the water from the rivers and streams was diverted to flood the plains for irrigation purposes. Richard Meadow also found that during this period the bovine bone deposits were much more than those of the caprines. An elephant tusk was found from the corridors of one of the buildings but overall the bones of wild animals were very rare among the faunal remains belonging to this period. There is also evidence in the ruins of flint and bone tools, which were used to produce leather articles.

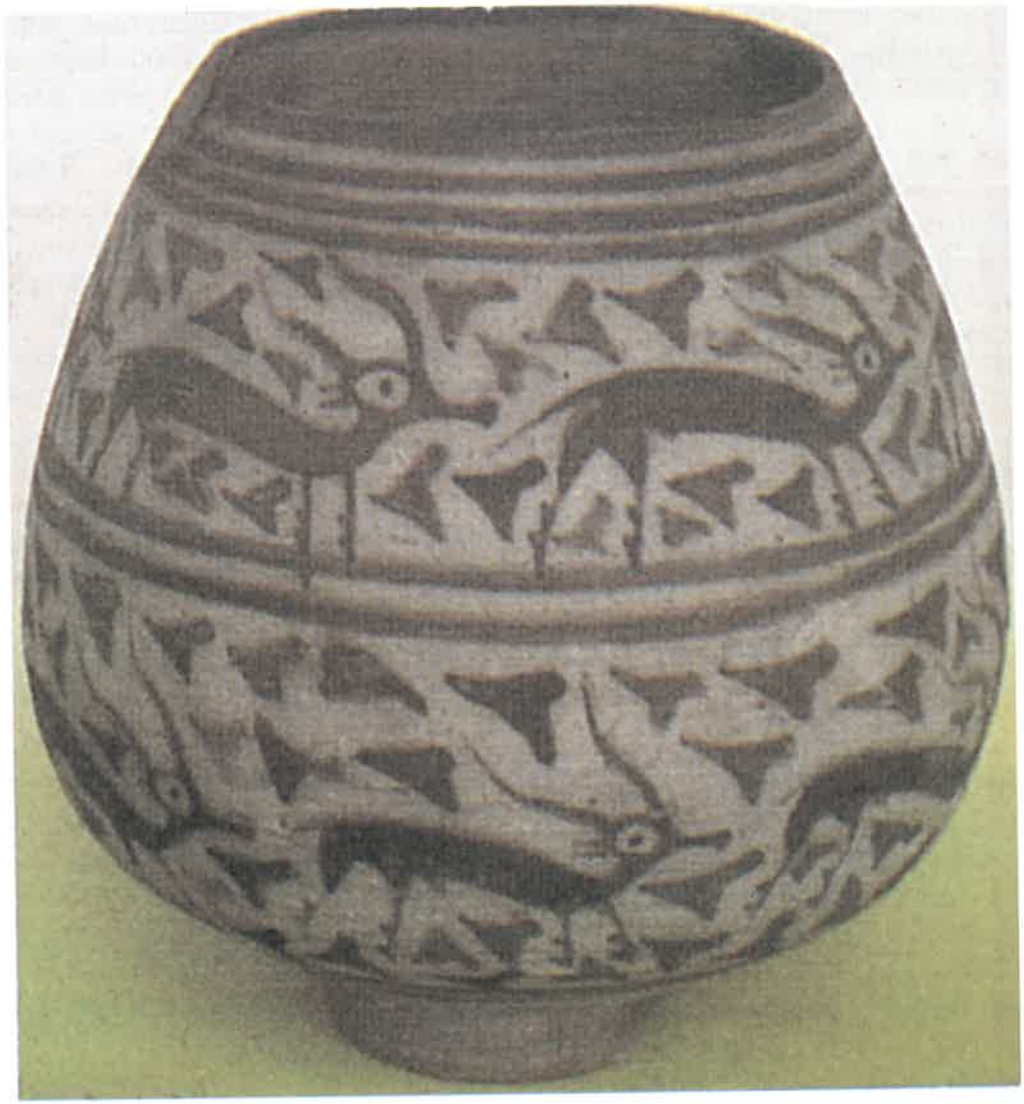
The nature of the finds at Mehrgarh belonging to the Neolithic period indicates that during this period the foundations were laid for domestic food production, which was an important step towards the development of an urban economy. Also the base of the economy was widened by the growth of craft industries, particularly the ceramic industry. In periods IV to VII at Mehrgarh, this base was further strengthened. The developments during these periods are covered in the next section.

CHALCOLITHIC PERIOD:(4700-2500 BC)

In Baluchistan and Indus Valley Region, the Chalcolithic period starts from about 4700 BC and continues till 2500 BC. This period signifies a major surge in techno-economic activity and marked improvements in the social and cultural fields. The interaction of surrounding regions with Neolithic Mehrgarh led to a growth of large number of settlements in the Chalcolithic period. Some of these settlements are described below:

MEHRGARH PERIOD III TO VII AND OTHER SITES IN THE KACHCHI PLAINS:

MEHRGARH PERIOD III covers the occupation layers from 4700 BC to 3800 BC. The excavations belonging to this period in Sector-H of MR-2 area reveal no change in the basic character or the layout of the buildings. However in this period pottery making became an established industry. Wheel turned pottery was produced in a number of shapes and sizes. The improved skills of the artisans are reflected in the superior painted pottery belonging to this period. In this period a large number of workshops were established for production of beads and ornaments. There is evidence of increased trade with the surrounding regions as some



Terracotta Goblet in Faiz Muhammad design from Mehrgarh

of the material used for making beads, like semi-precious stones, and minerals used in paints for pottery were not available locally. These materials were probably being exchanged with surplus products of the craft industries i.e. pottery and ornaments. Another development during this period pertains to cultivation of grapes in this region. (Pips of grapes identified by L. Constantini 1979)

MEHRGARH PERIOD IV & V: This period covers the occupation during the period 3800-3000 BC. The excavations belonging to this period were carried out in Sector-C of MR-1 area. In this period a basic change took place in the architecture. The buildings were more domestic in character as doorways and courtyards were provided in these buildings. (Richard H. Meadow)

MEHRGARH PERIODS VI & VII:

This period belongs to the occupation layers dating 3000 to 2500 BC. The ruins belonging to this period are located in MR-1 area in the southern half of Mehrgarh. Sectors F and K excavated in these areas indicate further improvement in technologies employed in the craft industries. The ceramic items produced during this period include figurines of mother-goddesses and various animals. A detailed study of the pottery produced during this period was carried out by Marielle Santoni in the 1980's. It was found that in some areas in the southern half of Mound MR 1 there was a large concentration of potters activities. Structures pertaining to various processes involved in the making of pottery were identified. These included forming areas and areas reserved for firing, painting and storage. In some rooms in Sector K elaborate arrangements were made for the storage of ceramic vessels on wooden shelves and in baskets and jars. The adjacent room was probably used as storage for raw materials and ceramics in process as several unbaked items of pottery, and red and yellow ochres were found from this room. Ovens of various types, excavated in different locations, indicate that different firing processes and arrangements for different categories of pottery. Some of these were single chamber types while others were proper double chambered kilns of the type commonly used in Harappa, Moenjodaro and other Indus sites. Various techniques were used for production of common pottery and those for production of sophisticated items. The mass production technology was based on wheels rotating continuously at fast speed. Lumps of clay drawn from clay pillars were fed at regular intervals after each vessel had been shaped and cut by strings. For bigger jars, moulds were used for separately casting bases and other parts. These parts were then joined, smoothed and given graceful shapes by

the artisans using wet clay. Thus in the period just before the emergence of the Indus Civilization, the pottery making technology at Mehrgarh had reached a level of sophistication, which was comparable to the one used by Indus artisans. In this pre-Indus period at Mehrgarh , a large variety of undecorated, decorated and painted pottery was produced in Quetta, Kot Dijian and Faiz Mohammad styles and motifs. This mingling in pottery designs was a direct result of the growing interaction in the Chalcolithic period between settlements located in different regions. While Mehrgarh was influencing the cultures of different regions, it was also opening up to influences from incipient cultures in other settlements belonging to this period.

Comparable progress was made in other types of craft industries also in and around Mehrgarh in the first half of third millenium BC. A large number of terracotta figurines of mother-goddesses and animals have been found from the ruins belonging to this period. The mother-goddess figurines with elaborate hairdos and ornaments indicate a continuity of artistic styles and religious beliefs between this phase at Mehrgarh and the early phases of the Indus Civilization. The ornaments and beads being produced in large numbers at Mehrgarh indicate that this industry was also well established during this period. A lot of the precious stones used in these ornaments came from the mines in the Chagai area of Baluchistan. The supply source tapped during the Mehrgarh period and the skills established facilitated the growth of the ornament and bead industries in other regions and provided continuity between this period and the early Indus period at Moenjodaro.

The developments at Mehrgarh around 3000 BC led to the development of other sites in the immediate vicinity of Mehrgarh in the Kachchi Plains. Among the sites excavated by the French Archaeologists under J-F Jarrige are Lal Shah, Sibri, Nausharo and Dauda Damb. Details pertaining to Nausharo are given below:

NAUSHARO:

Around 3000 BC, Naushero emerged as an independent settlement about six kilometers south of Mehrgarh. Its culture was closely aligned to that of Mehrgarh. The excavations carried out indicate that around 2800 BC Nausharo was already an important trading center. The seals recovered from the lowest layers belonging to this period indicate that a fairly affluent class of traders was controlling the trade routes from Central Asia, Iran and Afghanistan to settlements in the Indus valley and along the coast. The artifacts recovered from different layers indicate a

continuous improvement in the quality and styles of terracotta items produced at Nausharo. A large number of painted terracotta figurines of male and female persons have been recovered. These figurines wear elaborate headdresses, ornaments and trousers. The terracotta jars and utility vessels belonging to the period 2750-2500 BC employ indigenous styles and patterns. However the styles and patterns of the terracotta items recovered from the middle occupation layers dating to the period just after 2500 BC, are common with those prevalent in the entire Indus civilization. Multicolored hollow animal figurines recovered from these layers may have been used in rituals, which were common in the culture of the Indus civilization. The uppermost occupation layers at Nausharo pertain to the post-Indus civilization era, when Nausharo once again began to develop its own culture.

OTHER CHALCOLITHIC SITES IN BALUCHISTAN:

During the Chalcolithic period a number of multicultural groups of settlements emerged in Baluchistan. These clusters of sites developed their own distinctive cultural features depending on the topography of the region where they were located

The Nal Sites are located in the narrow valleys of central and southeastern Baluchistan. These settlements were situated on small mounds or tells along the lower slopes of hills. The Hingol, Mashkai and Poralli river systems flowing adjacent to these tells received rain water flowing down the slopes on which these settlements were located. This rain water was captured by the villagers by building stone embankments along the banks of the rivers and streams. These embankments are locally known as gabarbands. They represent one of the earliest systems for control of water for agricultural purposes. The water and silt diverted to the terraced farms permitted seasonal cultivation of crops, which sustained the local population.

Several hundred pieces of pottery have been recovered from graves at the site of Nal. The characteristic design of this pottery consists of panels on fine fabric of buff paste with cream slip. A number of animals, including ibexes, bulls and fish appear in these decorations. The pottery designs have similarities with those recovered from Anjira in the north and Nindowari in the south.

Balakot: This is a coastal site located about 65 kilometers northwest of Karachi, near the seasonal Windar River, in the vicinity of Somiani beach and Bela. In ancient times this site was located on the banks of Porali River. This river has since changed its course

and flows some distance away from the site. Balakot was an important cultural center in the pre-Indus civilization period. It was an important center for trade in seafood, shells and ornaments. The excavations at this site show occupation layers belonging to two distinct phases. The lower occupation layers pertain to the period prior to the Indus civilization. Remains belonging to this period include houses made of mud-bricks paved floors and stone foundations. Already in this period the sizes of the bricks had been standardized. The standard dimensions of the bricks was 10x20x40 centimeters, ratio 1:2:4, which was later adopted by the architects who planned the Indus cities. The pottery belonging to this period was wheel turned. Other finds belonging to this period include grinding stones, parallel-sided chert blades, figurines of the humped bull and a lump of oxidized copper. The upper layers pertain to the mature Indus civilization period. The artifacts found from these layers include terracotta animal figurines, cartwheels, and copper spearheads, arrowheads and chisel.

Kech Valley: This valley is located between two mountain ranges, the Makran Coastal Range and the Central Makran Range. The Kech Stream originates in the Central Makran Range and flows eastwards, where it joins the Dasht-i-Kaur River. The Dasht-i-Kaur River enters the Arabian Sea near the border of Pakistani Makran with Iranian Makran. The settlement of Kulli is located at the source of the Kech Stream. It was an important cultural center in the fourth and third millenium BC. Before coming under the total influence of the Indus Civilization in the second half of third millenium, Kulli had a distinct culture of its own. In the Kulli pottery the paste is buff or pink, with a pale red or whitish slip. The globular vessels, vertical sided jars and dishes were frequently decorated with friezes of animals and trees between upper and lower margins of wavy or straight lines. The most common animals appearing on Kulli pottery were humped cattle, gazelles and birds. A distinctive feature of Kulli pottery is the dot in circle type of eyes of animals. Kulli maintained close cultural links with Bampur in Iranian Makran, particularly in the pre-Indus period. Further east were the settlements of Miri Qala and Shahi Tump. These sites are located on either side of the Kech Stream, in the Turbat District of Makran Division in Baluchistan. Professor Roland Besenwal carried out the excavations at these sites in 1996-97. The oldest artifacts recovered from these sites date to the first half of fourth millenium BC. Among the artifacts found were copper mirrors, a copper axe weighing about 500 grams, which was wrapped in linen, copper seals,

alabaster bowl, a wide variety of ornaments made of semi-precious stones and shells and beads. In the graves found at these sites the painted bodies were curled up in a foetal position with the heads pointing towards the west. The dead people were buried together with a large variety of ornaments and utilitarian and ritual objects.

The excavations at Miri Qala and Shahi Tump provide an indication that the area was an oasis and was inhabited by a flourishing farming society. Several varieties of wheat and barley and flax were cultivated and a lot of date palms grew in the area. Clay figurines found from the sites indicate that a large variety of livestock and animals were kept in these farms, including goats, cattle with and without humps, donkeys and dogs. There is no evidence of sheep. Also there is no evidence that hunting was carried out o a regular basis, although bones of a gazelle were found from the site. The upper layers of the excavations indicate that the sites were integrated into the Indus Civilization in the period around 2400 BC.

Zhob River Valley: An important settlement in this region was Rana Ghundai. It is located in the Loralai region of northwestern Baluchistan. Several occupation layers have been excavated. The lowest layers pertain to incipient stages of settled form of life. The finds belonging to this period include hand made pottery and flint tools. The middle and upper layers belong to the Chalcolithic period around 3500 BC. These layers provide evidence of a thriving agricultural economy based on seasonal cultivation of crops and raising of sheep and goats, which catered to the needs for milk, meat, wool and skins. Fine pottery was produced during this period with paintings of elongated black buff animals, which bore resemblance to contemporary artistic trends in Siestan and Kerman regions of northwestern Iran. Evidence of mud-houses has also become available through excavations of these upper layers.

Kalat Region: An important cultural center in this region was Togau. Togau is located about 18 kilometers northwest of Kalat and was one of the twenty archaeological sites identified by Beatrice de Cardi in this region in 1948. Togau produced wheel-turned pottery with red slips. Typical decorations were geometric and animal patterns and friezes of birds and schematic human beings.

Quetta Region : Besides Quetta, the important Chalcolithic period sites in this region were Killi Gul Mohammad and Damb Saadat. During this period this region maintained close cultural links with settlements in eastern Iran and southern Afghanistan.

THE SOUTHERN INDUS PLAINS:

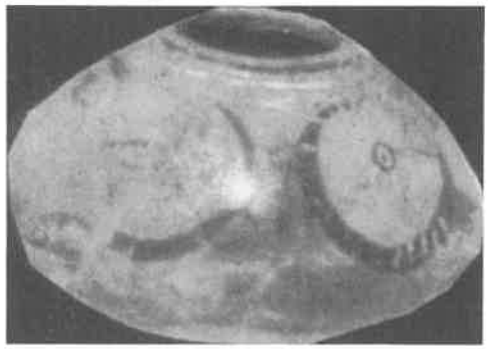
The southern part of the Indus valley, from Panjnad to the mouths of the Indus River, saw the emergence of the largest number of significant sized settlements. Two, possibly three, significant cultural centers developed during this period in this region, at Amri, Kot Diji and possibly Moenjodaro. A description of these settlements is given below.

Amri: This site is located on the banks of the Indus River, thirty kilometers south of the town of Sehwan Sharif and 100 kilometers from the later Indus civilization metropolis of Moenjodaro. It owes its rapid rise and continued development to its favorable location on three important trade routes. The first trade route went through Mehrgarh beyond the Bolan Pass to regions in Persia and Afghanistan. The second trade route was towards the south and southeast, to the coastal regions along the Makran coast and the resource areas of Kathiawar. The third trade route was towards the upper Indus valley region, to Harappa and beyond. The excavations at Amri are spread over an area of about ten hectares. They indicate five distinct phases of occupation The lowest layer belongs to the pre-Indus period of around 3500 BC. It has been suggested that in the fourth millenium BC people from south-central Baluchistan moved to Amri; the influence of these people is reflected in the design of the pottery produced in Amri during this period.

The initial archaeological investigations at Amri and in the surrounding region were carried out M.G. Majumdar in 1928-29. At Amri, M.G. Majumdar found two mounds; Mound 1, which was about 13 meters high, and Mound 2, which was about 4 Meters high. The excavations carried out by Majumdar during this period were confined to Mound 2 and the alluvial plains to the east of Mound 2. The excavations on Mound 2 were carried out upto a depth of 2 meters from the top of the mound. At about one meter from the top, stone foundations of a wall and about 100 potsherds were uncovered. These potsherds were thick walled, with decorations in black over a red base, which is typical of Indus pottery. Also the motifs in the decoration were typically Indus, e.g. fish scales, pointed leaves of plants, flowers and birds. The other finds from this level included a cylindrical bead of feldspar, terracotta spinning whorls, terracotta toy cart frames and bull figurines.

The excavations on the alluvial plain east of Mound 2 revealed a stone walled structure within one foot of the surface. A wall standing to a height of about 4 feet with gravel used in the foundations was also found below the alluvial plain. 214 specimens of pottery were collected in the layers within 2 to 4 feet from the surface of

Pre-Indus Pottery



Top: Kot Diji Globular Vessel
Left: Amri Vase

the alluvial plain. This pottery was found at a level lower than the one at which the artifacts were found on Mound 2. The pottery is pale colored and is decorated with geometric designs. This pattern and design of pottery has been identified as pre-Indus and is referred to as Amrian pottery. The Amrian pottery is almost identical to the pottery of Mehi, Kulli and at other South Baluchistani sites. The ground of this pottery is cream, buff or pink and the vessels have a band of reddish brown color at the neck of the vessel.

Jean Marie Casal carried out further investigations at Amri in the period 1959-61. His excavations at Amri are spread over an area of about 10 hectares.

The excavations by J.M.Casal and M.G. Majumdar have confirmed the existence of architecture and artifacts belonging to three distinct periods. The lowest layers are Amrian, the middle layers belong to the Indus era, while the excavations at the upper layers indicate that after the demise of the Indus Civilization, local cultures emerged at Amri, which are known as Jhangar and Jhukar Cultures. After 1000 BC, Amri remained abandoned

for a considerable period of time, until the 16th century AD, when it was briefly occupied by the Mughals.

Kot Diji: The archaeological excavations at Kot Diji were initially carried out by Dr. F.A. Khan in 1974. Kot Diji is an important archaeological site in close proximity to Moenjodaro. It is located about 22 kilometers south of Khairpur, a town about 50 kilometers from Moenjodaro. Kot Diji was located on the banks of the Hakra-Ghagger River and was probably connected by a navigable channel with the Indus River.

The excavations have revealed several layers of occupation. The lower layers pertain to the pre-Indus period of around 3500 BC. A carbon dating of the uppermost (latest) Kot Diji a layer provided a date of 2590 BC (Elizabeth Ralph, American journal of Science, 1954).The Kot Dijian Culture emerged when tribes from the plateau of Baluchistan migrated to this region. Within a short time they successfully cultivated large tracts of land and the settlement began to take shape as a reasonable sized village. The villagers developed a number of skills, which led to the rapid growth of Kot Diji as one of the most remarkable and extensive pre-Indus Cultures. The Kot Dijians introduced planned layout of settlements and developed indigenous styles of architecture. They built structures of stone and mud-bricks. Foundations were usually of undressed limestone blocks, while the superstructure was made of unbaked bricks They built, perhaps, the earliest fortified town in the Indo- Pakistan Region, constructing a massive defensive wall, about 5 feet wide, around the settlement. Extensive use of undressed stone blocks was made in the construction of this wall. Mud mortar was used to properly set the stone blocks.

A lot of the tools and implements found in the lower layers at Kot Diji were made of chert, which is found in abundance in the mines located in the Rohri Hills nearby. It is very likely that Kot Diji was an important supplier of tools and other items made from chert, to other regions in the Indus and Hakra-Ghagger River valleys.

In the pre-Indus period, the designs and patterns of Kot Diji pottery greatly influenced the styles in other regions to the north as far as Rehman Dheri. The artifacts recovered from the lower occupation layers pertaining to the Kot Diji phase include a jar painted with fish scale patterns and a water pitcher with painting of the horned deity. The Kot Dijian pottery was wheel-made with decorations in red, brown and sepia bands on a pink base. The pottery belonging to the Kot Diji phase was light and thin and was different in

form, texture and decoration from the pottery belonging to the Indus phase.

The Kot Dijian Culture continued till about 2300 BC. There was a transitional period during which the Kot Dijian styles of pottery gradually merged with the styles belonging to the mature Indus Civilization. The pottery belonging to the Indus phase was thick and heavy and the decoration was in black on a red base. Besides pottery, figurines of mother-goddesses, chert, bronze and copper tools and implements have been found from the upper layers belonging to the Indus period. The finds from the uppermost layers of Kot Dijian occupation indicate that already during this period Kot Dijian society was developing features which are generally associated with the Indus Civilization. Dr. F. A. Khan is of the view that the position of priests, the religious beliefs and the system of administration in pre-Indus Kot Diji were very similar to those in the Indus society belonging to the later period ('Kot Diji-its greatness' 1981).

The upper layers of the mound and the lower town to the east constitute the familiar layout of Indus towns and cities. The citadel covers an area of 167 meters x 120 meters. The buildings located on the citadel mound at the higher levels had spacious rooms built on stone foundations. Mud-brick was used for superstructures and for paving the floors. Large size community ovens have been found at the site, which is an indication that the community was fairly organized.

OTHER SITES IN THE LOWER INDUS VALLEY:

In the pre-Indus period a number of other settlements also emerged in lower Indus Valley. Detailed archaeological excavations and carbon dating of samples from these sites have not been carried at these sites to exactly establish their chronology and cultural sequences. It is possible that Moenjodaro and some of these sites may have been part of a pre-Indus Moenjodaro Cultural Complex. This has been dealt with in detail in the chapter on Proto-Urban Moenjodaro.

THE NORTHERN INDUS PLAINS:

Among the important Chalcolitic period sites in the upper Indus Plains were Sarai Khola, Jalilpur and Harappa.

Sarai Khola : This site is located five kilometers south of Taxila and 40-50 kilometers from the Paleolithic sites around Rewat in the Soan River valley. Phase I belongs to the Neolithic period (Carbon dates 3110-2860 BC – Thomas and Allchin). Six feet above the virgin soil some finely ground and

polished stone implements including axes and scrapers were found. Some specimens of wheel-turned red ware has also been found at this level, mostly in the shape of bowls and pans. No structural remains have been found belonging to this period.

Phase II belongs to the Chalcolithic period around 3500-2500 BC (Carbon dates of samples from this layer provided by K.D. Thomas and F.R. Allchin are 2680-2190 BC). The finds belonging to this period include fine pointed bone implements, copper spearhead and wheel turned red slipped pottery, with a wide band of sepia or black around the neck. The pottery includes utility vessels, bowls and pots. The shapes and fabric of these pottery items indicate strong resemblance with Kot Dijian pottery found from Harappa, Jalilpur and Kalibangan. Some evidence of structural activity has also become available from excavations belonging to this period.

Harappa :

This site is located in the middle Indus valley. In the Chalcolithic era and for more than thousand years thereafter, the River Ravi, one of the tributaries of the Indus River, flowed along the northern end of the settlement at Harappa. Due to silting, this river subsequently changed course and these days it flows several kilometers north of this site. Jalilpur is located about 75 kilometers southwest of Harappa, at the confluence of two other major tributaries of the Indus River, the Chenab and the Jhelum.

For thousands of years before Harappa emerged as a major metropolis of the Indus civilization, Harappa was already a reasonable sized settlement spread over an area of about 15 hectares. Recent investigations carried out by J.M. Kenoyer and G.F. Dales on the western corner and northwestern half of Mound E revealed a pre-Indus settlement and massive brick revetment wall on natural plain surface. The lowermost areas of excavations pertain to the period 3500-2500 BC. The artifacts recovered from these layers include refined ornaments made from precious and semi-precious stones, shells and steatite, tools and implements made from chert, copper and bronze, and painted jars and bowls. Hearths, kilns and mud-brick structures have also been found at these levels. The extensive use of material from distant sources indicates that Harappa was an important center for trade and commerce even in these early times.

At Jalilpur, the initial evidence of existence of a pre-Indus settlement was provided by the excavations carried out by Dr. R.M. Mughal in 1974.The settled area at Jalilpur includes two mounds spread over an

area of 430x375 meters. In the lower layers of excavations, wheel made pottery has been found, but there is no evidence of construction activity. The upper layers belong to the Indus civilization period. The excavations of these upper layers have uncovered various beautiful articles of wheel turned pottery and construction of houses made of mud and mud bricks.

GOMAL PLAINS:

The important Chalolithic period sites in this region were Rehman Dheri and Gumla.

Rehman Dheri: This site is located 20 kilometers north of Dera Ismail Khan. Excavations were carried out by the Cambridge University/Peshawar University team in 1976. Three cultural phases were identified as follows:

Phase I (Lowest): A sample from the Layer 6 from the bottom, (16 feet below the datum), produced a C14 date of 3340-3240 BC. Pottery recovered from these layers resembles early Kot Dijian.

Phase II: Most of the pottery specimens from these layers represent typical Kot Dijian Style. However some motifs such as Pipal leaves, peacocks, intersecting circles and some geometric designs are typical of Mature Indus Culture. C14 dating of a sample from a depth of 11 feet indicated a date of 3160 BC.

Phase III (Uppermost): More pottery specimens were recovered from these layers belonging to Kot Dijian Culture mixed with increasing specimens belonging to Proto-Indus Culture. Late period pottery, the knobbed ware vessels are similar to those recovered from Moenjodaro and Harappa during mature Indus era. C14 dating of sample from a depth of 6 feet gave the date as 2600 BC.

Lithic industry was well established in the pre-Indus period as indicated by the variety of stone tools and implements found from the ruins belonging to this period. The finds include burins, saws, scrapers and axes.

Bead drills and unfinished beads of lapis lazuli, turquoise carnelian and agate indicate that Rehman Dheri was an important center of long distance trade well before the mature Indus period.

Among the finds belonging to the Indus period were seals and sealing with characters of the Indus script.

The other important archaeological site in this region, Gumla, is located at the confluence of the Gomal and the Indus Rivers about 12 kilometers south of Dera Ismail Khan. Excavations carried out by Prof.

A. H. Dani established the following cultural sequences:

Period I: Neolithic, pre-ceramic occupation, semi-nomadic hut-dwelling community.

Period II: Farming community, living in mud-brick houses. In this period fine wheel turned pottery was being produced.

Period III: Incipient Kot Dijian phase, as evidenced by the style of pottery being produced.

Period IV: Mature Indus Civilization.

Period V: Post-Indus phase.

BANNU BASIN:

The important Chalcolithic period sites in this region were Lewan and Tarakai Qila.

Lewan: This site is located 20 kilometers south of Bannu city. The archaeological excavations were carried at this site in 1977-78. These excavations indicate that this settlement was an important industrial center, producing a large variety of stone tools since the pre-Indus period. No structures were found but plenty of pottery was recovered. This pottery was mostly red and buff ware with red slip and black, chocolate dark brown and white painted decoration. The pottery belongs to the Kot Dijian style and had fish, bull, buffalo and pipal leaf motifs, which were common in Kot Dijian pottery.

Tarakai Qila: This site is located a few kilometers south of Bannu on the edge of Tochi River. This location is the westernmost limit of incipient phase of the Indus Civilization. The site was excavated by the Cambridge University/Peshawar University archaeologists in 1978-79. The finds comprising of stone tools, ceramics and beads are very similar to those found from Lewan and Rehman Dheri. A steatite seal with geometric carvings was also found from the site. There are indications that the settlement may have existed till the post Indus period.

HAKRA-GHAGGER PLAINS / CHOLISTAN REGION:

Kalibangan: This site was located on the banks of the ancient Hakra-Ghagger River in District Ganganagar of Rajesthan. The excavations have been carried out on two mounds at this site. Below the smaller citadel mound archaeologists have found evidence of a walled settlement, 250x180 meters in size, which belongs to the period preceding the Indus civilization. The houses in these lower occupation layers were made of mud-bricks with stone foundations. They were provided

with the basic facilities like drains and toilets. The shapes, styles and patterns on the pottery belonging to this period resemble those on the pottery from Kot Diji. Already during this period Kot Diji was influencing the development of settlements towards the northeastern regions of the Hakra-Ghagger valley. Like Kot Diji, the period from 3500-2500 BC at Kalibangan can be regarded as the formative period of the Indus civilization. A lot of the elements of culture of Kot Diji and Kalibangan were later integrated into the common culture of the Indus civilization. The upper layers on both the mounds at Kalibangan had separate fortifications. Kiln fired bricks were used in the construction of buildings. These layers pertain to the period after 2600 BC, when Kalibangan became an important town in the northeastern region of the Indus civilization.

Banawali and Siswal were other settlements, which developed in this region during this period.

Cholistan sites:

Dr. R.M. Mughal has identified 99 sites belonging to the Chalcolithic period around 3500 BC. Some of these settlements continued to flourish in the third millenium BC, when 40 of these sites remained while the others were abandoned. In the third millenium BC, these settlements came increasing under the influence of Kot Diji culture. The largest of these settlements was Gamanwala, which covered an area of about 28 hectares, which was comparable in size to the area covered by Harappa in the pre-Indus period.

