

THE DEVELOPMENT IN THE STUDY OF HISTORY AND ARCHAEOLOGY OF SINDH

M.H. Panhwar

THE SITUATION BEFORE INDEPENDENCE:- THE HISTORY.

Scientific studies into the history and archaeology of the Sub-continent started with the European colonization of some areas in the mid-eighteenth century and occasionally Sindh too was reflected in these writings. Some important contributors were:-

a. **1733 A.D. Renaudot** A French historical geographer, in his writing discusses some ancient towns of Sindh as described by the Arab travellers and merchants of 9th and 10th centuries A.D. (1).

b. **1782-1785 A.D. Rennel** the first official cartographer of the British. Produced maps of the Sindh coast, the Indus and its tributaries and some towns of its interior, based on various historical sources. He had been working on this subject since 1778 A.D. (2).

c. **1783 A.D. Sir William Jones** a judge of the Calcutta High Court with the help of Warren Hastings, the first Governor General of India, established, The Asiatic Society of Bengal, to study Indian and Oriental texts of all kinds, with a purpose of understanding the historical cultural, economic and religious back grounds of Asian people. They issued a 24 volume journal, Asiatic Researchers between 1800 and 1830. These journals have reference to many ancient cities and towns, rulers and tribes of Sindh (3).

d. **1797 A.D. Father Vincent** translated Nearchus' Journal or diary of travels, i.e., voyage from Patlala in 325 B.C., to the delta of the Euphrates. Substantial portions of this work, as we see as three maps describe Sindh (4). Again in 1798 he published accounts of some towns and the trade of Sindh (5). One of these maps was based on Rennel (Ref: 2 above). Other on d' Anville J.E.B Geographical Illustration of the map of India. London 1969, and the third on Dalrymple. All three maps were based on study of historical records. The three maps are designated as: (a) coast of Sindh Indus river, Patala and Alexander's Heaven (b) Routes of Punjab and Sindh as Alexander saw (c) coast of Sindh and Makran and Nearchus' route.

e. **From 1799 to 1843 there were various British missions to Sindh** and some of the delegates of these missions in addition to mapping of their routes in Sindh, also investigated its history. The important works on history of Sindh were Crowe (6). Pottinger (7) and Burns Brothers Smith (1808), Dalhousie (1831), Carless (1817) and (1837), Campbell (1838), Margery (1839), P.I. Messuer (1840) and others.

f. **1844 A.D. Malet, translated Tarikhi Masumi, and published it in 1846 (9).**

g. **1845 Postans translated extracts from Chach-Nama and Tuhfatul-Kiram,** in an attempt to produce a concise history of Sindh in about 80 pages. This work lost its importance

within less than a year after publication of a complete free translation of masumi by Malet in 1846 (1⁰).

h. **1846 Mc Murdo** Published 'History of Kalhoras'. It is important document that has gone un-noticed (1¹).

i. **1851. Burton produced** a sort of glimpses of Sindh's history in Sindh and the races that inhabit the valley of Indus: London 1851.

j. **1853.** All above works were over shadowed, superceded and hardly worth referring to, after Elliot published his History of India as told by its own historian's vol-I, from Cape Town. The same work was reprinted along with seven subsequent volumes by his co-author Dowson, between 1867-1869. The first volume pertains to Sindh and has extracts from works of Arab geographers, travellers and seamen Chach-Nama, Masumi, Tahiri, Tarkhan-Nama, Baglar-Nama and Tuhfatul-Kiram. Elaborate notes on historical geography of Sindh, though now partly superceded, have made it invaluable to scholars even after a century, and the set has been reprinted both in India and Pakistan after independence. He has made full use of Asiatic Researches mentioned in (c) above. The other seven volumes too have material on Sindh.

k. **1894 A.D. Haig,** published a short history of Sindh based on a number of sources and personal observations into historical-geography, specially the position of the river Indus, in different centuries and advancement of the delta of the Indus (12).

l. **1900 A.D. Mirza Kaleech Beg** wrote a history of Sindh in two volumes, the first one being complete translation of Chach-Nama and the second being subsequent chapters from Masumi, Tuhfatul-Kiram, Fateh-Nama and Frere-Nama (13). This became a much referred source of many European and local scholars.

m. **1901 A.D. Lab Tarikhi-Sindh,** a Persian history of Sindh was the first work, which gave history of the British rule of 57 years. It was based on the personal information; being a Munshi in the office of the commissioners of Sindh (14), for more than 40 years and having the first hand information.

n. **1930-1833 Arab Wa Hindke Taalugat,** essentially based on Elliot's Arab geographers, he analysed the Arab Commercial and cultural relations with India and specially with Sindh (15). It is based on information of Arab and Persian travellers of 9th and 10th centuries.

o. **1938-1940 A.D.** A complete Persian text of Chach-Nama and Masumi was published on 1938 and 1940 respectively, from Hyderabad (DN) and Bombay. In his notes, editor dr. Daudpotta brought io light many new sources of information on the Arab governors, Habri dynasty, Samma-Delhi conflict, Muhammad Tughlaq's death at Sonda and subsequent events. The two text and the notes have become the guidelines for the future historians.

p. **1947 A.D. 'Tarikhi Sindh by Sayed Abu Zafar Nadvi'**. In spite of a large number of errors it gave history of Arab governors of Sindh and Habri dynasty derive from the two above mentioned sources of Dr. Daudpotta. His maps are totally inaccurate and interpretations are also

not acceptable, but yet it has extensively been utilized by Dr. Abdul Majeed Memon and Abdul Qudus.

THE SITUATION BEFORE INDEPENDENCE ARCHAEOLOGY.

