

THE ARCHAEOLOGY OF SIND

(SINCE 1930)

UPDATE SUPPLEMENT TO ANTIQUITIES OF SIND

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LATE SUPERINTENDENT, ARCHAEOLOGICAL SURVEY OF INDIA, WESTERN CIRCLE
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INTRODUCTION

Henry Cousens' book on *The Antiquities of Sind* has remained one of the primary sources on history and archaeology of Sindh since its publication in 1929. The description of monuments and sites with illustrations reflects their state of preservation and the extent to which information was available at that time. Cousens gave a good historical background of Sindh and description of Muslim monuments at Thatta, Hyderabad, Sukkur, Rohri, Larkana, Khudabad, and three forts at Bakkar, Ranikot and Sehwan. He also drew attention to an important group of late Muslim graves constructed with exquisitely carved stone slabs called Chaukhandi or "Baluch" tombs. A detailed account is provided on the early Muslim settlements of Brahminabad-Mansurah-Mehfuzah and short description of Banbhore and Alor. Among Hindu-Buddhist sites, the description of religious sites at Thul Mir Rukan, Mirpur Khas, Jarrak and Sudheran-jo-Dhaddo provide basic information. Two "prehistoric" remains located at Rohri and near Karachi are mentioned. Mohenjodaro is referred to briefly like other historical sites which incidentally is regarded to be two hundred years old!

Cousens utilized the then available sources of information extensively and in certain cases, exhaustively. That is why his work remained an important contribution to the knowledge of the cultural heritage of Sindh. Although some of his inferences have since been revised in the light of new evidence, yet Cousens' exhaustive accounts of antiquities are unsurpassed and, therefore, still provide a basis for further research.

More than half a century of archaeological field research in Sindh has significantly enlarged the cultural mosaic presented by Cousens. New information has come from very extensive explorations aimed at locating and documenting ancient sites and monuments. More than one dozen sites, some of which were reported by Cousens, have now been excavated. As a result, the archaeological map of Sindh has changed completely. The most significant surveys of ancient sites in Sindh were those launched by the Federal Department of Archaeology and the Sindh Culture Department led by the present author and Muhammad Sharif in 1993-96 and 1972 respectively in northern and southern Sindh; by N.G. Majumdar of the Archaeological Survey of British India between 1927 and 1931 in western and southwestern Sindh; by Louis Flam during 1975-77; Hans Nissen in 1983; Walter A. Fairservis in 1964-65; Raut A. Khan of Karachi University around Karachi area; Dr. Nilofer Sheikh and her colleagues at Shah Abdul Latif Bhitai University in Khairpur and Sukkur districts. In 1989-90, Monik Kerwan surveyed the coastal areas of Sindh and recorded seven sites, one of which called Ratto Kot was examined by test digging.

The number, cultural contents or association and time-range of the so far documented sites and monuments bear eloquent testimony to a long spectrum of history and very rich cultural heritage represented in Sindh dating from at least half a million years (Palaeolithic) to the Islamic and later periods. This long chronological bracket includes the archaeological remains pertaining to the beginning of settled human life, Pakistan's first civilization best known as the

Indus or Harappan Civilization, and the early Islamic metropolitan centres. Sindh's cultural heritage is further emphasized by some of its unique features. Pakistan's earliest known mosque at Banbhore, the first Muslim capital city at Mansurah, the oldest and the first civilization of Pakistan and South Asia represented at Mohenjodaro, the largest necropolis of the Muslim rulers, saints and men of rank at Makli Hill, Thatta and the largest fort of Asia at Ranikot, are all located in Sindh.

Many a chapter of Sindh's ancient history have now been written and existing gaps in our knowledge are filled to some extent as a result of new archaeological evidence discovered from the systematic excavations done at the Islamic settlements of Mansurah and Banbhore (identified with Debal); at Mohenjodaro, the largest urban centre of the Indus Civilization, and contemporary settlements at Naro Dharo, Allahdino, Jhukar and Lakhueen-jo-Daro; and at the sites belonging to the beginning of Indus Civilization namely, Kot Diji and Amri. The investigation at and around Rohri Hills and parts of Sindh Kohistan has pushed the antiquity of Sindh back to at least the upper Palaeolithic period and possibly of earlier period. On the other end of the bracket, a new picture has emerged in the period between the decline of the Indus Civilization and the Buddhist period which otherwise was called the "dark age". The excavations and survey of megalithic sites in the Malir River basin have produced vital information on the so-called "dark age" of Sindh. The cultural history of the later Muslim period after the decline of Mansurah or approximately from the beginning of twelfth century to the annexation of Sindh by the British in the middle of nineteenth century, is poorly known especially pertaining to the rules of Sumras, Sammas, Arghuns, Turkhans, Mughal, Kalhoras and Talpurs. No settlement site of any dynastic period has yet been excavated to give us information on how the people lived. The surveys undertaken in various areas of Sindh have revealed a large number of sites which on the basis of surface materials such as pottery and coins and in few cases, by literary sources, can be assigned to a specific period of time with a fair degree of accuracy. The monuments, however, were possible to assign an approximate time-range on stylistic basis or on epigraphical evidence.

The amount of new data on Sindh which has accumulated since Cousens' time is so large and diverse as to make a separate and independent volume. In this supplementary note to Cousens' The Antiquities of Sind, only a brief account of major excavations and surveys is presented to highlight new discoveries and researches on Sindh. The bibliography on individual sites such as Mohenjodaro is so extensive that only the primary and basic sources can be documented due to limitations of space. Similarly, the illustrations to accompany the text had to be restricted. The description of sites is arranged chronologically regardless of year of work. The surveys are described according to the regions in which the field works were carried out. The data covers all periods of Sindh's archaeological heritage and provides an insight into shifting settlement locations in the Indus plains. The number of sites so far documented in Sindh are listed separately with basic information on each site.

ARCHAEOLOGICAL EXCAVATIONS

During the last seventy years, archaeological excavations have been carried out at 14 sites belonging to the upper Palaeolithic or Late Stone Age, the early settlements of fourth and second millennia BC, down to the late Muslim period or until the middle of 19th century AD. The new information on the cultural developments in Sindh stretching over a very long time-span is very important since it added new chapters to the ancient history of Sindh and thus enlarged our existing knowledge. The most pertinent and new information as revealed from the excavation of various sites is summarized below:

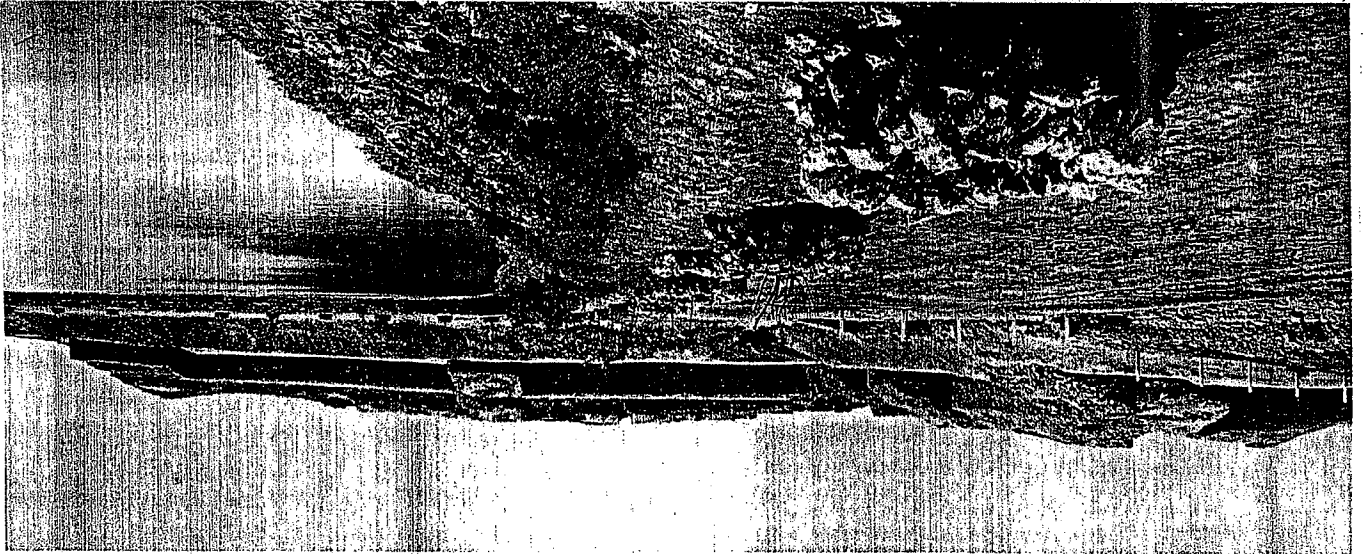
Banhore

Banhore is situated about forty miles east of Karachi on the Gharao Creek which was originally a branch of the Indus River. It consists of a fortified settlement, measuring about two thousand by one thousand feet, and an outer un-walled area north of the city. The site was visited earlier by Henry Cousens, N.G. Majumdar and in 1951 by Leslie Alcock who carried out preliminary diggings. Since the site of Ranhore has figured prominently in the context of location and identification of the famous city of Debal conquered by an Arab General, Muhammad bin Qasim in 712 AD, who was sent by Hajjaj bin Yousaf, the Department of Archaeology launched a programme of large scale excavations at Banhore in 1958 under the direction of Dr. F.A. Khan which lasted until 1966 (Khan 1976).

