

PRE-HARAPPAN CHRONOLOGY OF SINDH

BY
M.H. PANHWAR

(The status of knowledge of Sindh's past based on history, archaeology, anthropology, historical geography and other disciplines prior to Amrian times 3700 BC)

Climatic changes in and around Sindh and cultural developments in the Kohistan Thar as well as the Indian Desert (9000 BC – 1500 BC).

The studies into climate of Thar desert, have been based on the level of water in 4 inland salt water lakes in Rajasthan namely: Sambhar (27°N, 75°E); ghani Didwana (27°-20'N, 74°-35'E); Lunkaranasar (28°-30'N, 75°-45'E) and Pushkar (26°-29'N, 74°-33'E); the first two in the present semi-arid belt (rainfall between 25 to 50 mm); the third in the arid zone (less than 25 mm rainfall) and the last in semi-humid belt (rainfall, 50-60 mm). The studies showed that (7).

- i) Before 9000 BC there was very dry, climate.
- ii) 9000-8500 BC the climate moved from very dry to beginning of low wet period.
- iii) 8500-7500 BC climate changed to medium wet.
- iv) 7500-3000 BC medium wet climate.
- v) 3000-1750 BC high wet climate.
- vi) 1750-1000 BC low wet climate.
- vii) 1000 BC – 500 AD medium dry climate.
- viii) 500 AD to-date low dry climate.

For this study; the dry and wet climate has been divided into six groups, namely:- Very dry, medium dry, low dry, low wet, medium wet and high wet periods, by the present writer. The authors of reference (8) have assumed that the present arid, semi-arid, semi-humid zones of Thar Desert, were one step higher, is semi-arid, semi-humid and humid zones respectively. This way the whole of

the desert zone, called Pat, (desert of Sukkur and Khairpur district and Kipro Taluka) had climate like the present, Thar desert of Tharparkar district and the later climate, like that of the present Nagar Parkar, which in turn had rain fall of 50-60 cms, against 30-35 cms at present. This in turn, would mean that Pat could support animal husbandry to the scale of present Thar, which supports 400,000 cattle and three times the number of goats and sheep even till to-day. The Thar and Nagar Parkar, would also have supported more than twice as much cattle as to-day. The Kohistan of Sindh from Karachi to Ghari Khairo, would also have supported twice as many animals, as the present. Thar and Pat combined (9). Wet climate was an advantage to the man in domestication of cattle, and ultimately lead to domestication of agricultural crops, in Thar, Kohstan, as far as Sibi and central Sindh.

Mesolithic period in Sindh (10,000 BC – 6,000 BC).

The above discussion shows that Sindh desert and hilly tracts were capable of supporting large cattle wealth between 8500 BC to 1000 BC. Already around 10,000 BC to 8000 BC, man had started domestication of animals in the Middle East, and around 7000 BC domestication had started at Mehrgarh. The Thar and Kohistan climatic conditions, gave rise to Mesolithic man's raising cattle there. Further proof is furnished by B. Allchin's discovery of Mesolithic age tools made at Rohri and Kot Dijji hills, and transported to Mesolithic man of, not only Sindh desert, but also of Indian desert up to Marwar (10).

From Hunter Food Gathers to Agriculture.

Rise of Mehrgarh (7000 BC).

With Sindh re-emerging from the sea, it was expected, that the valley would be occupied by man, and it so happened. Sindh's borders, extended to Sibi until 1740 AD, when Sibi-Karachi districts were transferred to the Khan of Kalat. Thus for all cultural purposes, the area is to be considered a part of Sindh. Drainage of Sibi-Karachi plains makes the area as part of Sindh. Mehrgarh excavations have pushed our history back to 47,000 years before Mohenjo Daro, which in it self, existed 4300 – 3650 years ago. Thus Mehrgarh is about 9000 years old. Discovery of Mehrgarh, has completely changed the old concept of the rise of the Indus Civilization, and its lagging behind the Mesopotamian and Egyptian civilizations. Previously it was thought, that ideas in the Indus Cultural Development, were borrowed from the west through Iran. Now it is proved that the Mature, as well as the Early Indus Culture, had its roots in Mehrgarh Culture. A few notes worthy findings of the historical importance from Mehrgarh are:-