Amateur archaeologists have always been at work and they create basis for future investigations. Here under we are concerned only with the explorations and writings in archaeology of major importance and therefore minor works have been overlooked.

a. **1854 A.D. Bellasis**, the collector of Hyderabad along with Richardson explored the present site of Brahmanabad. Mansura, called Banbhra-ka Thul and un-earthed objects and buildings of the Hindu period, concluding thereby that it was the site of ruined city of Brahmanabad (16). His was unique work valid even after one hundred and thirty years.

b. **1865 Archaeological Survey of India**, was established in 1861 and its Director Alexander Cunningham toured most of the Sub-continent some times even on a horse back, in search of ancient monuments. His classical work the 'Ancient Geography of India', besides giving general information also gives Heun Tswang's travels in Sindh with a mp. His other maps according to Sanskrit classics are equally a good contribution. During this early period, history supplemented archaeology, and the latter was completely based on the former.

c. Alexander Cunningham established the archeological circle of Western India with first Burgess and then Henry Cousens as its Superintendent. The latters' tenure could be defined as classical monumental archaeological period of Sindh. As he explored most of known Buddhist monuments and also photographed a number of Muslim monuments. With Cousens approach archaeology started supplementing the history of Sindh, a unique process. Although his work in summarized in 'Antiquities of Sindh' (1925), but the various issues of annual reports of Archaeological survey of India, give details of his annual explorations and etc, from 1890-1909. All these with a number of fine photographs are published in the Annual Reports of Archaeological Survey of India, of the respective years. Henry Cousens "Antiquities of Sindh" is a Summary of all this work done on Sindh's archaeology prior to 1922 and it does not includes either the details or the total material produced in the above reports. To these may be added annual bibliography of Indian archaeology (in progress) issued by Kern Institute, Leiden, and 'Archaeological remains in Karachi Hyderabad and Shikarpur collectorate in Sindh by Burgess, Bombay government Press 1879.

d. **Mohen-jo-Daro**. In 1922-32 Bannerjee explored the Buddhist stupa at Mohen-jo-Daro and found remains of a much earlier period, but it was marshal who explored and produced first report on Mohen-jo-Daro excavations in 1925-26. His article with photographs in 'The Illustrated London News,' was to attract the attention of the leading archaeologist of this world. A large number of archaeologists worked on the finds of this new culture called 'the Indus civilization'. Hargreaves⁽¹⁷⁾ and Stein⁽¹⁸⁾ explored Balouchistan, Vats⁽¹⁹⁾ Punjab, Mujamadar⁽²⁰⁾ Sindh and Stein Bikanir. With the finding of 'Indus culture', Archaeologists started building of the 'Ancient History of Sindh and also of sub-continent' a unique innovation. With the help of archaeology man was able to know his past, and call it 'the Pre-History'.

e. **Henry Cousens:** Efforts too seem to have been encouraged by appointment in 1903 of Sir John Marshall as Director of Indian Archaeology. He, having had worked on the Greek monuments, arrived in India and started investigations, principally into the classical monuments of 200 B.C.-500 A.D., the Graco-Indan Buddhist art and architecture. In this period were explored: Mir Rukhan (1905-06), Mirpurkhas stupa (1909-10), Sudheran-jo-Daro (1914-15), Kahu Daro (1922-23), Dhamraho Daro (1925-26), Sassui-jo-Takar (1929-30) and tower at Khamaraho (1920 and 1921).

A number of Muslim monuments too were explored; Khudabad mosque (1912-13) Isa Khan Tarkhan-II's Zenana and Jamia Masjid Thatta (1914-15 and 1918-19), Mirza Isa Tarkhan Tomb (1918-19, Ghullam shah Kalhora's Tomb and Necropolis and ruins on Makli Hills (1919-20), Jamia Masjid Khudabad)1920-21), Satbainjo Than, Rohri (1921-22), Harem of Talpur Mir's at Hyderabad (1922-23), Tombs of Talpur Mir's at Hyderabad (1926-27). Fort at Naukot and Mir Shahdad's tomb at Shahdadpur (1928-29) and Sasui-jo-Takar near Banbhore) 1929-30), Ghullam Nabi's Tomb at Hyderabad (1930-34), and 50 graves of Sammas between Gund to Hills and Bhawani village in Las bela (1937), ⁽²²⁾, were explored after retirement of Marshall.

f. **1925-1947. Marshall ⁽²³⁾ Mackay ⁽²⁴⁾ and Piggott ⁽²⁵⁾** were main workers on the Mohen-jo-Daro, until coming of Wheeler ⁽²⁶⁾ as Director General of Indian archaeological Survey. Mujamdar's explorations (Ref: 20), had proved the existence of a period of archaeology, earlier to the Indus culture but it was not fully visualized. The earlier hypothetical studies by Vedic scholars had put the coming in of Aryans in India around 3500 B.C. Findings at Mohen-jo-Daro showed that the Indus Religion was completely alien to the Vedic religion. The Aryan therefore could not have come earlier than the end of the Indus culture. It was therefore theorized that the Indus cities were destroyed by the Aryan invaders, who were represented by 3 groups of people Cemetery-H, Jhukar and Jhangar. The date of Indus civilization was unsettled, but Wheeler reached the correct conclusion by putting it at 2300 B.C. Cemetery-H and Jhukar were placed around 1750 and 1850 B.C. respectively and Jhangar later on. These three groups were categorised as Aryan tribes, who sacked the 'Indus culture People'. The latter were considered Dravidians. It was further theorized that on fall of Mohen-jo-Daro they moved to Kalat, where they are still settled as Brohi people.

SITUATION BEFORE INDEPENDENCE HISTORICAL GEOGRAPHY

Historical geography of Sindh is merely a reflection of consequences of the changes in the courses of the river Indus, which has periodically changed the face of the alluvial plains, destroying irrigation system, agriculture, settlements, towns, cities, routes of communications, and known very early to the researchers, but the work was intensified due to controversies between C.F. Oldham ⁽²⁷⁾ and a Pseudonymous author Nearchus ⁽²⁸⁾ to which R.D. Oldham ⁽²⁹⁾ of the geological survey of India opined. This infuriated Raverty ⁽³⁰⁾, whose 350 page work based on historical theories led to further investigations, not only of courses of the river Indus but also of the causes of drying up of the Hakra or Saraswati river. Haig ⁽³¹⁾, Burnes ⁽³²⁾ and Minchin ⁽³³⁾, White head ⁽³⁴⁾, Pithwalla ⁽³⁵⁾, and Stein ⁽³⁶⁾, were other contributors, this issue remained confused until up to the Independence, although Stein's explorations had almost resolved the issue. Though no writings had appeared yet at least Pithwalla and Lambrick had developed full picture of it.

