

YUSSOUF SHAHEEN



The Story of
THE ANCIENT
INDUS PEOPLE

Mohenjo-daro - Harappa



Culture & Tourism Department,
Government of Sindh

The Story Of **The Ancient** Indus People

Mohenjo-daro - Harappa

Yussouf Shaheen



**Culture and Tourism Department,
Government of Sindh, Karachi**

All Rights Reserved

Book'S name: **The Story of the Ancient Indus People**
Mohenjo Daro-Harappa

Writer: **Yussouf Shaheen**

TitleL **Danish Khan**

Layout: **Imtiaz Ali Ansari**

Publisher: **Culture and Tourism Department,
Government of Sindh, Karachi**

Printer: **New Indus Printing Press sukkur**

Price: **Rs.700/-**

Can be had from

Culture, Tourism, and Antiquities Department

Book shop opposite MPA Hostel

Sir Ghulam Hussain Hidaytullah Road

Karachi-74400

Phone 021-99206073

Yussouf Shaheen

The Story Of The Ancient Indus People

Mohenjo-daro - Harappa

Books authored by
Yussouf Shaheen:
Rise and Fall of Sanskrit
Fall of Native Languages of the Americas
Slave Nations Under British Monarchs
Artificial Borders of the World
Rise and Fall of gods – In Historical Perspective
William the Bastard and his descendants
World Confederation of the Peoples
The World of Conquerors
Truth Untold

Seven other books in Sindhi and Urdu

In the memory of
my friend
Abdul Karim Baloch
A TV icon fully reflecting
the greatness and wisdom of
Mohenjo-daro
and blessed with
the enduring
perception of a
Weapon-Free Society
created in the Indus Valley Civilization.

© Yussouf Shaheen 2018

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical photocopying recording or otherwise , without the prior permission of the publisher.

This book is sold subject to the condition that it shall not, by way of trade or otherwise, be lent, re-sold hired out or otherwise circulated without the publisher's prior consent in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

Title: **Danish Khan**

CONTENTS

Publisher's Note	11
<i>Preface</i>	
The Indus Valley Civilization and our awful attitude	17
<i>The ancient life</i>	
Indus Valley Civilization	41
Indus Valley Life before Mohenjo-daro	57
On Mohenjo-daro	
Zulfikar Ali Bhutto	69
<i>The Age</i>	
First Grand Metropolis of the Ancient World	73
The world's first Utopian Society	89
<i>Indus Valley – Cotton</i>	
The miracle fibre of the Indus	97
<i>Indus Valley Vivilization</i>	
Weights and Measures	
1st sophisticated financial exchange system?	107
Health care in the Ancient Indus Valley	119
Brick: basic unit of Building Indus society	129

<i>Indus Trade</i>	
Trade in the Indus Valley Civilization	143
<i>Indus language</i>	
The Indus script (Looking for roots)	157
<i>Evidence for writing Dravidian language</i>	
Obstacles to Decipherment	183
<i>Seals</i>	
Indus seals: what do they speak?	199
Swastika Seals	211
The mystery of cylinder seals	215
Meluhha – I	225
The origin of black-headed people	
Who the Sumerians were?	
Meluhha – II	237
* The Indus colony in Mesopotamia	
* More on Meluhhan Village	
Meluhha - III	245
The Ubadians and Mitannis	
Sumer settlements before Indus people	
<i>Indus Valley links unearthed in Qatar</i>	
Meluhha – a sailor country	253

Questions Unanswered	257
With no worship place found	
Question of religious belief	
<i>Religion Free Society</i>	
Did the Indus people live without any religion?	265
 <i>Pre-Vedic Era</i>	
Religion in the Indus Valley- I.....	271
 <i>Pre-Vedic Era</i>	
<i>Indus religion</i>	
Religion in Indus Valley-II.....	281
 <i>Religion in Indus Valley-III</i>	
Perception of Oneness of God	
Rise and decline of Varuna	295
 Index	305

Publisher's Note

Since the discovery of the Indus Valley Civilisation there has been an array of questions which do not find any physical support. A long range of evidences from the Indus sites uphold the perception that the Indus Valley Civilisation was a very developed urban society based on planned cities and towns. These were the first urban towns and cities with emphasis laid on hygiene, purity and high standard of living. They traded with overland and outside civilizations. The discovery of the Indus Valley Civilization in 1920s changed the perception of ancient world and older civilizations.

When the site of Moenjo-daro was unravelled a very astonishing ancient urban culture was unfolded much earlier than it was ever thought of. This multiplied the ancient richness discovered at Harappa, some 590 km north of the Mohenjo-daro. The new discovery reflected an advanced culture of urban settlements, reflecting some very advanced planning of urban settlements, with planned houses built in a grid involving the advanced technologies of measurements, weighing, water management, efficient drainage system, tool-making technology and even the fashion and jeweler technology. This was astonishing as remarked by John Marshall himself, "... a spectacular discovery: the Indus Valley Civilization and the twin cities of Harappa and Mohenjo-daro which together pushed back India's history. He further added that "The people of Indus Valley Civilization did not build massive monuments like their contemporaries, nor did buried riches among their dead in golden tombs. There were no mummies, no emperors, and no violent wars or bloody battles in their territory. Remarkably, the lack of all these is what makes the Indus Valley Civilization so exciting and unique. While others civilizations were devoting huge amounts of time and resources

to the rich, the supernatural, and the dead, Indus Valley inhabitants were taking a practical approach to supporting the common, secular, living people.

A very significant fact of the Indus Valley Civilization is evident from the archaeological relics, which surprisingly illustrate the fact that the Indus people lived in towns and cities in the ancient world when its contemporary civilizations did not have the perception of an organized urban life. All experts agree that the Indus Valley people had a federal system by which they maintained an effective mechanism of civic life.

Scholars do believe that the economy of the Indus Civilization depended on agriculture and the trade. They also speak about the ship-building technology needed to travel overland and over the international waters (ships from Meluhha (the Indus) docked in Mesopotamian ports). Bullock carts may be seen as a slow-moving means of communication but given the situation 3,300 years back, it was one of the dependable mode. The Indus Valley Civilization may have been the first civilization to use wheeled transport.”

In today’s world every country has some institutional mechanism to maintain standard weights and measures. One wonders how the rest of the world would have lived without some weights and measures 6,000 years ago. For many it was not so in the Indus Valley cities and towns. They had invented their system, standardized it and observed with utmost accuracy. Today the researchers have every reason to appreciate its almost perfect accuracy.

The beginning of the building technology goes back to the making mud bricks which underwent a long history till a proper way for baking the bricks was invented and became an important tool technology in raising the towns and cities. The Indus Valley Culture (3200–1300 BC), whose brick architecture extends back to 7,000 BC in the valleys of Baluchistan.”

COTTON

Cotton is truly a miracle fiber: it has been spun, woven and dyed since ancient times, and it is still the most widely used fiber for cloth today. It is soft and fluffy and grows in a ball around the seeds of the cotton plant. The authors of the Encyclopedia of Arts said in 1946, "According to records unearthed in the ruins of the city Mohenjo-daro in the Indus Valley of India (now Pakistan) cotton cultivation and manufacture pursued there was early as 3,000 BC.

As far the quality of cotton is concerned "the existence of developed crafts of cloth weaving and dyeing in the Indus Valley five thousand years ago has been proved by the discovery of spindle whorls, bobbins and a dye's workshop at Mohenjo-daro. The oldest cotton fragment, found at Mohenjo-daro has sixty ends and twenty picks per inch and is made of 34 count thread. It was because of this degree of refinement that cotton cloth was described by terms derived from Sind[h] – Sindh and Sindhian. According to Herodotus, Sindhian cloth was widely used in Egypt and the Mediterranean region around 500 BC. Extremely fine muslins from Sind[h] were used to wrap mummies in Egypt and were worn by Roman emperors from Augustus to Hadrian. Similarly, the seventh century rulers of Mesopotamia wore Sindhian cloth."