Investigations at the site for nearly eight cold seasons have revealed substantial structural remains of stone with mud-brick superstructure and a formidable fortification wall with semi-circular bastions around the city. The diggings were done at four major areas which revealed elaborate gateway system, domestic and public architecture and a grand mosque located in the middle of city. It is the earliest known mosque in Pakistan which is dated by Arabic inscriptions found in the mosque. Excavations have also given a very reliable cultural sequence along with rich collection of antiquities of the early Islamic and pre-Islamic periods going back to at least 1st century BC. A long chronological sequence spreading over at least thirteen centuries has been established which is divided into three distinct but continuous periods.

The first occupation belongs to the Scytho-Parthian period, representing at least three centuries beginning from the first century BC. The evidence of Scytho-Parthian culture at Banhore is important for the location of region where Alexander's armies reached on their homeward journey. The ceramics consist mostly of red burnished pottery with bright-red or dark-brown surface as if it was an imitation of Greek pottery. The pottery forms represent delicate vessels with a narrow perforated neck and chin-spouts, large bowls with pedestal base and goblets. This type of pottery provides precise parallels with that found by Sir John Marshall at the first city of Taxila where it is dated to the first century BC period. It occurs along the coastal areas of India and has also recently been found in Sri Lanka, pointing to a flourishing maritime trade

Banhore Fortification wall.



linking the principal port of Asia.

The second major cultural horizon at Bahbhore has been identified with the Hindu-Sassanian period. The Sassanians were very active in the sea trade during 5th century AD who were in great competition with the Roman traders and had monopolized the sea routes to the subcontinent. In the western part of Bahbhore, a structural complex containing votive Siva Lingam and associated Hindu objects were found. Large pieces of stone representing Lingam were also found in other parts of the city. A number of terracotta human and animal figures, pieces of stone sculptures and pottery inscribed with proto-Devanagari script have been discovered. A group of pottery moulds representing a great variety of geometric and floral designs with human and animal figures constitutes an import category of Hindu materials which remained in use for some time during the subsequent Islamic occupation.

The third major cultural period belongs to the early Islamic times which represents six centuries consisting of the Umayyad (711-750 AD) period; early Abbasid period (750-892 AD); late Abbasid period (10-12 century AD); and last occupation lingering on the site until 13th century AD.

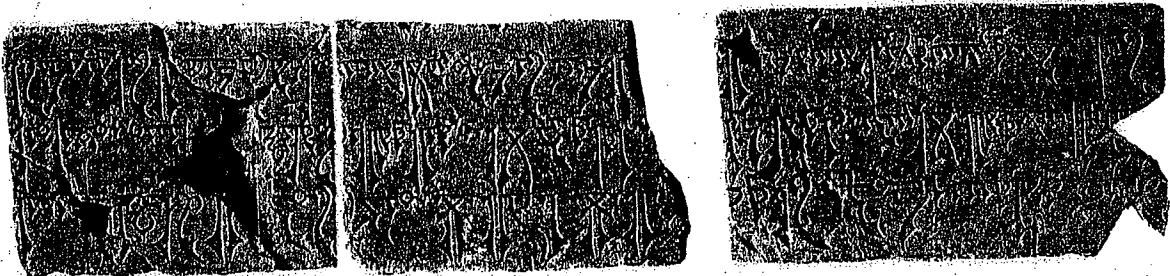
The architecture of the Islamic period is represented by the public and private buildings in the city such as the grand (jami) mosque and attached madrasa, fortification wall and the gateway system. The fortification at the site was built by the early Arabs with semi-dressed stones set in mud mortar and strengthened with a series of semi-circular bastions. It was raised on a seven feet high revetment. It is more than six feet wide and lined with stones on both sides and filled-in with mud. At places, it survives to a height of 19 feet. A number of rebuilding and repairs of the fortification wall are evident during its long period of use. In the fourth or last period, the fortification enclosed a small area on the eastern side. An elaborate gateway system was provided. One on the north-eastern side was approached through a flight of steps from the water front and opened onto a large mansion. On the southern side and overlooking the Gharo Creek, once a branch of the Indus River, an imposing gateway flanked by two semi-circular bastions was provided. In front of the gateway, was located an anchorage which is now half submerged in water.

The population of Bahbhore also occupied areas outside the fortification wall on the northern and eastern sides. On the northern side, digging has revealed structural remains and a large number of thick bodied large pottery troughs fixed into the floor. These troughs were most probably associated with dyeing industry. In addition to the industrial area on the northern side, concentration of kilns, crucibles, ashes and charcoals, pieces of iron slugs, ivory and glass wasters were found at different areas of the site indicating mass production of materials for daily use locally and for export.

The grand mosque or jami masjid of Bahbhore is historically the most significant building. It is built on more or less a square plan, measuring 120 x 122 feet, within 3-4 feet wide wall of dressed stones. An open courtyard of the mosque, 75 x 58 feet, is laid with burnt bricks and is surrounded by corridors on three sides covered with flat roof which was supported with double rows of wooden pillars. On the western or qibla side, the roof of prayer chamber was supported on thirty-three wooden pillars arranged in three rows. There is no mehrab (niche indicating qibla) in the western wall like the early mosques at Kufa built in 670 AD and Wasit in 702 AD. This feature was introduced by Walid I at the time of rebuilding of Prophet's mosque at Madina between 707-709 AD.

The mosque had two main entrances on the eastern and northern sides. One on the east is 5 1/2 feet wide with a flight of three steps but was larger originally. The northern entrance is seven feet wide with three steps. The outer face of the northern wall of the mosque which had fallen in the street contained fourteen Kufic inscriptions engraved on dressed sandstone blocks (Chatur 1966). A large complex of several rooms is located in front of the northern gate of the mosque which was devoid of cultural materials and might have been either a madrasa (school)

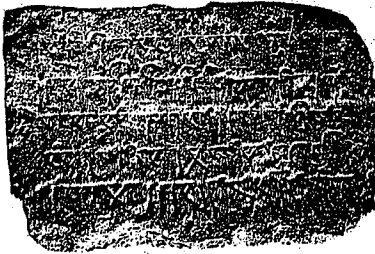
or Amir's secretariat. Another building complex also existed on the eastern side of the mosque. The northeastern corner of the mosque was found to be severely damaged as if by an earthquake. On the inner side, a large room with a drain is lime-plastered on which a pile of more than one thousand earthenware oil lamps was found. Investigations in front of the gateways and inside the courtyard established that the mosque was repaired three times after its construction in the beginning of eighth century AD. Two Kufic inscriptions, dated 109 AH/707 AD and 294 AH/906 AD were found in the mosque. The Arabic texts of the inscriptions is reproduced below.



Banbhore: Kufic inscription dated 294 A.H. (A.D. 907) from the area of the Great Mosque.

(i) بسم الله الرحمن الرحيم (والله اعلم بالصواب) (ii) (iii) ان يكونوا من الصالحين (iv) ان يكونوا من الصالحين (v) ان يكونوا من الصالحين (vi) ان يكونوا من الصالحين (vii) ان يكونوا من الصالحين (viii) ان يكونوا من الصالحين (ix) ان يكونوا من الصالحين (x) ان يكونوا من الصالحين

In the name of Allah, the most Gracious, the most Merciful. There is no God but Allah alone and verily Muhammad is His Messenger and Servant. He only inhabits Mosques of Allah who believes in Allah, offers prayers and pays Zakat and fears none but Allah; so it may be that they are the followers of right path. This is what Amir Muhammad ibn-Abdur (?) has order about its erection (Dint Qadah?) in the year 294 A.H. i.e., 906 A.C.



Banbhore: Kufic inscription from the area of the Great Mosque recording the building or elaboration of the Mosque, apparently in 109 A.H. (A.D. 727-8)

(i) بسم الله الرحمن الرحيم (ii) ان يكونوا من الصالحين (iii) ان يكونوا من الصالحين (iv) ان يكونوا من الصالحين (v) ان يكونوا من الصالحين (vi) ان يكونوا من الصالحين (vii) ان يكونوا من الصالحين (viii) ان يكونوا من الصالحين (ix) ان يكونوا من الصالحين (x) ان يكونوا من الصالحين

In the name of Allah, the Benevolent, the Merciful. What Amir Marwan (?) ibn-Muhammad Mawla Amirul Mumtaz, May Allah make him glorious, ordered about its (erection) through the agency of Ali ibn-Musa (?) Mawla Amirul Mumtaz, may Allah make him illustrious, in the 109 A.H. i.e., 727 A.C.

A good number of gold, silver and copper were found in the excavations which helped to assign precise dates not only to the building remains but also to the cultural materials. One of the gold coins belongs to Wasiq Billah, the 9th Abbasid Caliph who ruled in Baghdad from 227 to 232 AH/842-47 AD. Among numerous dated coins of copper and silver are those belonging to the Umayyad Caliphs, Al-Walid bin Abdul Malik dated 95 AH/713 AD and a silver coin of Caliph Hisham bin Abdul Malik dated 124 AH/741-42 AD; three copper coins of Hisham bin Amr who was the second governor of Abbasid Caliph Al-Mansoor; a silver coin of 7th Abbasid Caliph Al-Ma'moon dated 196 AH/811-12 AD; silver coin of Abbasid Caliph Al-Mutamid Alallah

Mansurah

The ruins of an early Arab city of Mansurah which was the first Muslim capital between 8th and 13th centuries AD are located about twelve miles southeast of Shahdadpur in Sanghar district of central Sindh. The ancient site sprawls over an area of 9000 x 4500 feet and is almost five miles in circuit. There are millions of burnt bricks lying on the surface and forming a series of mounds standing to a maximum height of 35 feet. On the northeastern side, is another mound separated by a depression left by an old channel of the Indus River. The main mound contains remains of habitation areas separated by wide roads and streets. The city is enclosed by a fortification wall with series of semi-circular bastions built of burnt bricks. The Arab geographers and historians have written extensively about Mansurah in detail on its location, foundation, city planning, administration and relationship with other Muslim settlements in Sindh and beyond. It is now believed that Mansurah was founded by Amar bin Muhammad

The variety and number of objects of daily use found at Banbhore are too great to be summarized. Concentration of glass pieces with kilns, piles of shell pieces, terracotta over-fired pieces of coins moulds and semi-precious stones, suggest local production of coins, glass and shell objects (Mughal 1986). The settlement of Banbhore might have been destroyed by earthquakes and invading people during the later half of 12th century AD. Banbhore could have survived such threats and continued to flourish as the only and most important port of Sindh with exports to the middle eastern and African countries, if the silting of the delta area had not taken place. With the loss of Banbhore, international sea trade was interrupted which once extended to southern China on the east and went as far west as Egypt and Syria with intermediaries centres in Sri Lanka and Thailand (Mughal 1992).