WHAT WAS THE POSITION OF OUR KNOWLEDGE OF SINDH'S PAST AT THE TIME OF INDEPENDENCE IN 1947.

a. **We had very little idea of Sindh's history before 2300 B.C.**

Mujamdar's explorations in the Western Hills of Sindh had shown existence of some Pre-Indus Cultural sites. But it was thought that these were settlements of people, on migration from Iran and these movements ultimately had resulted into development and establishment of Mohen-jo-Daro, Harappa and other urban centres. Their antiquity in relation to Mohen-jo-Daro, Harappa and other urban centres. Their antiquity in relation to Mohen-jo-Daro was considered a few centuries earlier at the maximum.

b. **The Indus civilization was known** pretty well but its boundaries were limited to the Southern Punjab, Sindh and the Makran division. The every day life in towns, living conditions, economics, types of crops grown, means of communication and transport, religious beliefs etc., were understood. The advancement in town planning housing, sanitation, water supply and drainage system was well known and appreciated.

c. **Aryans** were considered as pastoral nomadic and less cultured than the Indus People. They were said to have sacked the Indus cities with the help of (imaginary) chariots and superior weapons.

d. **Mythical legends of Mahabhartha** were considered as sober history and Jarath the ruler of Sindh, was considered as genuine.

e. **Conquest of Sindh by Achaemenians** was known due to excavations at Nasqsh-i-Rustam, and Herodotus' conquest in 325 B.C.

f. **Mauryan rule** of Sindh was known but period of Sindh's history from about 200 B.C. to 500 A.D. was not known with any amount of certainty.

g. **Based on Chach-Nama and Bilazuri, Rai and Brahman Dynasties** were known and so was the Arab conquest of Sindh, although all these sources were not used exhaustively and analysed properly and thus the information on Umayyad and Abbasid Governors was scanty.

h. **The Habri rule of Sindh** and their chronology was worked out by Dr. Daudpotta, but detailed study was lacking.

i. Nothing beyond fragmentary information from the now lost Tarikh-i-Bahadur Shahi, was available on the Samma and Soomra dynasties. Dr. Daudpotta's efforts had thrown some light on Muhammad Tughlaq and Feroz Shah's invasions of Sindh. The folk-lore referred to Soomra and Samma period was actually written in the 15th century and is copy of similar ballads composed in Rajasthan, Gujarat and Cutch in 15th and 16th centuries. It was no sober history, but all the same was believed to be so (³⁷).

j. **The knowledge of Arghoon Tarkhan and Mughal period** was based on Masumi and Tuhfatul-Kiram. Tarkhanama, Baglar-Nama and Tarikh-i-Tahiri had remained in manuscript forms, and unavailable to people in general. Extracts from them were not valuable enough.

k. Although Sorely (³⁸) had studied economic and political and social conditions in Sindh in the 17th and 18th centuries, basing it on the accounts of European travellers, who actually visited Sindh and the British factory records, but this work reflected very little on the provincial administration of the Mughal in Sindh. The Mughal period of history had not been analysed and therefore the phrase 'Golden Age' as applied to it, was distortion of actual situation.

l. **No history of Kalhora and Talpur period was available.** The Sindh Historical Society established in 1934, in 28 issues of their journals has taken pains to collect all types of documents and information on the British-Talpur relations from 1799-1843, but no one had compiled these articles of Advani, Mariwalla, Duarte and Mirchandani to produce a systematic work on the period.

m. Writing history of the British administration of Sindh was considered collaboration with the government of the time and no such work had been produced by any local writer. The Gazetteers of Sindh were the best Material on the British administration and so were series of reports, annual administration reports of Bombay Presidency and Sindh Province and so were departmental reports. This is in brief the position of our knowledge of the past of Sindh up to the time of independence.

RESEARCH WORK ON HISTORY OF SINDH SINCE INDEPENDENCE

a. **The major work in this field has been done by the Sindhi Adabi Board followed by the Institute of Sindhology.** The former was established in 1950, after re-naming Sindhi Central advisory Board. It started editing, translating and printing of new material on Sindh's past. The standards followed were those of International organizations of repute, like Royal Asiatic Society of Bengal, i.e., the texts were edited by comparing a number of manuscripts, the biographical sketch of authors and their other works were mentioned, and discussed, foot notes on biographies of persons involved, location of some important historical places brought forth and photographs of archaeological places and inscriptions published. A number of important writers like Sayed Hassamuddin Rashdi, Dr. N.A. Balouch, and others worked on the Persian texts, while translations were done by Makhdoom Amir Muhammad, Niaz Hamayuni and others. Even poetical works of historical importance or containing historical material were printed. The introductions of Persian texts were encouraged to be written in Sindhi and English for non-'Persian Poets of Sindh', Economic and Physical history and geography of Sindh too were printed. Bio-graphies of contemporary important people by Mr. G .M. Sayed and Ali Muhammad Rashdi formed part of the project work. A historical series of Sindh was started with Lambrick's history of Sindh Vol-I & II, Pathan's History of Arab Rule and Maher's History of Kalhoras\ . The work on other periods is also in progress.

b. **Institute of Sindhology** came out on with a number of monographs on history of Sindhi literature, source materials on literature and history, some reprints of history and historical geography and laterly Chronological dictionary of Sindh.

c. **Three journals Mehran' of Sindhi Adabi Board since 1955, Nai Zindagi of Government of Pakistan since 1950 and Sindhological Studies since 1975** have published a large number of articles of historical importance which have brought out new material on Sindh's past. Most remarkable also are the individual efforts of Sayed Ghulam Mustafa Shah whose journal Sindh Quarterly has also contributed considerable new material on Sindh's past in last 10 years.

Contributions on Sindh's Archaeology since Independence.

a. The Late Mujamadar's explorations in the Western hills had established existence of settlements earlier than Mohen-jo-Daro. He had also done excavations at Amri. It was in his foot-steps that Casal started excavations in early fifties at Amri. The results were published in 1964⁽³⁹⁾. Amri preceded Mohen-jo-Daro by about 1200-1400 years and continued to survive up to about 1000 B.C.

b. In mid fifties Dr. F.A. Khan stepped on another site at Kot-Diji, preceding Mohen-jo-Daro by some 500 years. The Indus civilization was therefore pushed back to 3500 B.C.⁽⁴⁰⁾.

c. In late fifties Dr. Khan excavated the Banbhore site and it turned out to be Debal, the first important city of Dahar that fell to Arab invasion in the 8th century A.D.⁽⁴¹⁾.

d. **Explorations by Archaeological Survey of India and Deptt. of Archaeology in Pakistan** for Indus cultural sites resulted into un-earthing a large number of sites. These spread over to the most of present Pakistan (except Azad Kashmir and northern hills) East Punjab Bikanir, Cutch, Kathiawar Gujarat and Northern Maharashtra (Daimabad east of Bombay by about 50 miles).

e. Analysis of sites in (d) above showed special grouping of this settlement in different period's occurring both in India and Pakistan. These groups of sites are categorised as; Amrian, Kot-Dijian or Sethian, Harappan, Cemetery H and Jhukar and Jhangar⁽⁴³⁾.

f. Archaeological Department of Pakistan carried out exploratory survey of sites in to the Lower Sindh in 1960's and published a list of more than 100 towns and villages majority of whom were Samma-Soomra and a few of them Arghoon, Tarkhan, Mughal and Kalhora period towns. Most of these were located on old branches of the Indus and decayed due to changes in the courses of the river Indus⁽⁴⁴⁾ from 12th to 18th centuries.

g. **Dr Mughal re-investigated the pottery ware and other objects from the 5 groups** in (d) and (e) above and concluded that the Amrian Kot Dijian sites occupy less area on the Indus Culture map, i.e. there is complete absence of such sites in Kathiawar Gujarat, Maharashtra and Eastern parts of Eastern Punjab and also western Uttar Pardesh. The Hapappas appear to have expanded all over and occupied vast area.