In 1924, Sir John Marshal came out with the first perceptions on the Indus script. Since the discovery of the first seal, the scholars have been trying to read the Moenjo-daro script and establish its origin, but before any headway could be made, a mystery has cast over, as, similar seals had also been discovered from some Near East, Middle East and other areas later known to be part of Indus Civilization. About 40 seals were discovered from Kish, Langash, Umma and Susa in 1921, about ten years before the extensive excavation of Moenjo-daro.

AGE OF MOHENJO-DARO

About the age of Mohenjo-daro - Sir John Marshall, who discovered Harappa and Mohenjo-daro holds "that the

archaeological objects found from the excavated sites are not all which can be relied upon, as there might be six more cities lying underneath superimposed one upon the other, which have not been excavated owing to raised underground water level. However it is convincingly hoped that a day is not far off when these layers too would be excavated pushing the present ancient past of the Indus Valley Civilisation to many thousand years than the present estimate of nearly 5,000 years.”

Another British archeologist Ernest Mackay opines that: “the foundations of the city (Mohenjo-daro) are of a much earlier date than the levels it has been possible to reach.” Since it has been decisively concluded by the foreign archaeologists and experts that there are six more cities beneath the present structure of Mohenjo-daro, therefore the author of this book has suggested to shift the present Upper Structure of Mohenjo-daro to nearby some safe place, so that the rest of the six cities can be excavated. This move may change the face of human history. Yussouf Shaheen says, Mohenjo-daro is a universal asset, the most precious heritage of all mankind and also bearing a major golden part of our own history. We must prepare to carry out the job in a similar way the pyramid Abu Simbel (Great Temple) in Egypt was safely shifted after the building of the Aswan High Dam on the Nile River. The job was done by a multinational team of archeologists, engineers and skilled heavy equipment operators under the supervision of the UNESCO at a cost of about USD \$40 million in between 1964 and 1968. For Mohenjo-daro, we leave this issue to our people and our archaeologists. We would also seek guidance and assistance from the UNESCO and the leading universities all over the globe working already on the projects - Indus Valley Civilization, Mohenjo-daro and Harappa.

WEAPON FREE SOCIETY

Archaeologists have long wondered whether the Indus civilization could actually have thrived for roughly 2,000 years without any major wars or leadership cults. Obviously people had conflicts, sometimes with deadly results — graves reveal

ample skull injuries caused by blows to the head. But there is no evidence that any Indus city was ever burned, besieged by an army, or taken over by force from within. The author of this book says, our forefathers laid down the foundation of “Weapon Free Society” and survived peacefully for thousands of years until the 1900 BCE. They were of the opinion that the weapons are the source of death; more weapons would bring more deaths. The author says, the result and correctness of the Indus philosophy against the manufacturing of weapons can be proved from the pages of the World History. He further says, weapons created conquerors who killed, robbed and enslaved the entire humanity. From the Mahabharata and the Trojan Wars, down to the First and Second World Wars, millions and millions people have been mercilessly massacred and killed. Millions of women and young girls were kidnapped, raped and sold into slavery. Now the world rulers are holding immense drastic nuclear weapons, they have acquired capacity to annihilate the entire human race; even they can destabilize the entire solar system. To avoid “universal death,” the world has to adopt the ancient Indus philosophy of “Weapon Free Society,” says the author. They were the first messengers of peace - the ancient Indus people who proved historically that the entire humanity can survive and prosper well without weapons, says the author.

Yussouf Shaheen - essentially a research scholar, linguist, historian, journalist and poet who has has been accorded two highest awards in literature by the president of Pakistan: Pride of Performance (in 1995) and Sitara-e-Imtiaz (Star of Excellence) in 2016. One must give the full credit to him, for writing the first and the most exhaustive book on the ancient Indus people, Mohenjo-daro and Harappa.

Akbar Laghari

Secretary

Culture, Tourism & Antiquities Department
Government of Sindh.

Preface

The Indus Valley Civilization and our awful attitude

It was only a little over a century-and-half that it became evident that the Indus Valley Civilization is the oldest civilization in South Asia. One wonders how the strike of an unknown effort to lay railway line in the Punjab province turned to be the beginning of a new era in the history of archaeology. The 1880 strike led specialists to more excavations. Site after site added to their expectations and today ancient sites like Moenjodaro, Mehargarh, Amri, Kot Digi became amazing stories of ruins of towns and cities. Today more than 1,052 remains of these new sites reveal much more about an unprecentated civilisation that flourished more than 5,500 years ago or even more. Today archaeologists believe that “Indus Civilization was one of the world’s first great urban civilizations. It flourished in the vast river plains and adjacent regions which are now Pakistan and Western India. The origin of the Indus Civilization dates back to 2,600 B.C, developed in the river basins of Sutlej, Ravi and Indus. The two cities of this civilsation were located below the Himalayan Mountains bordering Pakistan and North East India.(1) The retrieved tools and remains now speak that ancient Indus people were engaged in cultivating various crops and busied themselves with trade to make the civilization rich and selfsustaining. “Being the fertile land and with the sound network of irrigation, Indus Valley people thrived on the system that was centralized towards agriculture. They used to cultivate crops like barley, wheat, melon seeds, and oil crops like dates, mustard and sesame. Field pea was observed as the only source for vegetables. The research revealed that Indus

people also knew about cultivation of cotton. It is also believed that on the west coast, these people also used to cultivate rice although this is not a proven fact. Numerous wild species of animals were domesticated. These include cattle, buffaloes, short horns, horses, camels, pigs. They also used dogs and cats as their pets.”(2)

From these archaeological remains of Mohenjo-daro and Mehargarh it has become evident that they not only traded with people within the Valley, they also traded with the farthest places like Mesopotamia and other territories. “The trade relationship during the later 3rd millennium was a direct one: ships from Meluhha (the Indus) docked in Mesopotamian ports; some Meluhhans settled in Sumer. There is a seal belonging to a Mesopotamian whose job it was to act as an interpreter of the Meluhhan language. On the other hand, there is nothing to suggest that people from Mesopotamia reached the Indus, so it is clear that the Harappans conducted the trade between the two civilizations. Mesopotamian ships sailed the length of the Gulf, as far as the western coast of Magan (Oman peninsula), trading directly with Magan and with Dilmun (Bahrain); ships from Magan and Dilmun also docked in Mesopotamian ports. Trade also took place across the Gulf, between Elam and the city-states on the Iranian plateau in the east and Mesopotamia, Dilmun and Magan in the north and west.” (3)

A very significant fact of the Indus Valley Civilization is evident from the archaeological relics, which surprisingly illustrate the fact that the Indus people lived in towns and cities in the ancient world when its contemporary civilizations did not have the perception of an organized urban life. All experts agree that the Indus Valley people had a federal system by which they maintained an effective mechanism of civic life. These bodies (municipal committees – earliest form of democracy) planned and retained an effective system of town management. “All of the Indus Valley municipalities were highly organized and carefully planned, displaying remarkably similar features. The uniformity of these cities suggests a

centralized authority and code enforcement, since many of the settlements were over fifty miles apart. The remains of buildings and the layout of the towns indicate that their inhabitants prized order and organization. But aside from the urban consistency that indicates central administration, we know very little about the way Indus dwellers governed themselves or structured their society. We also know little about their economy except that village life focused on agriculture and cattle herding and life in the larger cities centered on the production of arts and crafts. The discovery of Indus Valley artifacts as far away as Mesopotamia and Central Asia suggest that trade played a significant role in the Harappan economy.” (4)

It is not only the work that put the Indus Valley people in front dock of the world, the art and the objects found from various sites amply reveal that they had a very high aesthetic sense. “The discovery of the Dancing Girl - a 10.8 centimeter (4.25 inch) tall copper-bronze statuette found in the ruins of Moenjo-daro, highly surprised Sir John Marshall, who said:

“When I first saw them I found it difficult to believe that they were prehistoric; they seemed to completely upset all established ideas about early art, and culture. Modeling such as this was unknown in the ancient world up to the Hellenistic age of Greece, and I thought, therefore, that some mistake must surely have been made; that these figures had found their way into levels some 3,000 years older than those to which they properly belonged Now, in these statuettes, it is just this anatomical truth which is so startling that makes us wonder whether, in this all-important matter, Greek artistry could possibly have been anticipated by the sculptors of a far-off age on the banks of the Indus”. [John Keay (1988). India discovered. Collins. p. 172.