TRANSITION TOWARDS THE BRONZE AGE INDUS CIVILIZATION:

During the period from 3500 to 2500 BC, hundreds of settlements scattered over an area of one million square kilometers in the valleys of the Indus and the Hakra-Ghagger Rivers grew in size and stature. The larger settlements were well planned, with layouts similar to the pattern adopted in the Indus civilization. In this period bullock carts began to be used for trade and communication and stone and metal craft industries began to emerge on a small scale. Agricultural yields increased with the help of better farming methods. The improvement in skills of the craftsmen through a process of specialization brought about vast improvements in the arts and crafts. A greater variety in shapes, sizes and finishes became available in the items of utility and those used for decoration. New sources of raw materials were tapped to cater to the growing demand for more sophisticated craft products. The increase in prosperity brought about greater and greater social stratification.

Wealthy classes emerged, who began to exercise control over the trade routes. The interaction between different settlements increased and goods produced in one region were supplied to different regions. Conditions moved towards narrowing down of cultural differences in various regions. Over a time the wealthy classes began to have more and more say in the governance of larger settlements. The larger settlements in each region created their own areas of influence and interdependence in the surrounding region. These centers extended their cultural influence to a number of settlements within their regional groupings. The Amrian Cultural Complex was spread in the area around Lake Manchar, Sind Kohistan and Kirthar Mountain Range. As many as 29 sites have been identified in this region, which are part of the Amrian Cultural Complex. In the period around 2500 BC, when Amri became an important Indus town closely linked to the Indus metropolis of Moenjodaro, 18 other sites, which were a part of the Amrian Cultural Complex, also became a part of the Indus Civilization. The remaining 11 Amrian sites were abandoned during the Indus period. Another important cultural complex emerged round the settlement of Kot Diji. The Kot Diji Cultural Complex exerted its influence far and wide, upto Sarai Khola, the Gomal Plains and Bannu basin in the northwest, the Kachchi Plains in Baluchistan, the Hakra-Ghagger Valley in the northeast and Surkotada in the southeast. Around 2500 BC, a number of basic requirements for the emergence of an urban society had been fulfilled. The extensive cultivation of food crops, domestication of cattle, sheep and goats and tapping of food resources from the rivers and the sea had provided an ample base for the sustenance of an urban society. A strong industrial base had developed at several settlements, where large variety of ceramics, tools and implements, beads and ornaments were being produced in large quantities. Trading activity between the various settlements and other resource areas was well established. Elements of town planning were beginning to be visible at sites like Kot Diji and Kalibangan. Similar rituals and symbols, so useful for integrating societies, were beginning to appear at Kot Diji, Amri, Nausharo and other settlements in the late Chalcolithic/pre-Indus period. Institutions for administration of semi-complex societies were being strengthened in the larger settlements. The conditions were emerging for the development of a metropolitan culture, as more and more interaction between major settlements were influencing the growth of an integrated society.

artifacts found in the upper occupation levels are of a poorer quality compared to those found in the layers immediately below them. This gradual decline continued for about three hundred years. Some remnants of the Indus culture survived till about 1500 BC mixed with regional cultures. The overlapping of the Indus Culture with the local cultural movements ultimately gave way to more pronounced local cultures. In the southern Indus Valley around Moenjodaro, the Jhukar and Jhangar Cultures took shape. These cultures dominated the areas, which at one time formed the heart of the Indus Civilization. Jhukar, near Moenjodaro became the center of the new culture, while Amri and Chanhudaro were the other prominent Indus towns, which came under its sway. In the Kachchi Plains the Pirak Culture took shape. This new culture continued to exercise a fair amount of influence in the western and southern regions of what used to be the Indus Civilization, till 800 BC. A third post-Indus cultural movement was centered in Harappa. This is known as the Cemetery-H Culture after a late Harappan Cemetery found in the lower regions of Harappa. This Culture continued to influence whatever was left of the erstwhile Indus settlements in Cholistan and Rajesthan until about 1200 BC. The subdued activity of regional cultures continued in isolated settlements while the Vedic Culture of the Indo-Aryans began to shape a new civilization to the east, in the Gangetic Plains.

CHRONOLOGY OF EARLY DEVELOPMENT IN THE INDUS REGION	
Period	**Events**
Circa 2 Million years ago	Earliest evidence of Homo Erectus in the region. Flaked quartzite artifact found at Rewat, near Rawalpindi, Pakistan.
2 Million to 100,000 years ago Lower Palaeolithic	Heavy butted hand axes used by primitive man found from Soan River Valley near Rawalpindi
40,000 to 22,000 BC Upper Palaeolithic	More refined chert implements used by early hunter and gatherers found from the Rohri Hills
10,000-7000 BC	Semi-nomadic tribes start cultivating crops and domesticating animals
7000 BC	First permanent settlement established at Mehrgarh in the Kachchi Plains, Baluchistan
7000-2500 BC	Consolidation period at Mehrgarh. Consistent improvements in techniques of crop cultivation, livestock farming, construction of mud-brick houses, copper implements.
5000-3200 BC Chalcolithic	Emergence of large number of settlements in different areas. Early formative period of Indus Civilization.
3500-2600 BC	Late formative period of Indus Civilization. Progress towards semi-urbanization at Amri, Kot Diji, Harappa and Kalibangan.
2750-2600 BC	Emergence of Indus Civilization in Baluchistan, Cholistan, Rajesthan and Haryana. Increase in trade with Oman, Bahrain and Sumer.
2300-2000 BC	Expansion of Indus Civlizations to Coastal regions of Cutch and Kathiawar.
2000-1500 BC	Gradul silting-up of Hakra-Ghagger Rivers. Gradual deterioration in standard of construction and quality of artifacts at various Indus sites.
1700–800 BC	Gradul disintegration of the Indus Civilization. Local cultures take shape in different areas. Distinctive styles of Jhukar, Jhangar and Pirak cultures in southern Indus Valley and Kachchi Plains.

CONTEMPORARY ANCIENT CIVLIZATIONS			
	INDUS	**SUMERIAN**	**EGYPTIAN**
Earliest Settlements	**7300 BC Mehrgarh**	**6800 BC Small settlements on banks of Euphrates**	**5200 BC Kom Ombo, Behdet**
Formative Period	**5500-2600 BC Amri, Kot Diji Harappa Nausharo, Rehman Dheri, Kalibangan**	**5500-4000 BC Al-Ubaid, Uruk (Erech)**	**5000-3200 BC Nekhan, Buto**
Civilization Proper	**2600-1500 Moenjodaro, Harappa, Ganweriwala, Rakhigarhi**	**4000-2370 BC Ur, Erech, Kish Eridu, Lagash**	**3200-1080 BC Memphis, Thebes, Heraclepolis**
Distintegration Localization	**1600-800 BC .Jhukar, Jhangar, Pirak, Harappa Cemetery–H Cultures**	**2400 – 2000 BC Akkadian Occupation**	**1080-332 BC Minor regional dynasties – (XXI – XXIV) Persian occupation**
Succeding Regimes	**Dravidian – Aryan Synthesis, Magadha, Persian Satrapy in north**	**Akkadian, Babylonian and Assyrian Empires**	**Ptolemic, Roman Dynastics**

Chapter 4

PROTO-URBAN PHASE AT MOENJODARO

Before the Indus Civilization emerged in the core Indus Valley, it seems essential that one of the major cultural complexes in the region should have developed sufficiently to approach the socio-political complexity of an urban society. The archaeological investigations at several thousand sites in the Indus and Hakra-Ghagger River valleys have revealed that from among all these sites, the two cities of Moenjodaro and Harappa were by far the largest and most developed. These two cities also date to the early phase of the Indus Civilization. Therefore the major cultural complex around which the Indus Civilization emerged, should have been located around one of these major cities.

Before examining the status of Moenjodaro and Harappa in the pre-Indus period, another alternative needs to be considered. In the early period just after the discovery of the two ancient cities of Moenjodaro and Harappa, it was suggested that these cities could be colonies of the contemporary civilization of Sumer in Mesopotamia. The discovery of thousands of ancient sites in the region during the last half century and the detailed archaeological investigations at Moenjodaro and Harappa has virtually ruled out this possibility. The indigenous character of the Civilization is quite apparent from these investigations and the evidence is strongly in favor of an evolutionary process, which ultimately created the conditions for the growth of the Civilization. Further research has confirmed the absence of an urban link between the Sumerian and the Indus Civilizations via the intervening regions of Persia and Afghanistan (Michael Jansen in RWTH Project Report 1981). It is therefore almost universally accepted that the Indus Civilization emerged through an indigenous evolutionary process.

The most likely situation, therefore, would be the existence of a semi-urban or proto-urban condition at Moenjodaro or Harappa just before the emergence of the Mature Indus Civilization around 2500 BC.

At Moenjodaro the evidence for a Pre-Indus or Proto-Indus Cultural Complex remains basically circumstantial and to some extent conjectural on account of the inability to carry out archaeological investigations at the level at which the plains were in the period around 2500 BC. Through scientific studies, based on the rate of deposit of sediments around the Moenjodaro region, the archaeologists have come to the conclusion, that around 2500 BC the level of the plains at the site of Moenjodaro would have been about 40 meters AMSL and the water table would have been at about 36 meters AMSL (M. Jansen, 1985). The present level of the Plains around the Mounds of Moenjodaro is 48 meters AMSL and the water table is at the level of 45 meters AMSL. Thus the structural remains and artifacts belonging to the Pre-Indus settlement at the Moenjodaro site would have been submerged under water for thousands of years. It is likely that the physical evidence of an earlier settlement at Moenjodaro would have been destroyed to a very large extent. Even if the structures have not been completely destroyed it seems almost impossible to collect information pertaining to these occupation layers from under the water. However at the other major Indus metropolis of Harappa, the situation has been less difficult and it has been possible to carry out excavations right upto the natural soil level. The excavations at Harappa are helpful in understanding the possible relationship between the two major cities. Through an understanding of the processes, which led to the emergence of Harappa as a major city, it is possible to establish a theoretical framework for determining the status of Moenjodaro in the pre-Indus period.

The in-depth archaeological investigations at Harappa have been carried out since 1986 under the direction of Dr. George F. Dales and Dr. J.M. Kenoyer. Through these investigations it has been possible for this American team to establish the stratigraphic and cultural sequences for the growth of Harappa. Five distinct periods have been identified. The lowest occupation layer, Period 1, located on the surface of the natural soil at a level of 162 meters AMSL has been classified as 'Pre-Harappan' on the basis of artifacts and structural material found at this level. Dr. M.R. Mughal and R.E.M. Wheeler have identified similar material found earlier from Harappa as belonging to the Kot Diji Culture (M. R. Mughal 1970, R.E.M. Wheeler 1946). Period 2 area is at about the same level as that of

Period 1, but on slightly different location. Period 2 is designated as 'Transitional' by Dr. J.M. Kenoyer, because in the area belonging to this period the 'Harappan' materials are mixed with 'Pre-Harappan' materials. There is also a definite indication of expanded trade with the southern plains. The 'Harappan' layers 3A, 3B and 3C and the late transitional and late 'Harappan' layers are all located within two meters from the surface of the mound.

The initial 'Pre-Harappan' settlement, belonging to period 1, was confined to the natural soil surface below Mound E. In Period 2 also, the settled area was confined to the natural soil surface below the western half of Mound E. Major expansion of the settlement took place in Periods 3A, 3B and 3C, when Mound AB, Mound E and Mound F were raised and the entire site area was settled. ('Stratigraphic Complexities and Recording of Archaeological Sites: Models from Recent Excavation at Harappa by Dr. J.M. Kenoyer, in Journal of Pakistan Archaeologists Forum June 92 Vol. 1').

The important points, which emerge from the above archaeological investigations, are summarized below:

1) In the Period before the Indus Civilization, the settled area at Harappa site was very small, not more than 10 percent of the size of the settlement in the Indus era.

2) The Pre-Indus settlement at Harappa was located on the natural surface of the plains.

3) All the mounds at Harappa were artificially raised during the Indus era and the settlement belonging to the Indus Civilization was located on the surface of the mounds mostly.

4) The 'Early Harappan' pottery and structures of Periods 1 and 2 had close affinities with Kot Diji Culture and were distinct from the styles and designs of the Indus Culture.

5) In Period 2, while the settlement was still very small and still located on the plains and not on the mounds, elements similar to the 'Indus' Culture began to make appearance at Harappa and there is indication of expanded trade with the southern plains. This could be taken to imply that during this period the Culture prevailing in the south, that is around Moenjodaro, was beginning to supplant the Kot Dijian Cultural influence at Harappa.

From what has been stated above, it seems highly unlikely that Harappa was the site where proto-

urban Culture developed before the Indus Civilization emerged. Therefore, the search for proto-urban settlement belonging to this period needs to be concentrated on Pre-Indus Moenjodaro.

Before proceeding to explain the grounds on which the existence of a Proto-urban settlement at Moenjodaro can be suggested, it seems necessary to redefine the terms 'pre-Indus' and 'proto-urban' used in this book. The term 'pre-Indus' is being used instead of the commonly used terms 'pre-Harappan' or 'Early Harappan'. It refers to the culture prevailing in Kot Diji, Amri, Harappa, Kalibangan and other parts of the region in the period 3500-2500 BC, which contributed to the culture of the Indus Civilization. The term 'Proto-urban' is being used to describe the next evolutionary phase before the emergence of a full- fledged Indus Civilization. The Proto-Urban stage implies that about 75-80 percent progress had been made in the economic, political and social spheres as compared to a fully urbanized society.

Earlier in this Chapter, two likely scenarios were considered, which could have given rise to the Indus Civilization. A conclusion was reached that it was highly unlikely that the Indus Civilization came into existence through links of the Indus Valley with the Sumerian Civilization. Next the possibility of Indus Civilization emerging through an evolutionary process at Harappa was considered and a conclusion was reached that this was also highly unlikely. As Moenjodaro was by far the largest and most developed city of the Indus Civilization, the likelihood of conditions existing in or around the site of Moenjodaro in 2500 BC, which gave rise to the Indus Civilization, needs to be considered in depth.

It is virtually impossible that one of the largest cities in the ancient world would have emerged suddenly without going through some sort of an evolutionary process of urbanization. The following evidence, which has become available through excavations at Moenjodaro and other sites in its vicinity, provides some clues to the evolutionary process:

1) Deep digging carried out by R.E.M Wheeler in 1950, Sir John Marshall in 1931 and E. Mackay in 1932 have produced some evidence of structures and artifacts at a level below 43 meters AMSL. Most of the artifacts are of the 'Indus (Harappan)' design, which were mixed with a very small percentage of artifacts of 'non-Indus' design. Although at that time much importance was given to the artifacts of 'non-Indus' design, the small

quantity of these artifacts mixed with much larger quantity of artifacts with 'Indus' design do not indicate the existence of an non-Indus Culture in the earliest 'pre-Indus' period at Moenjodaro. On the other hand the discovery of artifacts of 'Indus' design well below the surface of the artificial platform and so near to the level of the plains around 2500 BC is a matter, which requires serious consideration.

2) The borings carried out by Dr. G.F. Dales in 1964 in the flood plain adjacent to HR mound indicated the existence of an occupation layer at a level of about 36 meters AMSL, which was even below the level of the plains in the period around 2500 BC and just above the estimated level of the water table about that time.

3) The explorations carried out by N.G. Majumdar in the period 1929-31 in Sind, revealed a number of sites, which could belong to the 'pre-Indus Moenjodaro' cultural Complex. This is explained in the following paragraphs.

In order to distinguish 'Indus', 'pre-Indus Moenjodaro cultural complex' and 'pre-Indus non-Moenjodaro Cultural Complex' sites, the following criterion is suggested:

1) Artifacts and structures, which have hitherto been regarded as typical of Indus Culture, could belong to 'Pre-Indus Moenjodaro Cultural Complex' or to Mature Indus (commonly referred to as Mature Harappan) culture. This means that the culture of 'Pre-Indus Moenjodaro Cultural Complex' became the culture of the Indus Civilization after the emergence of the Civilization through the newly constructed city of Moenjodaro on artificial platforms around 2500 BC.

2) If artifacts and structures of 'Indus' type are found below the mounds at a level near to the level of the plains in 2500 BC, this can be taken as an indication that these artifacts belong to the 'pre-Indus Moenjodaro cultural complex. Similarly artifacts and structures of 'Indus' type found from sites constructed on the natural floor surface and not on raised artificial platforms could belong to 'pre-Indus Moenjodaro Cultural Complex'. Further detailed archaeological research would be considered necessary to establish that these artifacts and structures do not belong to the 'pre-Indus Moenjodaro cultural complex' but to the mature Indus Civilization.

On the basis of what has been stated above, the following sites in the lower Indus Valley need to be further investigated in order to establish whether they belong to the 'pre-Indus Moenjodaro Cultural Complex' or to Mature Indus Civilization:

1) Lohumjodaro: At this site, located near Dadu, three periods of occupation are indicated. The lowest layer probably belongs to 'pre-Indus Moenjodaro cultural complex' as typical pottery of black on red type is found at a depth of 2 feet below the present level of the plains. Similar ceramics found in upper layers of the mound belong to the Indus Civilization. The topmost layer belongs to the Jhukar period.

2) Chanhudaro: Two occupation layers are indicated. The lower layer near to the surface of the plain may belong to 'Pre-Indus Moenjodaro Cultural Complex', while the upper layer near the surface of the mounds belongs to the Indus period. The lowest level of occupation has not been reached due to rise in water table. There may be another layer belonging to pre-Indus Moenjodaro period.

3) Pir Lohri: located at the surface of the plains (no mound). The entire occupation period may belong to Pre-Indus Moenjodaro period.

4) Pir Lakhiyo: Another site in Lake Manchar area, where there are no mounds and the artifacts and construction are similar to 'Indus' types. The site may belong to 'Pre-Indus Cultural Complex'.

5) Ghazi Shah: Located on adjacent area of Lake Manchar and the Kirthar Range. Three distinct cultural periods indicated. The lowest layer below the surface of the plains probably belonged to Amri cultural complex. In the intermediate period, the Amrian culture was replaced by 'Pre-Indus Moenjodaro Culture', as the occupation layer is at surface on the plains and black on red pottery is found in this layer. The topmost occupation level near to the surface of the mound belongs to the Indus era.

6) Ali Murad: Located about 12 kilometers south of Ghazi Shah. The lower occupation layer with black on red pottery found at the level of the plain, may belong to the 'Pre-Indus Moenjodaro Culture'. The upper occupation layer near to the surface of the mound belongs to the Mature Indus period.

7) Karchat: Located east of Kirthar Range. The lower occupation layer at ground level probably belongs to 'Pre-Indus Moenjodaro Culture'. The upper occupation layer on the surface of the mound belongs to the Indus period.

8) Shahjo-kotiro: Located near the Lakhi Range between the Kirthar Range and the Indus River. The entire settlement was located at ground level. The artifacts indicate that this settlement may have belonged to the 'Pre-Indus Moenjodaro Cultural Complex'.

The above settlements may have been relatively small, but together with the large Proto-urban Moenjodaro settlement they would have formed an important cultural complex, more developed than the other important contemporary cultural complexes of Kot Diji and Amri. There is also evidence of appreciable interaction between the three cultural complexes in the form of mixed pottery found at various sites. This indicates a period of transition after which the pre-Indus Moenjodaro culture or the culture of the Indus Civilization prevailed at these sites.

In the Chapter on Genesis the final kick off situation is described. The planning and construction of a new city on the surface of a raised platform improved the organizational capability of the Moenjodaro people and increased cooperation between different elements in the society. The conditions for the growth of civilization were completed through this spirit of cooperation and determination.

CHAPTER 5

GENESIS OF THE INDUS CIVILIZATION

Civilization is the progress from an indefinite incoherent homogeneity towards a definite coherent heterogeneity.

Herbert Spencer- First Principles.

A number of favorable factors had made it possible for numerous localized cultures to develop in the Indus Valley region in the Chalcolithic era. In many a region, in different parts of the world similar developments were taking place at about the same time. While in most other regions these isolated communities remained in this state for centuries at a stretch or even declined, in the Indus Valley region a Civilization took root through integration of these localized cultures. What were the factors which led to the 'definite coherent heterogeneity' being achieved in the Indus Valley whereas in other regions the progress remained stalled? In this chapter we will examine the circumstances and factors which led to the birth of the Indus Civilization.

In his scholarly work on the Study of History, Sir Arnold Toynbee specifies three major factors, which give rise to civilizations. First and foremost it is the Environment. He regards geographical environment as 'the most conspicuous single factor.' The second is the biological factor, Race. But Environment and Race on their own are not sufficient to give rise to a civilization. There is a third factor, which must interact with the environment and race. Sir Arnold Toynbee calls this third factor an Encounter:

'An encounter is conceived of as a rare and sometimes unique event; and it has consequences which are vast in proportion to the vastness of the breach it makes in the customary course of nature.'

Regarding the rise of the Egyptian and Sumerian civilizations, Sir Arnold Toynbee has this to say:

'There were communities that responded to the challenges of desiccation by changing their habitat and their way of life alike and this rare double was the dynamic act which created the Egyptian and Sumerian civilizations. When the grasslands overlooking the lower valley of the Nile turned into the Libyan Desert and the grasslands overlooking the lower valley of the Euphrates and the Tigris into the Rub` al-Khali and the Dasht-i-Lut, these heroic pioneers - inspired by audacity or desperation – plunged into the jungle swamps of the valley bottoms, never before penetrated by man, which their dynamic act was to turn to the Land of Egypt and the Land of Shinar.'

What has been stated above regarding the Sumerian and Egyptian Civilizations is very relevant to the rise of the Indus Civilization also.

The physical environment was highly favorable for the growth of the Civilization in the Indus Valley. The entire area is covered by extensive river systems, which has been one of the basic requirements for the rise of ancient civilizations. In the Egyptian Civilization the Nile was crucial to the rise of the civilization; so were the Tigris and the Euphrates Rivers for the Sumerian Civilization. The Indus River and its large number of tributaries enriched the soil and provided water for irrigation, which was essential for cultivation of crops. These rivers besides catering to the essential requirements of the humans and animals for water also facilitated movement of goods and people. The other environmental factors were also quite favorable. The climate was congenial and the terrain varied. There was a 1000-kilometer long seacoast, high and low mountains and vast plains. Multiple resources were available for different types of food and industrial raw materials.

The biological factors were also conducive to the rise of a civilization. The people inhabiting these areas were industrious and innovative. This is proved by the emergence of settled form of life in this region as far back as 7000 BC and subsequent establishment of numerous settlements where craft activities were a basic part of the economy.

The 'interaction between the biological factors and the geographical environment' which gave birth to the Indus Civilization is discussed below.

During the Chalcolithic period, between 5000 BC and 3000 BC, a large number of settlements had emerged all over the Indus valley. During these two thousand years a lot of progress was made, which led to considerable improvement in the

quality of life of the people living in this area. The improvements in technologies for crop cultivation and livestock breeding had more or less solved the problems of food even for the growing population. The wheel-turned pottery was being produced in a variety of types and sizes to take care of the utility requirements. There was a vast improvement in the arts and crafts, which satisfied the aesthetic sense of the people and led to production of a large variety of items both for utility applications as well as for decoration and adornment. Small settlements increased in size to villages, and the increase in craft and trading activities turned some of these villages into small towns.

Among the more prominent of these towns were Amri, Kot Diji and Harappa. To this list of towns where excavations have provided definite evidence of pre-Indus habitation, must be added Moenjodaro. At Moenjodaro it has not been possible for the archaeologists to reach the natural surface because of waterlogged accumulation, which fills the space between the lowermost excavated layers upto a depth of about thirteen feet. As all Indus towns and cities passed through an evolutionary stage dating to a period before the Indus era, it is almost certain that Moenjodaro was inhabited long before the Indus civilization and proof of this lies buried in the waterlogged accumulation. In order to arrive at the genesis of the Indus civilization we would examine the development of some of the towns prior to the Indus era.

Amri was strategically located on the plains 150 kilometers south of Moenjodaro on the left bank of Indus River. Excavations at the site have revealed several phases of rebuilding. The excavation of the lowest layers reveals that that the earliest period of habitation was around 3500 BC. The site may have been inhabited even before this and all evidence of such an occupation may have been completely destroyed by the floods. In the earliest pre-Indus period Amri was destroyed by the floods at least six times and then rebuilt on the alluvium left by the floods. In period III, which belongs to the Indus era, the havoc caused by the floods continued. However, in the later phases of this period, a determined effort was made for protection against damage by the floods, by constructing the town on a raised platform about 40 feet above the level of the plains. In the following period Amri made accelerated progress and developed into a small town spread over an area of about ten hectares. The important point to note is that the settlement was constantly under threat from floods. Each time the settlement was destroyed an attempt was made to build the new settlement on an improved pattern. In the construction belonging to the period just before the Indus era there is

evidence of a vastly improved layout of the settlement based on arrangement of streets and lanes in a grid pattern. However in each of these attempts at rebuilding the response to the challenge posed by the floods was far too inadequate. It was only in the Indus era that the basic decision as taken to rebuild the town on a raised platform, a move which gave stability to the settlement which resulted in rapid growth and prosperity to the town.

At Kot Diji, the story was much the same. Kot Diji was located on the right side of the Indus River about 40 kilometers from Moenjodaro. In ancient times the Hakra-Ghagger River flowed a short distance to the east of this settlement. In the pre-Indus era the settlement was destroyed and rebuilt thirteen times. In the Indus era the level of the site was raised artificially to a height of about twenty feet. The raised platform was further protected by fortifications. These measures brought a period of respite to the settlement from constant damage by floods and ushered in an era of calm and prosperity.

Harappa was one of the major cities of the Indus civilization. The buildings on the mounds, the artificial mounds themselves and the massive defensive walls all round the mound belong to a period around 2600 BC. The citadel mound is at a height of about 20 feet above the level of the plains. The foundations of the buildings and the city walls go deep below this surface. Below the foundations of the citadel there is a layer just above the natural soil. In this layer evidence has been found of a pre-Indus settlement dating back to 3500 BC. During the period 3500 BC and 2600 BC, Harappa was destroyed several times by floods. However each time the settlement was rebuilt, additional improved features were introduced in the form of planned layout and better service facilities. The result was that the settlement continued to make rapid progress inspite of periodic catastrophes. Harappa had established important trade links with resource areas in Baluchistan in the west and upto Rohri Hills in the east. Around 2600 BC this pre-Indus settlement had grown into a small town spread over 12 Hectares. The experience of running a large variety of metallurgical and craft industries successfully, was to prove of immense value in the take-off period of the Indus civilization.

Moenjodaro, where the Indus Civilization first emerged, was probably the type-site of a pre-Indus Cultural Complex. Two points need to be considered in support of this:

1) Most archaeologists agree that the complete Indus city of Moenjodaro was built in a very short period over an artificial mound.

2) There must have been a pre-Indus, semi-urban settlement at or around the site where new city of Moenjodaro was built. This settlement must have been at least comparable in size to, Harappa, Kot Diji and Amri, probably bigger and more developed than all these. This pre-Indus settlement may have been located at the level of the plains, below the citadel mound or the mounds of the lower city or in the surrounding plains. Due to water-logging, it has not been possible to reach the lowest levels below the citadel mound. In ancient times the surrounding plains are estimated to be at least 7 meters below the present level of the plains. Louis Flam estimates that about one million cubic meters of sediment was deposited annually by the floods in the region around Moenjodaro. This raised the level of the plains, covering the ruins of any ancient settlements in this region. This subject has been dealt with in more detail in Preface, where other reasons are also given to support the existence of a pre-Indus Cultural Complex around Moenjodaro.

In the pre-Indus period, the position of Moenjodaro as a center of trade and commerce must have been very similar to that of Harappa. Moenjodaro was also located on important trade routes. The region around Moenjodaro was among the most developed areas in the pre-Indus period, with several important villages and towns located within a radius of 150 kilometers of Moenjodaro. The water level of the Indus River, which flowed adjacent to Moenjodaro, was not very much below the level of the plains. The availability of water at a convenient level assisted in navigation and made it easier to take off irrigation channels. There was plenty of water available all the year around as most of the tributaries joined the main Indus River about a hundred kilometers north of Moenjodaro. However these same advantages became the cause of major catastrophes during the late summer season, when the melting of the snow in the Himalayas caused the river to swell, resulting in major flooding of the adjacent plains.

The flooding of the Indus plains had become a sort of an ordeal for the people living on these fertile lands. For thousands of years since these settlements first emerged in the Indus valley, these people had worked with a great deal of imagination and fervor to achieve a higher standard of living. They had seen their efforts being frustrated time and again by the havoc caused by the flooding by the rivers. Every time their settlement was

destroyed, they started anew to build again and to build better. In this laborious process of rebuilding, they kept in mind the lessons they had learnt from the past misfortunes. The new settlement in a way embodied their dreams for the future. However inadequate their response may have been to the challenge posed by the floods, their spirit was kept alive. And when the time came, the spirit was ready to give a befitting response.

The time was around 2600 BC, the place Moenjodaro. The foundations of an ancient civilization were being laid.

A civilization like that which emerged in the Indus valley could not have sprung overnight without adequate planning and preparation. The archaeological investigations at various Indus sites indicate that the civilization emerged in the core Indus valley around Moenjodaro. It took 300 to 500 years for the civilization to spread to the outlying regions in the northeast and southeast. The excavations further indicate that Moenjodaro was by far the largest and most developed city of the Indus civilization. In the pre-Indus period Moenjodaro was probably a prosperous town in which a number of clans were engaged in a variety of craft and trade activities. The destruction of a prosperous township in which such a large population had a stake must have evoked an urgent response for taking suitable measures to prevent such destruction in the future. It was then, sometime around 2750 BC, that a decision was probably taken by the leaders of the clans who had a stake in the pre-Indus town of Moenjodaro, to build a new well-planned city. This new city was to be built not over the alluvium layer left by the floods, but on an artificial mound raised about 40 feet over the existing level of the plains. This was a gigantic task and a befitting response.

'The function of an intruding factor is to supply that on which it intrudes with a stimulus of the kind best calculated to evoke the most potently creative variations. In the language of mythology and theology, the impulse or motive which makes a perfect Yin state pass over to a new Yang activity comes from the intrusion of a Devil in the Universe of God.'