He also noted that there was slow evolution of pottery forms motifs and their quality from Amrian to Harappan times, when designs and motifs on them had reached their maturity. The post-Harappan pottery of Cemetery-H, Jhukar and Jhangar, although similar to mature Harappan, was inferior as if the culture had decayed⁽⁴⁵⁾.

h. **The Brahmanabad-Mansura site was excavated after mid 1970's** and in 1979 Department of archaeology came out with a statement in the Daily Dawn that Mansura occupied the same site as Brahmanabad. The town seems to be renamed as such, and was destroyed by burning it at the end of first quarter of eleventh century (1025-26 A.D), by Mahmood of Gazni. The fire also burnt the Jamia Mosque. Charred copies of the fragments of the Holy Quran were also recovered by the excavator (⁴⁶) Mr. Halim.

i. **Mehargarh site** on the Bolan Nai South of Sibi was examined and explored by Jarridge (⁴⁷), and he was able to find settlement starting from 6000 B.C. right to about 2300 B.C. an occupation of over 3500 years and continuous evolution of culture from Hunter-food-gathers to pastorals and from pastorals to the early rise of agriculture i.e. beginning of the Neolithic and again from the Neolithic to the Bronze age of the Mature Indus culture, this pushing back the history of man in Sindh to 8000 year ago.

Contribution to the Historical Geography of Sindh since Independence.

a. The first major contribution on the subject was that of Pithwalla (1969), who examined all available material on the courses of the river Indus and came out with his interpretations of the courses of the river Indus through various centuries (⁴⁶).

b. **In 1964 Lambrick** (49) described historical geography of Sindh in various periods i.e. Alexander (325-324 B.C.) Ptolemy (150 A.D.) Buddhist sites (1st to 7th centuries) Indus in the 7th centuries, the routes of Arab conquest, possible courses of river near Alore, Bakhar, Brahmanabad and Mansura, location of the river Indus (1500-1700 A.D.) and also the course, of the Lost river of the Indian desert, the Ghaghar Hakra System. Although Lambrick and Pithwalla's, historical geography of Sindh (ref: 35).

c. **M.H. Panhwar (1964)**. In addition to all above source of Pithwalla and Lambricks geohydrology is used for investigation of courses of the river Indus and vice-versa (⁵⁰).

d. **M.H. Panhwar (1969)**. Course of the river Indus in the 17th century based on Mazahar Shah Jehani is mentioned. (⁵¹).

e. **1966-67 M.H. Panhwar, A map of courses of the river Indus, based on aerial** photographs, on a scale 1 inches to 4 miles with modern towns, railways, roads and canals super imposed to make it an easy reference material (⁵²).

f. **Holmes** who has worked with M/s. Huntings technical Services on the Lower Indus Project, produced courses of the river Indus in different periods from aerial photographs, supplemented by all previous sources including (a) to (c) above (⁵³).

g. **Herbert Wilhelmy**. A German scholar published his papers on the courses of the river Indus in 1967-69 (⁵⁴). His findings though controversial were used by Eggermont (⁵⁵).

h. **1982 M.H. Panhwar**. Based on courses of river Indus, possible areas under irrigated and sailabi agriculture, worked out population, areas under cultivation and economic conditions in

Sindh, dynasty-wise and concluded that with each major change in the course of the river Indus a major catastrophe occurred, bringing down fall of dynasties, migration of population and etc (⁵⁶).

The Status of Knowledge of Sindh's past based on history, archaeology, anthropology, historical geography and other disciplines as it stood on January 1. 1984.

a. Ramapithecus and Sivapithecus (147 million years ago).

In 1930, 14 million year old set of human teeth was found at Siwalik hills. It has small canines, evenly proportioned premolar arched plate curving out-wards, proving similarity with man-like species. The teeth belong to a predecessor of human being and its skull was named as to Ramapithecus (⁵⁷). In 1981-82 a human being like 5-7 million years old skull was found at Potwar by an English team. It also belongs to man like species and is called Sivapithecus. Ramapithecus means purely man-like (⁵⁸). This was a period when Gaj series of hills were being formed and they are contemporary of the Siwalik and Potwar hills. There is possibility that Ramapithecus and Sivapithecus lived in the Western hill and eat eggs of various reptiles like Crocodiles and tortoise and etc. A new finding of 3 million year old Skeleton from Ethiopia, is changing the concepts and some scientists put Ramapithecus and Sivapithecus as ancestors of ape and man, but not exclusively man. This new find called 'Lucky' is considered a true human.

b. Middle and Paleolithic tools in Sindh Man definitely lived in Sindh, at least 500,000 years ago. B.C. Allchin (⁶⁰) was able to find and date three stone-age factories near Rohri (32 acre area), Ubhan Shah, and Unar farms near Kot-Diji. The stones-tools belong to at least three different ages, namely; Middle Paleolithic period i.e. 500,000 -35000 years ago, late Paleolithic period i.e. 35000-10,000 year ago and Microlithic tools 10,000-5500 years ago. The last one are also called Mesolithic or EPI Paleolithic. Rohri tools may belong even to the Upper Paleolithic period i.e. 1 million to 500,000 years ago, but further investigation is necessary, Rohri hill tools served the man in Sindh, through at least 500,000 years. There is an evidence of the export of tools from Rohri to the Thar and the Indian Desert much before rise of Mohen-jo-Daro and Amri and starting probably in 6th and 5th million B.C. (⁶¹). They may also have supplied tools to Mehargarh, when it rose around 6000 B.C., but this matter requires further investigation.

c. Sindh gets submerged into sea (100,000 years ago to 5000 years ago).