The archaeologist Gregory Possehl said: “The statue led to two important discoveries about the civilization: first; that they knew metal blending, casting and other sophisticated

methods of working with ore, and secondly that entertainment, especially dance, was part of the culture. (Collections: PreHistory & Archaeology". National Museum, New Delhi. Retrieved 3 February 2014).

The Dancing Girl figurine was sculpted using the lost wax (cire perdue) process, which involves making a mold and pouring molten metal into it. Made about 2,500 BC, the statuette was found in the remains of a small house in the southwestern quarter of Mohenjo-daro by Indian archaeologist D. R. Sahni [1879-1939] during his 1926-1927 field seasons at the site." (5).

During the scientific examination though many new facts have made way to the historical evidence, very little stands proven about the existence of any religion to be practiced by the inhabitants of the Indus Valley. Some experts believe that animals were being worshipped as evident from the tablets and seals found from the sites. Calling these intriguing artifacts, Michael Jansen terms them a mystery; the images of animals offer more mysterious than the rest. "The great majority of the seals portray male animals with horns and massive flanks and legs. Such images raise many questions. Do the animals have religious importance, as suggested by what appears to be ritual objects on some of the seals? If the seals have religious meaning, why would they have been used for commercial purposes, such as marking property for trade? Why are some of the animals realistic and others imaginary? Efforts to answer these questions will be speculative, of course, but not necessarily uninformed.

This goes without saying that the discovery of the Indus Valley Civilization in 1920s changed the perception of ancient world and older civilizations. The world had been told that only three civilizations occurred in the world, the civilizations of China, the Egypt and Mesopotamia. The Indus Civilization was added for its urban planning. "When the site of Moenjodaro was unravelled a very astonishing ancient urban culture was

unfolded much earlier than it was ever thought of. This multiplied the ancient richness discovered at Harappa, some 590 km north of the Mohenjo-daro. The new discovery reflected an advanced culture of urban settlements, reflecting some very advanced planning of urban settlements, with planned houses built in a grid involving the advanced technologies of measurements, weighing, water management, efficient drainage system, tool-making technology and even the fashion and jeweler technology available to its citizens at their doorsteps. This was astonishing as remarked by John Marshall himself, "... a spectacular discovery: the Indus Valley Civilization and the twin cities of Harappa and Mohenjo-daro which together pushed back India's history." (9)

"The people of this Indus Valley civilization did not build massive monuments like their contemporaries, nor did buried riches among their dead in golden tombs. There were no mummies, no emperors, and no violent wars or bloody battles in their territory. Remarkably, the lack of all these is what makes the Indus Valley civilization so exciting and unique. While others civilizations were devoting huge amounts of time and resources to the rich, the supernatural, and the dead, Indus Valley inhabitants were taking a practical approach to supporting the common, secular, living people. Sure, they believed in an afterlife and employed a system of social divisions. But they also believed resources were more valuable in circulation among the living than on display or buried underground." (10)

Some research brought ample evidence that healthcare, though in early stages was recorded as early as 7,000 BC. "Excavations at different sites suggest that medical interventions such as dentistry and transplantations were practiced as early as 7,000 BCE in the Indian subcontinent. Organized forms of agriculture practiced by the people of the Indus civilization, the importance they gave to certain medicinal plants and trees and the emphasis on hygiene and water sanitation suggest an advanced awareness of health

management. Trade routes linked the Indus valley civilization to other parts of the subcontinent and westward to Persia, Mesopotamia and northward to Central Asia. It is highly likely that botanical and medical commodities and knowledge were among the prized items of exchange. Recent archaeo-botanical excavations give evidence for the use in the Middle Gangetic region of medicinal plants since the 2nd millennium BCE that are still used by Ayurvedic physicians and folk healers.”(11)

Scholars do believe that the economy of the Indus Civilization depended on agriculture and the trade. They also speak about the ship-building technology needed to travel overland and over the international waters (ships from Meluhha (the Indus) docked in Mesopotamian ports). Bullock carts may be seen as a slow-moving means of communication but given the situation 3,300 years back, it was one of the dependable mode. The IVC may have been the first civilization to use wheeled transport.” (12)

“These advances may have included bullock carts that are identical to those seen throughout South Asia today, as well as boats. Most of these boats were probably small, flat-bottomed craft, perhaps driven by sail, similar to those one can see on the Indus River today. However, there is secondary evidence of sea-going craft. Archaeologists have discovered a massive, dredged canal and what they regard as a docking facility at the coastal city of Lothal in western India (Gujarat state).” (13)

In today’s world every country has some institutional mechanism to maintain standard weights and measures. One wonders how the rest of the world would have lived without some weights and measures 6,000 years ago. For many it was not so in the Indus Valley cities and towns. They had invented their system, standardized it and observed with utmost accuracy. Today the researchers have every reason to appreciate its almost perfect accuracy. “... they were standardized with an accuracy of 6%.” (14)

Looking at the world of weights and measures one is struck with the Indus Valley weights. Japanese scholar Shigeo Iwata who has made strenuous effort on weights and measures claims that, “..The history of measurement systems in India begins in early Indus Valley Civilization with the earliest surviving samples to the 5th millennium BCE. Since early times the adoption of standard weights and measures has reflected in the country’s architectural folk and metallurgical artifacts.” (15)

In the history of the Indus Valley civilization the use of brick was first thought to have belonged to the Buddhist Period but it was only the finding of John Marshall which pushed the history to the Indus Valley Civilization. “The bricks were first thought, to be part of a Buddhist site, until Marshall (16) attributed them to an indigenous civilization of South Asia, the Indus Valley Culture (3200–1300 BC, now more aptly termed the Indus Civilization), whose brick architecture extends back to 7,000 BC in the valleys of Baluchistan.”(17)

The beginning of the building technology goes back to the making mud bricks which underwent a long history till a proper way for baking the bricks was invented and became an important tool technology in raising the towns and cities.