(Study of History-Arnold Toynbee)

The intruding Devil in the shape of a flood, which caused total destruction of a town buzzing with activity, brought the leaders of the clans together. These leaders drew up a Master Plan of Moenjodaro City. The Master Plan was not just an outline on the wall. It was the Master Plan of a civilized way of life. It was based on the analytical review of urban living in the past thousand years and on the basis of know-how acquired in town planning through rebuilding of earlier settlements destroyed by floods. It was

an exercise in organization building. And, above all it was an exercise in nation building in which different clans under their leaders joined in a massive cooperative effort to build a new city. And the cooperation did not end just with building a city. An interactive society was created in which people learnt to live together, work together and solve their problems together.

Several thousand people must have worked together to carry millions of cubic meters of mud, mud-brick and rubble required for building the mounds on which the city was located. The walls were then fortified with massive mud-brick walls and provided with city walls, gateways and bastions. The entire city was divided into different sectors devoted to political and administrative functions, industrial activity, residential and commercial facilities and satellite areas which took care of the daily food requirements of the people living on the mounds. Massive public buildings like the Bath, the Granaries, Assembly Hall and College were constructed on the city mound. Streets and lanes were laid out and plots allocated for construction of houses.

The people who planned and constructed the city, the clan leaders, became its first rulers and administrators. The organization went into place gradually, as planned. And trade and craft activities resumed once again, as several times before, but this time with greater resolve, more confidence and with newborn vigor. The streamlining of activities and the provision of physical and administrative infrastructure soon began to produce results in the form of greater prosperity and higher standards of living.

A series of administrative and fiscal measures were introduced by the rulers of Moenjodaro. A system of taxation was introduced and checkpoints created at the gateways in the city walls, where tax on goods entering the city was probably levied. A state treasury would have been created, where the revenue was collected and through which payments were made to thousands of state employees. Thousands of elaborately designed and intricately carved seals found from Moenjodaro indicate that a system of trading and administrative controls had been implemented. These seals and tablets probably carried motifs and symbols of different clans engaged in trade or holding a position of authority.

The next hundred years at Moenjodaro were a period of consolidation. It was the period in which the administrative organization became fully functional and various features embodied in the Master Plan were implemented. The thriving metropolis, which emerged at Moenjodaro, attracted craftsmen and traders from the surrounding areas and

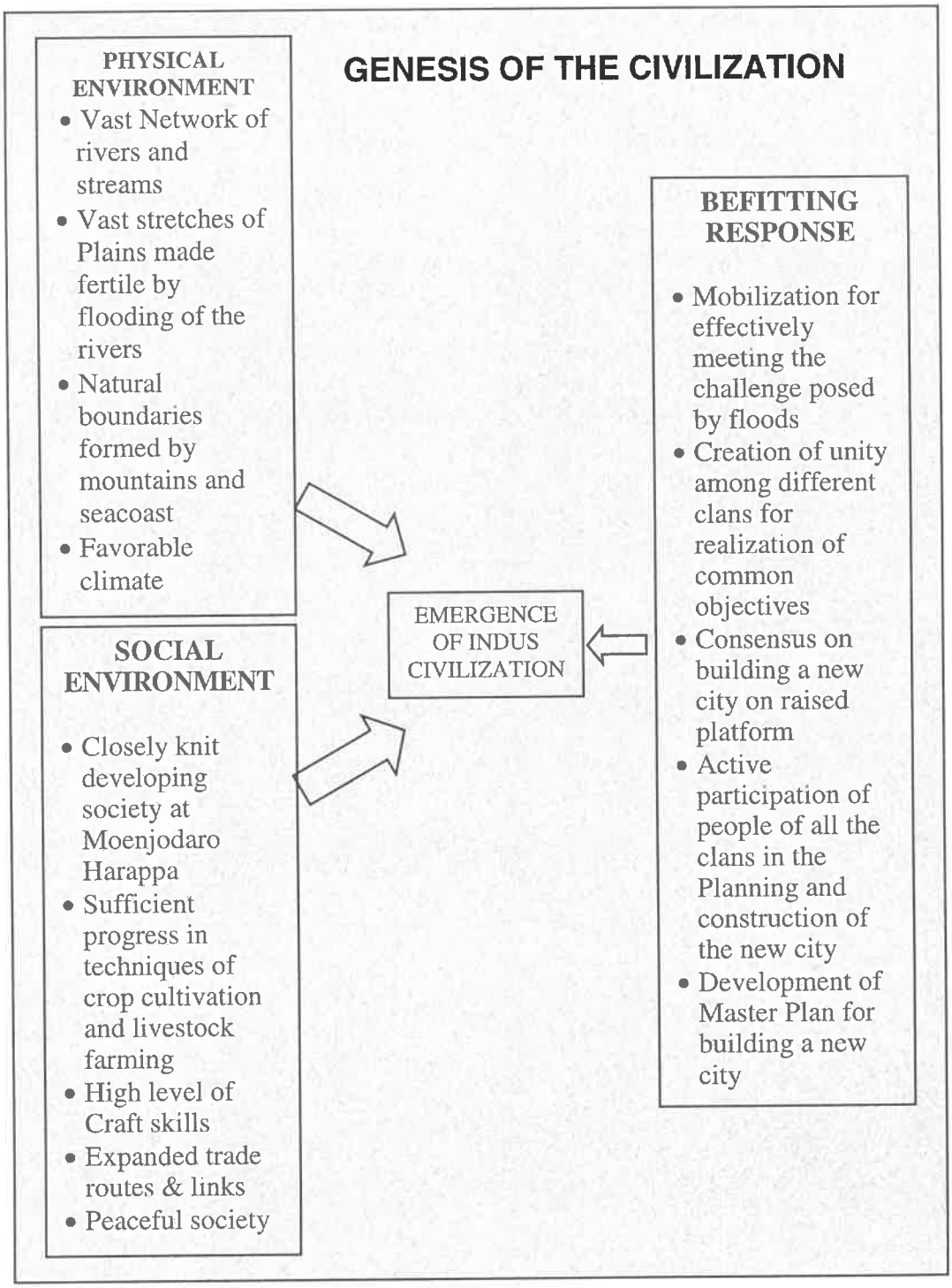
the towns and villages in the immediate vicinity of Moenjodaro came under the economic and political influence of Moenjodaro. The influence extended not only to the construction and layout of these settlements but also on the culture as a whole. Common styles and patterns of ceramics, bead and ornaments, and copper and bronze articles emerged. Moenjodaro emerged as a city- state.

During the next five hundred years, Moenjodaro extended its influence to other town and villages located far and wide from northeastern regions of Rajesthan to southeastern coastal towns of Makran, from northwestern regions bordering Afghanistan and Iran to Kathiawar and Kutch peninsulas in the southeast. Moenjodaro became a model for the Indus towns and cities. As a lead city Moenjodaro provided inspiration, technical guidance and assistance to other urban settlements. Construction of settlements on artificial mounds, layouts of towns and cities on the gridiron pattern, and an administrative structure of the type developed at Moenjodaro, became a standard pattern of all Indus settlements.

The incorporation of ancient towns, which had developed their own regional culture, into the common Indus culture was a gradual process. Towns like Harappa, Kot Diji and Amri continued to produce ceramics and other articles in their own characteristic styles for hundreds of years after the emergence of Moenjodaro as a city-state. In the pre-Indus period Harappa seems to have enjoyed close trading relations with Moenjodaro. Both these towns were located on important trade routes. Moenjodaro was probably controlling the trade in the southern Indus valley while Harappa was the gateway to trade in the northern areas. This special relationship between two of the most prosperous towns in the pre-Indus era became the building block of the Indus civilization. Other city-states under the dominating economic and technological influences and controls of Moenjodaro, emerged in different regions where the civilization spread. In this administrative set-up, Harappa was more than just a city-state. It was the regional capital of a common Indus civilization. The economic, technological and cultural strength of Moenjodaro led to the emergence of a common script, a common system of weights and measures, common styles and patterns of various utility articles and ornaments and decoration goods produced in all the regions covered by the civilization.

Relative comfort provided by a favorable physical environment has led to complacency on the part of many an ancient civilization. Similarly in the face of adversity, many societies buckled down or looked for more convenient options. This was not so at Moenjodaro. The morale of the society

around Moenjodaro was at a high in the period around 3000 BC. Opportunities were opening up all around due to success with agriculture and craft industries. In the prevailing atmosphere of confidence and dynamism, the people around Moenjodaro had finally come to the conclusion that half measures taken in the aftermath of floods would not work. The people got united with the resolve to take whatever measures were required to make their settlement reasonably safe against future disasters. The common threat, which these people faced, brought them together as a mighty force. They planned and worked hand in hand to build the new settlements. The Master Plan, which these people prepared, incorporated all their ideals about cleanliness and orderliness. It reflected the mature state, which the society had reached after centuries of consistent progress in various fields. The physical and social environments of the region and the firm resolve of the people to effectively meet the challenge posed due to constant havoc wreaked by the flooding of the rivers, laid the foundations of the Indus Civilization.

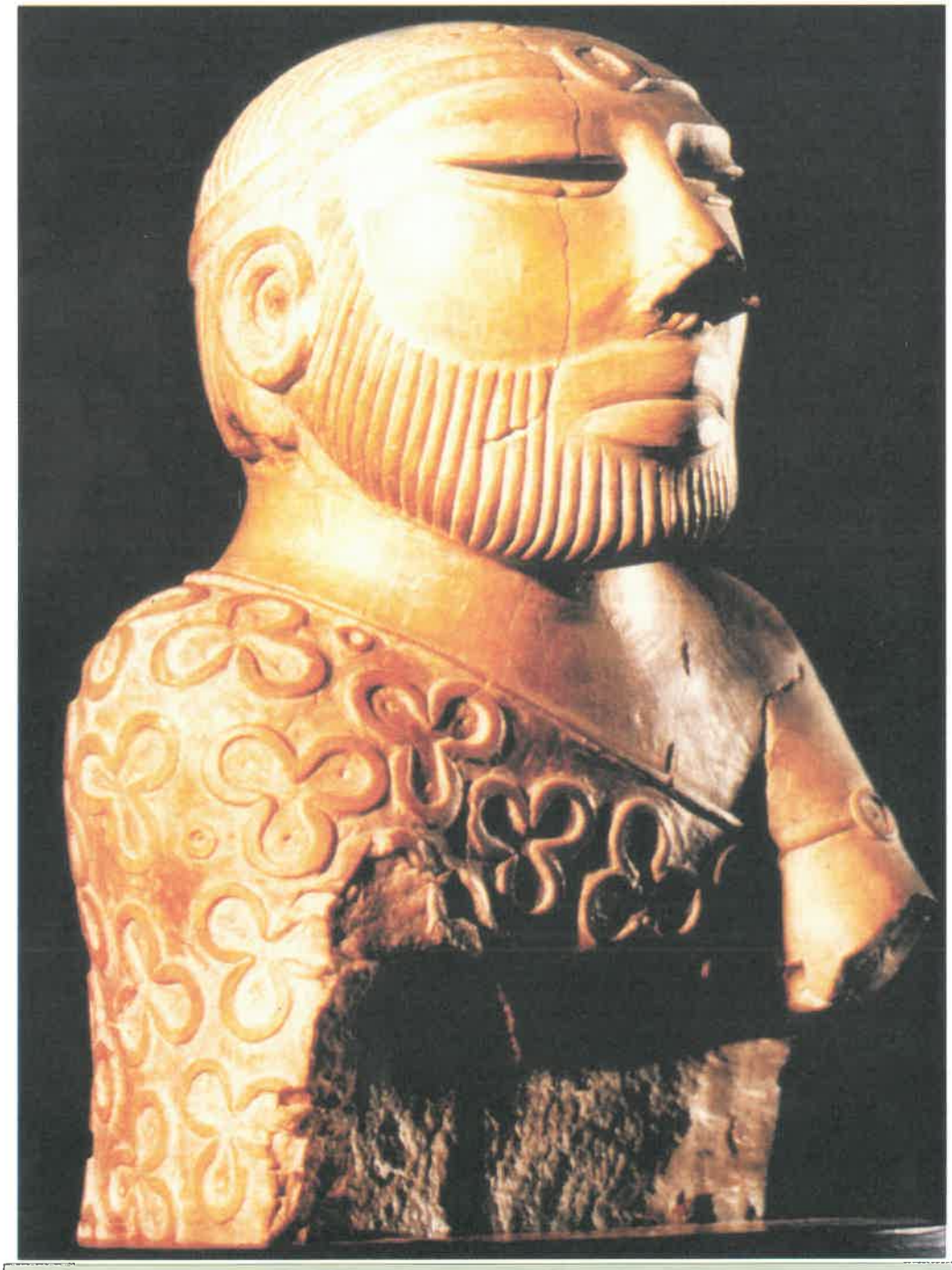

GENESIS OF THE CIVILIZATION
PHYSICAL ENVIRONMENT
• Vast Network of rivers and streams
• Vast stretches of Plains made fertile by flooding of the rivers
• Natural boundaries formed by mountains and seacoast
• Favorable climate
SOCIAL ENVIRONMENT
• Closely knit developing society at Moenjodaro Harappa
• Sufficient progress in techniques of crop cultivation and livestock farming
• High level of Craft skills
• Expanded trade routes & links
• Peaceful society
EMERGENCE OF INDUS CIVILIZATION
BEFITTING RESPONSE
• Mobilization for effectively meeting the challenge posed by floods
• Creation of unity among different clans for realization of common objectives
• Consensus on building a new city on raised platform
• Active participation of people of all the clans in the Planning and construction of the new city
• Development of Master Plan for building a new city

CHAPTER 6

RULERS AND SYSTEM OF GOVERNANCE

The archaeologists and other scholars have been able to piece together a fairly reliable picture of the Indus Civilization inspite of the fact that the script used by the Indus people still remains to be deciphered. However, the exact identity and names of the rulers remains to be confirmed. We have fairly reliable information about the people who ruled the Sumerian Kingdom from the inscriptions in a script, which was deciphered long time ago. These inscriptions specifically mention the names of kings and queens. The period of their rule was established through dating of the artifacts using modern scientific methods. In the Egyptian Civilization detailed lists of all the rulers of the 31 dynasties, which ruled Egypt, are available from the numerous texts engraved or painted on stones and from writings on papyrus. The information pertaining to the rulers of the Indus State is also available on the numerous seals and tablets found from Moenjodaro, Harappa and other sites. It is widely believed that the animals depicted on the seals are symbols of various clans who were in position of power in the Indus State. These pictorial representations together with a series of characters of the Indus script, which were also engraved on the seals, would enable us to clearly know the names of these important people and rulers, after the script has been deciphered. However, while the script remains undeciphered, an extensive research on the artifacts recovered from various Indus sites carried out a large number of scholars from different countries, has provided some clues regarding the type of people who were in power in the Indus State. The information contained in the artifacts needs to be studied along with the pattern of social and cultural life in various regions of the Indus Civilization.

In order to arrive at the true identity of people, who ruled the Indus State, we need to go back to the evolutionary phases of Indus towns and cities.



Nobleman's bust from Moenjodaro

The Indus towns and cities developed over thousands of years from the earliest settlements, which were established in the region by nomadic tribes and family groups. In these tribes and family groups, the major decisions pertaining to the settlement, were taken by the head of the household. In the elemental family group, the head of the household would be the senior-most male member of the family. In an expanded family, other factors also came into consideration. Together with the seniority of the person, his reputation, wisdom and courage would have a bearing on his status and strength in the community.

The next important phase of expansion was when the family groups became large enough for some members of the family to move away from the initial settlement to establish their own settlement some distance away. In this way a number of settlements emerged in the region, which, over a period of time, developed into villages. Each village became a separate community, with its own head of household, or in present terminology, its own Choudhri. However, the primordial attachments and atavistic loyalties continued to be maintained in these groups of villages, leading to the formation of a clan.

Thus different settlements originally established over the region by different tribes or different households gave rise to different clans. The Choudhris of each village continued to interact with each other and solve the matters relating to their clan, for which a forum like the Council of Elders would have taken root. A Chieftain would have emerged from the elders represented in the council. This Chief of the clan was responsible to keep the clan together and saw to it that the problems within the clan are resolved peacefully. The Chiefs of each clan would interact with each other to solve the problems in which people of more than one clan were involved.

The next phase of development would have been the gradual emergence of a town from among the different villages. The more prosperous villages would have diversified their activities and established trade relations with other distant villages to the mutual advantage of both. These inter-clan links would have been strengthened as the settlements grew in size and complexity. Different clans would have contributed to the growth of a prosperous settlement into a town and people from different clans would have been engaged in the craft and trade activities of the town. In the emerging polyethnic society, members of each ethnic group or clan would have maintained closer working relationships with other members of the same clan. Thus ethnicity continued to remain a diacritical element in all activities of the town, whether they were economic, political or cultural.

View from the north of the Citadel at Moenjodaro

THE STUPA MOUND ON THE CITADEL

The Buddhist Stupa is located in the northeastern part of the Citadel. It is surrounded on all sides by a Buddhist monastery. These structures belong to the period around second century AD. Being clearly visible from a distance, they first attracted the archaeologists to this site in the 1920s. Discovery of strange looking seals from the surface of the mound led to further excavations. These excavations revealed the existence of a well planned city belonging to the third millenium BC.

The Citadel is built on a mound artificially raised through a filling of mud and debris. It is in the shape of a parallelogram 450 meters along its major axis in the north-south direction and 250 meters along the minor axis in the east-west direction. It rises from a height of about 7 meters in the south to about 13 meters in the area around the Stupa. The Citadel mound is surrounded by a retaining mud-brick wall about 14 meters wide. Above the level of the podium is a massive baked brick wall with watch-towers and gateways. This wall was meant to control the entry of persons and goods into the Citadel area.

The leaders of various clans must have had a very active role to play in the development and administration of the towns in the Indus valley. All the towns in the Indus valley, particularly those in the southern region, suffered considerable damage and were frequently totally destroyed by the floods. The challenge posed by these floods must have brought the different clans much closer. The total destruction of these settlements only stimulated the clan leaders to mobilize the entire population in a massive effort to rebuild the town. Each time the town was rebuilt detailed planning was involved with regard to layout of the town, provision of essential services and incorporating protective measures like embankments or walls to keep the flood waters out. In these repetitive exercises of mobilization of labor, planning of townships and building of the towns, the full acumen of the clan leaders was brought into play. Cooperation between different ethnic groups in these massive projects was leading to greater cooperation in all walks of life. The stimulus provided by the challenge had brought the best out the individuals. The technical and administrative skills were being improved. The foundations of a civilization were being laid and leaders were being created. The various clan leaders, who faced the challenges successfully, were now getting ready to shoulder greater responsibilities of administering the cities and ultimately administering the State. Each time the challenge elicited, what the people at that time thought, was a befitting response. But the response proved inadequate. With each challenge the response improved, until the people in one town, namely Moenjodaro, came up with a response, which fully met the challenge. They decided to build huge artificial mounds and to construct elaborately planned townships on several mounds. The leaders who took this major decision and implemented the Master Plan successfully became the administrators and leaders of Moenjodaro. Over a time Moenjodaro developed into a city-state, and began to exercise considerable influence over the surrounding settlements. These leaders became the rulers of the city-state. As the civilization spread, the responsibilities of these leaders increased and suitable adjustments became necessary in the way they handled the new developments. The matters relating to settlements located over large distances from Moenjodaro called for different instruments of control. The experience gained in planning, organization building and administration of the city-state of Moenjodaro, enabled these rulers to devise suitable technological, cultural and trade controls over the newly emerging city-states in other regions. The clan leaders, who were ruling Moenjodaro, became the rulers of the Indus State, which included areas spread far and wide, from the Himalayas to the Arabian Sea. The

struggle for supremacy within the clans brought new, more capable and powerful leaders to the forefront. Similarly, the power and status enjoyed by different clans varied from time to time depending on the success of these clans in manufacturing, trade and commerce. But the basic pattern of leadership remained more or less unchanged while the civilization lasted, from 2500 BC to 1500 BC.

POLITICAL STATUS OF INDUS CITIES:

The investigations carried out by the archaeologists reveal that the Indus civilization first emerged in the southern Indus valley around Moenjodaro and later spread to the outlying regions in the northeast and southeast. Moenjodaro and Harappa were the first Indus cities. They were also the largest and economically and culturally the most important cities in the civilization. In the thousand years during which the Indus civilization flourished, Moenjodaro and Harappa maintained their position of pre-eminence over other Indus cities. From among these cities, Moenjodaro was by far the more developed. Allowance needs to be made for the fact that much of the evidence from Harappa was destroyed by succeeding generations, specially in recent times, by removing the baked bricks from the Harappan ruins for building their own houses. However, even after making provision for this destruction of evidence, Harappa does not quite match the grandeur of Moenjodaro.

Moenjodaro was the largest city in the Indus civilization and indeed one of the largest cities in the contemporary ancient world. In the total area over which the city was spread, Moenjodaro was comparable to the largest cities in the ancient Mesopotamian civilization. The ancient Sumerian city of Uruk, modern Warka, covered an area of about five square kilometers compared to about three square kilometers covered by Moenjodaro. But Moenjodaro was more intensely developed and had a larger population. The ancient city of Moenjodaro was elaborately planned as a metropolis with suitable provisions for sectors devoted to political and administrative functions, industrial activity, residential and commercial facilities and satellite town, which took care of the daily food requirements of the people living on the mounds. The high citadel mound was well fortified with massive mud-brick walls and provided with high baked brick gateways and bastions at regular intervals. Within the citadel were magnificent public buildings such as the Public Bath, Granaries, the Assembly Hall with audience chamber and a college. These magnificent buildings on the citadel mound and well-planned residential and commercial sectors on the lower mounds, testify to the greatness of Moenjodaro. The overwhelming number of seals and tablets found from Moenjodaro

clearly indicate that this city was the hub of economic activity. There is little doubt that Moenjodaro was the capital of the Indus State.

The next most important city in the Indus civilization was Harappa about 600 kilometers northeast of Moenjodaro. Harappa was located on the banks of the Ravi River, a tributary of the Indus River. Harappa played a key role in the development and expansion of the Indus civilization. Harappa was a prosperous settlement in the pre-Indus era and there is definite indication that Moenjodaro was also a flourishing town in the same period. The political and economic linkages between Moenjodaro and Harappa provided the launching pad for the Indus civilization. With the growth of political, cultural and economic activity, Harappa provided the link between Moenjodaro and other pre-Indus settlements in the Hakra-Ghagger River valley. These early links through Harappa with the northeastern region were strengthened during the Indus era. As the Indus civilization brought more and more prosperity to the settlements in the Hakra-Ghagger valley, the importance of Harappa was reinforced. Harappa became an important regional capital through which the Central Government at Moenjodaro exercised political control and established strong economic bonds with the settlements and resource areas in the north and northeast.

An alternate channel for political control and economic exploitation of the northeastern regions was provided by the extension of the traditional trade link between Moenjodaro and Kot Diji. Kot Diji had been an important cultural center in the pre-Indus period and had been exercising cultural influence over smaller settlements in the lower Hakra-Ghagger valley in the Cholistan region as well as over other Chalcolithic sites in the north, like Rehman Dheri and Sarai Khola. The growing economic relations between the core Indus civilization and the settlements in the Hakra-Ghagger valley led to establishment of strong political and cultural bonds between the Seat of Government at Moenjodaro and, via Kot Diji, with the Cholistan and Rajesthan regions in the north. The small towns in these regions, like Ganweriwala, Rakhi-garhi and Banawali were upgraded to the level of cities. Detailed archaeological investigations are yet to be carried out at Ganweriwala and Rakhigarhi. However preliminary investigations have revealed that these cities were very much a part of the Indus culture. They probably served as Regional Capitals, enjoying a great deal of regional autonomy but politically linked with the regime at Moenjodaro.

Thus each of the major cities functioned as city-states, exercising considerable influence over the surrounding areas. At the same time these city-states were politically linked with the rulers in

Moenjodaro, who exercised technological, economic and cultural controls over the city-states. The links of the city-states with the central regime only served to raise the level of their economy and to increase the prosperity of the city-states. The traders and entrepreneurs in the core Indus valley were resourceful and enterprising. They were able to gain greater access to resource areas for exotic raw materials and markets for more exotic finished goods. Through their association with the central regime, the city-states were able to benefit from these contacts. Compared to other contemporary ancient civilizations, the city-states in the Indus civilization were less independent and less powerful. In the Sumerian civilization different city-states enjoyed power over the Sumerian State at different times and the capital of the Sumerian State was consequently moved from one city to the other. The cities of Ur, Kish and Erech served as capitals of the Sumerian State at different times Similarly, Memphis, Thebes and Hieraconpolis served as capitals of the Egyptian dynasties at different times. In the Indus civilization, throughout the one thousand years, when the civilization was in existence, Moenjodaro seems to have maintained its position as the Seat of Government. Infact, Moenjodaro was more than just a political capital. It was the economic and cultural capital as well. It was this supremacy in technological, cultural and other economic fields which made the other city-states dependant on the regime at Moenjodaro. The relationship of the city-states in the outlying regions with the central regime in Moenjodaro was in the form of voluntary association for mutual benefit. The distances between the city-states precluded any possibility of more frequent interference of the central regime in the regional affairs of the city-states. In each region the regional city was the focal point of all economic, cultural and economic activity. These cities had no reason to challenge the position of Moenjodaro. The only city, which could have challenged the position of Moenjodaro, was Harappa. However there is no evidence to suggest that such a situation ever arose.

LOCAL GOVERNMENT

Because of the autonomous nature of the city-states, the survival and continuous progress of the Indus civilization depended on a strong and effective system of Governance in each city. The population of each city was in the range of 30,000 to 75,000 people. The city was spread over an area of 100 to 300 hectares. It was divided into sectors on the basis of administrative, commercial, industrial, agricultural and residential functions. The city was inhabited by people of diverse professions and skills and with people with different levels of income. The administration had to be

sufficiently well organized to take care of the complex nature of the problems and to provide a harmonious working relationship. The basic institutional framework for city administration would have been prepared by the clan leaders at the time when the city was being rebuilt. This structure would have been refined after the city was constructed and the organization began to function. The Government organization would have included:

- Department of Town Planning and Architecture: This department would have been responsible for preparation of layouts for public buildings and facilities, land management and control over building construction.
- Department for Public Works: This department would have been responsible for construction, expansion and renovation of Public buildings, drainage and sewerage systems and digging of wells.
- Maintenance Division: This division would have carried out the routine maintenance of wells, drainage and sewerage systems, lanes, streets and public buildings, waste disposal and cleaning of latrines.
- Department for Security and Law and Order: The security staff would have been posted at the city gateways and at other suitable locations within the city.
- Excise Department: This department would have been responsible for collection of excise duty in the form of food-grains or craft items from the workshops and the traders operating within the city premises.
- Octroi Department: This department would have been responsible for collection of octroi duty on goods entering the city.
- The Exchequer: This department would have been responsible for receipt and custody of revenue earned by the Government in the form of Octroi and Excise duty. They may have been the custodians of the granaries and the Government Warehouses.

A workforce of several thousand people would have been employed by the state for providing the above services. These employees would have been paid salaries from the Public Exchequer, probably in the form of food-grains. They may also have been issued tokens in the form of terracotta and copper tablets. In Moenjodaro specially, there is a likelihood that some sort of a beginning may have been made towards a basic form of currency system. Identical terracotta and copper tablets found in large numbers from Moenjodaro indicate their use in commercial transactions of this sort.

The local government system in towns may have been less complex than that in the cities, but it would have followed the same basic pattern. The autonomous structure of the city may have been maintained in the towns as well but

the town would have been economically dependant on the city-state.

THE RULERS OF CITY-STATES:

The autonomy enjoyed by the city-states meant that the rulers of these cities were all powerful as far as the day to day administration of the cities was concerned. The main concern of the city administration was to harness the resources of the city and the surrounding region to achieve greater and greater prosperity. The evolutionary process, which had raised the settlement from the level of a village to the level of a city continued without interference from other cities. The people were basically not warlike and there is no evidence of a standing army with any of the city-states. Distances of four to five hundred kilometers further reduced the possibility of warlike design of one city over another. The rulers of the cities were therefore not warlords, who came to power through show of force. As mentioned in the case of the rulers of the Indus State, the rulers of the city-states were also leaders of clans, which dominated the trading and manufacturing activities in the city.

In a lot of literature on the subject of Indus civilization, the writers have sought to establish the identity of Indus rulers by drawing parallels between the Indus regime and the regimes in other ancient civilizations. As more and more information becomes available on the Indus Civilization, it is becoming clear that the character of the Indus Civilization was very different from that of other ancient civilizations. In the Sumerian and Egyptian Civilizations, the massive stone statues, palaces and tombs provide irrefutable evidence about the type of rulers in these civilizations. The absence of such monuments indicates that the people who ruled the Indus State were not powerful kings. The evidence strongly points to the leadership of the chiefs of various clans, which were prominently represented in the social and cultural life of the.

CHAPTER 7

THE INDUS CITIES AND OTHER SETTLEMENTS

The earlier chapters covered the evolutionary phases of the development of Indus society. By 3000 BC the basic ingredients for the emergence of metropolitan culture were well established. The economic activity in the larger settlements had increased substantially. The urban areas were well planned and laid out to cater to the needs of a diversified population. People with special skills were attracted to these areas and made major contribution to the development of arts and crafts. Trading and commercial activity picked up. The surrounding areas took care of the food requirements of the urban population and also supplied the raw materials required by the workshops and the construction industry. A stratified society emerged with the wealthy classes exercising considerable influence in administrative matters and control over the trade channels. Trade between different settlements and with resource areas, spread far and wide.

This growing interaction between different settlements promoted cultural exchanges and interdependence between communities in different regions. The environment had been created for the more enterprising elements to play greater and greater part in the affairs of the region.

The most prosperous and well-connected region at that time was the lower Indus valley around Moenjodaro. It was here that the Indus culture first developed. From there on within a short span of 300 years it rapidly spread far and wide. In the northeastern region the civilization spread upto Rupar in the north and Alamgirpura near Meerut in the east and was poised to spread further east into the Jumna valley. In the southeast the regions around the Gulf of Cambay (Khambat) became a part of the Indus civilization and the expansion beyond the Narmada River was taking place. It was about this time that major ecological changes began to take place in the Hakra- Ghaggar region and in the Indus valley. Instead of further

DISTANT VIEW OF THE INDUS

The photograph shows the distant view from the eastern edge of the Citadel at Moenjodaro towards the Lower City and beyond. The Indus River flows about five kilometers east of the Citadel and can faintly be observed in the background. An embankment about two kilometers long was constructed in ancient times along the western bank of the Indus River to provide first line of protection to the buildings on the eastern mounds of the Lower City of Moenjodaro.