- i) Domestication of cattle (*Bos indicus*) started around 7000 BC, on latest before 6500 BC. The most important domesticated animal was cattle, and not sheep or goat.
- ii) The dead were buried, both in flexed (with knees drawn up) and extended positions. Grave offerings included burning of young carpines, the number of which varied with status of the dead.
- iii) They used ornaments like necklaces, anklets, belts and beads made of shell, bones, local stones and imported turquoise – and lapis lazuli from Badkhashan in Afghanistan.
- iv) Reed baskets were made and coated with bitumen.
- v) Polished stone-axes, blade lets of flint and stone vessels were in use.
- vi) Different varieties of wheat and barley have been unearthed, and so is the cotton. The latter may have been cultivated for fiber and oil. The previous thinking, that cotton was grown by the Indus people after 2400 BC, stands superceded by 2000 more years.
- vii) By phase-III or 4000 BC, with introduction of the pottery wheel, mass production pottery had started; pottery was decorated with geometrical patterns, and motifs of birds and goats. Bow drill for working on carnelian turquoise and lapis lazuli were in use, they were in use at Chanhu-Daro.
- viii) Copper was known, molten and used in-phase-III i.e., before 4000 BC.
- ix) By 4000 BC large scale cultivation of cereals, mixed farming (various types of wheat and barleys), and domestication of cattle, goats and sheep was practiced.
- x) By 3500 BC, goat and bird motifs on pottery disappeared, and were replaced by geometrical and intricate polychrome patterns.
- xi) By 3000 BC, wine grapes (vines also appeared).
- xii) Potters Kiln used 5000 years back, were similar in operation as today, i.e., they spread straw on the ground, laid 100 to 500 unfired pots above it, put more straw on the top, and finally sealed it by roof of

clay. Then the straw was ignited, fire burns for 24 hours. Cooling time of about 7 days is allowed, and pots are taken out.

Mehrgarh shows step by step development of complex cultural patterns that manifested themselves in the great cities of the Indus civilization (11).

Some interesting details of provisional chronology of Mehrgarh by excavators Jarrige, Lechevallar and Meadow is summarized below:-

IA – Beginning 7th millennia BC i.e., 7000 BC or at the latest before 6500 BC to 6000 BC at Mehrgarh.

- Neolithic settlements.
- Pottery not yet used by inhabitants.
- People living in multi-roomed houses of rectangular shape.
- Tools and implements made of stone and bones.
- Cereals cultivated were:
 - 6 row barleys (*Hordeum vulgare*).
 - Wild barleys (*Hordeum vulgare Varinudum*).
 - Einkorn.
 - Emmer (*Triticum dicoccum* wheat).
- Animal domesticated were:
 - Cattle (cow and buffalo) from feral humped type animal, similar to that found in Sindh and Gujarat followed later on by:
 - Sheep and goat.
 - Hunting continued with some herding.
- Adults were buried in east to west direction (head eastwards) and with grave offerings, usually car pines of age 3-6 months.
- Microlithic tools consisted of knives, arrows etc.
- Dog and cat were domesticated at the end of this period i.e., later than cattle, sheep (*Ovis vinctus*), goat.
- Bones and ivory were being worked for manufacture of ornaments, although antlers and other bones were used for fabrication of tools.

Period-II Phase IB at Mehrgarh 6000-5000 BC.

- First appearance of hand made pottery, probably around 5500 BC.
- Naked or sphaerococcoid barley, was already established by 6000 BC.
- Durum bread wheat followed peas (*Pisum orvorse*) which, probably were introduced during this period.

- Dates (Phoenix doctylifera).
- Fire place in form of circular pit, in which pebbles were heated, taken out almost red hot, and immersed in cooking vessels, an indirect form of heating and cooking food.
- Sheep and goats become more common, but still, cattle formed the leading domesticated animal.
- Oil seeds (sesamum and mustard) probably were already domesticated.

5000-4500 BC Mehrgarh.

- Domestic cattle did not decrease in size even after 4500 BC, as compared to goat and sheep.

4500-4000 BC Mehrgarh.

- Parallels: Kile Gul Muhammad-II B.
- Wheel turned pottery, painted with geometrical motifs, Stone sickle with points fixed in bitumen.
- Straw tempered hand made pottery ware.
- Cultivation of cotton.
- Specialized crafts outside housing area, and emergence of artisans.
- Grain storage facilities develop.
- A variety of wheat *Triticum aestivum* introduced.
- Cotton cultivated for fiber and probably oil.

4000-3500 BC Mehrgarh.

- Wheel turned pottery, with painted caprids, birds, and geometrical motifs.
- Parallels: Kile Gul Muhammad II, Mundigal 1-3, Togau A.
- Clusters of houses with private courtyards and rectangular rooms.
- Storage pottery jars.
- Naked spaeococcoid wheat introduced.
- Cattle reduced as compared to goat, and sheep.
- Wild boars and hemionids were hunted.
- Camels dromedary or camel existed in Sindh and Rajasthan, and may have been domesticated in Sindh before 4000 BC (Two humped camel was introduced around 2000 BC).