During the Umayyad period when the Muslims had arrived on the scene, some traditions of earlier period persisted in the ceramic art of Sindh. Gradually, new types of pottery emerged which show comparisons with contemporary Muslim settlements in Sindh and beyond. The Syrian White Paste pottery was very popular in the beginning of eighth century AD but was entirely replaced by the glazed wares. The alkaline glazed jars with thick blue and green colour glazed surface of Sassanian origin start appearing in the early Islamic levels but continued until the end of 12th century AD. In the levels dated to the Abbasid period, sgraffiato glazed pottery imported from Egypt and Iran, slip painted, lead glaze, lustre glaze and other types of glazed pottery were found in abundance which are all dated between 9th and 11th centuries AD, indicating interaction between Banbhore and other trading centres (Mughal 1990a). In the Abbasid levels were found imported Chinese porcelain, celadon and stone wares with Chinese inscriptions dated from 9th to 11th century AD.

From the pre-Islamic levels, mostly stamped, moulded, polychrome and plain red wares were recovered. The painted pottery stands out because of various designs consisting of stylized birds and animals drawn in black, red and dark-brown colours on a cream slip. The other motifs include sunflower, lotus flower, sun, peacocks, antelopes and fish. The moulded pottery also depicts animal and human motifs on the shoulder of vessels.

A rich collection of ceramics not known in Sindh previously and consisting of a variety of plain and painted wares of the pre-Muslim and Muslim periods was found at Banbhore. The most significant are various kinds of glazed pottery imported from the then Islamic world and China. Banbhore being a port city of Sindh is the only site where beautiful specimens of outstanding Islamic pottery have been documented from stratigraphical contexts.

Several Arab-Sassanian coins showing bust of a Sassanian ruler and a fire altar with a date in Yezgird era corresponding to 32 AH/652 AD were found. The combination of Pehevi legend with Bismillah in Kufic on these coins indicates their long circulation throughout the Caliphate. A rich collection of ceramics not known in Sindh previously and consisting of a variety of plain and painted wares of the pre-Muslim and Muslim periods was found at Banbhore. The most significant are various kinds of glazed pottery imported from the then Islamic world and China. Banbhore being a port city of Sindh is the only site where beautiful specimens of outstanding Islamic pottery have been documented from stratigraphical contexts.

Qasim and remained a seat of government during the Umayyad and Abbasid times. The Habbaid rulers also made Mansurah as their capital for nearly two centuries.

The site was visited and investigated in the late 19th and early 20th centuries by several people. A. F. Bellasis and Richardson carried out diggings in 1854. It was also examined by H. Couzens in 1908 and later on by A. Cunningham and General Laig. Henry Couzens (1929) has described the excavations at Mansurah done by different persons and has discussed the question of its identification and location. He believed that Mansurah was founded on the ruins of a Hindu city called Brahminabad. Some stone sculptures and ceramics found by the early excavators suggested the presence of a settlement of Hindu period on which the Muslims founded a new city. The new excavations started in 1966 have corrected some of the old views and have brought to light most significant information bearing upon the location of Mansurah, its layout and town planning, public buildings and domestic architecture, evidence of industrial activities, sequence of occupations and chronology. The large scale excavations which were started in 1966 under the general direction of Dr. F. A. Khan continued with an interruption of seven years until 1987 (Farooq 1986).

During the first two excavation seasons of 1966 and 1967, efforts were concentrated on establishing a chronological and structural sequence of the whole site to which various buildings could be related and securely dated. The exposure of fortification wall with its gateway system, some public and private buildings, provided important information on the early Arab architecture and city planning. In the subsequent seasons of work, the grand mosque of the city and public buildings located near the mosque were exposed.

The fortification wall surrounding the city is six feet wide at the base. It had mud-brick superstructure originally but was enlarged to make it ten feet wide. The semi-circular bastions provided externally for additional strength are more than fourteen feet in diameter and are built of burnt bricks. In the last period, the fortification wall was again rebuilt by utilizing the alignment of the existing wall. There were three building periods of the defense wall as established by the trenches excavated at two different places on the northwestern side of the city. A very elaborate gateway system with two semi-circular bastions projecting the entrance of the gate was exposed. It has a well-preserved brick-on-edge floor sloping towards the city. The gateway opens in front of a large plaza where the main roads converge from three sides and a large house is located.

It has now been established that there were four major phases of occupation or periods corresponding to four building levels or periods at the site. The ceramic studies also confirm the existence of four periods of occupations in the long history of Mansurah. On the northwestern side, two large houses were exposed. One house has eight rooms and five doorways three of which are arched. The other house in front of the northwestern gate measures more than 40 x 27 feet and has circular corners like turrets. It has more than eighteen rooms of varying sizes from 8 x 9 to 29 x 8 feet with a 37 feet long brick drain. In some rooms, heaps of lime, shell pieces containing bangles, beads and other type of objects were discovered. A pot buried under the floor of a room contained more than four thousand copper coins. A twenty feet long lime plastered drain indicated that some of the walls were lime plastered internally. This large house also shows four building phases that were confirmed by excavation outside the house where hundred of sling balls of mud were found stored at one place.

The Grand or *Jami* Mosque in the middle of the city stands out prominently amidst other large buildings of public nature. There is evidence of intense industrial or commercial activities around the mosque in the last period. The mosque is rectangular in plan measuring 100 feet north-south and 250 feet east-west and enclosed by a 6 1/2 feet thick boundary wall of solid brick work. Access to the mosque is provided from three principal gates on the northern, southern and eastern side, among which the eastern gate has been badly damaged. The western or the *qibla* wall has a semi-circular niche of the *mihrab*. The prayer chamber consists

of five rows of twelve pillars of bricks. The pillars supported a flat roof made of wooden beams and rafters. Investigations in different parts of the mosque have indicated that the mosque was enlarged, rebuilt and repaired five times. Burnt fragments of manuscripts written in Naskh were found in the main prayer chamber. At present, there is a modern tomb built in the open courtyard of the mosque on the eastern side which has concealed the original plan of the structure.

The mosque area contains a number of large buildings which most probably were related to the public administration. One palace-like building with semi-circular bastions might have been *Dar-ul-Imarah*, resembling in plan the large house exposed in the northwestern part of the city. Another building, measuring more than 53 feet long and nearly 9 feet wide, is also massively built with no bastions and is located close to the fortified house. A 78 feet long brick-on-edge pavement was also unearthed. A large number of brick-lined furnaces and large quantities of iron ingots and slags were found in the street along the eastern facade of the fortified house, indicating that during the last period of habitation, this part of the city became a commercial or industrial centre. A hoard of three hundred copper coins was also found buried under the doorway of one of the structures. A 94 feet long vaulted and lime plastered drain running in north-south direction was also uncovered in the street. Another building planned on an elaborate scale and identified as State Assembly was uncovered which consists of an audience hall, two brick paved terraces, a brick-on-edge ramp of the main passage, a broad flight of steps and a guard room attached to the entrance. A brick-lined well, about twelve feet in diameter, was also exposed near it.

One of the most important discoveries made during the season of 1987 were four door knockers which reflected an advanced metallurgical industry at Mansurah catering to the local and foreign needs. Their workmanship eloquently attests to the superior skills of the metallurgists of Mansurah in producing complex forms and designs of bronze. The outer circular disc of each 'door knocker' is about fifty-six centimeters in diameter, and is inscribed in floriated Kufic, on which head of a grotesque demon-like figure in relief is fitted with six rivets. A six looped circular handle in solid bronze is fixed through the chin of the figure. The texts of the inscriptions consist of *Bismillah*, the *Kalimah* or verses from the Holy Quran and/or the name of 'Abd Allah ibn Umar'.



Fig. 17



Fig. 18



Fig. 19

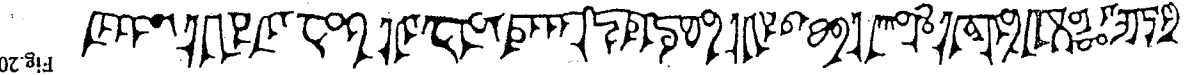


Fig. 20

The southeastern part of the settlement contains workshops or factory areas where waste materials of semi-precious stones, kilns of pottery, glass waste and terracotta coin moulds can be seen on the surface. The ceramics revealed at Mansurah during the previous diggings have been illustrated by H. Cousens. Further excavations by the Department of Archaeology have revealed a great variety of ceramics from stratified levels which can be dated. Their study indicates four phases of development corresponding to the four major periods of the city. Above an occupation of unknown period which yielded some dull-red and pale-red plain pottery, there was a thick layer of silt and sand. Over this, deposit, a continuous development in pottery was noticed. The early Muslim occupation revealed bi-chrome painted pottery with thin texture and with a pronounced cordon resembling the cooking vessels. The designs are painted on the shoulder with black on cream or red slip consists of birds, geometric and floral motifs. In addition, pedestaled vessels with spouts and moulded designs on the external surface and opaque glazed sherds were found. The second phase is characterized by moulded designs with mica on the external surface while some of types of the earlier period continue to occur. Alkaline glazed wares and grey wares also appear in the second phase. The third phase is marked by thin-bodied vessels with sharp rims. Their external surface is decorated with moulded designs in low relief. There is a visible increase of glazed ceramics like the opaque and alkaline glazed wares and the sgraffiato pottery. In the last phase, grey polished, lustre glazed and stamped pottery appear while some of the types belonging to earlier phases continue in small number. Abundance of painted pottery showing animal and bird designs of the last phase is very striking. Mansurah was severely damaged by an earthquake in early tenth century. Piles of ashes and charred remains of wood in the upper levels show that it was destroyed by fire.