During the earlier phases of the archaeological investigations it was generally accepted that the eastern limits of Moenjodaro extended upto the eastern limits of the mounds of the Lower City. However recent archaeological investigations have revealed substantial structures under the surface of the plains, east of the Lower City mounds. These structures may represent suburban craft production areas.

expansion the decline started which ultimately led to the demise of the civilization.

At the time when the civilization was at its peak, it covered six distinct regions. These were:

1. Central region: Moenjodaro was the regional capital as well as the seat of the central Government. Important towns in the region included Kot Diji, Amri, Chanhudaro, and Ghazi Shah. Harappa was, perhaps, the regional capital of all the northern regions and in this way enjoyed a special status in the civilization.
2. Southwestern Region: Balakot was probably the regional capital. Other important towns located in this region were Allahdino, Sotka Koh and Sutkagen Dor.
3. Bahawalpur-Cholistan Region: Ganweriwala was probably the capital of this region. Other important towns in this region included Derawer, Ahmedwala, Shikri, and Jhalhar.
4. Northwestern region: The cities included in this region were Nausharo, Dabarkot, Rehman Dheri and Gumla.
5. North - eastern region: The cities of Rakhigarhi, Kalibangan, Banawali and Rupar were located in this region.
6. South - eastern region: The cities of Lothal, Dholavira, Rojdi, Rangpur and Bhagatrav were located in this region.

Description of important cities is given below.

MOENJODARO:

First Street in DK Sector

The initial investigations at the site of Moenjodaro were carried out by Sir John Marshall and Ernest Mackay in the 1920's. These investigations were followed by excavations and studies by S.M. Moneer in the 1930's, R.E.M. Wheeler in 1950 and G.F. Dales in 1965. Since 1979 a team from Aachen University, Germany has been engaged in a Research Project, which aims at consolidating and documenting the results of the excavations carried out by the above teams. The Aachen University Research Project (ARPM) seeks to carry out analytical research on the excavations carried out previously with a view to arriving at a more precise picture of Moenjodaro and the Indus Civilization.

LOWER CITY, MOENJODARO

The photograph shows a thickly populated area in Sector HR of the Lower City. Compared to the other sectors in the Lower City, HR sector gives the impression of greater congestion and preponderance of smaller houses. However the basic facilities, both inside the houses and in public places, remain the same in all the sectors. Each house is provided with a kitchen, a toilet and bathing platform located adjacent to a private well. Covered public drains and walled dustbins are located in the streets and in public places.

The construction of houses shown in the photograph is at several levels. Also the houses have two or three stories, with stairs leading to the upper floors. In the background can be seen a row of rooms with open space in front of them. This was probably the marketplace with a row of shops catering to the needs of the local inhabitants.

COLLEGE OF THE PRIESTS

The College of the Priests is one of the three impressive buildings located to the west of the Buddhist Stupa on the Citadel at Moenjodaro; the other two are the Great Bath and the Granary. A narrow lane running to the east of the College, called the Divinity Lane, provides the main entrances to the College. The area immediately west of he Divinity Lane comprising of the College of the Priests and the Great Bath could be termed as the religious and ritual center of the Indus State. If there was a temple at Moenjodaro, it should have been located in this area, but no such building or icon have been found from this area.

The College occupies an area of 70 meters by 24 meters. The main approach is through a courtyard, about 100 square meters in area. Covered passages or verandas are located on two sides of the courtyard. Behind the verandas are the classrooms. Two staircases lead to the upper floors of the building. These upper floors probably had further rows of rooms, which served as hostel for the priests.

This analysis of the previously unearthed remains, is being supplemented by further drillings and excavations. Some of the areas in which ARPM is concentrating are mentioned below:

1) Extent of urbanization at Moenjodaro site: A study of the alluvial deposits in the area surrounding the mounds and the discovery of additional structures east of the citadel and lower city mounds, seems to confirm the views of the earlier archaeologists and scholars that the urban limits of Moenjodaro extended far and beyond the presently excavated areas. It is now believed that the central part of the city was surrounded by a number of satellite settlements and the total inhabited area of Moenjodaro and its suburbs was well over 200 hectares.

2) The sudden emergence of an elaborately planned city at Moenjodaro. The preliminary research aims at exploring the elements of standardization in domestic dwellings and infrastructure, including drainage and sewerage systems and water supply to individual houses through wells.

3) To update the chronology of various structures excavated by previous archaeologists.

Views on the status of Moenjodaro and a description of the construction at the site is given below:

Moenjodaro was the state capital, which is indicated by the size of the settlement, the nature of the public buildings and the seals and other artifacts, which have been recovered from this site. In ancient times the Indus River flowed alongside this settlement; these days it flows about five kilometers further east. From this location, Moenjodaro controlled all the major trade routes. The trade routes to the west led to Afghanistan, Persia and Central Asia via Nausharo and the Bolan Pass. Those to the south extended from the Makran Coast towards Southern Persia, Oman, Bahrain and Mesopotamia towards the west and to the southeastern regions of Kutch and Kathiawar to the east. The trade routes to the northeast went via Kot Diji to the settlements in the Hakra-Ghagger valley in Cholistan and Rajesthan while those to the north led via Harappa to the Gomal Plains and beyond. Moenjodaro was culturally advanced and economically strong and was therefore in a position to exercise considerable influence on other cities, towns and villages. It became a major force in forging cultural identity over a very vast region, from the Himalayas to the Arabian Sea, from the mountain ranges of western Baluchistan to the plains of Hakra – Ghaggar valley.

The importance of Moenjodaro can be gauged from the fact that its total inhabited area was 1.75x1.75 kilometers, about 300 hectares. This was more than the area of any other city in the ancient world. Over this area were several artificial mounds on which buildings were constructed. The principal mound on the western edge was made of mud bricks and mud, its height sloping gently from 40 feet above the level of the plains on the northern end to 20 feet in the south. The mound was in the shape of a parallelogram, as in several other Indus cities, and was surrounded by massive brick walls for protection against floods. The entire mound was also surrounded by brick walls rising above the platform level, with gateways on all sides, which were used for regulating the movement of people and goods. This may have served a dual purpose, to provide security and barriers for collection of taxes. Most of the important public buildings were constructed on this higher mound. Some less important public buildings and industrial workshops were also located on the lower mounds but most of the buildings on these lower mounds were houses of different sizes. Some of the large residential buildings may have been palaces, which clearly indicates that the construction of buildings on the upper and lower mounds was not meant to segregate the more powerful and affluent members of the society from the common residents.

An important feature of Moenjodaro and other Indus cities was the elaborate town planning. The entire area was divided into rectangular blocks, each 240x360 meters by ten-meter wide streets and lanes crossing at right angles. The block of houses between the lanes, comprised of houses of different sizes, mostly with common side- walls. The internal layout-design of the houses provides another example of the high level of skills of the Indus architects. The rooms were well proportioned, provided with wooden doors and windows and latticed grills to let in the light and fresh air. Each house was provided with a well, bathroom, latrine and drainage system, which fed into the network of public drains, laid all along the lanes and main streets.

A description of some of the main public buildings located on the citadel mound at Moenjodaro is given below:

The Granary

This huge building 50 by 27 meters, was probably a storehouse for grains, as suggested by Sir Mortimer Wheeler, although other archaeologists think this may have been a great hall used for religious ceremonies. The building had about thirty rectangular blocks provided with brick walls for use as storage spaces. Between these rectangular blocks, passages were provided and at the bottom, provision was made for circulation of air. The building rested on a solid brick platform, while the superstructure was probably made of wood.

OVAL-SHAPED WELL AT MOENJODARO

The Oval shaped well is located between the Great Bath and the College of the Priests in the northern half of the Citadel Mound at Moenjodro. It is one of the six wells located in the Citadel area and the only oval-shaped well discovered so far out of the estimated 700 or more wells, which supplied water to the ancient city of Moenjodaro.

The shape of the well may have had particular significance. The location of this well in the religious quarter of the Citadel Mound, suggests that the shape may have something to do with religious symbolism. Oval, rectangular and parallelogram shaped layouts were very frequently employed in the planning of the Indus Cities, particularly in Moenjodaro. The citadel mound is oval or rectangular shaped, the Great Bath is rectangular and a number of important buildings are also rectangular shaped. Invariably the orientation is north-south. In the case of oval shaped well, the major axis is 3.5 meters long and the minor axis about 1.75 meters.

WATER SUPPLY SYSTEMS

The photograph shows a well in front of one of the larger houses in the DK sector of the Lower City in Moenjodaro. The Tower like appearance of the well is as a result of the excavations through the lower layers of the soil through which the well passed. The normal depth of such wells went upto 15 meters below the surface. The exposed well shows that it was uniformly constructed throughout its length. The perfect shape of the upright hollow cylinder was maintained and the kiln-fired bricks were kept firmly in place by gypsum plaster.

Consistent with the principles of sound town planning, the planning for water supply to the city of Moenjodaro was based entirely on more reliable supply from wells. Some water may have been available from the Indus River or from the canal or branch of the Indus River, which some archaeologists believe, flowed between the mound and the Lower City. However this non-reliable and somewhat inconvenient option was not considered. About 700 wells were dug in all parts of the city, the majority of them in the Lower City. Each house had its own well. In addition some public wells were provided by the city administration.

The water tank and bathing complex

This magnificent building complex indicates the highly developed aesthetic sense of the Indus architects. The layout resembles a modern public swimming pool, although its main purpose was much more utilitarian and, very likely, religious. The pool at the center of the complex was 12 by 7 meters with a maximum depth of 2.4 meters. The entire complex was paved with closely aligned baked bricks cemented together with gypsum plaster. Tar lining was provided between bricks in the floor and walls of the water tank to make the tank watertight. The tank was surrounded by paved walkways. Beyond the eastern walkway there were rows of bathrooms with one of the rooms containing a double lined well, which was used to replenish the water in the pool. The entire area was enclosed inside the outer boundary formed by massive columns. Between the columns, probably there were wooden panels. Beyond the main building, across the lane on the north, was another building, which comprised of eight bathrooms, with drains and a brick staircase leading from the bathrooms to the upper story.

College of the priests

This long building, 70meters by 24 meters, was located on the northeast of the Great Bath. It consisted of several rooms, many of them paved with bricks and provided with staircases to the upper story or roof. The rooms were located around a courtyard and separated from it by walkways. The building probably served as a residential teaching institution, run by the priests.

Assembly Hall

This building was located in the southern part of the citadel mound. It was in the shape of a spacious hall, 23 meters by 28 meters. A double row of columns were provided inside the building along with a line of standing bricks set into the floor, which could have been used for seating purposes.

HARAPPA:

It was the second most important city of the Indus civilization. It was located on the banks of the Ravi River, in the Sahiwal district, about 600 kilometers from Moenjodaro. Initially the excavations were carried out at this site by M.S. Vats of the Indian Archaeology Department, in 1940 and R.E.M. wheeler in 1946-47. Recently extensive excavations have been carried out at the site by the American team working on the Harappan Archaeological Research Project. A vast variety of artifacts have been found from the Period 3 level, corresponding to the Indus Civilization, including sophisticated ornaments made of gold, agate, faience and terracotta, beautifully designed carnelian beads, artistically refined statues of bronze and stone, and terracotta figurines and utensils. At this level, baked brick architecture re-

places the mud brick structures of the pre-Indus period. Archaeologists are of the view that Harappa was probably the administrative and cultural capital for the entire northern region and an important gateway to the northern resource areas.

The city was located on several mounds, which were spread over an area of about 150 hectares. Towards the western edge, was the citadel or the AB mound, in the shape of a parallelogram 450 by 200 meters. The surface of the mound slopes gently from north to south, with the maximum height about 16 meters above the surrounding plains. On the outer boundaries of the mound there was a massive wall, with gateways at regular intervals. Outside the defensive wall, were heavy mud brick embankments enclosed by a baked brick wall, more than a meter wide. Most of the buildings constructed on the citadel - mound have been destroyed in recent times by villagers who took away the baked bricks and used them for construction of their houses. All that remains in recognizable form is a long covered drain and a well, lined with baked bricks. The construction on Mound AB belongs to the Indus Civilization period or period 3 of the excavations (Kenoyer). The evidence of extensive construction on this mound, which was undertaken after the pre-Indus period construction on Mound E, indicates a revolutionary transformation of the society. A well organized political set-up and considerable increase in economic activity is apparent. An indication of this activity is the appearance of a large number of steatite and faience tokens.

Mound F

The construction on this mound dates to the Indus Civilization period. Initial investigations on this mound were carried out by M.S. Vats and R.E.M. Wheeler. The mound was located between the citadel mound and the old bed of River Ravi and could be regarded as a northern industrial suburb of the citadel. The total area of the mound was about 7.5 hectares and average height about six meters above the surrounding plains. The main activities on this mound were metal working, and dehusking and storage of grains. Archaeologists have uncovered a double row of buildings, which may have been residences of the people who worked in the industries located on this mound. A short distance away, sixteen charcoal fired furnaces and a crucible used for melting bronze have been found, which, indicates that copper and bronze implements and tools were being produced here. Further north there were eighteen circular platforms, each about 3.3 meters in diameter. These platforms were built of concentric bricks laid edgewise round a central hole. The hole held a wooden mortar, which was used for pounding grain. Burnt grains of wheat and barley and pieces of husk were found in the central hole of one these platforms. Nearby were the granaries, comprising of two rows of six storage areas, with a seven- meter wide passage in between. The floors of the granaries were raised by means of brick walls on the edges of the area, to provide circulation of air. The granaries were constructed on a 1.25- meter high battered mud platform lined with burnt bricks on three sides. On the northern edge, stairs led to the bank of the river.

Mounds E and ET

The lower city consisted o
ries of mounds, each provided w
own protective wall and gatewa
description of the construction on
mounds is given below:

These artificial mounds we
cated to the east of the citadel m
They were surrounded by mud
walls, with burnt brick gateways ju
the citadel mound. The major a
mound E was residential. The sub
area on mound ET was probably i
trial, where a variety of ornaments
being produced.

Major excavations on Mou
have recently been carried out und
direction of G.F. Dales and J.M
noyer as part of the Harappa Res
Project. The earliest period of con
tion on this mound, belonging to th
Indus period, has been covered i
Chapter on Evolutionary phases c
Indus Civilization. However majo
struction over the two lowermost l
was carried out in Period 3, which r
the rise of Harappa as a full-fledge
ban settlement. During this period
sive reconstruction of the walls
gateways was carried out and b
brick construction of drains, revet
wall and house undertaken. A
defined network of streets and lar
revealed through the excavations a
level. Along one of the major st
designated as NS2355, large quanti

regards Balakot as one of the four set-
tlements, which made a major contribu-
tion to the development of metropolitan
culture in the region. The site was origi-
nally excavated by R.L. Raikes and
identified as an Indus settlement on the
basis of ceramics and other artifacts
found there. Later on, George F. Dales
Junior and Mark Kenoyer carried out
detailed investigations at this site. The
settlement is located 75 kilometers north
west of Karachi. In the Indus civilization
period it was connected to the sea. These
days it is about 20 kilometers inland.
Balakot was an important station on the
Makran coast for coastal trade with the
Persian Gulf settlements. It produced
fine quality ceramics and shell orna-
ments and was an important source of
supply of seafood to the Indus cities lo-
cated inland.

Sotkah-koh: This was anothe
important trading post on the coasta
trade route to the Persian Gulf.The site i
located on the mouth of the Shadi River
which flows into the Arabian sea abou
500 kilometers west of Karachi. In th
pre-Indus period, it was a small tradin
village, mainly for the settlements lo
cated inland in the Shadi River valley
Major expansion took place in the Indu
civilization period, when it into a sma
fortified town. Stone blocks were used i
the construction of the protective wal
and in the construction of foundation
and walls of the building inside. Th
town was laid out in the typical Indu
gridiron pattern. A number of terracot
items have been found from the sit
which belong to the Indus style.

cles. Secondly in a stratified society, in which all the segments of the society participated actively in socio-economic activities, an appropriate environment for the development of industries was created. The demand for non-essential items and articles for personal adornment, came not only from the ruling class, but from every segment of the society. Necklaces, bangles and hair-bands were used by all classes; so were toys, utility vessels and articles used in rituals. Only the quality was different. Whereas the wealthy class used ornaments made of gold, silver and precious stones, the middle class were satisfied with imitation jewelry and ceramics, while the poorer elements in the society were happy with ornaments made of ceramic beads and stones and crude items of pottery. Thirdly, the Indus cities were larger, both in size and population, compared to cities elsewhere in the ancient world. This gave rise to substantial demand for furniture items and items used in the construction of buildings.

This profusion of demand from multifarious sectors gave rise to industrial enclaves and craft centers in all the regions of the civilization. The cities had small craft centers and workshops to manufacture the more sophisticated items, in special sectors reserved for such activity. Industries, which required larger space and caused pollution, were located in the outskirts of the cities. The smaller towns had segregated areas for residential purposes and craft activities. In these towns, majority of the population earned its livelihood from these industries. The third category of industrial estates, was small townships and villages meant exclusively for craft activities. This was a unique feature of the Indus society. Dr. Rafique Mughal, who carried out a detailed survey of sites located in the Cholistan region, found that out of 174 Indus settlements identified in this area, a very large number were exclusively for craft activities. These industrial sites were exclusively meant for production of pottery, fired bricks, beads, ornaments, and copper and bronze tools and implements. A large number of kilns were located in this region. There was no major area reserved for residential accommodation, except for quarters meant for craftsmen working in these industries and craft centers.

One of the prominent industrial centers was Chanhudaro. This industrial town was located on the banks of Indus River, near Sakrand, about 150 kilometers from Moenjo-daro. The town planning was typical of Indus settlements; the town was located on a mound, laid out in gridiron pattern and provided with suitable drainage facilities. The few houses were meant exclusively for artisans. The town was divided into several sectors, each sector meant for a particular type of craft activity. In one sector a large workshop with brick lined floors and chimneys was exclusively engaged in the production of ceramic beads. Another sector was reserved for manufacturing copper tools, implements, and a limited number of bronze statues and decoration pieces. Similarly other sectors were reserved for shellworking and for making seals.

DK SECTOR OF THE LOWER CITY, MOENJODARO

The northern part of the Lower City of Moenjodaro is referred to as the DK Sector. Compared to the other sectors in the Lower City, this sector gives the impression of more liberal planning, with more open spaces, spacious baked brick refuse dumps, commonly known as dustbins, and a number of public buildings. There are quite a few large houses in this sector, but the sector is not meant exclusively for the more affluent members of the society.

The baked brick structure shown in the photograph is a medium sized house, with construction of more than one structural phase. The doorway perched high above the lower ground level belongs to later structural phase. The house seems to have two courtyards linked with an open passage. The entry from the lane is to the courtyard belonging to the front portion of the house, which was probably used for craft or business activity. The rear portion of the house is essentially residential, with rooms surrounding the rear courtyard on three sides.

places the mud brick structures of the pre-Indus period. Archaeologists are of the view that Harappa was probably the administrative and cultural capital for the entire northern region and an important gateway to the northern resource areas.

The city was located on several mounds, which were spread over an area of about 150 hectares. Towards the western edge, was the citadel or the AB mound, in the shape of a parallelogram 450 by 200 meters. The surface of the mound slopes gently from north to south, with the maximum height about 16 meters above the surrounding plains. On the outer boundaries of the mound there was a massive wall, with gateways at regular intervals. Outside the defensive wall, were heavy mud brick embankments enclosed by a baked brick wall, more than a meter wide. Most of the buildings constructed on the citadel - mound have been destroyed in recent times by villagers who took away the baked bricks and used them for construction of their houses. All that remains in recognizable form is a long covered drain and a well, lined with baked bricks. The construction on Mound AB belongs to the Indus Civilization period or period 3 of the excavations (Kenoyer). The evidence of extensive construction on this mound, which was undertaken after the pre-Indus period construction on Mound E, indicates a revolutionary transformation of the society. A well organized political set-up and considerable increase in economic activity is apparent. An indication of this activity is the appearance of a large number of steatite and faience tokens.

Mound F

The construction on this mound dates to the Indus Civilization period. Initial investigations on this mound were carried out by M.S. Vats and R.E.M. Wheeler. The mound was located between the citadel mound and the old bed of River Ravi and could be regarded as a northern industrial suburb of the citadel. The total area of the mound was about 7.5 hectares and average height about six meters above the surrounding plains. The main activities on this mound were metal working, and dehusking and storage of grains. Archaeologists have uncovered a double row of buildings, which may have been residences of the people who worked in the industries located on this mound. A short distance away, sixteen charcoal fired furnaces and a crucible used for melting bronze have been found, which, indicates that copper and bronze implements and tools were being produced here. Further north there were eighteen circular platforms, each about 3.3 meters in diameter. These platforms were built of concentric bricks laid edgewise round a central hole. The hole held a wooden mortar, which was used for pounding grain. Burnt grains of wheat and barley and pieces of husk were found in the central hole of one these platforms. Nearby were the granaries, comprising of two rows of six storage areas, with a seven- meter wide passage in between. The floors of the granaries were raised by means of brick walls on the edges of the area, to provide circulation of air. The granaries were constructed on a 1.25- meter high battered mud platform lined with burnt bricks on three sides. On the northern edge, stairs led to the bank of the river.

Mounds E and ET

The lower city consisted of a series of mounds, each provided with its own protective wall and gateways. A description of the construction on these mounds is given below:

These artificial mounds were located to the east of the citadel mound. They were surrounded by mud brick walls, with burnt brick gateways just like the citadel mound. The major area in mound E was residential. The suburban area on mound ET was probably industrial, where a variety of ornaments were being produced.

Major excavations on Mound E have recently been carried out under the direction of G.F. Dales and J.M. Kenoyer as part of the Harappa Research Project. The earliest period of construction on this mound, belonging to the pre-Indus period, has been covered in the Chapter on Evolutionary phases of the Indus Civilization. However major construction over the two lowermost layers was carried out in Period 3, which marks the rise of Harappa as a full-fledged urban settlement. During this period massive reconstruction of the walls and gateways was carried out and baked brick construction of drains, revetment wall and house undertaken. A well-defined network of streets and lanes is revealed through the excavations at this level. Along one of the major streets, designated as NS2355, large quantity of artifacts were found, which include terracotta figurines, pottery, beads, seals and sealings. The houses located to the east of street number NS2355 were constructed with mud-brick foundations with baked brick structures. The superstructure and roof was probably made of wood. From the debris in various rooms a number of artifacts were recovered. These included pottery, stone tools, beads and toys. Also a number of intaglio seals and several identical molded faience tokens were recovered from the floors of these rooms and from the streets in front of these houses.

Above the Indus level, in period 4, artifacts with distinctly localized styles begin to appear, which marks the beginning of the disintegration process of the Indus Civilization. This style is designated as Cemetery-H culture after the style of the artifacts found in the graves of post-Harappan Cemetery-H, located north of the Harappan Cemetery R-37.

Harappan cemetery R-37

This graveyard was located south of the citadel mound. About fifty graves have been excavated. The dead were buried together with a number of household items and ornaments, which were placed on the northern end of the grave. The quality and range of goods recovered from these graves indicates that the people buried in these graves were commoners.

GANWERIWALA:

It is one of the 174 Indus civilization sites in the Cholistan area investigated by Dr.Rafique Mughal of the Pakistan Archaeological Department. It is located in the Bahawalpur region, equidistant from the other major Indus cities of Moenjodaro and Harappa. In the present situation, Ganweriwala is located southwest of Panjnad, where the major tributaries of the Indus join the main river. In ancient times, it was located on the banks of the Hakra River, which subsequently disappeared due to silting. It was the largest settlement in the region, spread over 82 hectares, and may have been a provincial capital. The city was constructed on the typical pattern adopted by the Indus cities. The fortified part of the city with the public buildings was constructed on an artificial mound at a higher level than the residential town. Ganjweriwala grew in size and importance with the increase in trade between the core Indus valley civilization and the important resource areas for minerals and copper in Rajesthan.

RAKHIGARHI, BANAWALI AND KALIBANGAN:

These important Indus civilization cities in the prosperous Haryana-Rajesthan region were located within 120 kilometers of each other in the Hakra-Ghagger valley.

Rakhigarhi was constructed on the pattern of other Indus cities with a citadel at a higher level and a lower residential town. The city was spread over an area of about 80 hectares. It may have been the regional capital. The city is yet to be fully excavated.

Banawali: The excavations at this site were carried out by the Indian Archaeological team under Ravindra Singh Bisht. Its origins go back to the pre-Indus period. The city was located on the banks of the Hakra-Ghagger River. The mound on which the city was located was about ten meters above the level of the surrounding plains. The city was well protected. Inside the walled city was the citadel surrounded by the lower town on three sides towards the north, south and east. The residential sectors were well planned with an elaborate network of roads. Some of the houses were fairly large with several rooms, including kitchen, toilet and stores. They were constructed using burnt and sun dried mud bricks of standard sizes in the ratio 1:2:4. A vast number of artifacts have been recovered from these houses and from the surrounding areas. These include terracotta utensils and figurines, stone weights and game pieces, and copper and bronze tools and implements. The area around Banawali was rich in agricultural produce.

Kalibangan was a regional town, located in on the banks of Hakra-Ghagger River in District Ganganager of Rajesthan. The lower excavation layers, designated as Phase-I, were pre-Indus.

The upper layers, belonging to Phase-II, have produced evidence of construction on two mounds, with separate fortifications on each mound. The citadel was built on parallelogram-shaped, mud brick platform. The lower town, which was essentially residential, was laid out in the gridiron pattern, with houses built with burnt and mud- bricks. Kalibangan was surrounded by rich fertile land, which was intensively cultivated using ploughs and water from irrigation channels. Seals and tablets found amongst the ruins indicate that Kalibangan must have been an important center for trade and commerce.

Dholavira:

It is located on the Rann of Kutch, about 250 kilometers southeast of the Indus delta. In the late Indus period around 2000 BC, it expanded from a small town to the largest city in the region, spread over an area of more than 90 hectares. It owes this phenomenal rise to its strategic location on an important trade route from Gujarat to the core Indus valley. Gujarat was an important source for precious and semi-precious stones and sea-shells used by the industries in the Indus valley for making sophisticated ornaments. These resource areas around the Kutch and Kathiawar peninsulas, gradually became a part of the Indus civilization and Dholavira became an important commercial an administrative center, probably the regional capital.

The character, design and architecture of Dholavira were typical of Indus cities except for some regional variations. One of these variations was the use of sandstone instead of burnt bricks in the construction of buildings. The other variation was the layout of the city. Unlike the construction in other Indus cities, all the major sectors of the city including the citadel, the middle town and the lower residential town, were enclosed inside a common outer wall, with two gateways in the northern and southern wall sectors. The citadel occupies one-fifth of the total area enclosed within the outer boundary, the middle town another one-fifth, while the remaining area of about 30 hectares is occupied by the lower town and open spaces. The citadel is located on a natural hill rather than on an artificial mound, while the middle town is also located on a raised platform, about thirteen meters above the lower town. Each of these sectors is further enclosed inside its own boundary wall, with gateways on all sides providing access to the other sectors.

COASTAL SETTLEMENTS

The coastal settlements were an important part of the Indus civilization. Most of these settlements had existed as small trading stations during the Chalcolithic period. They were normally located at the mouth of rivers or streams, and most of the trading activity of the towns located in the river valleys, which formed the hinterland of these trading posts, was carried out through these

coastal settlements. With the manifold increase in trading activities during the Indus civilization period, these settlements grew in size and importance. They assumed the general style and character of Indus cities with regard to town layout and architecture. To sustain the growing population, the surrounding land was brought under cultivation, and small industries were set up. These settlements supplied dried fish and other forms of seafood and shells to the inland areas, which made a substantial contribution to the prosperity of these coastal regions. Some of the important coastal settlements are described below:

Lothal: This was an important trading station, located in the eastern region of the Indus civilization, in the Gulf of Khambat (Cambay). The town was located on a natural mound and protected against floods by a mud- brick wall. It was a typical, planned Indus settlement. The streets were laid out in the gridiron pattern and the houses were provided with drains, bathroom and kitchen. A number of sealing, which were probably attached to trading goods, and some circular seals of the type used in Oman have been found from the site. One of the buildings was probably a granary. It consisted of twelve storage cells, provided with air ducts and separated by passages. Another building, spread over 9000 square meters, was probably a water reservoir used for irrigation, or perhaps a dockyard used by ships engaged in trade with Oman and other Gulf states. A number of artifacts have been found from the site, which include copper and bronze tools and implements, cubical stone weights and typical Indus pottery.

Allahdino: This site is located approximately 40 kilometers east of Karachi, about 16 kilometers from the westernmost part of the Indus Delta. The excavations of the ancient ruins at Allahdino were conducted by an American Archaeological team under Walter A. Fairservis Junior. It is one of the five Indus sites located near the Malir River, in the outskirts of Karachi.

The settlement was administered by a local chieftain, whose family dominated the affairs of the region. A large house was uncovered by the archaeologists, constructed with stone blocks and provided with drains, bathrooms and other amenities. A jar recovered from the house, contained ornaments of gold and silver and carnelian beads, which were probably acquired by the family from one of the larger Indus cities. The administrative buildings and craft workshops were located on a low mound. In the surrounding areas intensive cultivation of crops was carried out. Water from a well located nearby, was used for irrigation, as the water from the Malir River was not available for more than nine months in the year. The people who worked in the fields lived in houses spread over the entire area, rather than in a central residential area.

Balakot: Jim Schaffer, who carried out a detailed study of the Chalcolithic period sites in the Indus valley,

regards Balakot as one of the four settlements, which made a major contribution to the development of metropolitan culture in the region. The site was originally excavated by R.L. Raikes and identified as an Indus settlement on the basis of ceramics and other artifacts found there. Later on, George F. Dales Junior and Mark Kenoyer carried out detailed investigations at this site. The settlement is located 75 kilometers north west of Karachi. In the Indus civilization period it was connected to the sea. These days it is about 20 kilometers inland. Balakot was an important station on the Makran coast for coastal trade with the Persian Gulf settlements. It produced fine quality ceramics and shell ornaments and was an important source of supply of seafood to the Indus cities located inland.