“The building material for the villages and cities of the Indus Civilization was predominantly mud brick. Only between approximately 2600–1900 BC, in the Mature Harappan phase were baked bricks used in quantity, especially for walls and floors exposed to water (18 and 19). “This period of baked brick usage coincides with an elevated level of urbanism, characterized by large cities as opposed to the predominant village settlements before and after the Mature phase. In this urban period all other Indus Civilization key technologies, including writing, shell ornaments, weights, and seals are present; these fall out of use with deurbanization after 1900 BC.” (20)

“Cotton is truly a miracle fiber: it has been spun, woven

and dyed since ancient times, and it is still the most widely used fiber for cloth today. It is soft and fluffy and grows in a ball around the seeds of the cotton plant. There is almost nothing that cotton can't be turned into: clothes, bedding, tabletop, furniture, even art." (21)

This magical fibre has become a centre of an important debate. Most of the scholars say that cotton had been in the Indus Valley way back in 3,000 BC. In the early historical records mention has been made of the cotton as crop over 5,000 years ago. The authors of the Encyclopedia of Arts said in 1946, "According to records unearthed in the ruins of the city Mohenjo-daro in the Indus Valley of India (now Pakistan) cotton cultivation and manufacture pursued there was early as 3,000 BC." (22)

As far the quality of cotton is concerned "the existence of developed crafts of cloth weaving and dyeing in the Indus Valley five thousand years ago has been proved by the discovery of spindle whorls, bobbins and a dye's workshop at Mohenjo-daro. Several ancient chronicles including the Rigveda referred to the excellent cloth produced from the Gandhara Valley and along the banks of the Ravi. Over a large part of the ancient world cloth woven in Sindh} or shipped from ports on the Indus was rated the finest. The oldest cotton fragment, found at Mohenjodaro, has sixty ends and twenty picks per inch and is made of 34 count thread. It was because of this degree of refinement that cotton cloth was described by terms derived from Sind[h] – Sindh and Sindhian. According to Herodotus, Sindhian cloth was widely used in Egypt and the Mediterranean region around 500 BC. Extremely fine muslins from Sind[h] were used to wrap mummies in Egypt and were worn by Roman emperors from Augustus to Hadrian. Similarly, the seventh century rulers of Mesopotamia wore Sindhian cloth." (23)

Finish scholar and Sindhologist Asko Parpola strongly supports the hypothesis that Meluhha were the people from

Indus Valley, according to him, “Throughout the history of Sumer, we find one name -- Meluhha or Meluhhan — referred repeatedly for the people of the Indus Valley; and almost all scholars suggest that Meluhha was the Sumerian name for the Indus Valley Civilization. (24) They further claim that Meluhha is the origin of the Sanskrit mleccha, meaning ‘barbarian, foreigner’. (25) Simo Parpola further adds, “More recent opinion tends to locate the Meluhha of the third and early second millennium not on the Arabian Peninsula, but rather in the vicinity of Baluchistan (Pakistan) if not part of the Indus civilization itself.” It is fascinating to note that by the Ur III Period, the Meluhhan workers residing in Sumeria had Sumerian names. (26)

After the discovery of seals from Harappa and later from Mohenjo-daro site seals were also found from other sites outside the Mohenjo-daro site. “In course of time, further discoveries took place. At many places outside the Indus Valley remains of that culture were seen in plenty. That led the scholars to feel that it was a civilization which covered a much wide area... From Himalayas in the north to the Narmada Valley in the south the Indus culture extended its influence. The evidence of that ancient culture has been found at several places. Famous among such places are Rupar, Kali Bangan, Chanhudaro, Sukagen Dor and Lothal. At present, the area of the ancient civilization is marked from northern Balochistan in the west to Meerut district of Uttar Pradesh in the east and from Rupar in the north to Gujarat in the south. As such the area of the Indus Civilization is much wider than the area covered by the ancient Nile Civilization or the civilization of ancient Mesopotamia, or even the Yellow River Valley of China.” (27)

Besides other marks of identification, there is a brisk talk of cylinder seals bearing the figurines and script ions of Indus language. Cylinder seals are barrel shaped and made of hard stone or similar material. They were used in Mesopotamia from 4th to 1st millennium BC though cylinder seals were not found from Mohenjo-daro site but were found from Kalibanga site.

This also brings Indus Valley Civilization to close proximity of Mesopotamian civilization.

Since the discovery of the first seal, the scholars have been trying to read the Moenjo-daro script and establish its origin, but before any headway could be made, a mystery has cast over, as, similar seals had also been discovered from some Near East, Middle East and other areas later known to be part of Indus Civilization. About 40 seals were discovered from Kish, Langash, Umma and Susa in 1921, about ten years before the extensive excavation of Moenjo-daro. This led to an early assumption that the seals and the script are of Sumerian origin.

In 1924, Sir John Marshal came out with the first perceptions on the Indus script. In his work "First light on a long forgotten civilization: new discoveries of an unknown prehistoric past in India" tried to decipher the inscriptions. This was immediately followed by A. H. Sayce (29) who compared the Indus seals with the proto-Elamite tablets and ceramics found in Susa and called them identical. C. J. Gadd and Sydney Smith followed him the same year and making comparisons between Indus and Mesopotamian civilization, traced a similarity between Sumerian pictograms and Indus seals and established that they had a 'closer kinship'. However, they failed to trace an origin whether they belonged to the same family or they owed something to each other.

"Archaeologists have long wondered whether the Indus civilization could actually have thrived for roughly 2,000 years without any major wars or leadership cults. Obviously people had conflicts, sometimes with deadly results — graves reveal ample skull injuries caused by blows to the head. But there is no evidence that any Indus city was ever burned, besieged by an army, or taken over by force from within. Sifting through the archaeological layers of these cities, scientists find no layers of ash that would suggest the city had been burned down, and no signs of mass destruction. There are no enormous caches of weapons, and not even any art representing warfare.

“It's especially noteworthy at a time when neighboring civilizations in Mesopotamia were erecting massive war monuments, and using cuneiform writing on clay tablets to chronicle how their leaders slaughtered and enslaved thousands.”(33)

Since the discovery of the Indus Valley Civilisation there has been an array of questions which do not find any physical support. A long range of evidences from the Indus sites uphold the perception that

- a- Indus Civilisation was a very developed urban society based on planned cities and towns,
- b- These urban settlements were the first urban towns and cities with emphasis laid on hygiene and purity,
- c- There was a centralized mechanism which held people's prosperity high,
- d- They traded with overland and outside civilizations,
- e- They had invented technologies for their use which they harnessed to their benefit,
- f- They imported raw material from outside Indus civilization and exported finished goods only to add prosperity to the civilisation, and improve quality of life of the civilisation inhabitants.

Almost all scholars have presented their viewpoint placing some aspects of the artifacts found from the archaeological sites. Machines have also been used to tackle various issues especially to decipher the Indus writings. However many queries remain unanswered. The existence of some religious discipline is the most important. The non-existence of huge building structures and palaces are the pointers to the existence of a non-religious population. The presence of a clean and hygienic society suggests that they had some effective municipal system with a strong belief in purity and cleanliness. These questions must be answered and it's hoped that a time will come when some evidence will be available and the present generation might be able to know the true perspective and lifestyle of the ancient Indus people.

As far religion is concerned, a brief discussion about the beginning of religion was appropriate to explain the subject. As a general definition says that since the human being began living in an eco-system, they began following some beliefs which later developed into a faith. Joshua Mark, Professor of philosophy and history commenting on the subject of Religion in the Ancient World opines: “Religion, then and now, concerns itself with the spiritual aspect of the human condition, gods and goddesses (or a single personal god or goddess), the creation of the world, a human being's place in the world, life after death, eternity, and how to escape from suffering in this world or in the next; and every nation has created its own god in its own image and resemblance.” (30) With the creation of god, gods and goddesses, the entire humanity was severely divided in different religions. Most of the mighty conquerors, kings and emperors politicized the religious teachings, killed millions and millions of people by blaming them as heretics.