Bhuro Bham

The site of Bhuro Bham is situated at a distance of 5.5 km south of Bandhi railway station, between the railway line and Amurji Branch canal in Nawabshah district of central Sindh. It is also known as Bahum-jo-Bhuro locally. The main mound covers a total area of 24 acres but signs of habitation extend further to northwest over an area of four acres. The main mound is enclosed by a fortification wall of burnt brick and measures 304 m from north to south and 289.5 m from east to west. The maximum height is 4 m above the surrounding level of the cultivable fields. The fortification wall is further strengthened with semi-circular bastions at regular intervals, of which at least twenty-four are in good condition while the remaining bastions have disintegrated.

The surface of the mound is littered with burnt brick and pottery. The local people have dug into the mound at several places and thus exposed the original plan of rooms. One room measuring 2.8 x 3.5 m internally shows two building levels. There were at least fourteen other structures lying exposed as a result of digging by the local people. The size of burnt bricks lying on the surface is 29 or 33 x 23 cm and 6.3 or 3.8 cm thick.

With a view to recover information pertaining to possible identification of Bhuro Bham with one of the cities mentioned on the route followed by the Arab army in Sindh under Muhammad bin Qasim, the site was investigated by the present author in 1963 (Mughal 1990). Trenches were laid at three points to obtain stratigraphic sequence of occupations in relation to the defence wall and excavated down to the natural soil. One of the trenches in the middle of eastern fortification wall revealed an impressive gateway, 5.5 m wide with two semi-circular bastions of burnt brick. The masonry showed two structural periods and reduction of its opening to 1.60 m during the last period. It was also observed that the last building period of the gateway was associated with intense burning, forming at least 92 cm thick deposit of very loose ash with parallel horizontal black streaks. Another trench laid on the inner side of the gateway and dug down to the natural soil, confirmed the existence of two structural periods of the

fortification wall. The two building levels with an almost homogeneous character of pottery and evidence of intense burning which appeared on the eastern side of the settlement were confirmed by digging along the western fortification wall.

The top of the fortification wall was exposed. Its total width was 1.83 m. Its inner and outer faces were lined with burnt bricks and the space in between, 84 cm wide, was filled with earth. In solidity, massiveness and construction technique, the fortification at Bhīro Bham can be compared with the defensive systems of Banbhore and Mansurah in Sindh.

The occupation at Bhīro Bham was continuous in which no major change was noticed in the ceramic and other materials and represented almost a homogeneous group of one cultural period. The pottery of Bhīro Bham is fired to varying shades of red colour and is all made on fast wheel. There are some grey wares which represent mainly cooking vessels with wide shoulder and sharp carination at the junction with lower part. A row of impressed design are made near the junction. Similar grey vessels have been found from the late Abbasid levels of Banbhore dating to 10th-12th centuries AD. The plain red wares represent large vessels spherical or elongated in shape with a convex base. This type was made in two parts and joined together below the shoulder where additional clay was applied and finished with impressed design in relief. This technique was also used at Mansurah and Banbhore. Some plain vessels have high and narrow neck which appear to be of water pitchers because pottery of identical shape is used for keeping liquids.

The painting on pottery is confined to the shoulder and rim of the vessels in black with additional use of red infilling. The common motifs are geometric and linear, cross squares interspaced with red dots, curved lines alternating with black and red, leaf design with dots, triangles and circles with dotted lines. The painted pottery of Bhīro Bham has stylistic parallels with that of the late Abbasid period (10th-12th centuries AD) at Banbhore. From the surface, one thick-bodied and cream coloured piece coated with blue and green glaze, respectively on its inner and outer surface, was found. It has an attached loop handle as a decorative design rather than a functional element. This piece belongs to a large storage jar of alkaline glaze ware, a type known from the late Abbasid period at Banbhore and Mansurah. It was widely used in Syria and Iraq during the Roman and Parthian times before spreading eastwards to Iran under the Sassanian rule (226-640 AD). This type remained in use by the Muslims until at least the twelfth century. It is reported from numerous sites of the then Islamic world from north Africa to southeast Asia especially at the Muslim trading centres. The stamped wares from Bhīro Bham show designs stamped on the shoulder of vessels and consist of two or more circles with a small dot in the middle and short lines on the outer edge as if to depict a sun motif. Such pottery of Bhīro Bham compares well with that found from Tulamba assigned to 8th and 14th centuries AD. This evidence would suggest that Bhīro Bham was contemporary with the entire life span of Mansurah and Banbhore, and remained inhabited even after their decline for some time. In addition to pottery, pieces of colourless glass, corroded copper coins, many shell bangles, beads of semi-precious stone, one terracotta bull figurine and an over burnt coin mould were also found. The coin moulds of terracotta are reported in abundance from Banbhore and Mansurah. In brief, it is now established that Bhīro Bham had been a fortified settlement since it was founded in about eighth century AD. It remained occupied for about five centuries during which no major cultural change took place. The fortification was rebuilt or repaired at least once during the life span of this settlement and remained contemporary with the other Muslim cities of Banbhore and Mansurah. It was entirely a Muslim city and there is no evidence of its pre-Islamic origin or occupation.

Dumloti

A long time ago, Captain Freedy noticed some curious looking stone graves on the outskirts of Karachi and in particular, on the Malir River which were referred to by Henry Cousens and Sir Mortimer Wheeler. These and other similar remains were documented in later years which were found to be spreading over a very large area between the Malir and Hub Rivers.

At Dumloti, situated twenty-four miles northeast of Karachi city or ten miles north of Malir, a large group of box-like stone graves are scattered over a rocky outcrop. These are built of slabs of locally available stone set vertically on edge and half buried in the earth. The top is generally open but in some cases, a slab with a port-hole is placed on top. The graves are mostly oriented to east-west direction. Internally, the graves measure 5 1/2 and 2 1/2 feet. Some graves are closely built but it seems that a distance of five to ten feet was kept among the graves in their location. In the eroded part of the site, bone pieces and few objects could be seen on the surface.

In 1975, investigations were done and more than two dozen graves were exposed by Mian Said Qamar and Gulzar Muhammad Khan. The excavation yielded charred human bones and few pieces of pottery and beads. The burial pits on which graves were made, were found to be circular and oval in shape with a diameter of eight to twenty inches. In few graves, an earthenware jar was placed containing ashes and bones (Qamar 1983).

There was no evidence which could help provide a precise date of construction of grave groups at Dumloti and elsewhere in southern Sindh. However, by comparison with similar graves in other parts of peninsular India, an approximate date ranging between 2nd century BC and 1st century AD could be assigned to Dumloti group of graves.

In the same very area and along the Hub River, large monolithic stones standing upright as a single stone or in groups were noticed at several sites by the present author in 1965. These vertical stones measuring more than 12 feet in height, were standing in those areas where there were megalithic burials built of slabs of stone. Their time-range still remains a mystery.

Jhukar

The ancient site of Jhukar is situated six miles due west of Larkana or 17 miles northwest of Mohenjodaro. It covers a total area of 1300 x 850 feet (10 hectares) consisting of two mounds, designated 'A', and an approximately 300 feet wide area between the two mounds. The large mound 'B' is roughly circular, 750 x 700 feet (4.7 ha), and rises 60 feet above the surrounding plain. The small one 'A', is only 17 feet high, stretches along the northern side of mound 'B' in east-west direction, and measures 850 feet long and 300 feet wide (2.2 ha).

The site was known ever since N.G. Majumdar laid some trial trenches on it in 1928 (Majumdar 1931). He found pottery reminiscent of the Indus or Harappan culture but also having some distinctive painted designs. Ten years before, R.D. Banerji had excavated the highest mound 'B'. He did not reach the early settlement, which actually lies more than 40 feet below the present surface of the mound and under the remains of the early historical period.

The excavations at Jhukar were started in the summer of 1973 with a view to investigate the so-called "Jhukar Culture". During this first brief season, limited excavations were carried out. The second and final season lasted for four months from November 1973 to February 1974, under the direction of the present author (Mughal 1992). At both the mounds 'A' and 'B', trenches were laid respectively measuring 140 x 20 feet and 180 x 20 feet. The natural soil could not be reached due to the high level of subsurface water. Both the mounds had been re-occupied during the early historical times and abandoned by about the seventh century AD. The latter occupations at the highest mound 'B' had been more intense than on 'A', which accounts for the greater height of the former.

On the basis of statistical analysis of the ceramics found in the main trench on the smaller

mount 'A', three overlapping phases were proposed for the one continuous protohistoric occupation at Jhukar and the fourth occupation of the early historical period on top.

- : The uppermost occupation: layer 1 (top) - 10
 - : Four layers 11, 12, 13 and 14
 - : Middle Jhukar Phase
 - : Layers 15, 15A, 16 and 17
 - : Early Jhukar Phase
 - : Layers 18, 19 and 20 and about three feet below the water level.
- (Total thickness of protohistoric deposits is not known).