Although man lived in Sindh since 500,000 years ago, but sea level rose and most of Sindh was submerged into sea for some millenii. The advancement of sea into the in-land was as under:-

100,000 years ago, same level was as present near Karachi.

90,000 years ago, near Thatta and Sondha.

80,000 years ago, near Amri.

70,000 years ago, near Larkana.

60,000 years ago, near Rahim Yar Khan.

50,000 years ago, near Multan.

The sea then started receding temporarily touching Amri about 30,000 years ago, but again rising to Punjnand 20,000 years ago, when finally it started receding 10,000 years back it was

near Dadu and then fall in its level was quick. Around 5000 years ago the sea level was near Badin and Sakro. ⁽⁶²⁾.

d. Rise of Mehargarh (6000 B.C.). With Sindh re-emerging from the sea, it was expected that the valley will be occupied by the man and it so happened. Sindh's borders extended to Sibi until 1740 A.D. when Sibi Kachi districts were transferred to the Khan of Kalat. Thus for all cultural purposes the areas is to be considered a part of Sindh. Mehargarh excavations have pushed our history back to 3700 years before Mohen-jo-Daro, which in it self existed 4300-3650 years ago. Thus Mehargarh is 8000 years old. Discovery of Mehargarh 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 Mehargarh culture. A few note worthy findings of the historical importance from Mehargarh are:-

- i. Domestication of cattle (*Bos Indicus*) started around 6000 B.C. 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.
- 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, blades, bladelets of flint and stone vessels were in use.
- vi. Different varieties of wheat and barley have been unearthed and so is the cotton. The *lattar* may have been cultivated for fiber and oil. The previous thinking that cotton was grown by the Indus people after 2400 B.C. stands superceded.
- vii. By phase. III or 4000 B.C. with introduction of 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, Chanhu-Daro 1700 years later.
- Viii. Copper was known, molten and used in phase-III.
- ix. By 4000 B.C. large scale cultivation of cereals, mixed farming (various types of wheats and barleys), and domestication of cattle, goats and sheep was practiced.
- x. By 3500 B.C. goat and bird motifs on pottery disappeared and were replaced by geometrical and intricate polychrome patterns.
- xi. By 3500 B.C. 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 500 to 100 unfired pots above it, put more straw on the top and finally sealed it by roof of clay. Then straw is ignited, fire burns for 24 hours. Cooling time of about 7 days is allowed and pots are taken out Mehargarh show step by step development of complex cultural patterns that manifested themselves in the great cities of the Indus civilization. (⁶³).

e. **Cultural development in the Thar as well as the Indian desert (19000 B.C.- 1500 B.C.).**

The studies into climate of Thar desert have been based on the level of water in 4 inland salt water lakes namely:

Sambhar (27⁰N-75⁰E); Didwana (27⁰ 20'N-74⁰-35E); Lunkaranasar (28⁰-30'N, 75⁰-45'E.) and Pushkar (26⁰-29'N-74⁰-33'E.); the first two in the present semi-arid belt (rain-fall between 25 to 50 mm, the third in the arid zone (Less than 25 mm rainfall) and the last in semi-humid belt (rain fall, 50-60mm. The studies showed that (⁶⁴).

- i. Before 9000 B.C. there was very dry climate.
- ii. 9000-8500 B.C. climate moved from very dry to beginning of low wet period.
- iii. 8500-7500 B.C. climate changed to medium wet.
- iv. 7500 B.C. - 3000 B.C. medium wet climate.
- v. 3000 B.C. - 1750 B.C. high wet climate.
- vi. 1750 B.C. - 1000 B.C. low wet climate.
- vii. 1000 B.C. - 500 A.D. medium dry climate.
- viii. 500 A.D. to date low dry climate.

For this study; the dry and wet climate has been divided in to 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 (⁶⁴) 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 desert zone called Pat (desert of Sukkur and Khairpur district and Khipro Taluka) had climate like the present. The desert of Thar Parkar district and the later had climate like that of the present, Thar desert of Thar Parkar district and the later had climate like that of the present Nagar Parkar, which in turn had rain fall of 50-60cms, against 30-35cms 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 equal number of goats and sheep even 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. (⁶⁴).

f. **Mesolithic period in Sindh (10,000 B.C. 6000 B.C.)**

The discussion in (e) above show that Sindh desert and hilly tract were capable of supporting large cattle wealth between 8500 B.C. to 1000 B.C. Already around 10,000 B.C., to 8000 B.C., the man had started domestication of animals in the Middle East and around 7500 B.C. domestication had started at Mehargarh. The Thar and Kohistan climatic conditions gave rise to Mesolithic man's raising cattle there. Further proof is furnished by B. Allchins' DISCOVERY

OF Mesolithic age tools made at Rohri and Kot Diji hills and transported to Mesolithic man of not only Sindh desert but also of Indian desert up to Marwar (⁶⁵).

g. **Neolithic period in Sindh (6000-3700 B.C.)** The exact date of beginning of Neolithic period in Sindh was not known, but excavations at Mehargarh have shown the beginnings of pre-pottery Neolithic settlements in the period before 6000 B.C. an independent development (⁶⁶). Neolithic period of Catal Hyyuk (Turkey) is 6500 B.C., and for Iraq and Egypt in the river flood plains, it is 4500 B.C., from Mehargarh the Neolithic must have spread along the Bolan rivers drainage system, through Sindh Hollow (Ghari Khairo, Shahdad-Kot, Hamal lake and Gaj river alignment) to Manchar. From there it may have spread to the lower Khirthar 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, Othman Bothi, diso, Jhangri, Gharo Biro, Karchat, Toung, dhal, Goth Hasan Ali, Nil Bazaar and Orangi. From Mehargarh it may also have expanded to wards Mundigak (Afghanistan), Kile Gul Muhammad and Damb Sadat (near Quetta), Ranno, Gorandi (Loralai) and large number of sites along nal and Kej rivers in Makran, (68), Studies into this process of expansion of Neolithic in the Indus valley needs further research of at least 10-15 years and things may not crystallize until the end of this century.

h. **Early Indus Culture (3700-2300 B.C.)** Mujamdar N.G. had explored Amri and other sites in the Sindh Kohistan in early thirties. Dikshit had done further explorations (Ref: 68), but situation was made crystal clear only after explorations of Amri by Casal (⁶⁹). A large number of sites in Balouchistan too were excavated by different archaeologists after independence. Fairservice excavated Kile Gul Muhammad (⁷⁰). Kot Diji was excavated by Dr. F.A. Khan (⁷¹) and Indian archaeologists at work in the East Punjab, Cutch, Gujarat and Bikanir and Maharashtra had 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-Diji, a few sites in Cutch, some in Balouchistan and the East Punjab, (near West Punjab) as the "Early Indus Culture". The sequence, follows as under:- Mundgik (4300 B.C.), Kile Gul Muhammad (36712+500 B.C. i.e., about 4200 B.C.), Sindh Kohistan sites and Amri (3700-3500 B.C.), Kot Diji etc 3000 B.C. (⁷²).