Sotkah-koh: This was another important trading post on the coastal trade route to the Persian Gulf.The site is located on the mouth of the Shadi River, which flows into the Arabian sea about 500 kilometers west of Karachi. In the pre-Indus period, it was a small trading village, mainly for the settlements located inland in the Shadi River valley. Major expansion took place in the Indus civilization period, when it into a small fortified town. Stone blocks were used in the construction of the protective walls and in the construction of foundations and walls of the building inside. The town was laid out in the typical Indus, gridiron pattern. A number of terracotta items have been found from the site, which belong to the Indus style.

Sutkagen-dor: This site was originally excavated by Aurel Stein of the Indian Archaeological Department. Subsequently detailed investigations were carried out by George F. Dales. The settlement was located on the mouth of the Dasht River, near the border between Pakistani and Persian Makran. Tectonic uplifts, which occurred in the coastal regions of Baluchistan in the second millenium BC caused the Arabian Sea coastline to recede leaving Sutkagen-dor asbout 40 kilometers inland. The well-fortified Indus town consisted of a parallelogram shaped citadel, surrounded by massive stone walls. The lower town covered a small area to the north and east of the citadel. Many of the artifacts found from the site may have been produced at other Indus sites, as Sutkagen-dor thrived on trade rather than industrial activity. In the fourth millenium, this settlement had already become an important trading post, connecting upper Dasht valley to the settlements along Persian Makran coastline. However, it was in the Indus period that Sutkagen-dor became an important commercial center on an important trade route, connecting the entire Indus civilization region with Oman and other Persian Gulf settlements.

Industrial sites:

Craft activity was an important part of the Indus civilization. This activity was promoted by a strong middle class, which emerged in all the regions of the civilization. This gave rise to substantial demand for manufactured arti-

cles. Secondly in a stratified society, in which all the segments of the society participated actively in socio-economic activities, an appropriate environment for the development of industries was created. The demand for non-essential items and articles for personal adornment, came not only from the ruling class, but from every segment of the society. Necklaces, bangles and hair-bands were used by all classes; so were toys, utility vessels and articles used in rituals. Only the quality was different. Whereas the wealthy class used ornaments made of gold, silver and precious stones, the middle class were satisfied with imitation jewelry and ceramics, while the poorer elements in the society were happy with ornaments made of ceramic beads and stones and crude items of pottery. Thirdly, the Indus cities were larger, both in size and population, compared to cities elsewhere in the ancient world. This gave rise to substantial demand for furniture items and items used in the construction of buildings.

This profusion of demand from multifarious sectors gave rise to industrial enclaves and craft centers in all the regions of the civilization. The cities had small craft centers and workshops to manufacture the more sophisticated items, in special sectors reserved for such activity. Industries, which required larger space and caused pollution, were located in the outskirts of the cities. The smaller towns had segregated areas for residential purposes and craft activities. In these towns, majority of the population earned its livelihood from these industries. The third category of industrial estates, was small townships and villages meant exclusively for craft activities. This was a unique feature of the Indus society. Dr. Rafique Mughal, who carried out a detailed survey of sites located in the Cholistan region, found that out of 174 Indus settlements identified in this area, a very large number were exclusively for craft activities. These industrial sites were exclusively meant for production of pottery, fired bricks, beads, ornaments, and copper and bronze tools and implements. A large number of kilns were located in this region. There was no major area reserved for residential accommodation, except for quarters meant for craftsmen working in these industries and craft centers.

One of the prominent industrial centers was Chanhudaro. This industrial town was located on the banks of Indus River, near Sakrand, about 150 kilometers from Moenjo-daro. The town planning was typical of Indus settlements; the town was located on a mound, laid out in gridiron pattern and provided with suitable drainage facilities. The few houses were meant exclusively for artisans. The town was divided into several sectors, each sector meant for a particular type of craft activity. In one sector a large workshop with brick lined floors and chimneys was exclusively engaged in the production of ceramic beads. Another sector was reserved for manufacturing copper tools, implements, and a limited number of bronze statues and decoration pieces. Similarly other sectors were reserved for shellworking and for making seals.

DK SECTOR OF THE LOWER CITY, MOENJODARO

The northern part of the Lower City of Moenjodaro is referred to as the DK Sector. Compared to the other sectors in the Lower City, this sector gives the impression of more liberal planning, with more open spaces, spacious baked brick refuse dumps, commonly known as dustbins, and a number of public buildings. There are quite a few large houses in this sector, but the sector is not meant exclusively for the more affluent members of the society.

The baked brick structure shown in the photograph is a medium sized house, with construction of more than one structural phase. The doorway perched high above the lower ground level belongs to later structural phase. The house seems to have two courtyards linked with an open passage. The entry from the lane is to the courtyard belonging to the front portion of the house, which was probably used for craft or business activity. The rear portion of the house is essentially residential, with rooms surrounding the rear courtyard on three sides.

COMMON FEATURES OF INDUS CITIES, TOWNS, AND VILLAGES:

The integration of regional cultures into the Indus civilization resulted in emergence of common styles, patterns and features over the entire region. It introduced a pronounced element of planning in all areas of state activities, particularly in the design and construction of buildings and urban centers. A great deal of standardization was introduced in the weights and measures and a common culture emerged in regions spread far and wide. Some of these common features are described below:

- The cities were constructed on the basis of a detailed layout plan. They were normally located on artificial mounds and in some cases on natural hills. The elevation besides providing protection against floods offered better view of surrounding areas and made the implementation of security and tax collection measures easier.

- The mounds were protected against floods and erosion by mud-brick walls and embankments, which surrounded the mud filled core of the artificial mound.

- The citadel or acropolis was located on the highest mound, normally on the western edge of the city. The city was well fortified with massive brick walls rising almost five meters above the platform and provided with gateways and bastions on all sides. The citadel was normally parallelogram shaped. The most important administrative and public buildings were constructed on this mound.

- The lower mounds were located to the east, and sometimes also to the north and south of the citadel mound. The residential buildings, large and small were normally constructed on these mounds. Some sectors in the lower towns were reserved for craft activities. Sometimes the marketplace, temples and small public buildings were also located on the lower mound. The lower town was normally not fortified, although some settlements did have a protective wall around each mound or surrounding several lower mounds.

- The entire settlement was planned in the gridiron pattern. It was divided into rectangular blocks by main streets, 3.5 meters wide running from north to south and east to west. These blocks were further divided into smaller squares and rectangles by lanes, about two meters wide.

- A well- planned network of public drains was laid out all along the streets and lanes. These drains were provided with manholes at regular intervals. The drainage and sewerage from the residential buildings flowed into the public drainage and sewerage systems.

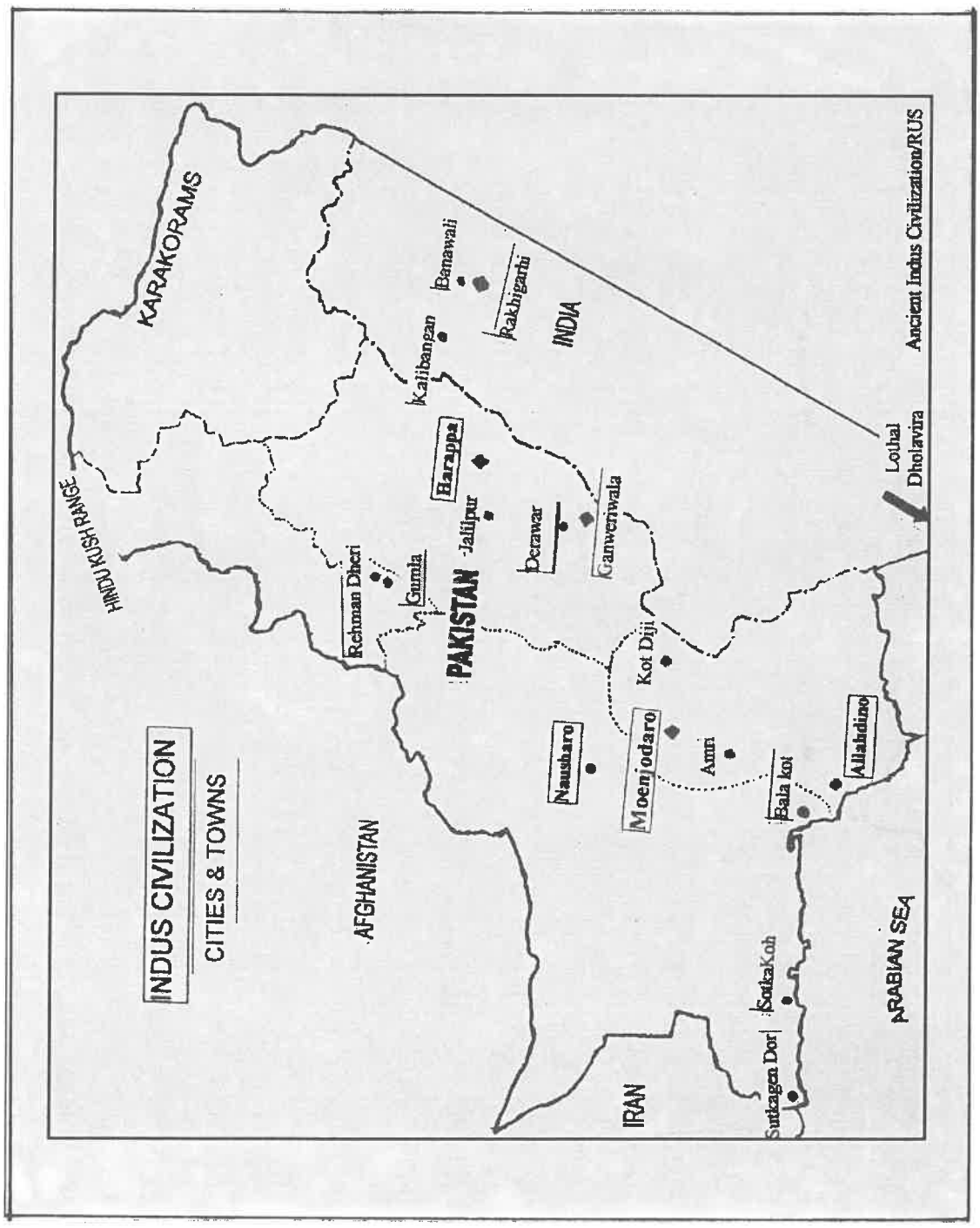
- Very often the houses had their own wells to meet the domestic requirements for water. Sometimes, in addition, public wells were provided at convenient locations. The wells were lined with baked bricks with gypsum plaster. The edges of the wells on the ground surface were also lined with bricks to prevent dirty water from flowing into the wells.

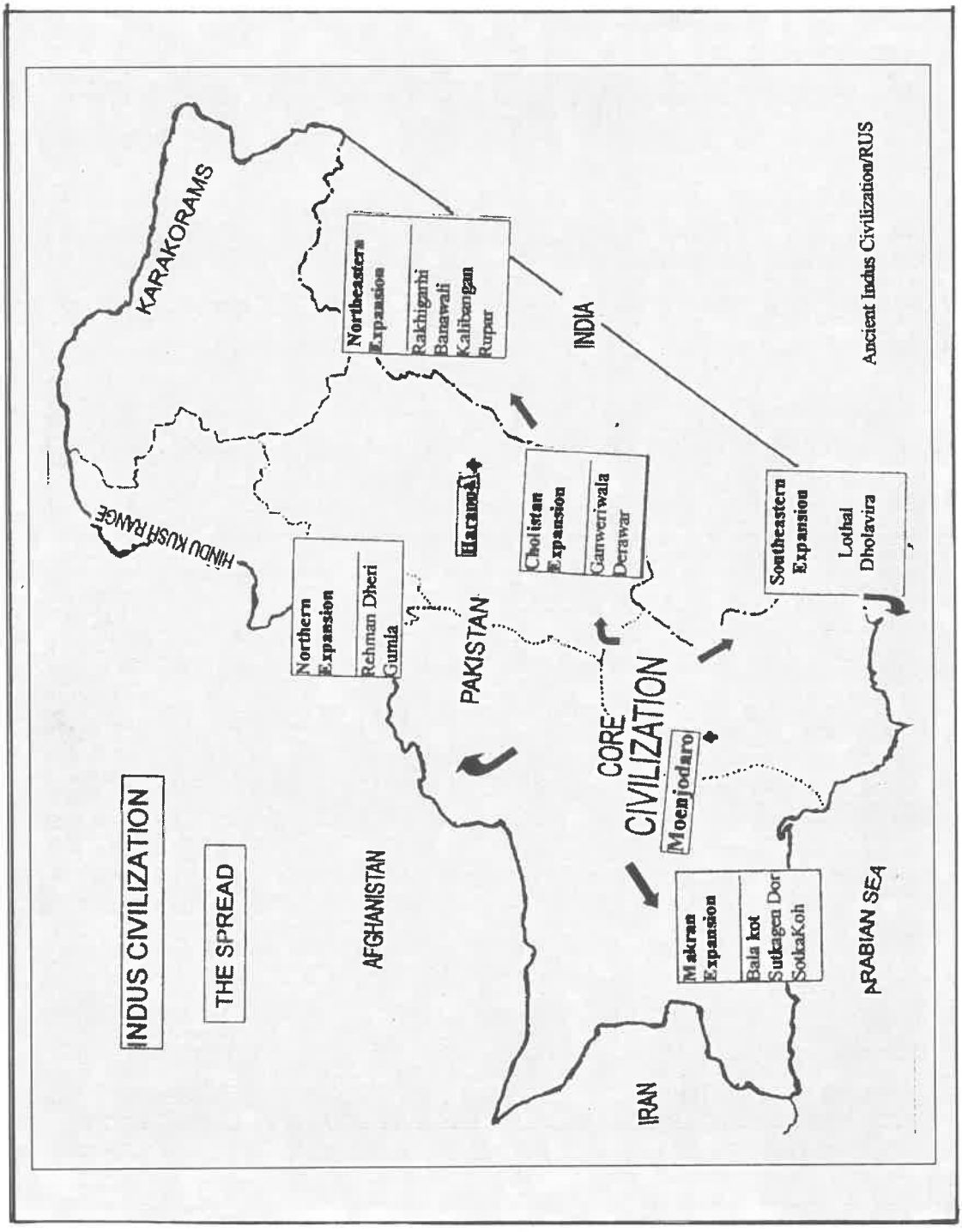
- The sizes of the bricks used in the construction of houses and city walls were standardized in the ratio 1:2:4. Smaller bricks, 7x14x28 centimeters, were used for house walls, and larger bricks, 10x20x40 centimeters, for city walls. In cities the walls were made of baked bricks and city walls of mud bricks. In small towns and villages, often the house walls were also made of mud bricks.

- The various categories of buildings followed architectural designs, which were very similar to each other. Most houses had private bathing areas, latrines, and wells. The rooms were constructed around a courtyard, with stairs leading to the upper stories. The houses were constructed in various sizes, depending on the wealth and status of the owner. They were one, two and sometimes three stories high.

Modern Concepts of Town Planning

Five thousand years ago the Indus architects and town planners developed concepts and techniques, which are being used these days. The division of the entire settlement into square and rectangular block in checkerboard patterns blocks by streets and lanes crossings each other at right angles shows highly developed sense of utilization of space. The Indus town planners made provision for public drains and sewerage pipelines and channels and public wells for public supply of water. The quality of construction of the streets was very good and these streets are still in a usable state. Suitable provision were made for waste disposal.


INDUS CIVILIZATION
CITIES & TOWNS
HINDU KUSH RANGE
KARAKORAMS
AFGHANISTAN
IRAN
PAKISTAN
INDIA
ARABIAN SEA
Ancient Indus Civilization/RUS
Lothal
Dholavira
Kalibangan
Banawali
Rakhigarhi
Harappa
Jalilpur
Derawar
Ganweriwala
Rehman Dheri
Gumla
Kot Diji
Nausharo
Moenjodaro
Amri
Bala koi
Allahdino
Sutkagen Dor
Sotka Koh


INDUS CIVILIZATION
THE SPREAD
KARAKORAMS
HINDU KUSH RANGE
AFGHANISTAN
PAKISTAN
IRAN
INDIA
ARABIAN SEA
CORE CIVILIZATION
Harappa
Moenjodaro
Northeastern Expansion
Rakhigarhi
Banawali
Kalibangan
Rupar
Northern Expansion
Rehman Dheri
Gumla
Cholistan Expansion
Ganweriwala
Derawar
Southeastern Expansion
Lothal
Dholavira
Makran Expansion
Bala kot
Sutkagen Dor
SokaKoh
Ancient Indus Civilization/RUS

CHAPTER 8

THE INDUS SOCIETY

We can form a fairly good idea of the social habits and lifestyles of the Indus people from the material uncovered by the archaeologists through excavations at thousands of Indus sites. The layout of the cities shows a high level of orderliness. They exhibited an exceptional concern for cleanliness and hygiene. There was no extreme polarization in the Indus society. The basic infrastructure of the cities was designed to meet the needs of all the sections of the society. The extensive provision for residential accommodation for all classes of people shows a rare concern for the common man. The sense of priorities of the Indus people was not very different from those of modern societies. They set relatively high standards for basic amenities of life and showed less concern for the frivolous and things meant to satisfy the baser instincts of man. They displayed a sense of proportion in every thing they did and were less inclined towards fantasy.

The Indus people had a relatively mature attitude towards life. They could plan and organize themselves and they were very industrious. They had an appreciation for the finer things in life, among them good food and good accommodation. They were sober in their tastes. They had time for entertainment and leisure but shunned extravagance. They were basically peace loving and disciplined. The excavations have produced no evidence of wars or of rebellions or uprisings against the State or the use of force to extend the boundaries of the state.

SOCIAL HEIRARCHY AND INTERCLASS RELATIONSHIPS

The complex nature of the activities in an integrated urban society results in the creation of a number of social classes. So it was with the Indus civilization, where a fairly stratified society emerged. There had to be a ruling class to manage the affairs of the state. A number of wealthy groups emerged from among the traders and the entrepreneurs, who found it in their common interest, to organize the various elements in the society in such a way as to maximize their earnings. Their growing wealth gave them increasing power and control on critical areas of the economic activity. A vast majority of the population depended on the economic activities generated by the wealthy class. Over a period the wealthy class became natural leaders with status and authority to run the affairs of the State.

The ruling class created a bureaucracy to implement their ideas and policies. This bureaucracy or the administrative class integrated and controlled the economic and cultural activities, first within the core areas of the civilization and then in the outlying areas which gradually became a part of the Indus civilization. The administrative class created specialized departments for collection of taxes, for planning and administrating the urban settlements, for promotion of trade and industrial activity and for development of art and culture.

With the institutional infrastructure provided by the bureaucracy, the agricultural, industrial and commercial activities were channeled to provide optimum returns to the ruling class. In the process a number of social classes emerged based on the nature of the work handled by them and the specialized skills of the artisans and professionals. Different professional groups emerged on the basis of their specialization and their jobs. These classifications would have covered professionals like sweepers and garbage collectors, farm labor, brick makers, brick layers, masons, well diggers, construction workers, potters, ceramic workers, bead makers, stone carvers, leather workers, weavers, the metallurgists, jewelers, the shop keepers, traders, architects, priests, public administrators and the rulers. Different professionals enjoyed the status and income according to the importance of their skills and services to the society.

The different classes continued to live in harmony and there was no caste system as such. Each social class interacted with the other classes and was dependent on the other classes. All the classes participated in social activities. They had their rights and privileges according to their status. Small and large houses existed side by

side in the same locality. There is no evidence of ruler-slave relationship between different elements in the society. Nor does one get the impression that the orientation of the entire regime was towards satisfying the ruling class, as was the case with some other contemporary societies.

FAMILY LIFE

The Indus society was based on close family relationships. As in traditional ancient societies, the senior most male member in the family had a major say in the running of the affairs. The elders must have received a lot of respect and they probably exercised exclusive control over land and property. As the population increased, the close ties between blood relations may have been maintained in the extended family, giving rise to clans under a patriarchal leadership. These closely knit family groups continued to maintain their identity in the Indus society and the leaders of these powerful groups had a major say in the affairs of the state.

At the micro level also the family worked together as a group. As per traditions, which still exist these days in the rural areas and small towns of Pakistan and India, the women and children worked with their men folk in the farms, at the craft workshops, in the shops and businesses. From the evidence, which has become available in the form of terracotta figurines, bronze statuettes and other artifacts, one can say that the position of women in the Indus society was better than the one, which existed in traditional societies until recently. They wore exotic ornaments, make-up and fancy hair- styles. They were given due respect in the household and had substantial say in domestic matters. The female figurines were worshipped as mother goddesses and as idols in the temples. In a society where infant mortality rate must have been fairly high, the children received a lot of attention. They were pampered with toys, and taken to fairs and puppet shows.

BATHING AND CLEANLINESS

Great Bath, Moenjodaro

In the Indus civilization, particular attention was given to cleanliness of the body and general cleanliness. The bathing and cleanliness habit became institutionalized when bathing was made a part of religious ceremonies and rituals.

THE GREAT BATH

The Bathing Complex on the Citadel in Moenjodaro is perhaps the most beautiful piece of architecture of the Indus Civilization. Conceptually, its layout corresponds to a modern luxuriously designed swimming pool in a five-star hotel or motel environment. The center piece of the Complex is a well-proportioned, immacutely engineered Swimming or Bathing Pool in which the most modern techniques for water-proofing of the floor and side walls are employed. Steps lead from the two ends to the floor of the pool. Surrounding the pool are baked brick walkways. On the outer periphery of these walkways are rows of columns on three sides, while on the fourth side gateways are located for entrance into the pool area. The columns have stepped edges on the inside into which large decorated wooden screens were probably fitted. Beyond the columns on the eastern flank, is a row of bathrooms, where people in modern times would take a shower before taking a dip.

The concept of a luxurious swimming pool would not fit into the Indus environment in its totality, although some elements of the modern concept may be in the minds of the architects who designed this complex. The pool was used for rituals, which may have been sober as well as festive events. The beauty of the whole place may have raised the spirits and brought a lot of joy to in the hearts and minds of the devotees.

One can imagine plenty of bathing and washing activity along the banks of rivers and streams, and on platforms located adjacent to public wells, as is commonly observed in the rural areas of Pakistan these days. The magnificent bathing complex at Moenjo-daro provides an example of the importance given to bathing in the overall civic planning of the Indus civilization. Other examples are the extensive sewerage and drainage systems all along the streets and lanes. These public drains and sewerage systems employed modern concepts like manholes and sump pots. They were regularly cleaned and maintained by the city administration.

In the domestic area, a bathroom and a separate latrine were an essential part of every house. Often the bathing platforms were located in the area adjacent to the wells but at the circumference of the wells a low brick lined wall was constructed to prevent the dirty water from flowing into the wells. Sump pot latrines were provided and special ceramic fittings were used to channel the dirty water from domestic drains to the public drainage and sewerage systems.

The attention given to this aspect of private and public lives, emphasizes the overall awareness of the Indus people to public health and hygiene and the organizational capability of the administration to devise an effective system of waste and dirt disposal.

DRESS AND PERSONAL ADORNMENT:

The sources of information for the dresses worn by the Indus inhabitants are stone carvings, seals and terracotta male and female figurines. There is evidence of cotton thread and finely woven textiles being produced in the Indus valley. Also weaving of woolen cloth was a known technology since earlier times. In the Indus valleys the dresses may mostly have been of cotton, while dresses made from flax and coarse fiber from wild plants may also have been worn, particularly by the poorer classes. In the hilly regions most of the dresses may have been made from woolen cloth or animal skins.

Dress and Apparel:

The dresses worn by men and women were very often quite similar. A common type of dress was a long piece of cloth wound round the legs and then thrown over the left shoulder. Mini-skirts with belt or waistbands made of beads was also a common dress for women, while both men and women often wore long skirts or lungis going down to the ankles. Another common dress was a wrapping of loose cloth,

often dyed in bright colors, which covered the upper parts of the body of both men and women. Sometimes intricate patterns were embroidered or painted on the cloth as in the case of the shoulder garment worn by the statue of the nobleman, which has been recovered from Moenjodaro. The topless terracotta figurines found from various Indus sites were essetially used as mother-goddesses or fertility symbols, where female form was emphasized. The topless mode of dressing was probably not common among women but may have been common with male laborers working in the fields or in the workshops.

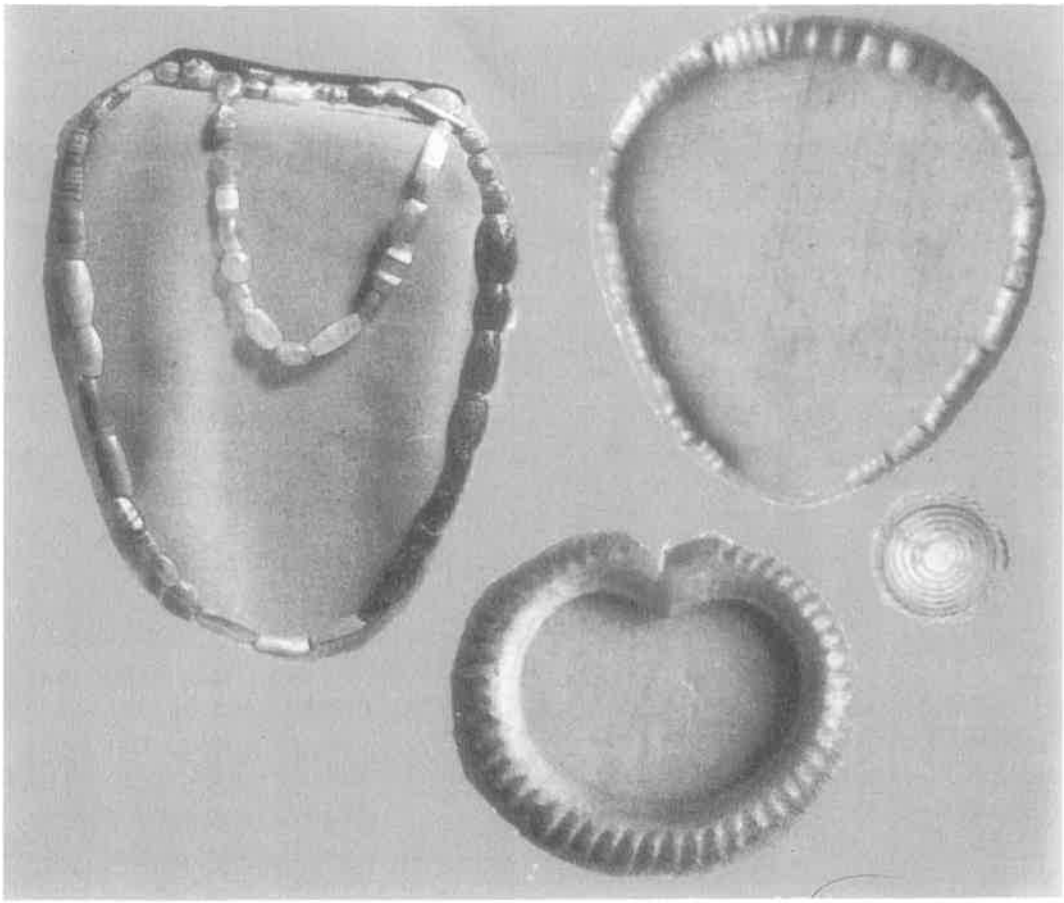
Headdresses and Hairstyles:

A wide variety of headdresses and hairstyles were common with both the women and men. Very often these headdresses, particularly those worn by city women, were quite elaborate. Fan type headdresses were quite popular in the Indus valley. The hairstyles of the city ladies were also quite colorful, with long tresses piled high above and held together by colorful strings of beads. In relatively simpler styles, the hair was pleated or braided or tied in the shape of a bob at the back of the neck. The women sometimes dyed their hair and there is some evidence of vermillion beings used sometimes in the centrally parted hair, as is done by some Indian women these days. The men wore different types of turbans. Closely cropped wavy hairstyles and beard were common with people in important positions.

Ornaments:

The Indus inhabitants, particularly the women, had flair for self-adornment and beautiful ornaments made our of a wide variety of colorful beads and other material were the commonly used items for adornment. The men were also fond to ornaments, some of which like the bangles, necklaces and headbands were similar to those worn by women. Often the ornaments may have been worn as charms to protect the wearer against illness and evil designs of enemies. The wealthy classes used ornaments made from precious stones and precious metals which, besides their use for personal adornment, emphasized the wealth and status of the wearer. The middle and poorer classes wore imitation jewelry and ornaments made from cheaper material like steatite, stone or terracotta. The intricately designed ornaments show the high artistic sense of the Indus people and skill of the artisans. These ornaments were worn on various social occasions and at rituals and religious ceremonies.

Necklaces made of colorful beads, often engraved with various patterns, were worn in various styles. The choker necklaces with multiple strands were quite common. They were made from beads in perforated design,



Ornaments from Meonjodaro and Harappa

or in pendant form. Other types of necklaces were worn in various lengths, often covering substantial part of the upper body and going down to the navel.

Bangles were very popular and were worn not only in the wrists and portion of the forearm, but also above the elbow, going upto the shoulder. This style is illustrated in the statue of female dancer, which has been recovered from Mohenjo-daro. Bangles made of precious metal such as gold, were made from curved hollow rods, which left a gap at the ends to enable the bangles to be worn easily. Among various other fancy materials used for making bangles, were faience, shells and different types of stones.

Anklets were another popular form of ornament worn by the Indus

women. They were often made of materials, which were used to make bangles. Anklets made of hollow metal rods were quite common. The sounds made by these anklets with the movement of the feet were perhaps meant to catch the attention of other passers-by.

Other ornaments worn by the Indus people include headbands of gold and other materials, waistband made of strands of beads, toe and finger rings, hairpins, brooches and earrings.

FOOD AND DIETARY PATTERNS

The basis for the food-surplus economy was laid when the first settlements emerged in the Indus valley. The systematic cultivation of selected crops in the fertile and semi-fertile regions and the domestication and breeding of livestock, enabled the early settlers to not only meet their food requirements but also to achieve food surplus. This surplus food was traded with people from other areas for other items required by them for their changing life styles. The agricultural practices of the early settled communities, were improved and strengthened by the Indus people through use of better tools and implements. Other items were included in the diet as the people gained access to more diversified sources of food because of the expansion of the civilization to different topographical regions. Culinary habits improved and spices and herbs provided a new flavor to the eating habits. The average Indus citizen was used to a balanced diet, rich in protein and vitamins. The various items of food of the Indus inhabitants are described below.