An initial study of pottery from one trench was done in detail. The whole collection from the Indus Civilization occupation contained at least fifty types and sub-types. From the number and percentage of each type, it became evident that the pottery of the mature phase of the Indus Civilization, was present in all three phases of Jhukar. These mature Harappan pottery types compare very well with those known from the nearby site of Mohenjodaro.

Of the mature Harappan or Indus pottery types, 50% were found to be present in the Early, Middle and Late Jhukar Phases. Some 12% were found to occur in the Early and Middle Jhukar Phases, 3% in the Middle Jhukar Phase only, 24% in the Middle and Late Jhukar Phases, and 8% in the Late Jhukar Phase only. The well-known ceramic types labelled as "Jhukar Culture" pottery and comparable with those from Chanhu-daro and from the upper levels of Amri and Mohenjodaro were represented by only 8% of the total number of pottery types and those too in the Late Jhukar Phase. It seems that the so-called "Jhukar Culture" refers to certain pottery designs and shapes which are different from those of the characteristic mature Harappan ceramics but are found with them in the later period.

The Jhukar style of pottery is distinguished by the painted designs in black on red slip with additional use of red or brown colour and white paint or slip. The most common designs are groups of connected semi-circular lines or loops, rows of elongated lozenges resembling fish designs, circles with red dots, leaf designs with thick lines, loops on the rims of dishes, squares, cross and multiple zigzag lines. The early waterlogged levels of Jhukar also contained "reserve" slipped and buff bodied "Quetta Wet" wares, comparable to those of the "early levels" of Mohenjodaro and Chanhu-daro. It would appear that both Jhukar and Chanhu-daro were contemporary with the early settlement history of Mohenjodaro. The available evidence would further suggest that the three sites remained contemporary with each other until the last occupations associated with Jhukar.

The site was abandoned for a long time until about 7th century AD when it was reoccupied at mound 'B'. The structures of mud and mud-bricks and a rich collection of valuable ceramics and antiquities including Buddhist votive stupas of clay, copper coins, small pieces of sculptures and terracotta votive figures, household materials of daily use, beads of terracotta and semi-precious stone were found.

Allahdino

In the Malir River basin, a group of at least three sites of the Indus Civilization existed namely, Armlano on the Thano Bulla Khan road, Hasan Ali on a sandstone outcrop near Bazar Nadi, and Allahdino or Nel Bazar. The site is about two metres above the surrounding alluvial plain and one hundred metres in diameter. Its location in a fertile belt of intensively cultivated flood plain of the Malir River offered a great promise of yielding evidence relating to subsistence activities of ancient populations and their relationships with contemporary village sites in the region. Allahdino is also one of the sites situated at a strategic position between Balochistan and Sindh and close to the sea and overland trade routes which converge on the Karachi region. Excavations at Allahdino were started in 1974 and continued for nearly three seasons under

the general direction of Walter A. Fairservis (1973; 1976 and 1982; and Shaffer 1974). A number of building remains of mud-brick over stone foundations were exposed. Amidst dwelling houses, industrial activities were marked by the presence of large kilns. In general layout and construction of houses, Allahdino is a miniature model of a large urban centre of the Indus Civilization. The size of bricks used had the ratio of 1:2:4. A few houses were double storied. The presence of two wells and a long drain provided interesting clues to the possible irrigation technique at such a small site. As the site is located amidst a very fertile valley, it is very likely that in ancient times also the population at Allahdino and around depended on the fertility of this region for agricultural purpose. Allahdino also participated in the trade or exchange with the surrounding regions as indicated by the presence of ninety per cent of raw materials which could have been obtained within a radius of fifty kilometres. For example, the source of flint is located within seven kilometers of Allahdino. Shell and fish can be obtained in the Malir basin and from the Arabian Sea. Copper, agate, jasper and carnelian are found in the Lyari hills, Porali basin, Kohistan and the Hub River valley. The discovery of ten kilograms of copper artifacts at this small site was astonishing. Only the gold and silver found at Allahdino are not locally obtainable. In terms of antiquities, Allahdino proved to be a very rich site. More than 300,000 pieces of pottery, 24,000 terracotta bi-cones, 2600 terracotta triangular cakes, 1500 bangles and 196 pieces of copper and bronze were found. In addition, a jewellery cache of five necklaces of silver, carnelian, agate, jasper, and copper beads and eleven copper finger rings of coiled wire and a gold earring were found buried at one place under the floor.

The people of Allahdino raised cattle, goat, sheep and water buffalo and possibly used donkey. Wheat and barley have been found in the plant remains. A number of seals and graffiti containing the Indus script were also found.

Lakhuoen-Jo-Daro

The remains of a settlement called Lakhuoen-Jo-Daro (or Lakhianjodaro) are spread over a large area of about one thousand yards are situated outside Sukkur city in an industrial area. The site consists of four mounds designated as A, B, C and D and represent an occupation belonging to the mature phase of the Indus Civilization contemporary with Mohenjodaro. The site was reported earlier by several people of the Shah Abdul Latif University, Khairpur and the Department of Archaeology (Kazi 1989). Limited excavations were carried out during 1995 and 1996. As a result, the site has produced cultural materials belonging to the middle of 3rd millennium BC or contemporary with the mature or fully urbanized phase of Mohenjodaro. Two structural levels of mud-bricks were revealed. Burnt bricks were used on the same floors and in the construction of drains. The associated antiquities and pottery are characteristically Indus in all respects and no break in the occupation was noticed at the site. Terracotta beads, toy cart frames and wheels, animal and female figures including those with fan-shaped head-dress, terracotta and shell bangles, beads of copper and stone, copper and other objects have been discovered. The pottery is all red-ware and depicts characteristic Indus forms known from Mohenjodaro and other sites such as the offering stands, pointed base goblets, cooking pot type of vessels, painted vessels and plain wares.

This site falls within a cluster of other sites which are found in Rohri-Sukkur area and are not reported from elsewhere. The limestone hills of Kot Diji contain quite a number of settlements of the Indus Civilization which were documented by several archaeologists. Further excavations at Lakhuoen-Jo-Daro are in progress by the Department of Archaeology, Shah Abdul Latif University, Khairpur under the supervision of Muhammad Mukhtar Qazi.

When Henry Cousens' book was being published, large-scale excavations at Mohenjodaro had already begun in 1922 which continued until 1931 under the general supervision of Sir John Marshall (1931). Further excavations were done by E.J.H. Mackay between 1926 and 1932 (Mackay 1938) but remained suspended until Q.M. Munce resumed digging from 1934 to 1936. In 1950, Sir Mortimer Wheeler excavated at two principal spots of the citadel mound (1968). In 1964, George F. Dales carried out limited digging at the city site and also tried to reach the lowermost levels of the city through borings (Dales 1965; and Dales and Kenoyer 1986). In 1986, Dr. Muhammad Sharif and Muhammad Halim carried out limited work about 2 km east of the city. The site continues to attract international attention (Jansen 1984; and Jansen and Urban 1985).

Mohenjodaro in Larkana district is the largest city of Pakistan's oldest civilization known to the world as the Indus or Harappan Civilization. It is four miles in circuit and more than 100 hectare in size. It represents the largest city of the Indus Civilization which once extended over a vast geographical area, more than 500,000 sq. kms. (Mughal 1992a). Mohenjodaro also presents an outstanding feature of town planning traversed by streets and lanes and lined with public and private buildings with an elaborate drainage system. The city flourished during the 3rd millennium BC and along with the other cities and towns numbering more than one thousand in the Indus River Valley, had reached its fully urbanized or mature stage by 2500 BC. The emergence of Mohenjodaro as the largest urban centre in the heart of Sindh and on the bank of the mighty Indus River, is indicative of availability of sufficient economic resources which could be mobilized for the construction of public buildings, fortification walls and mass production of standardized materials. The people also possessed a high level of technology and an efficient administrative system which eventually induced the rise and development of socio-economic, political and religious institutions. An inter-settlement trade or exchange also existed within the Indus River Valley and with neighbouring regions with Mohenjodaro and Harappa as the principal production and distribution centres. As evident from the exposed buildings of burnt bricks at Mohenjodaro and associated cultural materials, the inhabitants were socially stratified. Specialized craftsmen produced a variety of products of shell, terracotta, stone, metal and ceramics. The mass production of standardized articles of different kinds reflect a high technological achievement, an efficient communication network and a strong political or administrative system which created a pan-Indus cultural integration in Pakistan, not achieved elsewhere in the ancient world.

Mohenjodaro is a classic example of remarkable planned cities of Sindh. The Great Bath on the citadel contains a rectangular tank 12 x 7 m and about 2.4 m deep with two flights of steps on either side and a colonnaded gallery surrounding it. The Great Bath which may have had ritual significance is a unique architectural achievement and is the first and oldest swimming pool of South Asia. The water supply through more than seven hundred wells sunk in the city some five thousand years ago, and remarkable drainage system that works even today are the most outstanding features of Mohenjodaro.

Near the Great Bath is another monumental structure, measuring 50 x 27 m and consisting of massive platforms arranged in three rows with narrow passages in between serving as ventilation channels. This structure is identified as the State Granary having wooden superstructure. The most conspicuous structure at the citadel is the Buddhist Stupa which was constructed of ancient bricks during 7th century AD and conceals perhaps the most important building such as the residence of King Priest or a public building of significance.

The total excavated area is only ten per cent of the known extent of the city of Mohenjodaro. The entire city sprawling on the eastern side of the citadel, is built of burnt bricks having a constant ratio of 1:2:4 in size. The city is laid out in rectangular blocks divided by main streets running north-south and east-west and measuring 800 x 1200 feet. The main street is about 30

feet wide and the lanes are 5 to 10 feet wide. The whole city appeared to have 12 major residential blocks.