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

- i. The Mehargarh culture led to the development of the early Indus Culture. The Pottery from Mehargarh period VII (3000 B.C.) also shows affinities with those of the early Indus Culture.
- ii. Human figurines developed at Mehargarh in the fifth millennium B.C. (5000-4000 B.C.), show affinities with subsequent figurines developed there in the VIIth phase and there in turn show similarities with the Early which evolved the mother goddess of the Mature Indus culture found at Mohen-jo-Daro.
- iii. There is remarkable similarity between polychrome vessel Mehargarh period-IV (3500 B.C.) pottery
- iv. The sites also prove the evolution from Mesolithic culture to Neolithic and beyond in the manner that:

a. In stage-I, 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 pastle. 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 (⁷³).

b. In Stage-II, agriculture was further developed, pastoralism was reduced considerably, and villages were permanently occupied except special areas of Thar and Kohistan, where although permanent villages had arisen but still some seasonally occupied scattered settlements existed for pastorals. Copper was introduced from the Middle-East, dead were buried in flexed position, pottery had designs, of animals, fishes, and trees etc as motifs. Houses were not laid on any grid, but were scattered. Gabar-bunds were put across Rainfed Rivers for the sailabi cultivation. Brick houses had stone foundations. Some times boulder and bricks (³³) were used for foundations and upper walls respectively. Potters marks shows 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 (⁷⁴).

c. Stage-III from Kot Diji to Mohen-jo-Daro (2800-2300 B.C.). 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, Pipal leaves, bulls, cobras, fishes and animals in motion; more elaborate female ornaments as compared to Mehargarh and Amrian times ware worn. There was a beginning of houses 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 in 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 Sarswati 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 Balouchistan and the south-western Sindh, for sailabi cultivation on rain water (⁷⁵).

i. **Mature Indus Culture (2300-1650 B.C.)**

Between 2300 and 2000 B.C. the Amrians and Kot-Dijian reached a higher level of culture depicted by four towns of major size. Mohen-jo-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 (Mohen-jo-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 un-achieved 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 informs 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 centres took place, pastoralism got limited. Infrastructures in the urban centres; like: drainage, sanitation, granaries, towns built on the grid pattern, house plans like present days apartments, wide streets, fortifications, religious centres in form of the Great bath (³⁶), development of irrigated agriculture, cultivation of wheat, barley, peas and etc and cotton, were other developments.

The area under Mature Indus culture embraced most of present Pakistan (except hilly tracts in Northern NWF Province, Azad Kashmir), East Punjab, Western U.P. Haryana, Cutch Kathiawar Gujarat, Northern Maharashtra (Daimabad 50 miles east of Bombay), and Mundigak in Afghanistan approachable through Gomal Pass (⁷⁵). There is conjecture that this mighty Civilization of ancient world was controlled from different urban centres at Kalibangan (Eastern Punjab), Harappa, (Western Punjab), Ganwer-Walla (Bahawalpur), Mohen-jo-Daro (Sindh and Lothal (Cutch, Kathiawar, Gujarat and northern Maharashtra). Gedrosia (Southern Balouchistan) may have been controlled from Sindh (⁷⁷).

The mature Indus civilization decayed between 1800-1650 B.C. due to reduction in the waters of the river Saraswati in East Punjab and Bahawalpur after 2000 B.C. Major changes in the course of the river Indus took place there by destroying irrigation system, reduction in rain fall in Thar, Kohistan and Balouchistan and for unknown causes in Gujarat and at Harappa.

j. **The Declining Indus Culture (1750-900 B.C.).**

Although some of the towns of the Indus or Harappan culture were not occupied for 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 Mohen-jo-Daro. Who were these invaders? They theorised 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, ⁽⁷⁹⁾. These causes have further been examined and discussed under (i) above. In brief due to lessening of rain fall and climate becoming drier, the following incidents happened in sequence;

i. Water in the Sarswati catchment 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. Gujarat cities and villages too depended on rain-water, as they do to-day. Reduction of rain fall in those areas, (as per findings of climate of Rajasthan which is adjoining to Gujarat) dwindled agriculture and there by the urban centres and the people took to pastoralism.

iii. During the earlier period due to more rain-fall, the Punjab Rivers must have carried 50-100% more water and there by may have over-flowed their banks, irrigation areas, which were to help in rise of urban centres like Harappa. The agriculture was affected due to reduction in levels of the rivers and therefore Harappa and other urban centres of the Punjab also declined.

iv. Balouchistan met the same fate due to lack of rain-fall.

v. The Sindh cities survived up to 1650 B.C. 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 B.C., the river Indus swung too far east or west, from its central course, destroying irrigational system in totality and thereby the agricultural economy. It leads to deterioration of the Indus Cities around 1650 B.C., and people reverted to pastoral life ⁽⁸⁰⁾.

Some small cities and villages continued to be occupied but the great metropolis Mohen-jo-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 an end and the local trade became limited. Deterioration continued from 1650 B.C, to 900 B.C. This declining period is erroneously divided into two groups ⁽⁸¹⁾.

1. Jhukar culture 1650-1300 B.C.
2. Jhangar culture 1200-900 B.C.

It was infact continuation of the Indus Culture in its decaying form. Thus ended the Glorious Indus Civilization, which began at Mehargarh ground 8000 B.C. and came to an end in 900 B.C.⁽⁸²⁾.

k. Aryans and their influence in Sindh. (85-519 B.C.)