Meat:

Sheep, goats and a local variety of humped cattle, the zebu, were raised to meet the basic requirements of meat. These domestic sources of meat were supplemented by hunting of wild animals. Because of dense growth of grasses and weeds along the banks of the river and the thickly forested areas outside the flood plains of the lower Indus Valley, a large variety of wild animals inhabited these areas. The animals available in these forests included a large variety of deer and reptiles, nilgai, wild boar, elephant and rhinoceros. The various artifacts like the seals, tablets and pottery show that these animals were familiar to the Indus residents and bones recovered from some of the sites indicate that these animals were occasionally hunted for meat. Bones of fowl have also been recovered from some sites, which indicate that pheasants, wild ducks and other wild birds were regularly hunted down from the marshes to supplement domestic sources of meat and to provide variety to the food.

GRANARIES

The Granary shown in the photograph is located on the western edge of the Citadel at Moenjodaro. Similar granaries have also been found at the archaeological sites of Harappa and Lothal.

The Granaries were an important part of the institutional framework for the Indus economy. They stored surplus wheat and barley produced in the surrounding areas. Also food-grains paid as octroi by farmers bringing their produce within the city limits and as excise duty by the workshop owners were also stored in the Granary. The redistribution of food-grains was well planned. Periodic payments to State employees as compensation for the services rendered by them to the State were made in terms of food-grains from the Granary. In the regional or national context, the granaries maintained buffer stocks for emergencies and also for evening out the demand and supply of different regions with different harvesting times and different patterns of cultivation.

The photograph shows the storage platforms of the Granary in the background and the Great Bath in the foreground. There were about thirty such rectangular or square paved storage platforms on which the food-grains were sometimes piled in heaps but perhaps more often stored in ceramic vessels. A network of passages separated the storage blocks, and open spaces below the platforms provided ventilation. Loading platforms wee located on the northern face of the Granary. This Complex is another example of the high engineering and technological skills of the Indus architects and engineers.

Dairy products:

The water buffalo and oxen cow may have been the major source of supply of milk and other dairy products like cheese and curd although goat milk has also been traditionally been used in rural areas. A large number of figurines of these animals have recovered from various sites and these animals have also appeared frequently on seals and in paintings on ceramic ware.

Fish and seafood;

William R. Belcher has carried out extensive research on fish bones found from several Indus sites. His research indicates that the fishing industry was well established in the Indus Civilization. Fish was an important source of protein for large section of the Indus population. Fish was an important element in the conscious efforts of the Indus regime to diversify its food resources. The extensive network of rivers and their tributaries and the long coastline in regions, which were a part of the Indus civilization, assured a regular supply of fish and seafood to the Indus inhabitants. A wide variety of fish have appeared in paintings on ceramic ware and as engravings on seals and tablets. Evidence of use of fish as an important item of food is provided by the sherds, fish hooks and tokens recovered at various levels of excavations at mound F in Harappa. One of the sherds from Mound AB provides illustration of various types of fishes along with a fisherman carrying netting or traps used for catching fishes. Further evidence of the importance of fish to the Indus people is provided by the fish bones, which have been frequently used in the making of ornaments and tools. Various items used in fishing, like metal hooks, netting and baskets have also been recovered from various Indus sites. These artifacts show that fish and other items of seafood were an important part of the diet of the Indus people. The Indus and the Hakra-Ghagger and their tributaries have traditionally provided a large variety of fish, including carp, tilapia, catfish, trout, salmon and eels. Evidence is also available of sea fish being regularly supplied to the inland areas, probably in dried form. The other varieties of seafood, like oysters, mussels, clams, shrimps and prawns, were, probably, mostly consumed by people living along the coasts.

Grains and cereals:

Wheat, barley and millets formed the staple diet of a majority of the Indus inhabitants. Rice was also cultivated in the lower Indus valley and more extensively, in Gujarat . Wheat and barley have traditionally been the more popular cereals since ancient times. The nomads may have picked wheat from plants and goat grass growing wild in the region.

When the first settlements emerged in Baluchistan in the Neolithic and early Chalcolithic periods, the relatively better quality of emmer wheat began to be systematically cultivated. The Indus people improved the yields by selecting high yielding varieties of wheat and using better implements and irrigation methods. Different varieties of wheat available to the Indus people included einkorn, bread and shot wheat. Also varieties of barley, which were commonly available included six row hulled barley, six row naked barley and six row shot barley. Flat bread made from wheat flour was the staple food in the fertile regions of the Indus valley, while barley and millets may have been eaten mostly in the drier regions. The granaries at Moenjodaro and Harappa indicate that proper storage arrangements were made to make wheat available in all seasons even to those regions where extensive cultivation of wheat may not have been possible. Circular platforms and wooden mallets used for pounding grain have been found in Harappa. The evidence of use of rice is available in the form of imprints of rice husks on pottery, which has been recovered from the Gujarat region .

Legumes:

Evidence of use of edible seeds of the legume family is available from Moenjodaro, Harappa and other Indus sites. Peas, chickpeas, different types of lentils and horsegram were common items of food. Most of the food was cooked in sesame and mustard seed. Cotton-seeds were probably also used to produce cooking oil.

Fruits:

Dates from the date palms and jujube fruit were commonly available to the Indus inhabitants. In the hilly areas, grapes, apple and cherry trees have been growing in the wild forests since very ancient times and were known to and eaten by the gatherers and hunters. These fruits were systematically grown as civilization developed and supplied to different areas in the Indus valley. Also melon was grown in the plains.

GAMES, RECREATION AND PASTIMES

With the basic requirements of food and lodgings of the average resident catered for, the Indus people had sufficient time to devote to

recreational activities. The artifacts recovered from various Indus sites provide evidence of vast variety of games and entertainment, which were a part of the social life in the Indus valley. Information on some of these social pastimes is given below:

Dance and Music:

Solo performances by female dancers have been traditional forms of entertainment specially relished by the menfolk. Such performances are frequently arranged even these days on the occasion of weddings in some traditional and tribal societies in the region. Two bronze statuettes of female dancers recovered from Moenjodaro probably portray such female performers. Normally these dancers would have worn ornaments on their ankles, wrists, and forearms, which provided musical sounds with the tapping and stamping of their feet and rhythmic movement of their arms. Additional music may have provided by rhythmic beating of the drums and various forms of rattles. Conch shells, drums and rattles recovered from a number of Indus sites were probably also used in group-dances performed by the devotees in religious ceremonies. Male dancers were also quite common as is indicated by the statuettes of male dancers found in Harappa. These statuettes are of a high artistic quality and vividly present the graceful movements of the dancers.

Drama and poetic recitals

A number of masks made in terracotta and other materials have been recovered from Moenjodaro, Harappa and other Indus sites. These masks may have been worn by actors in dramatic performances based on religious themes or purely for the amusement of the public. Also a number of male, female and animal figurines, have been recovered, which were provided with holes and other form of attachment with strings. These figurines may have been used in puppet shows, similar to the ones, which are commonly performed in rural areas and small towns of Pakistan and India these days.

Animal fights and acrobatics

A number of figurines, which have been recovered from various Indus sites show bears and dogs with collars. These figurines were made of terracotta and faience,. These figurines and some of the scenes, which have appeared on terracotta tablets and in graffiti, indicate that these animals were specially trained for animal fights arranged for the amusement of the public. Similar figurines of monkeys, dogs and other animals have also been found from Indus sites, which show these animals in various comic poses. The animals may have been trained to

perform various antics to amuse the children. These traditional types of entertainment are a common scene in Pakistan and India, involving various animals including the cobra and the mongoose or a monkey and a goat or dancing bears.

Board games:

Board games have been traditional forms of pastime in a lot ancient cultures. The modern games like chess and draughts have developed from similar games played in ancient societies. In rural areas and smaller towns of India and Pakistan it is common to see Pacchheessi and other forms of board games being played on cots and mats placed under the shade of pipal or Banyan trees. Various types of boards are used in these games patterns made in the shapes of squares or others designs. These patterns are embroidered on pieces of cloth or, in the simples form , drawn on cemented surface with the help of chalks. Various versions of gaming board have been found from a number of Indus sites. These board designs were painted or carved on clay tablets or bricks. The games were played with the help of dices and gamepieces. The familiar cubical dice with one to six dots and other form of dices made in stone, clay, ivory and other material have been found from a number of Indus sites.

THE INDUS SCRIPT

The Indus people in all the regions used a common script. More than four hundred abstract symbols were used in the script, out of which there may have been about fifty abstract signs and the others development of these signs to provide different intonations and variations. This common script emerged in the core Indus civilization towards the dawn of the civilization, around 2600 B.C. It incorporated some of the abstract signs and symbols, which were used in the early Indus writings on pottery and other artifacts. It rapidly spread to all the areas of the civilization and was an important instrument for common culture in an integrated society. The script disappeared after the disintegration of the Indus civilization.

The script remained consistent in form and extent, throughout the period of the civilization from 2500 B.C. to 1500 B.C. The primary material on which the script appears is square and rectangular seals and tablets and various terracotta and faience artifacts on which the script is painted or engraved. The secondary materials

comprise of stampings made by seals on various trade-goods, baling hoops and pottery items. The script appears on about 5000 pieces of artifacts recovered from various Indus sites.

From a study of the script on these artifacts it seems that the main purpose of the writings was for the purpose of trade and commerce. Among the more numerous artifacts on which the script appears were the seals and goods and articles stamped with these seals. On the seals, the entire script comprises of four to eight abstract signs. The writing is mostly supplemented by carvings of animals, which may have served as trademarks of particular trading houses. The script was probably meant to identify the supplier of goods, to authenticate the deal between the supplier and the customer and to identify the goods being supplied.

Another common item on which the script appears is the terracotta, steatite or copper tablet. Most of these tablets have only abstract signs engraved on them, although some also have animal motifs on the reverse side. As these tablets were not used for stamping, the writing is not reversed. A special feature of these tablets is that a large number of identical tablets were produced from molds. The tablets may have been used in commercial transactions as tokens to signify the receipt of certain goods by the customer. They may have remained with the supplier as a temporary receipt, until full adjustment of goods under the barter arrangement.

Apart from the above purely commercial uses of the script, the engravings or markings on various items of pottery and ornaments may indicate the name of the workshop where they were produced or the owners name or identification. There is no evidence of the script being used for royal or official proclamations or for preservation of records of historical or religious significance. This may have something to do with the nature of the regime and the Indus society. Unlike the ancient civilizations of Egypt and Sumer, the Indus civilization may not have been the exclusive domain of the priests or one ruling family.

Coming to the subject matter and the meaning of the texts inscribed on the seals, tablets and other artifacts, this is still a mystery. So far the script has not been deciphered. A lot of effort has been put into the deciphering of the script by a number of scholars, including Asko Parpola and his Scandinavian colleagues, V.V. Konorozov and other experts from Russia, and Indian scholars like Iravatham Mahadevan and Krishna Rao. The analytical studies carried out by these experts have so far yielded very few positive results. The studies sought to establish some sort of

RELIGION AND RITUALS

More than a thousand sites belonging to the Indus civilizations have been investigated. Although the script still remains to be deciphered, a lot of information about the Indus society has become available through a detailed study of a wide variety of artifacts. The evidence strongly points to the fact that, unlike the contemporary civilizations of Sumer and Egypt, the regime in the Indus valley was by no means theocentric. Although the excavations at Moenjodaro and Harappa have revealed a number of magnificent buildings, there is hardly any concrete evidence to suggest that any of these buildings were temples or places of worship. The Great Bath at Moenjodaro comes nearest to a religious building, which may have some religious significance. Mass ritual bathing is very much a part of Hinduism. The Great Bath along with exceptional emphasis on public and private bathing places in the Indus society, indicates that mass ritual bathing may be one of the rituals which subsequently became a part of Hindu culture and religious practice. One would expect that in a society in which religious writings and painted murals were not extensively employed, large idols of deities worshipped by the Indus people would have been located at places of worship. No such large idols have been found at any of the Indus sites. The huge and magnificent temple complexes at Ur and Khafaje in Mesopotamia have no equivalent in the Indus civilization, nor do we find any statue of deities like the one of Nannar in the temple at Ur.

Although religion did not play a dominant role in state administration, rituals and worship of various religious deities was very much a part of the Indus society. The various artifacts with religious symbols recovered from a number of Indus sites indicate that the religious beliefs and rituals were very similar in all the areas covered by the Indus civilization. Like art and other aspects of national culture, common religious beliefs were very much a part of the integration process.

A number of figures and objects represented in various artifacts from Indus sites have been identified as deities or religious symbols. Most of these artifacts have been recovered

from Moenjodaro, some from Harappa and a few from other Indus sites. The major or prominent deities depicted on seals and tablets do not appear as statuettes or figurines and a number of those deities or symbols, which appear as statuettes or figurines do not appear on seals or tablets. Further it has been the practice in several subsequent religions to present rituals in murals painted on the walls or in a series of tablets. Very few tablets have been recovered from Indus sites, which present such religious ceremonies in sequence on a series of tablets or on the walls.

The Proto-Shiva:

A prominent deity worshipped by the Indus people bears a strong resemblance to the Hindu god Shiva. In Hinduism, Shiva is one of the three gods who represent the Hindu Trinity. Shiva is regarded as the lord of the beasts and the prince of the yogis. He is often shown riding on a bull in Hindu literature and paintings. His symbol is Phallus or linga. A deity who has the above characteristics appears on a number of Indus seals and tablets. Most of these seals have been recovered from Moenjodaro. They show this nude deity sitting in a yogic position. The deity wears a headdress with spreading horns of a water buffalo and bangles on both arms from the wrists to the shoulder. In one of the seals, the throne or bench on which this deity is seated has feet carved in the form of the hooves of a bull. In another seal this nude diety is surrounded by a number of animals, among them a buffalo, tiger, elephant, rhinoceros and an antelope, The male genitalia of the diety are intricately carved and prominently displayed. Several artifacts found from various Indus sites resemble the male and female genital organs, which may have been used in the worship of this diety. A few seals and tablets recovered form Moenjodaro and Harappa show this diety in narrative scene in which animal sacficices are being performed. In one of the seals showing the ritual sacrifice of a ram, this diety is standing inside the branches of Pipal tree. The scene includes a kneeling worshipper and seven female figures with long ponytails in a procession. A two-sided tablet recovered form Harappa shows the horned diety sitting in the yogic pose, while the sacrifice of a water buffalo is being performed. On the reverse side of this tablet a female diety, probably Parvati, the consort of Shiva, is shown battling two tigers.

Animal cults

A large number and variety of animals have been depicted on seals, molded terracotta tablets and paintings on pottery.

They also appear as figurines made of terracotta or faience. Not all these representations have religious significance. The representation of animals on seals is generally regarded

as symbol of a particular clan. Also a number of terracotta figurines of different types of animals were probably meant to be toys for the children. However in the Indus religions, like many other ancient religions, there must have been a lot of overlapping in representation and treatment of objects for different purposes. Thus the mythical unicorn may have served as a symbol of particular clan and the terracotta figurine of unicorn may have been used as toy. But the unicorn may have also served a sacred purpose. One two sided terracotta tablet shows a deity under an arch formed by the pipal tree leaves on one side, and a unicorn on the reverse side. Another tablet recovered from Moenjodaro shows the unicorn being carried in a procession along with standards with totemic symbols. The trough which appears with such presentations of the unicorn and some other animals on seals and tablets, also seems to have some religious significance, probably indicating the offering of food as is often made to deities. Another mythical animal represented on number of seals and tablets is the tiger with widespread horns, like that of a bull. Also there are numerous depictions of composite animals with human face and the body of a bull or an animal with different parts of different animals. Multiple headed animals are also quite common. The depictions of animals in such large numbers, particularly of mythical and composite animals, are an indication of the prevalence of a large number of animal cults in the Indus society.

Mother goddesses and other female votive offerings:

Terracotta Figurine from Harappa

Fertility cults were a very important part of the religion of the

Indus people. Majority of these rituals involved terracotta figurines of the mother goddess. These mother goddesses were in the form of heavily adorned females, mostly in the standing position. The figurines were produced in large numbers, in different shapes and sizes. They were disposable items, which were discarded after the ceremony was over. Hence the artistic quality of a large number of the figurines was rather crude. The simplest figurines with the least adornment were small in size, about eight centimeters high. They were probably used by the poorer classes. The more sophisticated and heavily adorned figurines have an average height of fifteen centimeters. The figurines have prominent breasts and are nude from waist upward. Most of them wear a short skirt held togther by a girdle or belt, mostly made of beads. Many of these figurines wear a fan shaped headdress with cups on either side. These cups could have been filled with oil used a to light a wick during the religious ceremony. Some of the female figurines have a child at the breast or hip. Figurines of infant and children are also quite common.

These figurines may have served as votive objects meant to express gratitude on the birth of child or to pray for his long life and happiness. They may also have been used in ceremonies in which a couple prayed for the birth of a child.

Some figurines of nude males have also been found from various sites, which have been a part of the rituals where the central theme was procreation. However the female figurines far outnumber the male ones.

The cult of the mother goddess continued to exist even after the demise of the Indus civilization. It subsequently became a part of the Hindu religion. Some scholars believe that the Sakta sect of Hinduism, which is devoted to the worship of female deities only, may have come into existance as a result of persistent worship of the mother goddess.

Veneration and worship of the trees:

Trees with broad trunks and long widespread branches, like the pipal and banyan varieties of the fig trees have played a significant role in the lives of people in ancient India and Pakistan. The hot climate in these regions makes it extremely uncomfortable for people to work or relax inside the houses. To seek refuge from the fierce midday sun, it has been the common practice in the rural areas and small towns to lie down in the open air on cots or mats under these trees.

With all these favors available from the pipal tree, the tree became an important religious symbol for protection, security, and purity for the Indus people. They believed that the

pipal tree was the home of their deities. One of the seals recovered from Moenjodaro shows the horned deity in a yoga pose with three pipal tree leaves projecting from his headdress. Another seal from Moenjodaro shows a sacrificial ceremony being performed in which the horned deity is standing inside the branches of the pipal tree, while a worshipper with pipal tree leaves in his headdress kneels in front of him. Another two-sided molded terracotta tablet from Harappa shows a deity standing under an arch formed by thirteen pipal tree leaves. The heart shaped pipal tree leaf also appears in many items of ceramic ware.

Fire rituals

There is evidence of fire worship from two outlying regions of the Indus-civilization but there is no such evidence available from the core Indus valley. At Kalibangan in the upper regions of Ghakkar-Hakra valley some ritual hearths have been found which indicate that fire worship was being practiced there. Also five fire altars have been found at Lothal in the southeastern region of the Indus civilization. These isolated cases of fire worship call for further detailed investigation and research as fire rituals are generally associated with the Aryans and, as mentioned earlier, there is no evidence of fire worship in there the other areas covered by the civilization. Incidentally mother goddess figurines, which were common in the core indus valley, have not been found from Lothal and very few mother goddess figurines have been found from Kalibangan.

FUNERARY PRACTICES AND LIFE AFTER DEATH:

Since the time of the earliest settlements in the Indus valley region, it has been the universal practice in this region to bury the dead. This practice continued during the period of the Indus civilization. There is no reliable evidence of cremation being carried out from any of the Indus sites although bones inside urns of funeral pottery have been found. The evidence of burial is available from at least four Indus sites, namely Harappa, Derawer, Kalibangan and Lothal. No separate graves or cemeteries have been revealed in the excavations carried out at the citadel and lower mounds in Moenjodaro. In the planned settlements of the Indus civilization, special areas were reserved for cemeteries. There areas were normally located in the surrounding plains, some distance from the principal settled areas. This must have been the case at Moenjodaro also, but because these plains have since been covered by several feet deep silt deposited by the recurring floods, it has not been possible until now to uncover these burial grounds.

The Indus Civilisations flourished in the Indus valley from about thousand years, from 2500 to

1500 BC. During this period more than twenty generations of Indus people must have come and gone. Only two cemeteries have been unearthed in Harappa. One of these belongs to the latter part of the Indus Civilization and the other belongs to the post-Indus Civilization period. In the cemetery belonging to the Indus period, designated as R-37, fifty- seven graves have been identified. One of these graves was lined on all sides with mud

Grave at Harappa

bricks and the funerary offerings were placed inside this enclosure along with the dead body. Another grave produced evidence of a female buried in a wooden coffin, while the funerary offerings were placed to the north of the coffin. Graves of two male persons also indicate the use of coffins, with the dead probably wrapped in a shroud of cotton cloth or matting and then placed inside wooden coffins. These wooden coffins were then placed inside the pit along with various household items and ornaments.

At Kalibangan, in the Hakra-Ghagger valley, a well- planned graveyard has been found about 300 meters from the citadel, in the surrounding plains. The cemetery is divided into three sections. One section contains extended burials in rectangular and oval pits. The second section contains pot burials in circular pits. The third section contains pot burials without any skeletons. The pottery buried in this section may have been used in rituals performed before the burial. One notable feature of the extended burials was that the graves were arranged in groups of six or ten, which suggests that the dead buried in each group belonged to one family. Each burial was separate and there was no overlapping. One grave in the extended burial section contained the body of an important, elderly person. This grave was lined with mud bricks, which were plastered on the inside. The grave also contained an extraordinary large number of pots, about seventy as against the normal twenty to forty.

In almost all the graves found at various Indus sites the dead persons were buried with the head towards the north. At the end where the head was,

twenty to forty pots were normally placed, which may have contained food and drinks for use in afterlife. The dead persons were normally buried wearing a number of ornaments. The funerary offering of a number of females included a copper or bronze mirror, which may have some religious significance.

Unlike Harappa and Kalibangan, and probably Moenjodaro, the graveyard at Lothal was located on the mound itself and not in the surrounding plains, away from the settled area. The limited space available at the mound resulted in cramped burials with overlapping. Another unusual feature of the burials at Lothal was that at least three graves contained two skeletons each, one of male and the other of a female person. This indicates that the wife of the dead person may have committed sati and was buried with him. The rite of sati, according to which the wife of a dead person immolates herself and is buried with the dead person, became a part of Hinduism and was practiced by some traditional Hindu families until very recently.

CHAPTER 9

ECONOMY, TRADE AND COMMERCE

For a proper understanding of the Indus civilization, it should be viewed as the culmination of a development process, which began in the seventh millenium BC. The first settled communities, which emerged in this region, developed over the years into small villages. Depending on their resourcefulness some of these villages grew into towns. These towns had their own resource areas over which they exercised varying degrees of influence. The expanding economic activities and trade relationships led to further all round development of some of these towns.

Around 3000 BC the region in the southern Indus valley, by virtue of its strategic location in areas of expanded economic activity, achieved a position of economic and cultural dominance over the surrounding regions. This gave rise to the Indus civilization. Moenjodaro, surrounded by numerous towns and villages, became the nerve center of the civilization, its capital. As the economic and cultural relationship between the lower Indus valley with other regions grew, more and more regions came under the influence of the Indus civilization. These expanding economic relations between the core Indus valley and the regions further apart promoted interdependence of these regions, which ultimately led to the outlying regions becoming a part of the civilization. The resulting economic prosperity in the outlying regions led to the upgradation of settlements in this region to villages, villages to towns and the most prosperous towns developed into a city, which became a regional capital of the civilization.

This process of agglomeration brought areas with diverse geographical features and characteristics within the folds of a common economy. This resulted in the economy becoming more broad based and interactive. When the civilization was at its peak, it

covered an area of more than one million square kilometers. The vast stretches of plains watered by the Indus and Hakra-Ghagger Rivers and their tributaries provided the basis of a highly integrated agro-based economy. More than 1000 kilometers of coastline, besides supplying food and industrial raw materials like shells, provided maritime links between trading posts in the Arabian Sea and the Persian Gulf. The mountainous regions to the north and west, produced fruits, dry fruits, wool and minerals, which added to the wealth of the Indus economy.

The interactive economy brought prosperity to a very large area, which manifested itself in the shape of large number of urban settlements in all the regions. About 1600 sites belonging to the Indus civilization have been identified. Among them were four or five large cities, each spread over an area of 100 to 275 hectares, with a population of 30,000 to 75,000 inhabitants. Besides, there were about forty to fifty towns, with each town covering an area of 20 to 40 hectares, and hundreds of villages.

The control of such a vast network of urban settlements required extraordinary administrative skills. An efficient system of communications was required to bring about and sustain cultural homogeneity over such a large area. A proper balance needed to be struck between centralized control and regional autonomy. The center must have exercised effective control over interregional and external trade while each region took care of its own basic requirements to a very large extent.

The central authority exercised control over the production of sophisticated items in each region. These items were produced in all the regions according to designs supplied by the central authority and this authority was also exclusively involved in the distribution of these products within the civilization as well as with regions involved in the external trade. This centralized control over the means of production was further reinforced through control over the special materials required for producing sophisticated craft products by the craft industries in all the regions.

Apart from these controls over critical areas of the economy exercised through a regional representative of the central administration, the various regions were sufficiently developed to meet their basic requirements of food and essential goods from within the region itself. In the economic sense only, and not in the political sense the concept of a city state would be applicable to each region. The basic economy of each region would have been built around a major city, which served as the regional capital.

Although the focal point of major economic activity in each region

was the city, it would not be correct to say that the city controlled all the economic activity in each region or the influence of the city over the entire region was all pervasive. The economic strength of each city was built around two pillars of support:

1. The economic activity within the city itself and a satellite area within a radius of about fifty kilometers all round the city.
2. The interaction with and support from other towns located in the region.

The towns had their own resource areas spread over a radius of about 50 kilometers from the town center. The towns had an upward linkage with the regional capital and downward linkages with the surrounding rural areas. The economy of the towns was based on the craft industries as well as trade with the regional city and the surrounding rural population. The rural areas supplied the towns various items of food and raw materials for the craft industries in exchange for manufactured items like storage vessels, textiles, tools and implements and ornaments. Some of the workshops in the towns specialized in production of particular variety of goods. These goods, after meeting the requirements of the local population, were supplied to the cities for their own consumption and for interregional and external trade. Similarly the surplus non-perishable agricultural produce like food grains and cotton were traded with the cities and through the cities with other regions.

The vast network of urban centers spread over a very large area gave rise to diverse nature of economic activities, some of which are described below.

AGRICULTURE:

Agriculture laid the foundation for economic prosperity. In the 4500 years since the first settlers learnt to farm the soil and raise livestock, the yields from a given piece of land had increased manifolds. The continuous improvements in the farming techniques during this period brought about a dramatic change in the lifestyles of the people. Towards the beginning of third millenium BC, about eighty percent of the population may have still worked and lived on the farms. The output from these farms, after meeting the requirements of the rural population, was sufficient to meet the requirements of the remaining twenty percent of the population engaged in other professions in the towns and cities. In exchange for the surplus food and industrial raw materials like cotton and wool supplied by the farmers to the urban population, a variety

of goods produced in the urban workshops became available to the rural population, which led to the improvement in their quality of life. Similarly the urban population, whose food requirements were met by the people working on the farms, were able to devote their energies to other creative pursuits.

The growing prosperity in the urban as well as the rural areas created demands for a greater variety in food items as well as industrial raw materials. The communication between different resource areas improved, and better and faster means of transport made it possible for diverse resources of food to be tapped. Seafood from the coastal regions and apples, apricots and dry fruits from the hilly areas in the western and northern regions became available to the people living in the plains. Similarly wheat, barley rice and edible oil from the plains were supplied to the hilly regions and plateau areas. In addition the cities and towns received regular supplies of meat, dairy products and legumes from the surrounding rural areas. The diversity and richness of food may have varied considerably with the different classes. The majority of the people may have been used to a simple diet of bread cereals, vegetable and dairy products. But by and large the average Indus inhabitant enjoyed a fairly balanced healthy food. This has been borne out by biological research and studies in dental morphology carried out on samples of remains recovered from various burial sites.

The specialization in various fields related to agriculture contributed to the increase in agricultural production. In the early period of settled life, a single family or tribe was responsible for the total food requirements. The family cultivated the fields and raised livestock to meet the total requirements for cereals, meat and dairy products. With the growth of population and movement towards urbanization, crop farming must have become a distinct activity, separate from livestock breeding and fishing. The growing requirements for food for the urban population could only be met through multiple cropping in some regions and adoption of more efficient techniques to increase farm yields. The earlier practice of breaking the soil before sowing was to push or drag the digging stick or ard by hand. This practice was replaced by using bullock or oxen-driven ploughs. These ploughs used metallic implements to dig deep into the soil and turn it over to make better seed beds. Similarly the livestock farmers must have concentrated their efforts on selective and systematic breeding of farm animals to meet the increased demand of meat, wool and dairy products from the rural and urban populations.

The very large rural population must have led a simple life as per

traditions of rural societies in these regions. Their requirements were few, most of which could be met through simple barter arrangements between various farming groups. Except for people living in the highland areas, these rural people were probably not big meat eaters so their daily requirements of food were mostly restricted to cereals, dairy products and edible oil. These could be catered for through simple exchange mechanisms within the rural communities.

The urban requirements for agricultural products involved exchange of wider range of products, for which more distant sources of supply needed to be tapped. The trading pattern for urban communities involved daily supply of fresh farm products by farming communities in the immediate vicinity of the urban settlement and supply of non-perishable commodities through direct and indirect transactions with people inhabiting a much wider region. These arrangements are briefly described below.

1. Livestock farms in the plains surrounding the citadel mound and lower mounds supplied dairy products and meat to the people living on the mounds.

2. Other farms in the surrounding areas supplied perishable agricultural products like legumes to the urban population.

3. Fresh water fish was supplied to the urban areas by fishermen operating from the banks of the rivers flowing adjacent to the cities.

Non-perishable commodities like food grains and cotton were supplied from areas within a radius of fifty kilometers from the urban centers. These commodities, which were supplied by the surrounding rural areas were traded with other urban settlements under various arrangements as detailed below:

1. Goods were supplied from one town to other towns and cities located in the region.

2. Goods traded between regions from one regional capital to another regional capital.

3. Goods exchanged by various regions with settlements and trading posts located across the boundaries of the Indus civilization.