Soon after 3500 BC Mehrgarh.

- Wheel turned pottery, with monochrome and polychrome, geometrical patterns and decorations.
- Terracotta female figurines.
- Wooden lintel over a door.
- Parallels: Damb Suddat – I Togau B and C Amri A-I.

3250-3000 BC Mehrgarh.

- Potteries, with white pigments, monochrome with geometrical motifs, human figurines.
- First grey ware.
- Contacts with Iran and Afghanistan.
- Parallels: Togau and Mundigak.

3100 BC – 2800 BC Mehrgarh.

- Black on grey ware, Quetta ware, Nal polychrome, red ware with painted floral, human figurines.
- Lapis lazuli from Afghanistan for ornaments.
- Direct firing of vessels for cooking, instead of hot stone pebbles immersion.

2800-2500 Mehrgarh.

- Black on grey ware.
- Late Quetta style.
- Mass production of human figurines.
- Monumental platform.
- Zhob-ware.
- Double spiral headed pins (copied or imported from Central Asia).
- Beads of turquoise, probably imported from Iran.
- Beads and objects of lapis lazuli, imported from northern Afghanistan.
- Parallels: Dam Suddat II Mono-chrome, Nal; Mundigak IV, Shahri-Sokhta-II Kot Dijji, Amri-II.
- Introduction of sorghum and millet as summer crops, on rain water.

Fishing.

Stone Age site on mile 101 of national highway, has a large stone tool factory, where microlithic tools were manufactured for fishing during 10,000 – 4000 BC

Sindh must have had a large fishing community during the period. As late as 1950 Sindh produced 80% of fresh water fisheries of present Pakistan. Sindh coast also produced sea fish, lobsters and prawns.

Neolithic period in Sindh 6500-3700 BC.

The exact date of beginning of Neolithic period in Sindh was not known, but excavations at Mehrgarh have shown the beginnings of pre-pottery Neolithic settlements, in the period before 6000 BC an independent development (12). Neolithic period of Catal Huyuk (Turkey) is 6500 BC, and for Iraq and Egypt in the river flood plains, it is 4500 BC. From Mehrgarh, the Neolithic must have spread along the Bolan rivers drainage system, through Sindh Hollow (Garhi Khairo, Shahdad-Kot, Hamal Lake, and Gaj river alignment) to Manchar. From there, it may have spread to the lower Kirthar range, or Kohistan of Dadu, Thatta and Karachi districts; represented by the Early Indus sites of Wahi Pandhi, Ali Murad, Gorandi, Ghazi Shah, Damb-Bothi, Arab-jo-Thano, Shah-jo-Kotrio, Othaman-Bothi, Diso, Jhangari, Gharo Biro, Karachat, Toung, Dhal, Goth Hasan Ali, Nil Bazaar and Orangi. From Mehrgarh, it may also have expanded towards Mundigak (Afghanistan), Kile Gul Muhammad and Damb Sadat (near Quetta), Ranno Gurandi (Loralai), and large number of sites along Nal and Kej rivers in Makran (13). Studies into this process of expansion of Neolithic from Mehrgarh, have not been undertaken. They spread of Neolithic in the Indus valley, needs further research of at least 100 years, and things may not crystallize until the end of this century.

Early Indus Culture (3700-2300 BC).

Mujamdar N.G. had explored Amri, and other sites in the Sindh Kohistan (in early thirties). Dikshit had done further explorations in 1938, but situation was made crystal clear, only after explorations of Amri by Casal 1953 (14). A large number of sites in Baluchistan too were excavated, by different archaeologists after independence. Fairservice excavated Kile Gul Muhammad (15). Kot Dijji was excavated by Dr. F.A. Khan (16), and Indian archaeologist at work in the East Punjab, Kutch, Gujarat, Bikanir and Maharashtra, have excavated a number of sites. Rafique Mughal, made an extra-ordinary analysis of the sites, and has put the sites of the Western hills of Sindh, Kot-Dijji, a few sites in Kutch, some in Baluchistan and the East Punjab, (near West Punjab) as the "Early Indus Culture". The sequence follows as under: - Mundgik (4300 BC), Kile Gul Muhammad (3671-2500 BC i.e., about 42 BC), Sindh-Kohistan sites and Amri (3700-3500 BC), Kot Dijji etc., 3000-2300 BC. (17).