The myth of Aryan migration to India 5500 years ago and their language becoming mother of all the Northern Indian languages, first advocated by Max Muller ⁽⁸³⁾ in 1984, went undisputed for next 60 years, when excavations of Mohen-jo-Daro proved that the people responsible for the Indus Civilization had a religion with the least akinness to that of Vedic

religion. A theory was therefore developed that the Mohen-jo-Daro people were Dravidians and were sacked by Aryans with the help of new weapons and horse drawn chariots ⁽⁸⁴⁾. Another 50 years were to pass before Rafique Mughal ⁽⁸⁵⁾, proved that the Indus civilization declined due to natural causes and decline was to continue up to beginning of first millenium B.C. (900 B.C. is more realistic figure). Aryans brought iron and gray ware to the Sub-continent. By Radio carbon dating Agarwal and Kusumgar ⁽⁸⁵⁾, were to date the Aryan's entry in various parts of sub continent as under:-

Swat	1050 B.C.
Pirakh (near Sibi)	900-800 B.C.
Rajasthan	800 B.C.
Madya Pardesh	500-400 B.C.
Uttar Pardesh	200-050 B.C

For Sindh and the Punjab 800-700 B.C., can be accepted as the most probable date. On the basis of these findings the earlier Hymns or Rig Veda have been assigned a date 1000 B.C. and the latter Hymns 900 B.C. ⁽⁸⁶⁾. The other 3 Vedas have been assigned a date of 900-800 B.C. ⁽⁸⁶⁾. The other 3 vedas have been assigned a date of 900-800 B.C. The other Aryan religious texts have been given new dates as under ⁽⁸⁷⁾.

Early Brahmans:	800-1600 B.C.
Later Brahmans:	700 B.C.
Sutras:	600-200 B.C.
Earlier Upanishads:	600-500 B.C.
Later Upanishads:	500 B.C.

Mahabhartha stories are no historical events and the Jarath the king of Sindh's participating in the Great Pandva-Kauriva War, to help the latter is simply a fable and not a historical fact. Mahabhartha and Ramayana have been written between 500 B.C. 200 A.D. The Aryan religion of vedas is different from that of Upanishads. It has now been argued by a number of scholars ⁽⁸⁸⁾ that, religions of Upanishads from which a rose the present Hindu religion, was borrowed from the religion of the Indus people. Of these scholars Kosambi thinks that religions of Upanishads, Buddhism, and Puranas had their roots in the Indus Culture as is proved by Buddha or Yoga like postures, bull, incarnation of Vishnu in form of man lion, three honed god in Pipal leaves and many other Hindu deities depicted on the Indus and Mesopotamian seals and borrowing of these ideas must have been through the Indus People. Even Ganesh, the Hindu deity may have been borrowed from the Mohen-jo-Daro composite animal, consisting of a bull with elephant's trunk, rams horns etc, and head missing.

Around 600-500 B.C. the Aryans seem to have established 16 principalities of Mahajanpadas in the Northern Sub-continent. Sindh is not mentioned as one of the Mahajanpadas (Republics), though Kamboja (Swat area) Gandhara (Texila) Avanti (Northern Gujarat) and Matsya and Surasena (Rajasthan), which are the areas surrounding Sindh are mentioned ⁽⁸⁹⁾. Sindh seems to have had very little influence of Aryans, during these early centuries. From this, it seems that although Aryans had no direct influence on Sindh, yet their religion as preached by Upanishads

was accepted in Sindh, because essentially it was the Indus religion, which had lingered on in Sindh.

Among recent workers on Aryans period in Sindh is Lambrick, but, he had done no detailed work and has repeated stories in the Aryan classics (⁹⁰), considering them true.

1. *Renaudot, Esuebin. 'Ancient accounts of Indus and China: London, 1733.*
2. *Renell, James F.R. 'Memoir of a map of Hindustan', London 1700. Another edition came out in 1783. A General map of India was published in 1785.*
3. *Asiatic Researches, 24 volumes, 1800-1830 Calcutta and London, 180-1830.*
4. *Vincent, Rev, William. 'Dissertation on the Voyage of.....1797. Of his three maps, dalrymple's map is based on his survey 6A chart.....of Guzarat and Scindy drawn in 1783.*
5. *Vincent Rev. William. 'Commerce and Navigation of the Ancient in the Indian Ocean', London, 1798.*
6. *Crowe, Nathan, 'As account of Sindh and History of Kalhoras: Selection from records of Bombay Government 93, completion No. 55, Bombay, 1892.*
7. *Pottinger, Sir. Henry. Travels in Balouchistan and Sindh', London, 1816*
8. *Burnes, Alexander. 'Memoir on the Eastern branch of the river Indus; on the route of Alexander the Great', Trans. Royal Asiatic Society, London, Vol. III, 1839. 'Travels into Bokhara', Vol-III, London, 1834. Burnes, James, 'A visit to the Court of Sindh; London, 1831.*
9. *Malet, George Greenwille. 'History of Sindh, 710-1590 A.D's Jour. Asiatic Society of Bengal, Vol. XVI, 1846. Reprint in selections from records of Bombay Government, Vol. XVII, 1855. It is a complete free translation of the whole work, Tarikhi Masumi.*
10. *Postan J. Of the early history of Sindh, from Chah-Namah and other Authorities. 'Jour. Asiatic soc. Bengal, Vol-X, pp 183-197 and 267-290, 1841. Translation of Tuhfatul-Kiram, same Jour. Vol-XIV, pp. 77-99 and 155-173 Calcutta 1845.*
11. *Mc Murdo. 'Waqai-Tarikh, or History of Kalhoras', Journal Bombay Branch of Asiatic Society, 1846. It is history of Kalhoras from 1680-1757 and has useful and new material. This text has not been referred by any subsequent historian of Kalhoras.*
12. *Haig, Gen. H.H. The Indus Delta Country London, 1874. Its first three chapters were printed separately in 1887.*
13. *Mirza Kaleech Beg 'History of Sindh 'History of Sindh', Vol-I and II Karachi 1900 and 1902.*