The largest houses measure 87 x 64 1/2 feet including a courtyard and are enclosed by a thick and high wall. An average house consisted of a series of rooms and bathroom facility, a well and staircase leading up to the second story. The small houses have 2 to 4 rooms and a courtyard only. Within the city areas were located specialized craftsmen because kilns, shell working, grain husking areas and lapidary working shops have been found in various areas of Mohenjodaro.

The Indus arts and crafts demonstrate a great variety and number of material objects. Certain categories of objects, however, stand out to illustrate technological and artistic skills of the people and high level of craft specialization. The ceramics are the most abundant materials at Mohenjodaro and other Harappan sites and include a wide range of pottery vessels, human and animal figures and objects of daily use. The pottery was manufactured on a fast wheel and was made of finely levigated clay which was well and evenly fired to different shades of red colour. The vessel forms range from the large storage vessels with pointed base for fixing in the ground to smaller jars, bowls, dishes, offering stands, cylindrical vessels and perforated jars. Not only the pottery forms but also the painted designs in black colour on bright red slip were standardized reflecting craft specialization and a measure of control. The designs are geometric and floral, the recurrent being 'pupal' leaf, fish-scale and interlocking circles. The bowls with painted base, squat and tall stands with flat dish on top considered to be 'fruit stands' and cylindrical vessels with perforations all over the body thought to be 'heaters' were popular forms of pottery at Mohenjodaro.

The human figures, both male and female, and mostly hand modelled in terracotta are quite expressive, some of which appear to be of cultic nature. The male figures are depicted with either long or pinched nose, slit mouth and oblique eyes and mostly flat body. Most of the female figures are shown in standing position which were vertically moulded in half and then joined together. In finished form, the terracotta female figures are depicted wearing a short loin-cloth and wide girdle, necklaces and an elaborate fan-shaped head-dress and a cup shaped panner on each side perhaps for an oil lamp or incense. These are thought to be of popular religious cult of fertility goddesses.

Among the animal figures, the representation of humped bull dominates, constituting three-quarters of terracotta animal figures of buffalo, elephant, dog, sheep, rhinoceros, pig, monkey, turtle and horse. In addition, terracotta models of carts with solid wheels and toys such as whistles, rattles, cones thought to be used as stylus for inscribing on clay and cubical dice are among the clay objects.

The Indus metallurgy at Mohenjodaro is represented by household vessels, weapons, implements and small objects of gold, silver, and lead. The copper was available mainly from the copper mines of Chagai hills in Baluchistan and Kretri-Ganeshwar area of Rajasthan. Buntal shaped copper ingots too have been found at the Harappan sites. Hardness was achieved by mixing 2 to 5 per cent arsenic while in Bronze, 11 to 13 per cent alloy of tin was mixed. The people were familiar with various manufacturing techniques of hammering and the use of simple and complex moulds. Among the sculptures, the bronze statuettes of a dancing girl, 11.2 cm in height is a remarkable piece of casting and skillful execution. It depicts an easy standing posture, right hand on the hip and the left arm adorned with bangles. The animals such as buffalo with long swept horns, and ram or goat are rendered in naturalistic and expressive manner.

A variety of bronze vessels were made such as bowls, cups and dishes which demonstrate that abundant copper or bronze was available to the artisans. Similarly, a variety of weapons or implements, not necessarily for military purpose were also made. The spears were leaf-shaped blades, generally tanged which were fixed at the split end of a wooden shaft. The arrowheads

were thin, flat, and leaf-shaped and so were the knives which had recurved points, a shape characteristic of Harappan. Other implements include axe-like blades, an axe-adze, flat and shaft-hole axes.

Of the stone objects, the best specimens of representational art are eleven sculptures of limestone and alabaster from Mohenjodaro and two from Harappa, and hundreds of seated human heads and other objects like maceheads, celts, chert blades and beads. The sculptures portray human heads and seated figures with expressive details of hair style. One bust of a male found at Mohenjodaro is an outstanding example of sculptural art of the Indus Civilization which is thought to represent the "King-Priest". The rendering of beard and shaven upper lip, a fillet on the forehead and ear like a cross-section of a shell are like the other human sculptures. A cloak across the left shoulder has distinctive trefol motifs which were originally filled in with red paste. Two small statuettes from Harappa are remarkable examples of realistic modelling in exhibiting naturalistic poses and movements of limbs. In addition to these works of art, large quantities of lithic materials representing chert flakes and blades were used as tools for a variety of activities. These implements were produced at the Rohri Hills which had been a major source of chert since upper Palaeolithic times.

The steatite seals bear eloquent testimony to the superior craftsmanship and technical achievements of the Indus artisans because of realism and vitality of the subjects engraved on them. The seals were mass produced and over 1200 were found at Mohenjodaro alone. Measuring usually 1.8 to 3 cm long and having a perforated boss at the back, the intaglio designs represent a great number of animals and other figures with pictographic script or linear designs only. The frequently represented animal in unicorn, an ox-like animal with a single horn invariably a standard or sacred manger or incense-holder in front consisting of a bowl shaped cage on the top of a post. Short horned bulls are most naturalistically represented suggesting religious veneration when seen in the light of terracotta bull figurines. In addition, rhinoceros, elephant and tiger are shown with manger in front, symbolizing their importance possibly religious. Despite the small size, the seal engravers skillfully brought to details even composite figurines showing three to six heads of different animals radiating from one ring. One of such elaborate representation has a face of human being, crowned with horns of bull, forepart of a ram, hind part of a tiger and a tusk of an elephant. The depiction of human figures and those combined with tree and animal motifs were perhaps intended to portray divinity of figures.

The carnelian beads with etched designs on them were produced at the lapidary workshops of Chanhudaro and elsewhere. They were in great demand even outside the core area of the Indus Civilization. Their occurrence in other regions not only provides relative dating but also demonstrates the sphere of influence of the Indus Civilization. The designs of rectangular lozenges, circles and figure-of-eight were made in white-on-red, and black-on-red. The common shape was long barrel bead but slightly convex to make a necklace of multiple strings with interspaces. Beads were also made of other semi-precious stones, steatite, pastes, faience, shell and even pottery.

In weights and measures, the level of standardization and uniformity were achieved and maintained in the Indus Civilization. The system was so efficient for the economy and trade that it was also used in ancient Dilmun (Bahrein) where a number of weights were found sometime ago with seals of Indus script and motifs. The weights were made of chert, limestone, steatite, chalcedony and other stones in different sizes. The most common shape was cubical but some rare except some pottery scale pans most probably due to wood used for scale bars. However, one bronze or copper bar was found with a pair of pans.

The Harappan weights are unmatched in the contemporary ancient world because they strictly fall within a system which is binary as well as decimal. The lower denominations are binary: 1, 2, 1/2 x 8, 4, 8, 16... to 12,800 with a unit ratio of 16 equal to 13.625 gm. The higher

denominations are in decimal system with fractions in thirds. The system of measures is revealed by a graduated piece of shell from Mohenjodaro and a fragmentary bronze rod from Harappa. The shell scale has nine subdivisions of 0.264 inch unit. Five divisions make an inch of 1.32 inches making a foot of 13.2. In addition to 'foot' there was the cubic system of measurements. The bronze rod is marked with lengths of 2.367 inches. It makes a half digit of a cubic measurements of 20.7 inches. It is clear that both the 'foot' and 'cubic' systems were used. The measurements of the buildings at Harappa and Mohenjodaro conform to both these systems of measurements. The Harappan foot varied between 13.0 and 13.2 inches.

The religion or religious rites of the Indus Civilization has been reconstructed or inferred from the representational art forms, though admittedly, symbolism and material objects cannot fully reveal religious contents of a society. It is generally agreed that their religion was a mixture of several beliefs and practices as indicated by the interpretation of certain pertinent evidence of seals and objects of terracotta and stone. The cult of Mother Goddess and fertility was widespread in the Indus Civilization as demonstrated by numerous terracotta female figurines in semi-nude form which were moulded in two parts vertically and then hand-modelled, and the figures of pregnant women or those with children. The presences of male god is attested by a representation of a seated, three faced figure on a seal crowned with a large horn like the horned deity of the preceding early Harappan period and flanked by wild goats as if to represent a lord of beasts. It is generally seen as a prototype of Hindu god Siva. Several polished stones up to 60 cms in length and resembling "lingam", the phallic emblem of Siva and pierced pieces resembling "yonis" could represent phallic worship. A great deal of religious veneration or worship is indicated by representation on the seals of tiger, elephant, rhinoceros, crocodile and most frequently, the bull. The recurrent theme of tree spirit of indeterminate sex is shown in a 'piped' or other trees with tigers and animals and occasionally with human worshippers. On another seal, a horned figure is shown with a row of (dancing) female figures. Several seals depict combination of animal and human figures, the true purpose or belief of which remains unknown except perhaps reflecting a coalescence of separate human and animal cults. The semi-bovine, semi-human monster attacking a horned tiger and composite figures of animals or human and animals could be mythological expressions. A human figure grappling with two tigers recalls parallels with the Mesopotamian Gligamesh. In addition, significance of water bordering on religious sanctity is suggested by painted designs of fishscale and wavy lines on pottery and the presence of Great Bath at Mohenjodaro and elaborate provision of bathing and drainage in the city.