Oneness of god – worshipless Secular society

In the background of religious complexity in the ancient Indus Valley Civilization, it has become almost difficult to trace the religious roots in the pre-Aryan era of the Indus people. Till now the traces discovered from mature Indus Valley Civilization have not helped the scholars to reach a conclusion about the existence of some religion. John Marshall in his first report he placed before media in London deals with the issue of whether there existed some kind of religion or some cult in Mohenjo-daro and Harappa sites of the Indus Valley Civilization. Dealing with that he took up the question of some building structures in the vicinity of Mohenjo-daro near the Great Bath. He says, “Whether these spacious and elaborate edifices were either private houses or not has yet to be determined. After John Marshall many scholars have tried hard with some inconclusive results. However, the mention of Varuna, the pre-Aryan god has attached great importance to the religious perception during early Indus Valley era. Robert

Graves mentions the existence of the belief pertaining to Varuna, who was considered as the Supreme Being and Creator of the Universe. He never demanded 'worship' from the human beings therefore the archeologists could not find any worship place in all over the Indus Valley. (49)

Auguste Barth, a French scholar further adds in his report on researches into the history of THE RELIGIONS OF INDIA, "From the heights of heaven, where Varuna resides in a palace with a thousand gates, he is the highest expression of law, both physical and moral. He inflicts terrible punishments and avenges maladies on the hardened criminal; but his justice discriminates between a fault and a sin, and he is merciful to the man that repents. It is also to him that the cry of anguish from remorse ascends, and it is before him that the sinner comes to discharge himself of the burden of his guilt by "confession."

However, the 'singleness' of Varuna – as One Mediator and One Supreme Being proves that the Ancient Indus people were the first in history (from 2,600 BCE) who had a belief in the Oneness of god, nearly 800 years before the era of Abraham. The Indus people subsequently created a worshipless, weapon-free and secular society based on strict morals, peace, law and order. Once the Aryan migrants invaded and conquered the Indus Valley headed by Indra, Varuna was degraded and his attributes were gradually shifted to Indra – the conqueror, who was claimed to be the war god of the Aryans. Indra was praised as the highest god in 250 hymns of the Rigveda – collection of Vedic hymns, composed sometime between 1700 to 1100 BCE.

During the Aryan hegemony, the concept of Oneness of god along with the worshipless and secular society was transformed into 'Mysticism' by the defeated ancient Indus people.

AGE OF MOHENJO-DARO

About the age of Mohenjo-daro - the great relic of human history, John Marshall's view and subsequent opinions

laid down by other scholars created two divergent theories. One was that, Mohenjo-daro was built around 2600 BC and the other view led by John Marshall himself holds that the archaeological objects found from the excavated sites are not all which can be relied upon, as there might be six more cities lying underneath superimposed one upon the other, which have not been excavated owing to raised underground water level. However it is convincingly hoped that a day is not far off when these layers too would be excavated pushing the present ancient past of the Indus Valley Civilisation to many thousand years than the present estimate of nearly 5,000 years.

Another British archeologist Ernest Mackay opines that: “There is no doubt that the foundations of the city (Mohenjo-daro) are of a much earlier date than the levels it has been possible to reach; yet there is no reason to suppose that the people who originally founded Mohenjo-daro were in any marked degree more primitive than its inhabitants in later days. No Neolithic material has been discovered, so it is unlikely that the site was established as early as the Stone Age.

If the present city of Mohenjo-daro was built in 2,600 BC then the question arises when the first city was built? To resolve this important issue, the people of Sindh must come forward with all our resources and knowhow. Instead of depending on the foreign experts only, we ourselves can assess the date of Mohenjo-daro in a better manner. It is not simply a Daro, but most assuredly the precious heritage of all mankind and a major part of our own history. John Marshall and other foreign archaeologists and experts have decisively concluded that there are six more cities beneath the present structure of Mohenjodaro. Under the present conditions, it is not possible to excavate the buried six cities owing to underground water level. Now we must at any cost make efforts to shift the present structure very safely to some nearby area using modern technology. In Egypt, the pyramid – Great Temple of Abu Simbel built during the 13th Century BC was relocated after about 3,280 years in its entirety in 1968, on an artificial hill

made from a domed structure. (45) The relocation of the Complex was necessary after the building of the Aswan High Dam on the Nile River. Otherwise it would have been submerged in the massive water reservoir. The Complex Abu Simbel consists of twin temples housed with four 20 meter statues, 35 meters wide (46) of the pharaoh Ramesses and of Nefertari - Ramesses's most beloved chief wife, along with his two sons and six daughters. The temple is complex in structure and quite unusual because of its many side chambers. The hypostyle hall is 18 meters long and 16.7 meters wide and is supported by eight huge Osirid pillars. The entrance itself is crowned by a bas-relief representing two images of the king worshipping the falcon-headed Ra Harakhti, whose statue stands in a large niche. (47)

For shifting the Complex Abu Simbel, a multinational team of archeologists, engineers and skilled heavy equipment operators worked together under the UNESCO banner; it cost some USD \$40 million in between 1964 and 1968. The entire site was carefully cut into large blocks (up to 30 tons, averaging 20 tons), dismantled, lifted and reassembled in a new location 65 meters higher and 200 meters back from the river, as one of the greatest challenges of archaeological engineering in history. (48) On our part, so as to shift safely the current structure of Mohenjo-daro we can follow the mechanism adopted by the Egyptians. However, we must know when the six other cities lying beneath the current structure were built by our forefathers. This may change the face of human history.

WEAPON FREE SOCIETY

Our forefathers laid down the foundation of “Weapon Free Society” and survived peacefully for thousands of years until the 1900 BCE. They were of the opinion that the weapons are the symbols of death; more weapons would bring more deaths. The result and correctness of the Indus philosophy can be proved from the pages of the World History. Weapons created conquerors who killed, robbed and enslaved the entire

humanity. From the Mahabharata and the Trojan Wars, down to the First and Second World Wars, millions and millions people were massacred and killed. The major cities and the other settlements were ruined, millions women and young girls were kidnapped, raped and sold into slavery. This is the curse of the weapons. By manufacturing more weapons, we buy more deaths for our people. By creating nuclear weapons, we have crossed all limits, as around 1,800 nuclear warheads remain on "high alert" status, ready to be launched within minutes. They are more than enough to eliminate the entire human race. In 1955, eleven leading scientists and great minds of this world issued an appeal to the rulers of this world, signed by Albert Einstein and Bertrand Russell. In their appeal, they warned the rulers of the world,

“That the powerful Nuclear Weapons have raised the possibility of “universal death” in an all-out war, and called for the renunciation of war itself. “Here, then, is the problem which we present to you, stark and dreadful and inescapable: Shall we put an end to the human race; or shall mankind renounce war?” The appeal concluded: “Remember your humanity and forget the rest. If you can do so, the way lies open to a new Paradise; if you can not, there lies before you the risk of universal death.” (37)

Nearly 63 years have passed, but no ruler is prepared to make the world free of nuclear weapons, rather they are increasing the number and size of their nuclear weapons and enhancing its delivery capabilities. They can annihilate the human race at any moment. As per the Culture of War it is not a crime for the rulers to declare war, conquer any nation, kill millions of people in the name of national interest. It is their privilege, not accountable before any court of law. No action was taken against those rulers who initiated First and Second World War in which around 70 to 80 million people were killed (36). When the the Second World War was over, 19 to 25 million people died in war-related disease and famine (38) including 19 to 28 million from war-related disease and famine.

Millions of women and young girls were kidnapped and raped. (41) According to historian William Hitchcock, in many cases women were the victims of repeated rapes, some as many as 60 to 70 times. (42)

To enjoy the 'luxury' of the World Wars, the rulers murdered over 30 million soldiers - our young and healthy generation under the fake political issues and artificially created borders. (43) (44). No one sympathized with the crying and weeping mothers, wives, sons and daughters of the deceased soldiers. Those rulers are still considered the most sacred personalities; after death most of them were buried in great mausoleums with high honours. Finally to save the humanity, one could find the solution in the philosophy of the ancient Indus people, founders of the "Weapon Free Society" messengers of peace in the world. They lived for over 700 years (2,600 to 1,900 BC) and proved that a nation can survive peacefully without war, weapons and inequality.