14. Khan, Khudadad Khan '*Lub-Tarikh-i-Sindh*' Amritsar, 1901. New Edition Sindhi Adabi Board, 1959.
15. Sayed, Suleman Nadvi (*Arab wa hindu Ke Taaluqat*) 1930, and'. *The Commercial Relation of India with Arabia. Islamic Culture, Vol-VIII, pp, 281-308.*
16. Bellasias A.F.C.S. *An account of Ancient ruined city of Brahmanabad, Jour. Royal Asiatic Society, Bombay Branch, Vol-V, Also in Hughes' gazetteer of Sindh, London, 1876.*
17. Hargreaes. '*Excavations in Balouchistan*', *Mem. Arch. Sur. Ind. New Delhi, 1929.*
18. Stein, Sir Aurel. '*Archaeological Tour in Gedrosia*', *Mem. Arch. Sur. Ind. No. 43, New Delhi, 1928.*
19. Vats, Madhu Sarup, '*Excavations of Harappa*', 2 Vols. New Delhi, 1940.
20. Mujamadar N.G. '*Exploration in Sindh*' *Mem. Arch. Sur. Ind. No. 48, 1934.*
21. Stein, Sir Aurel, '*Survey of Ancient sites along the lost Sarswati river*', *Geog. Jour. Vol. XCIX No. 4, 1942.*
22. *Annual reports of Archaeological survey of India, Annual reports of archaeological survey of the Western Circle and annual bibliography of Indian archaeology, Calcutta and Leiden, various years.*
23. Marshal Sir John, *Mohen-jo-Daro and the Indus civilization, London, 1931* *Prehistoric Civilization of the Indus*', *Illustrated London News, Jan, 7 and 14, 1924 September 20, 1924, Feb. 27 and March 6, 1926 and Jan. 1928.*
24. Mackay, Ernst J.H. "*Further excavation at Mohen-jo-Daro*", London 1938. *Chanhu-Daro Excavations*', London, 1939.
25. Piggot Stuart, '*The chronology of Prehistoric North Western India*', No. 1, Jan. 1946. "*Some ancient cities of India*" London 1945. '*Pre-historic India*', London, 1948, He had theorised the fall of Mohen-jo-Daro from the Riga-Veda hymns.
26. Wheeler, Sir Mortimer. R.E. '*Indus civilization*', Cambridge 1953 *Pakistan before the Aryan, Pakistan Miscellany. Vol-II, pp. 3-10, 1958.*
27. Oldham. C.F. '*Sarswati and the lost river of Indian Desert*', *Calcutta Review Vol-LIX, 1874, and also Jour, Royal, Asiatic Soc. London, 1974, pp. 49 and onwards.*
28. Nearchus (Pseud), '*The lost river of the Indian Deseart, Calcutta Review, Vol-X, 1975.*

29. *Odham R.d. 'On the probable changes in the Geography of Punjab and its rivers, a Historic geographical study with a map; Jour. Asiatic society of Bengal, Vol. LV. 1887, Part 2.*
30. *Raverty, Major H.G., 'The Mehran of Sindh and its tributaries with 10 maps; jour Asiatic society of Bengal, Vol-lxi PP. 155-508, 1897.*
31. *Raig, M.R. Major Gen. 'The Indus Delta Country', London, 1894. Its first three chapters were printed in 1887 under the same title and were known to Raverty.*
32. *Burnes and Minchin C.F. 'Bahawalpur District Gazetteer, 1903.*
33. *Whitehead R.B. 'River courses of the Punjab and Sindh. Indian Antiquary, Vol. 61. pp. 163-169, 1932.*
34. *Pithawalla, Manek B. 'A geographical analysis of the Lower Indus Basin', part-III. 'The Indus its history, regimen and physics with maps and plates, jour Sindh Historical society Vol-II, parts 1 and 2 and 4, 1934-35 and Vol-III Part 2 1935-36.*
35. *Stein, Sir, Aurel. 'Survey of Ancient sites along the Lost Sarswati River', Jour. Royal Geog. Soc. Vol. XCIX, No. 4, London 1942.*
36. *15th Century Sanskrit ballet Hammir Mahakayya, describe Hammir Raso of Ranthambore's resistance to Allauddin. 'Mandalik Karya is another story of Raja Mandalik of Junagarh's resistance to Mahmud of Begra in 15th century. 16th century balads of 'Padmanabhana' Kanhad-dev' describe Kanhad-dev of Jalor's valiant fight against Allauddin. There are Cutchi Ballads claiming the saving of the Royal Soomra ladies from Allauddin's troops by Cutchi forces of Jareeja Samma, the rulers of catch. The similarities of this literature of 15th and 16th centuries from Rajasthan, Kathiawar, Gujarat and Cutch with that of Sindh as well as similarities among them-selves proves that the Dodo-Chanesar story is not genuine. Dodo-Allauddin conflict may have been conflict with Shahabuddin Ghorī Altatmash or Hammir Dodo's conflict with Muhammad Tughlaq.*
37. *Sorley. H.T. Shah Latif of Bhit Oxford, 1940*
38. *Casal 'J.M. Foulilles, D. Amri' (French), Paris, 1964, 2 volumes, with English summary. Also a report in Pakistan Archaeology No. 1 "Fresh digging at Amri" by J.M. Casal.*
39. *Khan, F.A. Excavation of Kot Diji, Pak archaeology No. 2, 1965, gives a detailed report. The preliminary report was issued by Department of Archaeology in 1957-58. Similar sites were un-earthed in East Punjab and Bikanir and are termed as Sethian after the archaeologist.*
40. *F.A. Khan; Banbhore, department of archaeology, Karachi 1960. Detailed report in Pakistan Archaeology Vol-1.*

41. For details of these sites refer to 'Ancient India' an official bimonthly Journal of department of archaeology India; Pakistan archaeology No. 1-9 Fairservise Jr.
42. For details of these sites refer to 'Ancient India' an official bimonthly Journal of Department of archaeology India; Pakistan archaeology No. 1-9 Fairservise Jr. 'Roots of Indian civilization. 1970; Fairservise, Excavations in the Quetta Valley, American Museum of Natural History vol. 45, 1956. Bridget and Richard Allchin, Beginning of Indian Civilization' London, 1968, and other vast materials in the international archaeological journals.
43. Same as (42) and also Rafique Mughal's 'New fresh side lights on Indian culture 1973.
44. Dawn.
45. Monique Lechevallier of French National centre for scientific research carried out excavations at Mehargarh since 1973 and reported in South Asian Archaeology 1977 and 1978. A summary titled 'The Antecedents of civilization in the valley appeared in the American Scientist, august 1980, pp. 122-133 by Jean Francois Jarridge and Richard H. Meadow who are the authors as we; as excavators past 4-5 years.
46. Pithawalla, "Physical and Economic Geography of Sindh". Sindhi Adabi Board, Karachi 1959.
47. Lambrick H.T., 'History of Sindh Services vol-1 introduction'. Sindhi Adabi Board 1964.
48. Panhwar M.H. 'Ground Water in Hyderabad and Khairpur Divisions, 1964.
49. Panhwar M.H. 'Ground Water in Hyderabad and Khairpur Divisions, with additional notes, 1969.
50. Unpublished map, size 4ft x 8ft, produced in 2 years (1966-67) from some 200 aerial photographs.