From the excavation of these sites it is now known that:-

- (i) The Mehrgarh culture, led to the development of Early Indus Culture. The pottery from Mehrgarh period VII (3000 BC), also shows affinities with those of the Early Indus Culture.
- (ii) Human figurines developed at Mehrgarh in the fifth millennium BC (5000-4000 BC), show affinities with subsequent figurines developed there in the VIIth phase (3000 BC), and these in turn shown similarities with the Early Indus culture female figurines, (Zhob mother goddess), from which evolved the mother goddess of the Mature Indus Culture, found at Mohenjo Daro.
- (iii) There is remarkable similarity between polychrome vessel of Mehrgarh period-IV (3500 BC), and the Mature Indus Culture (post 2300 BC) pottery.
- (iv) The sites also prove the evolution from Mesolithic culture to Neolithic and beyond to Mature Indus Culture in the manner that can be generalized as under:-
 - a) Early 7th millennia BC, there was pastoralism with limited cultivation. There were permanent villages of cultivators, and there were other villages which were occupied by pastorals seasonally, tools were made of flint as well as antlers. Grain was ground in bowl shaped (mortar) grinding stone first by crushing and then by rolling action of pestle. Microlithic tools of various shapes, for arrows, knives and sickles, were fabricated. Mud brick, or mud rubble masonry stone houses, were made for living purposes, and thatched roof was common. Matting from reeds, is made the same way as in hill areas of Sindh today. (18)
 - b) In Stage-II, agriculture was further developed, pastoralism was reduced considerably, villages were permanently occupied, except special areas of Thar and Kohistan, where although permanent villages have arisen, but still some seasonally occupied scattered settlements existed for pastorals. Copper was introduced, probably from the Middle-East, dead were buried inflexed position, pottery had designs, of animals, fishes, trees etc., as motifs. Houses were not laid on any grid first but were scattered. At later stages Gabar-bunds were put across rain fed rivers for the sailabi cultivation. Brick houses some time had stone foundations. Some times boulder and bricks (19) were used for foundations, and upper walls respectively. Potters marks, show swastikas, crosses and vees, both vertical and inverted. More and more pastorals left for villages to

take to agriculture. Clay balls were made to be used in stone throwers. Copper was used for knives, spears and arrow-heads. Pottery designs were advanced, and so were motifs on them (20).

- c) Stage-II. From Kot Dijji to Mohenjo Daro (2800-2300 BC). The tools were developed further. Copper ware with hole for wooden handle was developed. Pottery became more complex in shapes, as well as designs on them, consisting of birds in flying postures, and with more details of wings, reptiles, plant leaves, papal leaves, bulls, cobras, fish and animals in motion; more elaborate female ornaments, as compared to Mehrgarh and Amrian times were worn. There was a beginning of house according to grid system. Copper and stone tools were more developed. Farmers who had started moving towards the Indus plains, since beginning of Amrian times, moved on larger scale, to cultivate winter crops on the preserved moisture, left by the river Indus, when it receded after full spate in summer. Some summer irrigation too may have been practiced. Villages not only became larger in size, but also more in numbers. Large areas came under cultivation in the flood plains of the Indus, and its tributaries, and also on the Sarsuti river plains. Existence of villages out-side the river flood plains explains some rudimentary system of irrigation. Human and cattle figurines in terracotta were more common. Open pit bread ovens became more common. Gabrbands increased in number in the Southern Baluchistan and the south-western Sindh, for Sailabi cultivation on rain water (21).

Mature Indus Culture (2300-1650 BC).

Between 2300 and 2000 BC the Amrians and Kot Dijjian reached a higher level of culture, depicted by four towns of major size; Mohenjo Daro (Sindh) and Harappa (West Punjab), known before independence and Kalibangan (Bikanir) and Lothal (Gujarat), excavated after independence. The main ingredients of this culture were:

Bronze largely replaced copper for tools, intricate castings of figurine in bronze and polished copper mirrors were developed. Bull probably was elevated to the position of god. Besides development of advanced type of bullock-cart, which has survived till this day, development of religious doctrines, rise of large sized towns (Mohenjo Daro population more than 35,000), banal and metric weights, development of bureaucratic government, taxation of the means of production in the rural areas, surplus agricultural production to support urban population, pottery reaching highest development, higher to unachieved in terms of variety,

size, utility and forms, art of making statues from stone reaching a fair amount of precision (The human male torso found at Harappa, shows body curves achieved only by the Greek sculpturists some 1800 years later), terracotta figurines, showing better curves of human body, and so the mother goddess, artistic and geometrical patterns on the pottery-ware, intricate and precision designs on seals, development of boat for deep waters, to travel from the mouth of the Indus river to the mouth of the Tigris in Mesopotamia, seals depicting the religious doctrines and beliefs, which were to be incorporated into the Hindu religion, by the Aryans 1600 years later, in forms of teachings of Upanishads, human burials from folded leg position to fully extended position, population movement from small settlements to small and large villages, from villages to urban centers took place, pastoralism got limited. Infrastructures in the urban centers; like: drainage, sanitation, granaries, towns built on the grid pattern, house plans like present days apartments, wide streets, fortifications, religious centers in town, like Great bath (22), development of irrigation agriculture, cultivation of wheat, barley, peas, and cotton etc., were other developments.