CRAFT INDUSTRIES:

The processing of raw materials to produce a large variety of manufactured items was the major economic activity of the towns and cities. The Indus towns can be classified into three categories. First there were the towns with mixed population, some of whom were engaged in craft industries while others were engaged in activities such as trade, construction and town or city administration. The second category of towns included those towns, which were specifically planned and developed as industrial centers and almost the entire population was engaged in craft activities. The third category included the Mandi towns, which were basically regional trade centers where farmers brought items of farm produce for exchange with other items.

The output of the craft industries was the major source of wealth for the state and the ruling class. The wealthy clans were able to harness efficiently and develop the skills and to tap the local and foreign resource areas for raw materials for the production of a variety of utility and ornamental items. They had the capability and wealth to set up facilities for large-scale production. They were resourceful enough to provide the craftsmen with better technological tools and equipment and by patronizing, providing material incentives and encour-

Bronze Statue of Ballerina from Moenjodaro

aging innovation, they were able to raise the level of the skill of the craftsmen to a level unequalled in the ancient world. The hallmarks of Indus economy were specialization, large-scale production and a wide variety in the quality of articles produced to cater to the needs of people in different income groups.

There was considerable demand within the areas covered by the Indus civilization for different types of ceramics, beads and ornaments, textiles, copper and bronze tools and implements, various items used in the construction of buildings, stone carvings and decorative and ornamental articles made of faience. Simpler items were mass-produced by craft industries located in towns and cities in each region. The demand for such items from areas located within the region was catered for mostly by craft industries located in the region and there was no need to purchase these items from other regions. These items were supplied to people living in the rural areas in exchange for farm products and to people living in urban areas on the basis of direct and indirect barter. The specialized items requiring sophisticated technology were manufactured in large cities and areas, which were particularly suited for this type of manufacture. The seals and tablets were mostly produced in Moenjodaro, Chanhudaro and Harappa. The manufacture of these items required precision and special skills. They were manufactured under the strict control of the wealthy clans operating from Moenjodaro and Harappa. Chanhudaro was a major industrial center for special items requiring higher degree of skills. Besides seals and tablets, items, which were manufactured or produced in the workshops located at Chanhudaro, included high quality carnelian beads, fancy ornaments and decorative items. Chanhudaro was also a center for metallurgical goods. A large variety of items made of copper or bronze were produced including tools and implements, mirrors, statuettes, cooking vessels and tablets. The areas around Moenjodaro and Harappa, which have traditionally been cotton-growing areas, may have specialized in production of textile goods, while shellworking was more common in coastal area like Balakot, Dholavira and Allahdino. These sophisticated items were produced in different regions to cater to the demand of the entire civilization and were also exported to regions outside the Indus civilization. Substantial volume of inter-regional and external trade in these items brought prosperity to these regions and led to the growth of metropolitan culture in each region.

hairdressers, puppeteers and other entertainers. The figures on the tablets and graffiti and statuettes and figurines indicate that these professionals must have been very much a part of the Indus society.

MEDIUM OF EXCHANGE AND BUSINESS TRANSACTIONS:

In the Indus civilization, a variety of goods and services were available for exchange. To arrive at the relative economic worth of each item in relation to other items the market mechanism based on supply and demand must have been the determining factor. In the modern world money in the form of currency serves as a standard value of establishing the economic worth of goods and services. But a monetary system based on coins or notes did not come into existence anywhere in the ancient world until about 600 to 500 BC. In the period prior to this various items have served as money. In the timeframe of 3000 BC to 1000 BC we find at least two examples when grains, which were the staple food in the ancient world, have been used as money. Early Mesopotamian records indicate that at the time of the Sumerian civilization, around 3000 BC, wheat was stored in State granaries and payment for services rendered by various craftsmen were made in terms of measured quantities of wheat. In somewhat later times, in ancient China, rice is known to have served as a form of money. It is very likely that in the Indus civilization, where huge granaries were constructed in major cities like Moenjodaro and Harappa, wheat and barley may have served as a medium of payment for goods and services by the State to its employees.

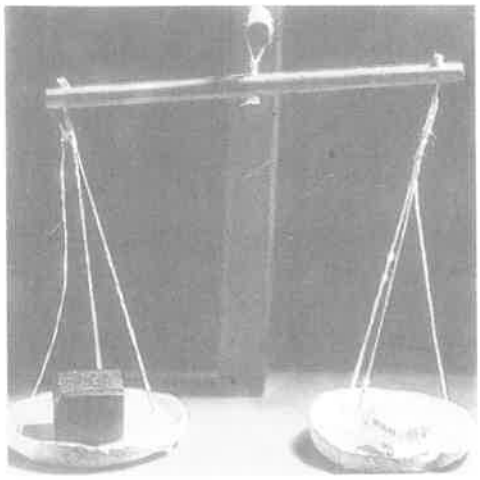
It may have been convenient and practical for the State administration in the Indus society to make payment for services rendered by its employees in terms of wheat and barley. But in the Indus economy as a whole, the direct barter system must have played a very important part in commercial transactions. One such area where barter system could have been the normal mode of transactions was among the people living in rural settlements. The basic requirements of food for this very large segment of the population would have been met through direct exchange of different commodities between farmers producing different agricultural items. Another common application of the barter system, would have been the direct exchange of non-perishable items of farm produce like wheat and cotton with items produced in urban craft workshops. The farmers who brought these items into towns and cities may have had to give part of their goods as octroi to the local authorities. This wheat and

barley served as revenue earned by the State. It was stored in the State Granaries and used to make payment of salaries to state employees. The remaining wheat, barley or cotton may have been exchanged by the farmers with manufactured products, at the sales outlets of various craft industries. Thus raw cotton could be exchanged for finished textiles or wheat for storage vessels, ornaments or toys. A third area of application of direct barter system would have been the transactions between farmers supplying perishable commodities like milk, meat or fish in exchange for products of the craft industries or transaction between sales outlets supplying different craft products.

In some of the above transactions indirect barter system may also have been employed. For example a farmer supplying milk to a sales outlet for a tools workshop, may receive in exchange wheat from the sales outlet, as the farmer does not require the tools normally offered for exchange by the outlet. For such a transaction, the sales outlet for tools would be keeping sufficient stock of grains in addition to the tools. In another example of indirect barter, a farmer supplying milk to an outlet for ornaments may receive ornaments in exchange and then exchange these ornaments, which he does not require, with another outlet offering ceramic ware. In many of the transactions surplus wheat available with various sales outlets would have been used as a form of common currency and the exchange would have been simplified.

The simplified explanations offered above apply to business transactions between various sectors of the economy in a particular region. Basically the same principles would apply to inter-regional trade within the Indus civilization and trade with other regions outside the civilization. The basic principles of trade developed through the above analysis, have been used in other chapters to formulate ideas on the system of government in the Indus civilization.

REGULATION OF WEIGHTS AND MEASURES:



Cubicle Chert Weights from Moenjadro

Planning and standardization were the hallmarks of Indus civilization. The Indus people inherited and

developed the traditions, which enabled them to work in an organized and systematic manner. We saw examples of this in the planned layout of settlements and in the standardization of dimensions of bricks. They applied the same rational approach to devise systems of weights and measures, which made their trading operations much smoother. The uniform system of weights and measures being used in all the areas under the civilization is an indication of the volume of inter-regional trade and integration achieved in the entire area covered by the civilization. The standardization is apparent from the fact that from virtually all the Indus sites similar weights have been recovered. These weights are cubical and spherical in shape and made of chert, limestone or steatite. The weights from each site weigh the same and the same ratios are used.

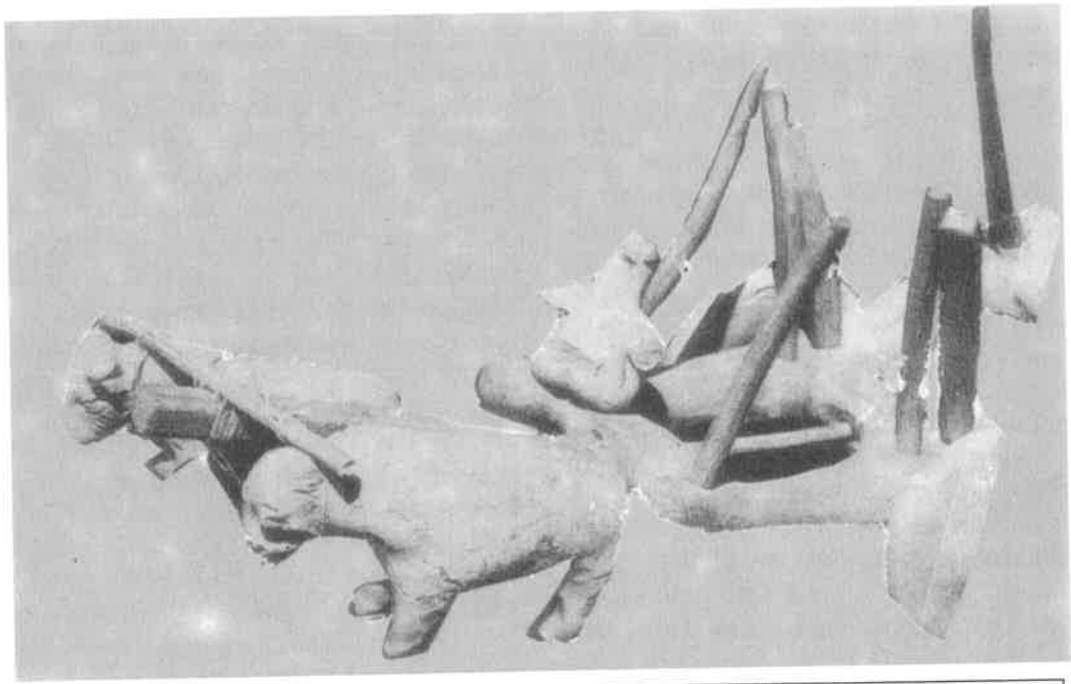
A study of these Indus weights and their comparison with weights traditionally being used in various areas of Pakistan and India indicates that the weighing system was devised keeping in view three broad areas of applications. The first application pertains to the use of weights by the lapidary, the jeweler, the apothecary and the perfumery. The smallest weights are used in these applications. The basic weight in the traditional weight system of Pakistan for such application is the Tola, which is equal to 11.646 grams. A gold ring may weigh one Tola, bangles two to four Tolas, and necklaces ten to twenty Tolas. For accuracy and finer measurements the Tola is divided into fractions called Masha, Ruttee and Chawals. For heavier ornaments and precious stones the Chattak, equal to five Tolas and seer equal to sixteen Chattaks are used. In the Indus system the basic weight weighed about 13.8 grams, slightly more than the Tola. This weight was divided into four binary divisions of 6.9 grams, 3.45 grams, 1.725 grams and 0.8625 grams. Combinations of these weights permitted sixteen measurements in increments of one-sixteenth, ranging from one-sixteenth of 13.8 grams to 13.8 grams. Upward binary additions provided for two more weights of 27.6 grams and 55.2 grams. Combinations of these seven weights permitted measurements from 0.8625 grams to 109.538 grams in steps of 0.8625 grams. The second application of weights is for relatively low priced heavier items like groceries, meat, legumes and small items made from less expensive metals. In the traditional weighing system in vogue in Pakistan, the weights used for such applications are the chattak, which is equal to 58.32 grams, Pao equal to four chattaks or 232 grams and the seer equal to sixteen chattaks or 933.12 grams. In the Indus system four weights were normally used for such applications, weighing 138 grams, 221 grams, 276 grams and 552 grams. The last application pertains to heavier weights required for weighing food grains and other such items. For this application, the Indus system provided for five weights weighing 1380 grams, 2760 grams, 5520 grams 6900 grams and 11040 grams. Thus the Indus weighing system provided for sixteen weights in all, divided into three sets of weights. The

weights in each set were related to each other in a binary system of its own. The splitting up of the sixteen weights into three sets on the basis of their use, provides an explanation of the break in sequence after each set of weights.

Similarly the linear measurements were well regulated through a system which was universally followed in the Indus civilization. The informal and practical system for everyday use was based on the cubit. The Indus cubit was equal to 20.7 inches. In the traditional system being used in Pakistan the cubit is called the Haath, which literally means the hand. It is equal to 18 inches, which is the approximate length of the forearm between the elbow and the tips of the fingers. The Indus cubit was commonly used to measure the heights of walls and other parts of buildings, as is confirmed by measurements of some of the ancient buildings at Moenjodaro. For more precise measurements graduated scales may have been used. A shell found at Moenjodaro is provided with markings, which suggests a decimal system of measurements, in which a foot of 13.5 inches was the basic unit of measurement.

MEANS OF TRANSPORT

The key to the prosperity brought about by the Indus civilization must be in the effectiveness of the communications network. A state with



Terracotta toy Model of Oxen Cart

widely different terrain must have relied on diverse systems of transportation for goods and traders. Transport, which was suitable for the riverine plains, would have been out of place in hilly areas and deserts. Similarly the regions along the coast would have had to rely on transport which was different from that used in other areas.

However the most important regions from the point of view of trade and commerce were the settlements in the valleys of the Indus and the Hakra-Ghagger Rivers and their tributaries. Here the conditions were well suited for inland navigation. The gentle slope of the land from the foot of the Himalayas to the Arabian Sea keeps the flow of water at a gentle pace, allowing movement of boats up and down the river without too much effort. Hence, the major part of the trading activity between the towns and cities, which were located on the banks of the rivers and tributaries, would have been carried out through these riverboats. Depictions on a steatite seal, terracotta tablets and graffiti recovered from Moenjodaro give some idea of the type of boats used. Mostly, these were high prowed, flat-bottom boats with a central cabin and double rudders. One of the depictions indicates that the sails may also have been employed occasionally. Long oars and tugging of boats by laborers from the banks of the rivers may have aided navigation upstream at unfavorable locations along the route.

Besides the trade through inland navigation, a very substantial portion of the trade may have been carried out overland by means of oxcarts. Two-wheeled carts with solid wheels fixed to the axle were commonly used. Terracotta toy models of carts have been recovered from several Indus sites. A bronze model of a cart has also been recovered from Chanhudaro, which throws more light on the constructional features of the cart commonly used. A few four-wheeled toy carts have also been recovered from Chanhudaro, which indicates that four wheeled carts may also have been used for transportation, although very rarely.

Another important trade route was that along the Arabian Sea coastline. The active region in this trade was the core Indus valley civilization between Moenjodaro and Harappa. It was this region, which generated most of the demand for raw materials. This region was also the prime supplier of finished goods to the regions served by the coastal stations. One component of the trade was between the core Indus valley and the southeastern coastal regions of Kutch and Kathiawar. Lothal was the major trading station on this route. The other component of the coastal trade was between core Indus Valley and the coastal stations along

the Makran coast and further west to the Gulf of Oman, Persian Gulf and Mesopotamia. For the trade between the core Indus Valley and the regions around the Rann of Kutch and the Gulf of Cambay, river-boats may have carried the goods down the Indus river upto Keti Bunder and other posts at the mouth of the Indus. From there, the trade with Lothal and other ports in the Kathiawar region may have been carried on the high prowed sailing boats, which could sustain the rough conditions in the sea. Alternatively, the same high prowed sailing boats, which plied along the coast of the Arabian Sea, would have carried the goods to and from the trading posts upstream along the Indus River. Similarly a combination of river crafts and flat-bottomed sailing boats may have been used in the trade between Moenjodaro and the coastal stations like Allahdino, Balakot, Sotkah-koh and Sutkagen Dor along the Makran coast and further west to the Gulf of Oman and the Persian Gulf. A part of this trade along the Makran coast may have been carried overland. This trade would have been conducted on camels, which carried the goods along the coastal plains with trading posts located all along the route at regular intervals.

A third component of the trade was between the core Indus valley and the western region of Baluchistan and further west to Afghanistan and Persia. Part of this trade must have been on boats plying on the Gomal and Zhob Rivers, which linked the upper Indus region around Gumla and Rehman Dheri with the Kachchi Plains. Gomal and Zhob Rivers are tributaries of the Indus River. They were navigable at least for part of the year. However the bulk of the trade with the western regions would have been carried out overland on camels and asses. Camels, asses and horses were scarce in the core Indus valley during the Indus civilization era. But at about this time, these animals had become available in the western plateau and desert regions in sufficient numbers to serve as beasts of burden for transportation of goods over long distances. Indication of their availability and familiarity are available from a number of artifacts, depictions on seals and tablets and from skeletons of these animals found from the Indus cities. At Moenjodaro, a skeleton of a camel has been found from the lower levels of the excavations, at a depth of about fifteen feet from the surface. Also a flat rectangular copper tablet recovered from the same site has a camel carved on it. Another example is that of a seal recovered from Bampur in Persian Makran, just across the western boundaries of the Indus civilization. This seal has a one humped camel engraved on it. Evidence of a horse being used in the Indus valley comes from yet another skeleton found in Moenjodaro. Further

extended to Khorasan and Turkestan in the northwest and to the northeastern regions of Afghanistan, between the Kabul and Khurram Rivers, and beyond to the banks of the Amu Darya in northern Afghanistan. The northwestern regions of Afghanistan were important sources for lapis lazuli, gold and silver which were exchanged with various craft products of the Indus civilization, including copper and bronze vessels, beads and ornaments and copper tools and implements.

Another ancient route for trade with Bampur and other settlements in southern Iran was through the coastal areas of Makran. These trading links had been established much before the Indus civilization era. The trading posts in Makran were also engaged in lucrative trade with Muscat and other settlements on the Oman coast during this period. These ancient trading links were considerably strengthened during the Indus civilization era. In the period 3200 BC – 2500 BC the trading activity in the regions along the Gulf of Oman and the Persian Gulf had received a major boost due to the rise of the Sumerian civilization. A further boost to the trading activity in this region was provided by the flowering of the Indus civilization around 2500 BC.

The linking of the Indus civilization with the Sumerian civilization through the established trade routes resulted in manifold increase in the volume of trade passing through the Gulf of Oman and the Persian Gulf. The most prosperous cities of the Sumerian civilization were located in the southern regions of Mesopotamia within a few hundred kilometers from the mouths of the Tigris and the Euphrates Rivers in the Persian Gulf. In ancient times both the Tigris and the Euphrates Rivers flowed directly into the Gulf. These days the Tigris and the Euphrates Rivers join to form the Shatt-al Arab a few hundred kilometers before the entry of this common river into to the Persian Gulf. The calm waters of the Gulf between the Shatt-al Arab and the Straits of Hormuz facilitated the trade between the southern Sumerian cities of Ur, Eridu, Lagash and Kish with the islands and trading posts all along the Gulf as far south as Oman. The ancient trading links of Makran with the settlements along the Gulf of Oman and the island of Bahrain were initially used by the Indus traders for indirect trade with the Sumerian cities. Subsequently, the sailing boats from the Indus trading posts sailed right upto the mouths of the Tigris and Euphrates Rivers.

The Indus trade with Sumer began in the early dynastic period of Sumer around 2650 BC. It reached its peak during the reign of Sargon the first in the period around 2330 BC and continued at a reduced level till the end of the Larsa period in 1900 BC. Excavations carried out by Danish teams in the Omani and Persian Gulf regions and by other archaeologists at various sites in Sumer have produced concrete evidence of trade between these regions and the Indus

civilization. Some of the evidence recovered from these sites is mentioned below:

1. Seals: Several seals have been recovered from Kish, Ur and Lagash, which provide evidence of trade with the Indus civilization. Some of seals, like the ones found from Kish, are typically Indus. These square seals are made of steatite and inscribed with Indus characters and motifs. Other seals of the cylindrical type, which were commonly used in Sumer, have typically Indus motifs, like the humped bull and elephants, engraved on them and their designs and styles indicate that these may have been made by Indus artisans. Similarly the round seals from Omani settlements and Bahrain carry Indus characters and motifs which clearly indicate active trading relations between these regions and the Indus civilization.
2. Texts: Numerous Sumerian texts record goods, which are being traded. These texts indicate that hardwood, tin, copper, carnelian beads, shells, ivory and various types of birds and animals, including peacocks and monkeys are being imported from Meluhha. Most archaeologists agree that Meluhha may have been the name given to the Indus valley. Another text refers to a statement made by Sargon, the King of Sumer and Akkad, in the period 2334-2279 BC, in which he mentions that ships had arrived at the Sumerian ports carrying goods from Meluhha, Dilmun and Magan. Archaeologists are of the view that Dilmun was the ancient name of Bahrain, while Magan was the ancient name for Makran.
3. Artifacts: Numerous artifacts of Indus origin have been recovered from the Royal Cemeteries of Ur and from other Sumerian sites. These include gold disc ornaments and long biconical carnelian beads.
4. Motifs and Designs: Numerous artifacts found from Sumerian sites show influence of Indus art on the art and culture of Sumer. Typical examples are depictions of humped bulls and elephants on various tablets and artifacts and Indus hairstyles and headbands worn by Sumerian nobles in various paintings.

CHAPTER 10

TECHNOLOGY, ARTS AND CRAFTS

The technical proficiency and resourcefulness of the Indus craftsmen is unmatched anywhere in the ancient world. Their creative talents and skill in devising appropriate manufacturing processes is apparent from the broad range of sophisticated products which catered to the needs and tastes of various segments of the society. The more sophisticated products were produced in special workshops located in Moenjodaro and Harappa. The technologies, designs, patterns and styles for a number of items in common use e.g. household pottery, beads, ornaments, tools, stoneware, construction of houses and settlement layouts, may have also been developed in these cities and then adopted by smaller cities, towns and villages. The uniformity in styles designs and patterns adopted by settlements spread over the entire area covered by the civilization, resulted in the emergence of an integrated society with common culture and lifestyle.

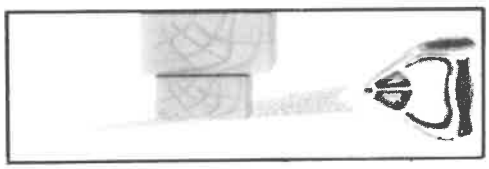
A number of factors may have contributed towards the spread of technology and higher level of technological accomplishments compared to other ancient civilizations.

First and foremost must be the character of the civilization – the social factor. The society was stratified into different income groups but there was participation of all segments of the society in the cultural and recreational activities to an extent, which was not possible in other civilizations where the ruler-slave relationship was more pronounced. Secondly the foundations for the technological development were more sound in the Indus civilization; there was more emphasis on planned settlements with special areas allocated for the workshops within the suburbs of the cities and in special industrial villages. This together with the stress on standardization, easy access to resource areas and peaceful coexistence may have produced an environment more conducive to technological advancement. Some of the areas where technological achievement was particularly noteworthy, are described below:

ARCHITECTURE & TOWN PLANNING

The internal layout pattern of most houses, large and small, was very similar. The rooms were built around a central courtyard and provision was made for drainage, latrines and bathrooms in most residential accommodation. Many of the houses were two stories and some three stories high. This together with planned layout of settlements in the gridiron pattern, resulted in more effective utilization of space, ease of waste disposal, and freedom of movement. Standardization of designs enhanced the skills of masons, bricklayers and construction workers and also contributed towards the development of better construction materials. The sizes of the bricks was standardized in the ratio of 1:2:4, extensive use of kiln fired bricks was made in houses built in larger cities and ceramic tiles, pipes, channels and spouts were extensively employed in drainage schemes.

WOODWORKING



The upper reaches of the Indus Valley are fairly rich source of timber. Timber from conifers, cedars, walnut, eucalyptus, poplar and other types of trees available in the region have been extensively employed in various applications. Shisham, a local variety of softwood, and deodar, a type of cedar,

have been extensively used for making furniture and for construction of buildings. Some of the largest buildings in Moenjodaro and Harappa may have been made entirely of timber. The entire superstructure of the granaries in Moenjodaro was probably made of timber; beams made from trunks of trees were used to support the roofs of most buildings, including residential ones. The frames of doors and windows were made of timber with decorative patterns carved on them. To enable the heavy columns to remain stable and erect, their lower ends were fixed inside holes made at the center of massive circular stone disks. Other uses of wood were for making furniture, river crafts and sea-going vessels, and for making moulds for casting of

articles made from faience and other materials.

The massive superstructure of the public buildings in Moenjodaro on the one hand and the precision and artistry involved in producing moulds of objets d'art, are testimony to the ingenuity, inventiveness, resourcefulness and skill of the Indus carpenters and other artisans, architects, builders and artists. The carpenters used special tools like the adzes, axe, chisels, drills, saws, scrapers to shape and fit massive timber components and other architectural components and to provide the necessary smoothness and finish to the timber in a variety of applications.

STONE CARVING

The stone carvings found at various sites fall into the following broad categories:

Seals:

The seals were used for stamping documents and goods. The most common material used for making seals was steatite. This stone was available in Makran and Chagai and a number of other sites in the western regions of the Indus Civilization. Most of the seals were square in shape varying in size from 2x2 to 7x7 centimeters. They usually had a line of script at the top of the seal, comprising of four to eight symbols and a carved animal in the central position. The rectangular seals only had a line of script. The writing on the seals was reversed to produce the impressions in the right direction. About ten animals commonly appear on the seals, including the unicorn, the humped- bull, elephant and water buffalo. These animals are believed to be symbols of different clans. The engraved design of animals and symbols represents the highest quality of art and craftsmanship of its kind anywhere in the ancient world. The intricate carvings of animal parts, the muscles, the curved horns, the genitalia, and the sheer elegance of the design, represents a highly developed artistic sense and a rare quality of craftsmanship.

The manufacturing process involved sawing of thin slices of steatite, normally less than one centimeter thick, cutting them to size and then scraping the surface with a knife to achieve a smooth surface. The engraving may have been carried out with the help of a series of bevel-edged tools, chisels and knives and fine profiling done with the help of some abrasive material or grinder. Because of the delicate nature of the operations performed with tools, which may not have been ideally suited for such delicate work, there were very frequent rejections. The rejected material was found in several workshops where these seal were being made. After polishing and

coating with some sort of glazing material, the seals were fired in kilns to produce a hard surface.

Architectural Components:

Massive ring stones and square column bases for wooden columns have been recovered from Moenjodaro, Dholavira and other Indus sites. These construction pieces were made of limestone, chipped and shaped by chisels and stone hammers and finished with the help of quartzite.

In the hilly areas and coastal settlements remote from the river valleys, dressed stone blocks were used for construction, replacing fired bricks. A technique very similar to the one used for producing ring stones may have been used, or a simpler technique, that of direct hammer percussion may have been used. Carved alabaster and marble grills, recovered from Moenjodaro, Harappa and some other Indus sites, may have been used around the windows to provide light and fresh air inside the houses. The soft crystalline form of these stones lends itself easily to fine cutting and polishing, providing a neat and attractive arrangement, which would have appealed to the artistic sense of the Indus citizens.

Stone sculptures:

About a dozen stone sculptures in the form of heads and busts or squatting figures of men and carved animals, have been found at Moenjodaro and Harappa. The height of the sculptures found at Moenjodaro ranges from 15 to 40 centimeters. The two stone sculptures of nude male torsos found at Harappa are about 8.5 centimeters high. The basic materials used in the sculptures found at Moenjodaro were limestone, alabaster or sandstone and, in one case, low fired white steatite. The Harappan statuettes were made of gray and red stone. The artistic styles of the structures found at Moenjodaro and Harappa are very different but the artistic qualities of both are quite high. In the Harappan sculptures the emphasis is on male form, a style, which goes against the contemporary culture of the common Indus culture. Archaeologists have not been able to provide a satisfactory explanation for this variation in style. In the sculptures found at Moenjodaro, the emphasis is on facial features. The semi-closed narrow eyes combined with a prominent face, results in an expression, which conveys authority, responsibility, confidence and sober nature of the individuals. These individuals were, most likely, important persons in the political hierarchy. The headband with the medallion type ornament on the forehead of some of the sculptures seems to be the equivalent of a coronet, which provides a mark of authority and status. The close-cropped, wavy hair style, short beard and shaven upper lip, represent a style

followed by important state officials; the trefoil patterned cloak worn by bearded person whose bust was found in Moenjodaro, may have been an important state dignitary, or, as some archaeologists believe, a priest-king. This description, however, does not seem to fit into the character of the civilization, as the possibility of ruling class of priests is remote.

CERAMICS:

Ceramics became an industry in the period when Indus civilization reached its peak. A wide variety of ceramics were produced to cater for a broad range of applications. The integration of regional cultures not only created uniformity in styles and patterns in various articles made of ceramics, it also brought about uniformity in the life styles of the people inhabiting a very vast region. This uniformity in life styles gave rise to a common pattern of use of ceramics, resulting in increased demand of ceramics for specific applications. The production of specific items in large numbers brought about a basic change in the production patterns and techniques. The concepts of division of labor and line and batch production were introduced and special tools and devices were invented to fit into the new pattern of working. The level of skills improved and better quality of articles began to be produced.

The use of disposable pottery became a part of Indus culture. After drinking or eating from a vessel, a tumbler or a bowl, they were thrown away in much the same way as plastic or paper cups are disposed off these days. This created a huge demand for simple and cheap pottery on which no time or effort was wasted on decorations and other refinements. The production technology for such pottery was developed for mass production. Lumps of clay were prepared in advance and turned on potter's wheel at high speeds to produce small simple vessels in uniform sizes and patterns. Suitable spacious kilns were developed in which mass produced pottery was heated at relatively low temperatures in the minimum time, before it was ready for the market.

Similarly, other standard types of pottery for domestic applications, such as cooking pots and storage jars for liquids, semi-liquids and solids, with slightly better standards of finish, also began to be produced. The procedures for producing plates, shallow bowls and dishes, which had to be produced by hand, were streamlined. These items were produced in batches by craftsmen with appropriate skills. Large sized storage vessels for water, grains and other items were produced on potter's wheel in several sequential stages. Often the base, rims and collars were produced separately in moulds and joined to the main body of the vessel at an appropriate stage.

A third class of pottery comprised of special high quality items. These items were used in domestic applications, special occasions such as rituals and as wedding gifts and decoration pieces for wealthy households. To meet these growing sophisticated demands, improved forms and shapes of pottery began to be produced. Improved techniques were developed to obtain better finishes. Special skills involving individual efforts were used to supplement and improve the finishes obtained through time saving devices such as potter's wheel and moulds. Pottery for use as wedding gifts, for serving food on festive occasions, and for ornamental purposes was painted in special designs using special paints. The painted pottery was mostly covered with red slip and painted in black design. Floral and geometric motifs were normally arranged in panels.