Research by the indigenous people:

It is quite heartening to see the development of a love of research among the people of our generation. However it is also a good omen that a lot of able-minded people are taking interest in research on various subjects. However the irony is that majority of them are involved in non-productive themes. It is little over a century that the first Sindhi scholar Dr Gurbaxani (1804-1878) entered the field of research but we are yet to see a remarkable work on archaeology. But one can count only eight names of specialists (Hafizur Rahman, Ihsan Ali, Suraj Bhan, Ahmad Hassan Dani, Mohammad Rafique Mughal, Ihsan Nadeem, Dr. Parveen Shah and Parveen Talpur) who have pushed the research work to be enumerated by the world archaeologists. This is not a worth mentioning situation and must be attended appropriately.

Other important aspect is the apathy on part of the government. It does not miss any chance to exploit this

situation. Whenever the occasion arises, the government boasts about its genuineness and fails to give any boost to research work. More than seventy years of our existence as a free state we are losing the archaeological remains at a tremendous speed. Many a time the preservation task of these relics has been talked about but when it comes to the real execution almost nothing comes out. More disgraceful is the stolen/missing of archaeological objects from museums.

About this book

There is an inspiring factor behind working on this book and that is the complex we suffer from - individually and collectively both. All the leading archeologists and scholars have concluded that my ancestors and elders were the builders of the Indus Valley Civilization; they laid down the foundations of science, engineering, technology, mathematics, construction, ship-building, transportation, town planning, environment, health care, water management, drainage and other sciences. To educate its inhabitants, they transformed the Indus Valley into a Literate Society. They were the first to use wheeled transport. (35) (36). They were the people, who refused kingship and established the first Welfare State. Instead of spending massive amount on the construction of huge tombs or palaces for the rulers, they diverted investment for the welfare of their people.

We must follow the footsteps of our forefathers, initiate, investigate and apply sciences, mathematics and technical engineering to resolve the issues of humanity. During the last 4,000 years, the people of the Indus Valley were invaded, defeated, enslaved and robbed time and again by the conquerors. The borders of the Indian subcontinent were dismantled and replaced with new borders created over and over again by the conquerors, thereby killing millions of the Indus people. Most of the mighty conquerors brought with them new faiths, new gods and goddesses and new languages. With these drastic changes made by force, the people of Indus

Valley lost their creativity and scientific inspiration in the frustrated enslaved society and their ideologies for peace, brotherhood and a faith in humanity were rejected by the new commandments issued by the invaders. Now in this 21st century our universities can over turn the situation.

ACKNOWLEDGEMENT

For the compilation of this book, I am grateful to my friend Shaikh Aziz, our learned scholar, journalist and author of 27 books for his assistance and guidance. I am also thankful to Erum Zubair, my colleague, who spent over eight months proofing, scanning and resetting notes from the history books - around 1200 pages required for reference purposes. My friend Ali Iqbal, creative writer, journalist and author, who always remained involved in my work. This time however he remained busy with some other jobs. On my request he took full part in the finalization of this book. I must endorse the efforts of Rakhial Morai, a well informed and well-read journalist who provided me some of the most important books and related articles needed for this work.

PHOTOGRAPHS: Courtesy Wikipedia and Sindh Culture.

Yussouf Shaheen

February 16, 2018

References:

- 1-Puneet Kuthiah, Ancient India history, Culture and Trade, retrieved Feb 14, 2018
- 2-ibid
- 3-Jane McIntosh, Ancient History Encyclopedia Limited, VOX, retrieved Feb 14, 2018
- 4-The Indus Valley Civilisation, Fortress Press@2018, retrieved Feb 14, 2018
- 5- K Kirs Hirst, The Dancing Girl of Moenjo Daro, Thought Co, retrieved Feb 14, 2018
- 6-The Indus Valley Civilisation, Fortress Press @2018, retrieved Feb 15, 2018
- 7, 8-Ibid
- 9- Kenoyer, Jonathan marc, "Uncovering the Keys to the Lost Indus Cities," January 1, 2005, ret'd Sept 11, 2017
- 10- UShistory.org, Early civilization in the Indus Valley, retrieved Feb 18, 2018
- 11- Upinder Singh, Nayanjot Lahiri, Ancient India: New Research, Oxford University Press, India 2010
- 12- Hasenpflug, Rainer, The Inscriptions of the Indus Civilization Norderstedt, Germany (2006).
- 13- Upinder Singh, Nayanjot Lahiri, Ancient India: New Research, Oxford University Press, India 2010
- 14--Nahia, M.N. and Nisha, Yadav, Harappan weights, Tata Institute of Fundamental Research, Mumbai, Puratattva, 2007
- 15- Iwata, Shigeo (2008), "Weights and Measures in the Indus Valley", Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures (2nd edition) edited by Helaine Selin, pp. 2254–2255, Springer,
- 16- Possehl GL (1990) Revolution in the Urban Revolution: The Emergence of Indus Urbanization. Annual
- 17- Kenoyer JM (1998) Ancient cities of the Indus Valley Civilization. Karachi: Oxford University Press, 260
- 18- Biagi P (2011) Changing the prehistory of Sindh and Las Bela coast: twenty-five years of Italian contribution, World Archaeology 43: 523–537.

- 19- Mortazavi M (2011) The Bampur Valley: A New Chronological Development. *Ancient Asia* 1: 53–61
- 20- Possehl GL (1999) *Indus Age: The Beginnings*. Univ. Of Pennsylvania Press.
- 21-- Wickham, Boyle, *India and the History of Cotton*, Hand/Eye Fund, Shelter Island, NY, 2017
- 22--Runes, Dagobert and Schrickel Harry, *Encyclopedia of the Arts*, Philosophical Library, New Yourk, 1946
- 23- Arts & Crafts Pakistan, Pakistan Export Promotion Burea, 1980.
- 24- Parpola, Asko; Simo; On the relationship of the Sumerian Toponym Meluhha and Sanskrit Mleccha, *Studia Orientalia*, 1975.
- 25-Ibid
- 26-Jansen, Michael, *Moenjo-Daro- city of the Indus Valley*, Endeavour, New Series, Vol
- 27- Parpola, Asko, *The Indus Script, Deciphering the Indus Script*, Cambridge University, 1994
- 28- A cylinder seal, East, Fourth to First Millennium B.C., by Edith Porada © 1993 College Art Association., *The Art Bulletin*, Vol. 75, No. 4, Dec., 1993.
- 29- Gadd and Smith (1924), *Seals from the Near East and contacts with Sarswati and Sindh Valley*, David Potts, retrieved on Oct 15, 2017
- 30-) Mark, Joshua, *Religion in the Ancient World*, ANCIENT HISTORY Encyclopedia, retrieved on Sept 16, 2017. Joshua J. Mark is co-founder, editor, and a director of Ancient History Encyclopedia.
- 31- Nicholas Oberlies (1998:155) gives an estimate of 1100 BCE for the youngest hymns in book 10. Estimates for a terminus post quem of the earliest hymns are more uncertain. Oberlies (p. 158) based on 'cumulative evidence' sets wide range of 1700–1100
- 32- Kenoyer, Jonathan marc, “Uncovering the Keys to the Lost Indus Cities,” January 1, 2005, retd Sept 11, 2017
- 33- The world’s first utopisn society, Text
- 34- Mackay, Ernest, *The Indus Civilization*, 1935, Pp 7-8, retrieved Sept 30, 2017. He was the author of Chanhujodaro excavation (1935- 36) and *Indus Civilisation and studies of Mohenjo-daro and other sites*.