A number of explanations have been offered for the decline of the highly developed city of the Indus Civilization. On the evidence of 38 human skeletons most of which were lying scattered in the upper levels of houses and lanes at Mohenjodaro, it was suggested that the city was attacked, burned down and population massacred around the middle of the third millennium BC. At the contemporary city of Harappa, the evidence of a late cemetery called "H" with fractional and pot-burials and associated pottery forms and painted designs which were different from the characteristic mature Harappan burial practices and pottery was considered to represent invading groups of Aryan-speaking people who brought an end to the Indus Civilization. The early excavators had postulated gradual change in the climate towards desiccation contributing to the change in the environment and consequently, causing adverse effects on the agricultural economy of the Indus Civilization. Later researches indicate that there had been no appreciable change in the climate of the Indus Valley so as to disturb the ecology of the entire Indus Valley. It has also been argued that the Indus cities like Mohenjodaro under growing population pressure were overexploiting their environment by overgrazing, overcultivation and over consumption of major vegetation and thus were wearing out their landscape. In a sense, the decline of the Indus Civilization was brought about by the people themselves. This theory has now been

further elaborated to include destruction and disturbance of landscape by earthquakes resulting in floods and changes in the hydrographic patterns of the rivers. The Indus Valley falls within an active seismic zone where earthquakes have been recorded at least from the early historical times since 9th/10th century AD. More than a century ago, the lower course of the Indus river was dammed due to massive uplift causing wide spread flooding and destruction of human settlements. It is suggested that in protohistoric times, a huge dam was created about eighty miles downstream from Mohenjodaro which ponded back the river that engulfed the city of Mohenjodaro making it "an archipelago of insulated habitations on heightened foundations in an island sea". The effects of lake around Mohenjodaro were disastrous to the morale and organization of the residents as shabby structures of the upper levels illustrate.

The study of palaeochannels of the rivers of the Indus Valley and the location of sites are focussing on changes in environment as a major cause for the decline of the Indus Civilization. For example, the drying of the Ghaggar-Hakra river around the beginning of the first millennium BC as a result of tectonic disturbances apparently created a major economic upheaval. The reduction and ultimate complete termination of water supply must have destroyed the vital agricultural base and forced the populations to relocate their settlements as is abundantly evident by the settlement patterns in Cholistan.

Chanhu-Daro

About 12 miles east of the left bank of the Indus River and eighty miles south of Mohenjodaro, a group of three inter-connected mounds is located near Sakrand which have been known to the archaeologists since 1931 by the name of Chanhu-Daro. E.J.H. Mackay excavated at the site for two seasons during 1935-36 and brought to light a cultural sequence to which several sites in Sindh are related for chronology (Mackay 1943).

Chanhu-Daro yielded a clear evidence of the late or last phase of the Indus Civilization comparable to the "Jhukar Culture", lying over and above the mature phase as represented at Mohenjodaro. Further researches in Sindh at Amri, Mohenjodaro and Jhukar, have provided further elaboration of the last or what is called the declining period of the Indus Civilization. It has now been possible to trace the continuity of Indus or Harappan tradition alongside new cultural traits marked by a distinctive group of pottery called Jhukar and associated materials. Several structural levels were exposed which show changes from the mature to the late phases of the Indus Civilization. There was yet another cultural assemblage called Jhangar, also detected at Amri which is considered to have followed the Jhukar culture. In fact, further studies have shown that the Jhangar represents a very late occupation most probably of the last quarter of the first millennium BC.

The mature phase of the Indus Civilization is represented by Chanhu-Daro I, a, b and c while the Jhukar and Jhangar periods are bracketed into II and III respectively. The Harappan and Jhukar materials at Chanhu-Daro are precisely identical to those found at Mohenjodaro and Jhukar and therefore, are not repeated. Chanhu-Daro was the first site where bead making industry was discovered. The manufactured items were exported to other settlements within Indus Valley and other regions.

Naru Waro Dharo

A large sand dune measuring 2,500 by 1,500 feet and rising 25 feet above the surrounding level and situated about 12 miles southwest of Khairpur contained countless potshards and other objects of the mature Harappan or Indus period on the surface. Investigations carried out in 1955 revealed that the thick accumulation of pottery on the surface was merely 6 inches in

thickness, lying over a sandy deposit? At the southeastern corner of the site, layers of black loam and a thick deposit contained pottery and loose sandy layers. Deep diggings down to a depth of 20 feet produced nothing under the pottery-strewn surface except clean sand. There was no evidence of permanent structures. The mound represented a temporary occupation of the mature Harappan people who look refuge on this mound seasonally.

Kot Diji

Investigations at Kot Diji, 15 miles south of Khairpur, have furnished significant information relating to the important question of the origin or genesis of the Indus Civilization. The excavations carried out at the site during 1955 and 1956 under Dr. F.A. Khan (1965) revealed an early settlement of at least 3000 BC, if not earlier which contained some of the characteristic features such as fortifications, and cultural materials of the famous Indus Civilization (2500-1750 BC). Kot Diji, thus represented an early formative stage of the Indus Civilization. This and related evidence from other sites in Sindh and Punjab rejected the idea that the idea of civilization came from other regions to the Indus Valley.

The Kot Diji site, 600 x 400 feet, is 40 feet high from the surrounding plains. It consists of a high citadel mound and the lower city. A complete cross-section of the mound was obtained through scientific excavations which established a chronological sequence based on architectural and artifactual remains and occupation levels. On the citadel area, deep trenches were laid across the defence wall which revealed twenty-nine layers associated with different building periods of the site. The upper levels represented the mature phases of the Indus Civilization, and the underlying 17 feet thick accumulation represented the Kot Dijians occupation and a new type of ceramics.

In the upper levels representing the mature phase of the Indus Civilization, the building remains with stone foundations of mud-brick superstructures were exposed and plans of rooms and blocks of houses separated by lanes and streets unearthed. The materials recovered from these layers represented usual black-on-red pottery with designs of pipal leaf, intersecting circle, peacock, antelope, and other geometrical and incised ornamentations of the mature Indus period. The structures in the Kot Dijian levels consisted of massive walls of mud and mud-bricks on stone foundation, associated with eleven occupation levels. Some foundations measure five feet in thickness. A massive defence wall around the Kot Dijian settlement is the earliest known fortifications in Pakistan and also in South Asia. It was built on the bed-rock with undressed courses of limestone blocks at the base which supported a mud-brick superstructure. The large stone blocks set in mud mortar have been used on the northern and eastern sides. The outer face of the stone base was strengthened with a mud-brick revetment built with the foundation and surviving to the height of 14 feet. On the northern side, the wall with an average height of 5 1/2 feet, has been traced to a length of 108 feet. In later times, the residential buildings were built close to the defence wall on the inner side. This fortification was not used by the people of the mature Indus period.

The Kot Dijian pottery is all wheel-made and is distinguished by its thin body, short or slightly everted rim, and a broad band round the neck in red, brown, sepia, or black, painted on a cream or dull-red slip. The Kot Dijian pottery assemblage shows development in style of decoration, texture and form through time. In the earlier stages, it is thin textured and the decoration is confined mostly to the neck. In later stages, the neck and rim became pronounced and new decorative elements such as horizontal and wavy lines, single loops, rounds, and simple triangular patterns emerged which transformed into fish-scale and intersecting circles. The painted decorations consisted of geometric patterns and bands. The principal form of pottery is a squat globular vessels with short everted or beaded rim. Other forms include dish-on-stand, both squat

and long type, thin and delicate vases, bowls, shallow plates of thin grey fabric, beakers, jars, covers, and lids.

The excavations carried out in the city area outside the citadel revealed cultural materials which could be correlated with the upper Kot Dijian levels of the fortified area. The evidence indicated that in the later times, the people moved out of the fortified area and settled on the eastern side. Some of the most important pottery vessels were recovered from the lower city belonging to the middle phase of the Kot Dijian occupation. One globular vessel of red-ware depicted fish-scale design painted with black on red slip which became a characteristics painted design of the mature phase of the Indus Civilization. Another was a wide-shouldered pot with short everted rim of typical Kot Dijian pottery. On its external surface, a horned deity is depicted with black colour with large horns decorated with white paint. The horns enclose six-petalled sunflower motifs drawn in black and filled with white colour. Similar motifs showing upper body of a deity with large horns have now been discovered at several sites in the Greater Indus Valley namely, at Sarai Khola in the Taxila Valley, Rahman Dheri and Gumla in the Gomal Valley, Lewan in the Bannu basin and also at Kalibangan (in India) near Pakistani border on the Hakra River.

A large number of antiquities have been found in the Kot Dijian and also the later levels representing the mature phase of the Indus Civilization. Terracotta cones, cart wheels and frames, triangular and circular cakes, copper objects and bull figurines occur in the middle levels of Kot Dijian occupation and continue into the mature Harappan period above. Chert blades, flakes and cones, terracotta bangles of red and grey in colour, stones and terracotta beads, objects of bone and shell occur in both the Indus and Kot Dijian levels, while female figurines and stearite seals were found only in the upper levels and were absent in the Kot Dijian period. Dr. F.A. Khan who made these revolutionary discoveries, compared Kot Dijian pottery with that of the earliest levels at Harappa and from a site in Bahawalpur. Further field researches carried out in Sindh and other parts of Pakistan, the Kot Dijian ceramics have been discovered at more than sixty sites in Pakistan and more than one dozen sites in India. It has now become evident that the Kot Dijian pottery belongs to an early formative stage of the Indus Civilization, the beginning of which can be traced back to the 4th millennium BC in Pakistan. The settlements associated with Kot Dijian materials demonstrate an early stage of craft specialization, standardization of products, socio-economic stratification, long distance trade or exchange, religious institutions and cult of mother goddess, and monumental architecture like the defense wall of Kot Diji. The later discoveries have now firmly established that the beginning of the Indus Civilization took place in the Indus soil and developed further to climax in the form of large urban centres like Mohenjodaro and Harappa. Therefore, it is incorrect to believe that the Indus Civilization was brought from outside of South Asia (Mughal 1970 and 1991).