A second category of ceramics was in the shape of toys and animal figurines. A wide variety of toys were produced by hand or using simple moulds, including spinning tops, miniature cooking vessels, rattles, masks and puppets. Similarly, various types of animal figurines were produced for use as toys or decoration pieces. Most of the figurines of animals like elephants, rhinoceros, ram, humped bull, were hollow. They were hand formed in a wide variety of artistic styles, expressions and postures, often with applique' eyes, collars, ornaments and other parts. Some of the figurines were mass-produced using moulds for making heads of animals, which were then attached to a hand-formed body. Elaborate details were built into the terracotta moulds. Further refinements were achieved through incision, hand forming and carving to produce superior pieces of art.

The third category of ceramics was the male and female figurines. The female figurines far outnumber the male figurines. They could have been used as votive objects, mother goddesses or as fertility symbols. Most of these figurines were hand formed with applique' eyes, breasts, mouth, headdresses and ornaments. In majority of cases the female figurines were heavily adorned and wore a large variety of headdresses and hair -styles. Usually the breasts were exposed. The most common type of dress was a short skirt, fixed using the applique' technique. Male figurines were often nude. They had beards and wore variety of headdresses.

METALLURGY:

Bronze Statue from Moenjodaro

The earliest evidence of use of metal came from a site in Baluchistan. Here a copper bead was recovered, which belongs to the period around 6500 BC, much before the Indus civilization era. The bead was recovered from Mehrgarh, a Chalcolithic period site, which later became a part of the Indus civilization. In the early part of fifth millenium BC, extraction of copper from copper ore was being undertaken and there is evidence of copper tools and implements being produced in Mehrgarh around 4500 BC. Baluchistan, the region where Mehrgarh is located, was known to have sizable deposits of copper well before the urbanization process commenced in this region. With the advent of Indus civilization in third millenium BC, the exploitation of metals received a major boost. Copper was recovered from the copper ore through a reduction process and heating in furnaces located near the minefields in Baluchistan. The copper in the form of disk-shaped ingots was then supplied to various Indus sites. Metal workshops were first set up in the core areas of the civilization, around Moenjodaro and Harappa. Later they began to spread to the outlying areas in Cholistan and Kathiawar. Chanhudaro, south of Moenjodaro, was an important site, where metallurgical goods were produced. As the demand for copper grew, other areas were tapped for the supply of this metal. In due course the Kandahar region in Afghanistan and the Rajesthan region became important sources for the supply of this metal.

The initial use of copper and bronze was confined to making of tools and implements, which remained the major field of application of this metal in the Indus civilization. A wide variety of axes, chisels, knives and other tools were produced to meet the growing need for these items. The Indus artisans and metallurgists were well aware of the superior properties of bronze. The normal method of producing bronze is to add five to ten percent of tin to molten copper. The Indus artisans in the period before the Iron-age, used higher percentages of tin to achieve the hardness required for the edges of tools. The Indus metallurgists deserve credit for knowledge of properties of metals and alloys and using this knowledge effectively to produce various metal items.

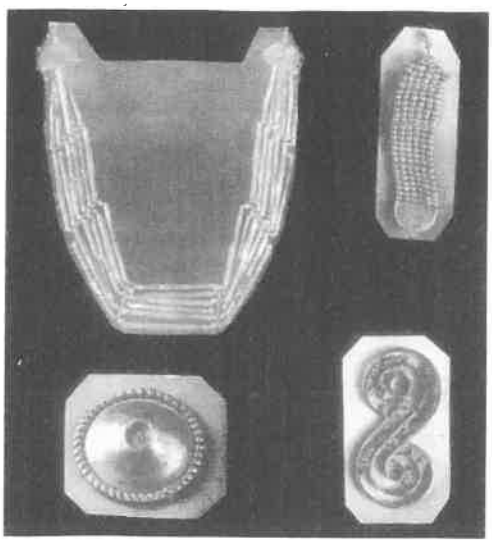
Another common application of bronze was in the production of decorative objects and sculptures. Alloying copper with the right quantity of tin produces hues and shades which gives an attractive shining appearance to items like mace head, bangles brooches pins and other ornamental pieces and statuettes, a fact which was well-known to the Indus artisans. Among the most famous articles of bronze found from the Indus region, were the bronze figurines of a dancing girl and a seated ram, recovered from Moenjodaro, and the male dancer recovered from Chanhudaro. These figurines were produced by casting molten alloy in finely carved moulds. The posture, style and expressions of these figurines provide evidence of a highly developed artistic sense of the Indus artisans.

A third category of items produced from copper/bronze by the Indus artisans, were cooking pots, plates, vessels and containers. The technology used for producing these items was to produce plates by melting the ingots and casting them in molds and then hammering the plates to achieve a smooth finish and to produce the required shape. Often the various parts of the vessels, like the bowl-shaped base of the cooking pot and the main body and the rim, were produced separately and then solidly joined together by applying heat and hammering against wooden or metal supports on the inside. This technique, when skillfully applied, produced a fine finish and elegant appearance.

Precious metals, gold and silver, were used almost exclusively to produce a wide variety of ornaments like bangles, necklaces and beads. Silver was also used to make delicate vessels and containers for wealthy families. Gold bangles were normally produced from thin sheets, which was curved to produce a hollow rod. The rod was then curved with the seam on the inside and a gap left at the ends of the curved rod to allow fitting of the bangles with ease.

ORNAMENTS AND BEADS

Since the earliest times people living in the Indus valley have been wearing ornaments and using various articles for personal beautification. A wide variety of ornaments have been recovered from the ancient graves in Mehrgarh, which date back to seventh millenium BC. In the Indus civilization period these ornaments were worn by people belonging to all the classes. Cheaper material and simple technologies were used to produce ornaments for the lower income groups while



Ornaments from Moenjodaro & Harappa

more exotic materials and complex technologies were employed to produce sophisticated ornaments for the more wealthy members of the society. The ornaments produced by the Indus artisans were also very much in demand in other regions, particularly in Persia and Mesopotamia.

The beads were an important constituent of a lot of the ornaments, such as necklaces, headbands and anklets. A lot of effort was made by the Indus artisans to produce beads of attractive designs to cater to the tastes of different sections of the society. The wide variety of raw materials used by the Indus artisans in the production of beads provides an indication of the resourcefulness and enterprising character of the Indus civilization. Some of the materials were available locally; others were imported from Oman, Persia, Afghanistan and Central Asia. Steatite was used in various forms, unfired in gray and black color and fired in white color, often painted with red slip and white designs. The other materials frequently used for making beads included onyx, marble, painted terracotta, faience, agate, plain and decorated carnelian, lapis lazuli, turquoise, serpentine, copper, bronze, gold, silver, shells, ivory and bones. These beads were made in various shapes and sizes, disks, elliptical, spherical, cylindrical, biconical etc. Several stages of manufacture were involved depending on the quality of finish required and the type of material. Special tools were developed to perform the various manufacturing operations. These operations included cutting bead blanks from the original material, heating in various stages, chipping, grinding, polishing and drilling. In particular the drilling of long beads made of hard semi-precious stones was an extremely delicate and time-consuming process for which special drills of extremely hard material were employed. Long carnelian beads of dark red color or with several beautiful designs etched on their surface, were a specialty of the Indus artisans. These beads were extremely expensive and not within the reach of the average Indus citizen. They were exported to countries like Mesopotamia and Persia, where they were used in the ornaments worn by

the rulers and elite. To meet the demand of average Indus citizens, imitations were skillfully produced in terracotta and faience. With the help of paints and decorations these imitations were made to look as if the beads were made of semi-precious stones.

It was the task of the jewelers to use these intricately designed beads in various combinations and designs to produce superior types of ornaments. The choker necklaces were produced with beads in single and multiple strands and in pendant form in which case they were attached to the strings of perforated beads with the help of gold wire.

Besides necklaces, a wide variety of ornaments such as head-bands, ear-studs, brooches, rings for toes and fingers and bangles have been found from various Indus sites. The ornaments made of precious stones and precious metals like gold and silver besides their use on gala occasions like weddings, special feasts and rituals, also served as means for storing wealth. They were handed over from generation to generation as wedding gifts to the bride. Gold ornaments in the form of bands were worn by the wealthy classes to emphasize their status in the society.

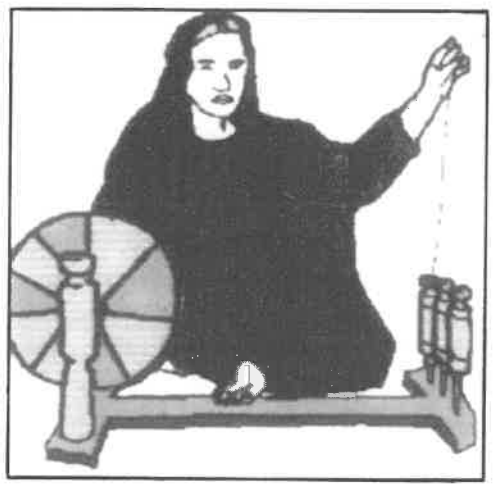
Ornaments have been produced and worn by people in different regions and in different societies in the ancient world; however in the Indus civilization this art was pursued in a much more professional manner. The expertise developed in this field was unmatched anywhere in the contemporary civilizations. The imagination and creativity of the Indus artisans revealed through these beautiful and artistic pieces is a reflection of the character of the Indus society and the civilization as a whole.

TEXTILES:

Textiles were produced in the Indus cities and villages using locally produced cotton. This is the first example anywhere in the world of use of cotton fiber for spinning cotton threads and subsequently weaving and knitting fine fabrics from these threads. Cotton was grown in Egypt much later and Sumerian writings have revealed hat cotton was imported from an eastern region, which has widely been recognized as the Indus valley.

Evidence of fairly extensive use of cotton fabrics is available from terracotta figurines and statues recovered from the Indus sites. Numerous female figurines show women wearing short skirts probably of cotton cloth. Similarly the statue of the 'priest king' shows him wearing an ajrak type cloth, which is very similar to the printed cotton fabrics worn in Sind in the Indus Valley. Impressions of cotton fabrics have also been found from faience vessels recovered from Harappa. Also traces of cotton cloth have been found in contact with copper and silver ves-

sels recovered from Moenjodaro. Cloth impressions on sealings obtained from Kalibangan suggest that strips of woven cotton cloth may have been used as baling hoops. Cotton bags were



also being employed for filling sand and other material. These examples provide sufficient proof of use of cotton fabrics in the Indus region.

Although cotton plant was grown in the area around Mehrgarh in Baluchistan in the fifth millenium BC, it was not used for producing textiles until the Indus artisans learnt to do so. The weaving of mats and coarse cloth using flax and other fibers from weeds and wild plants was being carried out in the Indus region before the Indus civilization era. Weaving of woolen carpets was also being carried out in the hilly areas. The Indus artisans discovered that the fibers from the cotton-seed pod could be processed to produce much finer cloth. After this technology was mastered, cotton crops were cultivated over substantial areas in the lower Indus valley, where the soil and climate is particularly suitable for raising cotton crops. The threads recovered from Indus sites were uniform in thickness and tight-twisted. This quality cannot be achieved by coarsely handling the raw fibers and twisting them to produce hand-woven thread. To achieve the required quality, the Indus artisans produced thread through a process, which must have included separation of cotton fibers from the seed bolls and beating them with wooden hammers to produce a loose fluffy mass. The fibers were then straightened to produce thread on spinning wheels. Some evidence of the use of spinning wheels is available in the shape of holed disks found from Indus sites. These disks could have been attached to spindles to form spindle whorls to keep the spindle turning. The threads were then woven into cloth probably on upright frame looms, similar the ones used in cottage industries operating in this region these days. Clay weights found from Indus sites were probably used as loom weights to keep the warp taut during weaving.

FAIENCE AND GLAZING:

Indus artisans produced a number of beautiful and colorful objects

sub-montane regions of the Himalayas and in the coastal regions bordering the Arabian Sea, the people carved out a living in accordance with the facilities provided by their particular environment. The settled form of life had first emerged in this region in the period around 7500 BC. Between 7500 BC and 4500 BC, the development process was more or less localized, as the people had very little contact with other people living in areas outside their immediate vicinity. Based on the nature of their environment, these people devised ways and means to meet their basic requirements of food and shelter. But the settled form of life enabled these people to look beyond meeting their basic needs for food and shelter. The changed environment left them with enough time to think of other matters. The people devised new attitudes towards life. Their aesthetic sense was aroused. They began to look for beauty and other sensual pleasures. They became increasingly aware of the forces of nature and their spiritual ideas began to take shape. Slowly and gradually they began to extract more and more from their environment in order to derive more satisfaction, more pleasure. Over the 3000 years their horizon had broadened and they had learnt to do things better.

In the Chalcolithic period between 4500 BC and 2500 BC, the settlements began to open up. Through contacts with settlements in the neighboring regions, new ideas crept into their minds. They began to compare and evaluate their own way of doing things and their own style of life with the pattern of life in neighboring communities. The ethnographic profile of the people also began to change as people from other distant areas began to settle in this region. The inputs provided by people with different backgrounds led to a diversified form of life and resulted in improvements in their lifestyles. From isolated communities inhabited by one family or one tribe, urban settlements began to emerge all along the Indus Valley. But by and large the regional character was preserved. The culture of the more developed settlements like Amri, Kot Diji and Harappa began to influence the pattern of living in settlements located far and wide. The embryonic form of civilization began to emerge. By 2750 BC, the stage had been set for the synthesis of these regional cultures. A Civilization began to take shape with inputs from different cultural movements. These inputs provided the basic ingredients for the character of the Civilization. The geographical environment in which the Indus Civilization was born was quite different from the environments of the Sumerian and Egyptian Civilizations. The Egyptian Civilization was restricted to a narrow strip of land on either side of the Nile River, while the Sumerian Civilization was also confined to the valleys of the

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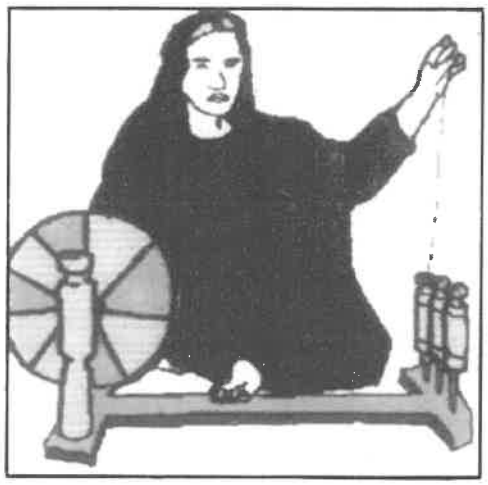

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FAIENCE AND GLAZING:

Indus artisans produced a number of beautiful and colorful objects

from faience. These included a large variety of beads, ornaments and perfume jars. Very often the faience surface was incised and engraved to produce beautiful designs and patterns. The beads made of faience were produced in special colors to imitate precious and semi-precious stones like turquoise, carnelian and agate.

The faience was produced by the Indus artisans from quartz.. The quartz in the form of rocks was melted in kilns at high temperatures of around 1000 degrees Celsius. The resulting thick paste was then mixed with different minerals to give different colors. Some flux and adhesive material was added to the molten quartz and coloring minerals. The mixture was again heated to produce a uniform mix of molten material, which was poured into finely carved molds made of wood to produce beads, ornaments and various articles for decoration. After cooling, the concentration of flux on the exterior surface produced a thin glaze while the interior of the object was fused into a glassy mass. Different techniques were used to produce glossy or vitreous surfaces.

The early Indus artisans, who mastered the techniques for producing faience, laid the foundation for development of glass, in the late Indus period around 1700 BC. The techniques used for producing glass were similar to those used for making faience. To produce glass, silica was fused and allowed to cool gradually. This technique was used by later Indus artisans, initially to produce glass beads, and subsequently developed by the post-Indus artisans to produce beautiful jars and decorative articles.

CHAPTER 11

CHARACTER OF THE CIVILIZATION

Broadly speaking, the character of a Civilization is determined by two major factors, the Physical Environment and the Social Environment. Together these two terms cover a variety of sub-factors like the climatic conditions, the type of terrain, the social development of basic communities and the racial characteristics of the population. The climate and the nature of the terrain play an important part in determining the attitudes of the people and their response to challenges posed by nature and the hostile elements from within and outside the region. The social development of communities is dependent on the past history of the people. The civilization emerges out of an evolutionary process. It derives its strength and character from the pattern of development through which the communities have passed during the hundreds or thousands of years preceding its emergence. Communities comprise of people of different racial groups. Different races have responded differently to the challenges, which came their way. Depending on the environment in which these races took root, some races emerged as more mentally and physically tough than the others and some more innovative and dynamic.

These were the factors, which gave the Indus Civilization its peculiar character. In its evolutionary phase, its character was being molded by the developments, which had been taking place in the region for almost 5000 years prior to the emergence of the Indus Civilization. The development was a continuous process in which each succeeding generation made its own contribution. All the people who were a part of the Indus Civilization did not inhabit one homogenous geographical region. In the evolutionary phase the people living in different geographical regions developed a character dependent on their own particular environment. In the hilly areas of Baluchistan, in the riverine valleys of the Indus, in the

sub-montane regions of the Himalayas and in the coastal regions bordering the Arabian Sea, the people carved out a living in accordance with the facilities provided by their particular environment. The settled form of life had first emerged in this region in the period around 7500 BC. Between 7500 BC and 4500 BC, the development process was more or less localized, as the people had very little contact with other people living in areas outside their immediate vicinity. Based on the nature of their environment, these people devised ways and means to meet their basic requirements of food and shelter. But the settled form of life enabled these people to look beyond meeting their basic needs for food and shelter. The changed environment left them with enough time to think of other matters. The people devised new attitudes towards life. Their aesthetic sense was aroused. They began to look for beauty and other sensual pleasures. They became increasingly aware of the forces of nature and their spiritual ideas began to take shape. Slowly and gradually they began to extract more and more from their environment in order to derive more satisfaction, more pleasure. Over the 3000 years their horizon had broadened and they had learnt to do things better.

In the Chalcolithic period between 4500 BC and 2500 BC, the settlements began to open up. Through contacts with settlements in the neighboring regions, new ideas crept into their minds. They began to compare and evaluate their own way of doing things and their own style of life with the pattern of life in neighboring communities. The ethnographic profile of the people also began to change as people from other distant areas began to settle in this region. The inputs provided by people with different backgrounds led to a diversified form of life and resulted in improvements in their lifestyles. From isolated communities inhabited by one family or one tribe, urban settlements began to emerge all along the Indus Valley. But by and large the regional character was preserved. The culture of the more developed settlements like Amri, Kot Diji and Harappa began to influence the pattern of living in settlements located far and wide. The embryonic form of civilization began to emerge. By 2750 BC, the stage had been set for the synthesis of these regional cultures. A Civilization began to take shape with inputs from different cultural movements. These inputs provided the basic ingredients for the character of the Civilization. The geographical environment in which the Indus Civilization was born was quite different from the environments of the Sumerian and Egyptian Civilizations. The Egyptian Civilization was restricted to a narrow strip of land on either side of the Nile River, while the Sumerian Civilization was also confined to the valleys of the

Euphrates and Tigris Rivers. Starting from the southern section of the Indus River Valley, the Indus Civilization spread to regions with widely different terrain and climate. The cultures of these different regions contributed towards the molding of the character of the Indus Civilization spread over different types of terrain and over a much larger area. The environment within which the Indus Civilization flourished was entirely different from that in other contemporary ancient civilizations. The unique environment had its effect on all aspects of life in the Indus Society.

ETHNOGRAPHIC PROFILE

The racial characteristics had a part to play in both the founding of the Indus Civilization as well as in formulating its character. Due to the favorable environment of the Indus Valley it was natural that people from less hospitable areas in the north and the west were attracted to this region. However there is no concrete evidence of mass migrations in a limited timeframe. For such migrations a state of organization is essential within the communities, which could not be expected from ancient pastoral communities which existed at that time. Instead of invasions of large groups in successive waves, a more practical form of migrations would be the seasonal movements of small groups of nomads in search of food and pasture for their flocks. Some of these nomads would have settled down permanently in these regions and over thousands of years such migrations would have made a very noticeable impact on the ethnographic profile of the region. On the other hand mass migrations or invasions were less likely to drastically alter the ethnographic profile for the simple reason that, however large these groups may have been, their numbers are unlikely to be significant compared to the existing local population. Migrations in small groups were taking place for thousands of years before the Indus era, through the passes in the mountains in the western parts of Baluchistan. Most of the migrations would have taken place through the Bolan, Khojak and Gomal Passes in the northwestern section and across Kuh-i-Taftan and Bampost in southwestern section. This was the more active area in the pre-Indus era compared to the area across the Khyber Pass, in the Hindukush Range. In the period 5000 BC to 2500 BC, most of the migrations were from the Seistan and Makran regions of Iran and from the Helmand Valley in Southern Afghanistan. The dark skinned people who came from these regions were the Dravidians. They were culturally superior to the indigenous people inhabiting the Indo-Pakistan

subcontinent at that time. Some people belonging to the proto-Indo-European races may have also migrated to this region, mainly through the passes in the Hindukush Range, but in the Indus era the Dravidians were in majority and had acquired a position of dominance. The characteristics of the Dravidian race are reflected in the character of the Indus Civilization. Some of the elements, which formed the character of the Indus Civilization, are discussed below.

ROLE OF THE CLERGY

Religion has played a central role in all civilizations, ancient and modern. The people who gave a practical shape to religion were the priests. They were the wise men, the thinkers. The knowledge, which they acquired through their meditations and scholarly pursuits, was put to different types of uses in different civilizations. In some civilizations these priests used this knowledge to exercise power and control over their fellow human beings. In other societies they subordinated themselves to more powerful elements in the society but still exercised considerable influence through their special relationships with their superiors. In a third category the priests were professionals in spiritual and religious affairs, nothing more, nothing less.

In the Indus Civilization, the role of the priests conformed to the third category mentioned above. They came from a background of Yogis or ascetics, whose exclusive concern was with spiritual matters. While the language remains undeciphered, the main sources of information on the religious life of the Indus citizens and the role of the priests are the excavated buildings and artifacts. The Great Bath at Moenjodaro and the engravings of sacrificial scenes and religious processions on seal and tablets provide some information on the type of rituals and ceremonies in which the priests were involved. One other building at Moenjodaro has been identified as the College where the priests received their training and education. Some other buildings may have been temples. These buildings and artifacts indicate that religion was an important part of the social life and culture of the Indus citizens, but there is nothing to suggest over involvement of priests in matters other than spiritual. The temples at Moenjodaro and other Indus cities were relatively modest buildings when compared to the magnificent Ziggurats of the Sumerian Civilization. No idols or religious statues have been found which would compare with the statue of the god Nannar in the temple at Ur. The burials were relatively simple, which indicate that the Indus people were not really obsessed with after life. The primary focus of the central regime in the Indus Civilization was on achieving economic prosperity through use of better technology and

trade and commerce. The direct involvement of the priests in these activities seems highly unlikely, specially keeping in view the vast area covered by the civilization.

The priests were highly respected and enjoyed a high status in the Indus Society. They took care of the spiritual needs of the rulers as well as the general population. They played an important part in the social and cultural activities of the Indus people. They had a central role to play in various religious ceremonies and public rituals. The religious symbols devised by the priests were prominently displayed on all types of artifacts in all the regions of the Indus civilization. The system of beliefs devised by them was universally accepted. The universal acceptance of the system of beliefs and symbols was an important factor in the integration of different regions into the Indus civilization. The priests made a valuable contribution in integrating the state but they were not powerful people in the way the priests were in the Sumerian and Egyptian Civilizations. Basically the place of the priests was in the temples, in the hermitages and in the religious institutions. They provided strength to the state but remained outside the corridors of power.

THE RULERS AND THE SOCIAL FABRIC

An important factor in formulation of the character of the Indus Civilization was the status of the individuals who were at the helm of affairs. In the earlier chapters on 'Rulers and the system of Governance' an effort was made to identify the rulers of the Indus State. We came to the conclusion that the Indus State was governed by a group of Chieftains belonging to a number of clans. From among the group, one Chief may have been selected to take care of the day to day affairs. Thus all the important clans were represented in the governance of the state, and since the clans included people of different income groups, the interests of a very large section of the society were safeguarded. This broad representation is reflected in the construction of houses of different sizes in one residential area. It is reflected in the overall planning of the towns and cities. In the planning of the cities the focus was not on one individual or class. Elaborate provisions were made for public facilities like roads, sewerage and drainage systems, which catered for the needs of a broad range of population. The goods produced in the craft workshops met the demands of all sections of the society. Similarly the focus of the trade was not on exotic or luxury items but on raw materials, components and finished items meant

to cater to the needs of the people of different income groups.

The orientation of the Indus State towards the needs of all the population is also apparent from the nature of the buildings and the quality of arts and crafts. In the Egyptian Civilization the Pharaoh enjoyed absolute powers. The entire resources of the Egyptian State were at his disposal, which were used to build massive monuments like the Pyramids, and make elaborately carved stone statues. All these monuments were for the benefit of the Pharaoh and his family. Similarly in the Sumerian Civilization, huge and magnificent temple and palace complexes were built for the king and the priests, who were his principal advisors. Nothing comparable to these buildings and statues existed anywhere in the Indus State. Instead there were elaborately planned townships built on artificial mounds upto 13 meters high, hundreds of comfortable houses made of baked bricks and many other public facilities for the common man.

NATURE OF THE ECONOMY

The economy of the Indus State can be described as highly participative and diversified. The economic activities were not concentrated in one or two urban centers. There were numerous urban settlements spread over a very large area. Each region was more or less self sufficient in food. Each region had a number of craft industries, which manufactured a large variety of craft products. A number of craft industries were engaged in mass production of utility and ornamental items used by the common people.

The mainstay of the economy was the craft industries. Special townships and industrial villages were established where the exclusive or main activity was producing craft items. Specialized manufacturing techniques and tools were used to produce a number of sophisticated items.

MILITARISM AND WARFARE

Excavations at hundreds of archaeological sites belonging to the Indus Civilization have yielded numerous artifacts, which were used for utility applications or decoration purposes or for self-adornment. A number of metallic tools and implements have also been found, which were used by the craft industries, agricultural farms and building constructors. A small number of articles found could have been used as weapons.

Most of the weapons were made of copper or bronze. These included daggers, spears, and small swords in various sizes and shapes. Pointed ends of arrows have been found in large numbers. A number of axes and knives have also been

CHAPTER 12

DECLINE OF THE INDUS CIVILIZATION

The decline of the Indus Civilization started around 2000 BC but all the regions including those in the northeast and the southeast, continued to be loosely linked to the core Indus Civilization for hundreds of years after this. The high degree of cultural homogeneity achieved in the early period of the Indus Civilization around 2500-2000 BC, began to show signs of breaking up. The archaeologists noted that in the excavations of the uppermost layers, the standards of the construction of the buildings had deteriorated and the artifacts recovered from these layers were of a lower quality compared to the artifacts from the middle occupation layers. The relaxation in standards and deterioration in quality gradually gave way to emergence of localized features in the designs of the artifacts. This progressive deviation from the common styles continued till around 1700 BC but until this period the links of the outlying regions with the central regime remained intact.

After 1700BC the links between different regions began to weaken and the regions, which formed a part of the common Indus Civilization gradually split into three regional groups in the period 1700 to 1500 BC. The northern regional group covered the northern Indus Plains and the Hakra-Ghagger River Valley. Harappa became the principal cultural center of this region. In the lower Indus Valley the settlements in Sind and eastern Baluchistan continued to be loosely linked together. Moenjodaro remained the cultural center of this group, although the altered culture of this region during this period came to be known as the Jhukar Culture after a small settlement just north of Moenjodaro. Subsequently a major cultural center developed around Pirak in the Kachchi Plains of eastern Baluchistan. The Pirak Culture dominated the Southern Indus Valley

and eastern Baluchistan in the period 1500 BC to 800 BC. The fourth regional group was formed in the southeastern regions of Kutch and Kathiawar. Rangpur became the principal cultural center of this regional group.

The decline and eventual disintegration of the Indus Civilization was due to a combination of factors. First and foremost was the fact that the political and administrative structure of the Indus State developed in the early period of the Civilization, was far too inadequate for a Civilization that extended to regions as far as 1000 kilometers from the core Indus Valley. If these regions were to remain a closely knit part of the common Civilization under a regime based in Moenjodaro, the involvement of the central regime in the political and administrative affairs of distant regions needed to be much more.

The second factor responsible for the disintegration of the Indus Civilization was the gradual ebbing away of the spirit, which had launched the Civilization. Tremendous enthusiasm and determination was shown by the architects in the early period of planning and construction of the cities of Moenjodaro and Harappa and the accompanying upgradation of the smaller settlements in the lower Indus Valley in the period 2600-2200 BC. In the period 2300-2000 BC, the spirit was kept alive by the extension of the Civilization and consequent expansion of trade networks and activities. The newly added regions of Cholistan, Rajesthan and Kathiawar were attracted to the core Indus Civilization by the relatively high degree of cultural and economic development of the Southern Indus Valley. Gradually as these settlements to the northeast and southeast developed their own economic infrastructure, their dependence on the central regime began to reduce. Their own regional affiliations and interests began to move them away from the central regime, which by this time had lost much of its original spark. Around 1800 BC, the reduced level of economic and cultural activity, weakened the bonds between the different regions and the regional groupings began to take shape.

The reduced economic and cultural activity also had a lot to do with the gradual changes in the physical environment of different regions. This was the third important factor, which was responsible for the disintegration of the Indus Civilization. The gradual silting up of the Hakra-Ghagger River had forced the people living in the

settlements located on the banks of this river to look for greener pastures elsewhere. The once prosperous settlements in the Hakra-Ghagger River Valley began to disappear as the region gradually turned into a desert. The people in this region had not gone through the same experience as the people at Moenjodaro. They had adopted a culture, which was developed in the Valley. They lacked the vision and inherent strength to take timely measures to offset the effects of these changes in their natural environment. The changes in the Hakra-Ghagger River System also affected the Indus River System as the Sutlej River changed its course and began to feed into the Indus River. The increased water supply from the Sutlej River and tectonic uplifts in the region caused major changes in the Indus River System; it resulted in changing of the course of the Indus River and its tributaries. The result was increased flooding of the plains whcih led to the disappearance of a number of settlements in the low-lying areas while other settlements were left high and dry as the courses of the rivers had changed.

The political and administrative bonds between the center and the outlying regions were too weak for the Civilization as a whole to respond to these challenges. Lacking the dynamism and spirit of the early period and the political strength, the Civilization just withered away.

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