- (35) Puneet Kuthiala, Thoughtdots, leaning the footprints, Ancient India, India Story, retrieved Jan 18, 2018
- (36) Hasenpflug, Rainer, The Inscriptions of the Indus Civilization Norderstedt, Germany (2006).
- (37) Nuclear Age Peace Foundation (www.wagingpeace.org).
- (38) "SecondSource List and Detailed Death Tolls for the Twentieth Century Hemoclysm". Users.erols.com. Retrieved March 4, 2016.
- (39) John W. Dower War Without Mercy (1986); ISBN 0-394-75172-8 (40) R.J. Rummel. China's Bloody Century. Transaction 1991; ISBN 0- 88738-417-X
- (41) Matthew White, Source List and Detailed Death Tolls for the Primary Megadeaths of the Twentieth Century
- (42) Military Casualties-World War-Estimated," Statistics Branch, GS, War Department, 25 February 1924
- (43) Hitchcock, William I. (2004). The Struggle for Europe: The Turbulent History of a Divided Continent, 1945 to the Present. Anchor Books. ISBN 978-0-385-49799-2.
- (44) Atina Grossmann. A Question of Silence: The Rape of German Women by Occupation Soldiers October, Vol. 72, Berlin 1945: War and Rape "Liberators Take Liberties" (Spring, 1995), pp. 42–63 MIT Press.
- (45) Spencer, Terence (1966). The Race to Save Abu Simbel Is Won. Life magazine, December 2, 1966.
- (46) Fitzgerald, Stephanie (2008). Ramses II: Egyptian Pharaoh, Warrior and Builder. New York: Compass Point Books. ISBN 978-0- 7565-3836-1
- (47) Alberto Siliotti, Egypt: temples, people, gods,1994
- 48) From Wikipedia
- (49) Graves, Robert, Gods of universal power, in New Larousse Encyclopedia of Mythology, 1990

The Ancient Indus people were the innovators of many technologies and made strides in all fields of knowledge.

No doubt they made first (attempt) in farming, using developed mode of transport and weaved cloth for their use and exporting it to other civilizations. The Indus people were not confined to the boundaries of their own places (1). They also speak about the boat and ship-building technology needed to travel overland and over the international waters. Bullock carts may be seen as a slow-moving means of communication but given the situation 3,300 years back, it was one of the dependable mode. The IVC may have been the first civilization to use wheeled transport (2).”

1-Puneet Kuthiala, Thoughtdots, leaning the footprints, Ancient India, India Story, retrieved Jan 18, 2018

2-Hasenpflug, Rainer, The Inscriptions of the Indus Civilization Norderstedt, Germany (2006).

*The ancient life***Indus Valley Civilization**

- Home to a developed Civilization
- First application of urban technology
- Society of a very sophisticated, prosperous life

When John Marshall began excavation at Taxila site in 1913, he was not sure what would happen when he moves to other sites. Five years later he founded the Taxila Museum which today is one of the important sources of knowledge on very important eras. In 1922 he began work on Mohenjo-daro site and when he laid hands on some findings he was quite overwhelmed. Later it was revealed that he had struck a site marking one of ancient civilization which had its own writing system and the most advanced living style. Since then the seals and artifacts have drawn attention from all over the globe pushing the history of the Indus Valley Civilization to much earlier era even beyond Sumer in Mesopotamia and Nile.

With Mohenjo-daro on the record it reflects the most astonishing urban culture much earlier than it was ever thought of. With its twin cities Mohenjo-daro and Harappa, the civilization reflects an advanced culture of urban settlements. In 1922 when the excavations progressed they showed a great civilization reflecting some very advanced planning of urban settlements, with planned houses built in a grid involving the advanced technologies of measurements, weighing, water management, efficient drainage system, tool-making technology and made even the fashion and jewellery technology available to its citizens at their doorsteps. This was astonishing as remarked by Marshall himself. "... a spectacular discovery:

the Indus Valley Civilization and the twin cities of Harappa and Mohenjo-daro which together pushed back (undivided) India's history." (1)

This was a breakthrough into the knowledge the world previously held before the discovery of the Indus Valley civilization. When it reached the western scholars they changed their perception but not without making sufficient inquiries, pushing the history of Indus Civilization to four millenniums before Christ. Subsequent researches brought world scholars close to the site improving the perceptions about the peculiarities of the great civilization. Some experts even termed the site as the home to an advanced and highly prosperous society. "Thousands of years ago, the mysterious city of Mohenjo-daro was home to an unknown, advanced and prosperous civilization that used technology and constructed buildings that were unique to the ancient world.." (2)

Jonathan Kenoyer, a scholar of post-Marshall era appears beset with the vastness and bright artifacts of the Indus Civilization findings who opined, "The gigantic Indus Valley civilization was one of the four great early Old World state cultures, along with Mesopotamia, Egypt and Chinas Yellow River civilization."(3)

It is strange to sum up the cultural richness of the Mohenjodaro, centre of the Indus civilization site. The site is spread over 1,250,000 square kilometers, which covers today's' Pakistan and north-western parts of India and some areas from the present-day Afghanistan where the people lived with all technical knowledge available at that time. It attained a high degree of advanced life in the Bronze Age and was a sister civilization of Mesopotamia and ancient Egypt. It began declining in 1500 BC and could not rise again for 3,500 years till it was discovered in the early 20th century.

It is quite striking to know that some evidence has also been found at far places like the vicinity of Bombay, Delhi, Afghanistan and Iran. "Additionally, there is some disputed

evidence indicative of another large river, now long dried up, running parallel and to the east of the Indus. The dried-up river beds overlap with the Hakra channel in Pakistan and the seasonal Ghaggar River in India. Over 140 ancient towns and cities belonging to the Indus Valley Civilization have been discovered along its course. A section of scholars claim that this was a major river during the third millennium BCE and fourth millennium BCE, and propose that it may have been the Vedic Sarasvati River of the Rig Veda. Some of those who accept this hypothesis advocate designating the Indus Valley culture as the 'Sarasvati-Sindhu Civilization,' Sindhu being the ancient name of the Indus River. Many reputed archaeologists dispute this view, arguing that the old and dry river died out during the Mesolithic Age at the latest, and was reduced to a seasonal stream thousands of years before the Vedic period.”(4)

The editors of New World Encyclopedia suggest, “There were Indus civilization settlements spread as far south as Mumbai (Bombay), as far east as Delhi, as far west as the Iranian border, and as far north as the Himalayas. Among the settlements were the major urban centers of Harappa and Mohenjo-daro, as well as Dholavira, Ganweriwala, Lothal, and Rakhigarhi. At its peak, the Indus civilization may have had a population of well over five million.” (5)

As we speak about the age of Indus Valley Civilization we confront many opinions and suggestions presented by various experts. A scholarly opinion put the pre-Aryan Indus to 6,000 years BC. According to it, “... After 5000 BCE the climate in their region changed, bringing more rainfall. They began domesticating sheep, goats and they grew in population. Then after 4,000 BCE they began to trade beads and shells with people in the distant areas of central Asia (around the Caspian Sea) and other areas west of Khyber Pass. And they began using bronze and working metals. With time and experience they were improving their technology.” (6)

It has now been agreed with pride that the Indus Civilization people had attained many technological achievements which were applied to facilitate the lives of its people. It is surprising that at the time of Bronze Age when the rest of the world had little knowledge of standardized services, the Mohenjo-daro people lived a very sophisticated, prosperous and standardized life.