Amri

The ancient site of Amri in Dadu district is located near the village of same name on the right bank of the Indus River and south of Sehwan Sharif. The ancient site consists of two mounds: 'A' measuring 135 x 70 metres with a height of 12 m; mound 'B' 1595 x 60 metres and 6 metres in height. The total area covered the site is five hundred to six hundred yards from east to west and one fifty yards from north to south. Originally, the site must have covered a much larger area than the surviving remains separated by cultivated fields. The small mound 'B' is now partially covered with Muslim graves but marks the oldest settlement at Amri. The high mound 'A' contains relics of the Muslim period at the uppermost levels.

The site was noticed by N.G. Majumdar during his survey in 1929 who started excavation at few spots. He found distinctive forms and decorative style of a pottery assemblage, which he labelled as "Amri Culture". He correctly recognized it to be earlier in date than the Harappan

pottery found at Mohenjodaro. His identification is still valid both culturally and in terms of relative chronology. Thirty years later in 1959, excavations at Amri were resumed under the supervision of J.M. Casal, a French archaeologist, which continued for three seasons until March 1962 at both the mounds 'A' and 'B' (Casal 1964).

On the basis of stratigraphical evidence of human occupations, obtained at both the mounds, a cultural sequence was reconstructed from the earliest settlement at Amri until the last occupation of the early Mughal period. The first major cultural phase was ascribed to the "Amri Culture" which was subdivided into four phases, Amri IA, B, C & D. The Radiocarbon dates obtained from the Amrian occupations range between 3400 and 3000 BC. The next "intermediate Period" contained lingering Amrian culture mixed with the elements of Indus or Harappan Civilization. The third major cultural horizon is represented by the well-known Indus Civilization in which characteristic Harappan pottery and cultural materials were documented. It was a long period which began with the arrival of people during the mature phase of the Indus Civilization sometime between 2500 and 2000 BC. The occupation continued until the last stages of the Indus Civilization called "Jhukar Culture" originally recognized at Jhukar and also at the upper levels of Mohenjodaro. The final period was very much disturbed on mound 'A' which is represented by traces of the late Jhangar culture which is also found at the site of Chanudaro. Amri remained abandoned for a considerable length of time until it was reoccupied during the early Mughal period.

No building remains were found in early two phases of Amri IA & B. The remains of permanent dwellings made of mud-bricks were found in the subsequent levels of Amri IC & D. A rectangular building divided into small cubicals was uncovered, the exact function of which could not be determined. There was no opening between the rooms or from outside in this structure. Some of the rooms were filled with rubbish and mud-bricks. It seems that such buildings served as foundation of houses with high plinth as a security against frequent flooding or attacks of wild beasts.

The Amrian levels yielded a large variety of objects specially chert blades and cores, pieces of bronze or copper, alabaster cups and objects of terracotta, ivory and stone. The ceramics represented both wheel-made and handmade pottery of different shapes plain and painted, including bi-chrome pottery and geometric, plant and animal designs. In the beginning of occupation at Amri, more than seventy per cent pottery was handmade which progressively changed to wheel-made pottery with introduction of bi-chrome decorations and animal designs. The cultural materials from Amri were most significant since it was the first site which yielded a secure cultural sequence with which other sites could be related.

The Indus Valley period, Amri III, is very well represented by the wheel-made and well fired last levels yielded abundant materials comparable to the characteristic Jhukar pottery from the type-site, Chanudaro and upper levels of Mohenjodaro.

The archaeology of the mediaeval period in Sindh is not known at all other than the political history derived from written sources. In that context, the discovery of relics of the early Mughal period at Amri assume significance because it is the first site ever excavated in Sindh which has produced cultural materials belonging to the 16th century AD and later period.

The archaeological evidence of Amri now serves as a basic frame of reference for identifying and relating other sites in Sindh and Balochistan. Amri was contemporary with several early third millennium BC sites in Pakistan especially Kot Diji located across the Indus River opposite Mohenjodaro. There is evidence of intensive interaction among the populations of the Indus Valley including those living in southwestern Sindh where Amrian ware is widely distributed. It is pointed out that the Kot Dijiian wheel-made ceramics were found in the earliest known level of Amri which is dated to the middle of the 4th millennium BC. The Amrian culture was an integral part of the early cultural process which is called the early Indus or Harappan.

Ghazi Shah

Ghazi Shah is situated about six kilometres southeast of Tando Rahim Khan and close to a perennial spring which comes from the Bhit Range. The site derives its name from the tomb of Pir Ghazi Shah situated about two kilometres east of it. The mound measures 136 x 124 metres and stands to a height of 11 metres above the surrounding level. In 1930-31, N.G. Majumdar carried out limited digging at Ghazi Shah and found ceramics belonging to the Indus Civilization lying over an earlier occupation comparable with the site of Amri. He also found terracotta bull figures, toy cart frames, beads of steatite carnelian, agate and copper, copper ring, bangles and leaf shaped arrowhead, awl chisel and chert tools, silver rings and terracotta bangles.

In 1985, excavations at Ghazi Shah were started under the supervision of Louis Flam in collaboration with Department of Archaeology (Flam 1993). Three seasons of work have revealed a great deal of new information on the settlement history of Ghazi Shah from at least fourth millennium BC to the Indus Civilization before its abandonment around 2000 BC and reoccupation during the Mediaeval period. Digging has been done in three areas in the northwestern portion of the mound. Area 1, measuring 6 x 5 metres on the flat top of the mound produced cultural materials of Islamic period marked by glazed and plain pottery, terracotta, glass and stone beads and iron objects, and one copper coin of the Mughal period. Area 2 which measured 6 x 9 1/2 metres, was located on the slope of mound. Digging down to 9 1/2 metres revealed typical Harappan pottery, shell and discoid steatite beads and a piece of terracotta 'cake' in the upper layers. The lower levels revealed nine structural levels of stone and mud-bricks and associated materials of stone, shell, steatite and lapis lazuli beads, chert blades and a variety of ceramics which are related stylistically with the Kulli pottery of southern Baluchistan. Three radiocarbon dates provide a time-range of 2160-3040 BC for this assemblage in Area 2. The Area 3 in which the trench was dug down to six metres of the slope of mound, revealed structures of mud-bricks on stone foundation. The ceramics from this area provide parallels with those from Amri IB-D, Anjira III, Nal and Kot Diji. There is a clear evidence of bead-making activities at the site. Broken chert drills were found at the site which have been previously documented at Amri, Mehrgarh and Chanhudaro. Two radiocarbon dates from Area 3, fall between 2970-3375 BC. Like Amri, Ghazi Shah provided evidence of cultural development from about the middle of fourth millennium BC to the mature Harappan period around 2500-2000 BC. The sphere of cultural interaction of the people living at Ghazi Shah extended onto central and southern Balochistan on the one hand and in southern Sindh on the other. The significance of such inter-settlement contacts through exchange or trade, or economic interdependence will be further brought out when the new archaeological evidence from Ghazi Shah is fully evaluated and interpreted.

Rohri Hills

The limestone hills at Rohri which run southwards have been a focus of research for more than a century. The hills have yielded evidence of specialized craft activities relating to manufacture of flint tools on a large scale since prehistoric times. Henry Cousens has referred to the early work at Rohri hills by W.T. Blandford in 1880 who found flint nodules, cores and flakes scattered on top of the hills. Since that time, De Terra and Paterson investigated a part of the hills and recorded palaeolithic and Harappan implements. They correctly established connection between the stone tools produced at Rohri and those used at Mohenjodaro and other Harappan sites. The similarities among the flint implements of Rohri and the settlements of the Indus Civilization were very striking. During the years 1975-76, Bridget and Raymond Allchin examined the Rohri hills spreading over several miles and recovered Middle and Late Palaeolithic tools and identified dozens of working areas where the people manufactured flint tools for the cities of the Indus Civilization (Allchin 1976).

Further investigations were started under a new field project by the Italian and Pakistani archaeologists of Shah Abdul Latif University, Khairpur and the University of Venice. A systematic search for all types of sites, study of technique of manufacturing tools at the Rohri hills and excavation at selected sites have been in progress under the joint project since 1993. The evidence available so far on the existence of Early and Middle Palaeolithic tools alongside working platforms of the Harappan period spanning a very long time has given a new perspective to reconstruction of a sequence of development of tool technology from the prehistoric times to the period of Indus Civilization (Biagi and Cremaschi 1988).

Two sites have been excavated by the Pakistani-Italian team which yielded a rich harvest of various categories of tools. It became evident that very specialized categories of artifacts were manufactured at Rohri for export to various settlements. The special requirements created large quantities of waste materials or debris now seen scattered at the production sites. At site No. 59, there were 794 structures near Shadi Shaheed, a site belonging to the Indus Civilization. These were related to the flint quarrying and production workshops on an industrial scale. A great abundance of debris flakes were found in pits and workshops. There were articulated workshops with scatter of long blades and cores. The single workshops showed preliminary knapping of nodules.

The survey and excavations at Rohri hills have provided valuable information on the extraction and process of flint knapping activities, and types of tools manufactured. There was no difference between the un-retouched artifacts from these industries at Rohri around Shadi Shaheed and those at Mohenjodaro, Harappa and Kot Diji. It is evident that several outcrops of flints were exploited between Rohri and Kot Diji. However, it is a matter of great regret that these oldest manufacturing workshops at Rohri are being destroyed systematically by blasting for extraction of stone for a cement factory and road construction. Several sites on the archaeological map have already disappeared despite national and international protests.

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NOTES

1. An account of the first season of work is given in *Pakistan Archaeology*, No. 5.
2. Briefly reported in *Pakistan Archaeology*, No. 1.
3. The author is grateful to Mr. Niaz Rasool, Director General of Archaeology for his permission to include a list of sites documented during the surveys of 1993-96.