The area under Mature Indus Culture, embraced most of present Pakistan, (except hilly tracts in Northern NWFP Province, Azad Kashmir), East Punjab, Western U.P, Haryana, Kutch, Kathiawar, Gujrat, Northern Maharashtra (Daimabad 50 miles east of Bombay), and Mundigak in Afghanistan, approachable through Gomal Pass (23). There is conjecture that this mighty Civilization of ancient world was controlled from different urban centers at Kalibangan (Bikanir), Harappa, (Western Punjab), Ganwar-Walla (Bahawalpur), Mohenjo Daro (Sindh) and Lothal (Kutch, Kathiawar, Gujrat and northern Maharashtra). Gedrosia (Southern Baluchistan) may have been controlled from Sindh (24).

The Mature Indus civilization, decayed between 1800-1650 BC, due to reduction in the waters of the river Sarsuti in East Punjab, and Bahawalpur after 2000 BC. Major changes in the course of the Indus, took place thereby destroying irrigation system, reduction in rainfall in Thar, Kohistan and Baluchistan and for the same causes in Gujarat.

The declining Indus Culture (1750-900 BC).

Although some of the towns of the Indus or Harappan culture were not occupied for a long time after their decline, the others continued to be occupied. The central organization of the civilization, based on the irrigated agricultural economy, and efficient bureaucratic administration, was destroyed totally, due to reasons mentioned above. Pre-Independence archaeologists had thought that the Indus civilization was destroyed by invaders, namely Cemetery-H people at Harappa, and Jhukar people at Mohenjo Daro. Who were these invaders? They

theorized that they were Aryans, a pastoral people. Dr. Mughal's investigations, shows, that the Cemetery-H and Jhukar people too, were Indus Culture People, and the culture decayed due to certain causes (25). These causes have further been examined and discussed below. In brief, due to lessening of rainfall, and climate becoming drier, the following incidents happened in sequence:

- (i) Water in the Sarsuti catchments reduced, and this river started drying. Winter rains also reduced. The area was not able to support agricultural population, and people migrated to become pastorals, much earlier than other areas of the Indus Culture.
- (ii) Gujrat cities and villages too, depended on rain-water, as they do today. Reduction of rainfall in those areas, (as per findings of climate of Rajasthan, which is adjoining to Gujrat) dwindled agriculture, and thereby the urban centers and the people took to pastoralism.
- (iii) During the earlier period, due to more rainfall, the Punjab rivers must have carried 50-100% more water, and thereby, may have over-flowed their banks, irrigating areas, which were to help in rise of urban centers like Harappa. The agriculture was affected due to reduction in levels of the rivers, and therefore, Harappa and other urban centers of the Punjab also declined.
- (iv) Baluchiatan met the same fate, due to lack of rainfall.
- (v) The Sindh cities survived up to 1650 BC. The reason being, that ground levels in Sindh are such, that even if discharge of the river Indus, reduced to same as levels as of 1920's, the river would still supply irrigation water, in summer and also leave vast areas flooded for Sailabi cultivation in the following winter.
- (vi) However around the mid 17th century BC, the river Indus swung too far east or west, from its central course, destroying irrigational system in totality, and thereby the agricultural economy. It lead to deterioration of the Indus cities around 1650 BC and people reverted to pastoral life (26).

Some small cities and villages continued to be occupied, but the great metropolis Mohenjo Daro was soon abandoned. The people lost the rudimentary art of reading and writing, as practiced on the Indus seals. The designs on pottery and their variety deteriorated. Trade, whether inter-regional or international, came to an end, and the local trade became limited. Deterioration continued from 1650 BC to 900 BC. This declining period, is erroneously divided into two groups (27).

- 1) Jhunkar Culture 1650-1300 BC.
- 2) Jhangar Culture 1200-900 BC.

It was in fact, continuation of the Indus Culture in its decaying form. Thus ended the glorious Indus Civilization, which began at Mehrgarh around 7000 BC and came to an end in 900 BC (28).

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