These technologies concerned almost all walks of life most of which are difficult to conceive even today. These were:

- a) Building technology
- b) Measurement bar technology,
- c) Drainage technology,
- d) Hydropathist establishment,
- e) Tool-making technology, and
- f) Ornamental technology.

BUILDING TECHNOLOGY:

When the scholars looked at the planning and the technology with which the city planning had been executed American archaeologist Kenoyer notes, “That a major state had flourished on the rich floodplains of the great trans-Himalayan river was unexpected. Subsequent surveys and excavations in western India and Pakistan have uncovered more than 1,500 additional settlements distributed over an area the size of Western Europe and twice that of Mesopotamia or ancient Egypt. Although the Indus Valley people did not produce monumental stone carvings and did not bury their dead with their wealth, they constructed large, well-planned cities and made exquisite luxury items that were traded and exported to distant markets in the Persian Gulf, Central Asia and Mesopotamia. The similarities in site layout and artifact style throughout the Indus region reflect a surprisingly uniform economic and social structure.” (7)

That the Mohenjo-daro had been the centre of ancient civilization of Indus valley cannot be overemphasized, one of

the innumerable facts that are linked to this civilization is the standard of urban planning and its superb execution of these people at that point of Bronze Age. "Mohenjo-daro had been a remarkable construction, considering its antiquity. It has a planned layout based on a grid of streets, laid out in perfect patterns. At its height the city probably had around 35,000 residents. The buildings of the city, of particularly advanced designed, had structures constructed of same sized sundried bricks of baked mud and burned wood. The public buildings of those cities also suggest a high degree of social organization," expert John Kenoyer claims. Such is the knowledge of Indus people. Archaeologist John Kenoyer is astonished to find the technology the Indus people had for preserving the foodgrain. He says: "The great granary at Mohenjo-daro, designed with bays, received carts delivering crops from countryside. Ducts exist for air to circulate beneath the stored grain to dry it. Close to the granary, a building similarly civic in nature stands: a great public bath, with steps down to a brick-lined pool in a colonnaded courtyard. The elaborate bath area had been extremely well built, with a layer of natural tar to keep it from leaking, and in the center stood the pool. Measuring 12mx7m with a depth of 2m, the pool had been likely used for religious spiritual ceremonies." (8)

The Indus Valley civilization was a developed urban culture which had planned city settlements with all urban facilities of housing, water management and related necessities. Some scholars believe that the standard of living was so high that even today's developed world can perceive and meet. With Mohenjo-daro as its centreplace and Harappa as the second town were major centres, perhaps Mohenjo-daro was the centre of the whole Valley settlements. "These cities housed about 40,000 people who enjoyed quite a high standard of living with sophisticated water systems; most houses having drainage systems, wells, and rubbish chutes." (9)

Since its discovery almost all scholars and archaeologists have agreed that "Mohenjo-daro in ancient times was at its

peak. Moenjodaro's planning and engineering showed the importance of the city to the people of Indus Valley." (10)

In the planning of the Mohenjo-daro, individual house had been given priority, rather it is the basic unit and related facilities had been ensured thereby. The house had been designed and constructed to protect inhabitants from noise, odour and thieves. That urban plan included the world's first urban sanitation systems. Within the city, individual homes or groups of homes obtained water from wells. Some of the houses included rooms that appear to have been set aside for bathing, waste water diverted to covered drains, which lined the major streets. House opened only to inner courtyards and smaller lanes. A variety of buildings stood up to two stories high. Being an agricultural city, it featured a large well, and central marketplace. It had a building with an underground furnace (hypocaust), possibly for heated bathing." (11)

During the past one century research scholars have been craving for evidence to show that how and when the ancient Indus people attained these technologies to bring a highly developed society. In the human history it has been established that cultures have grown through contact made by way of conquests or migrations. Strangely enough in case of ancient Indus people they attained technology without coming into contact with any other community. Professor Gavin Flood upholds this suggestion and claims: "The Indus Civilization did not develop as a result of contact with any other civilization such as Sumer or Egypt but was an indigenous development growing out of earlier, local cultures." (12) This also comes true of the articles of daily use in the various settlements of the Indus civilization which reveal that almost all objects including bricks, utensils and house planning all present a strikingly similarity.

WATER TECHNOLOGY WATER MANAGEMENT

All communities lived by the availability of water and

rose to great civilizations by the fresh water. However, no other civilization in the ancient world has come up as Mohenjo-daro in dealing with fresh water availability and management of wastage water. Archaeologists were amazed to find the water management at the ruins of Mohenjo-daro. Experts suggest that Indus Civilization was prominent in hydraulic engineering and had many water supply and sanitation devices that were the first of their kind. From the ruins of Indus Civilization suggest that the houses in the Moenjodaro contained separate rooms for bathing and wastage purposes. The experts believe that they had the world's first flush toilets "With a number of courtyard houses having a washing platform and a dedicated toilet/waste disposal hole. The toilet holes would be flushed by emptying a jar of water, drawn from the house's central well, through a clay brick pipe and into a shared brick drain that would feed into an adjacent soak pit (cesspit). The soakpits would be periodically emptied of their solid matter, possibly to be used as fertilizer. Most houses also had private wells.

"The urban areas of Indus Civilization provided public and private baths, sewage was disposed through underground drains built with precisely laid bricks, and sophisticated water management system with numerous reservoirs was established. In the drainage system, drains from houses were connected to wider public drains." (13)

One of the many technologies applied by the Indus Civilization engineers found it astonishing for them as the system in that Bronze Age was more developed than the contemporary empires, or even hard to comprehend at this time.

"The ancient Indus systems of sewage and drainage that were developed and used in cities throughout the Indus empire were far more advanced than any found in contemporary urban sites in the Middle East and even more efficient than those in some areas of modern India and Pakistan today." (14)

Talking about the water systems of Indus Civilization,

one is wonder struck by the existence of the Great Bath, which has surprised the experts all over the world. It is the earliest public water tank found in any part of the ancient world. The tank measures 39 feet long, 23 feet wide and eight feet deep. The tank was discovered by John Marshall himself who describes it in these words: "Its plan is simple: in the centre, an open quadrangle with verandahs on its four sides, and at the back of three of the verandahs various galleries and rooms: on the south, a long gallery with a small chamber in each corner: on the east, a single range of small chambers, including one with a well: on the north a group of several halls and fair-sized room. In the midst of the open quadrangle is a large swimming-bath, some 39 feet long by 23 feet broad and sunk about 8 feet below the paving of the court, with a flight of steps at either end, and at the foot of each a low platform for the convenience of bathers, who might otherwise have found the water too deep. The bath was filled from the well ..., and the waste was carried off through a covered drain ... The Great bath had a least one upper storey as evidenced by a stairway. A large amount of timber, possibly richly carved, must have gone to the building of the upper storey, judging from the quantities of charcoal and ashes found in the course of excavation." (15)

The floor of the tanks is water tight owing to its finely laid out bricks with their edges plastered with gypsum plaster and to make sure that no seepage occurs, thick layer of local natural tar or bitumen has been applied.

MATHEMATICAL TECHNOLOGY:

It appears that the ancient Indus people were aware of the mathematics, beginning with measuring rulers and quite an accurate measurement of the brick making for construction. Not only that they had set some measurements of bricks but these were used all over the Civilization. "The bricks used to build at these Indus cities are all uniform in size (7cmx14cmx28cm). Sun-dried bricks were used for infill, and burnt bricks were used for the drain and sewer linings. It would seem that a standard brick size was developed and used

throughout the Indus cities. Besides similar brick size standard weights are seen to have been used throughout the region as well “(16)

The weights that have been recovered have shown a remarkable accuracy. They follow a binary decimal system: 1, 2, 4, 8, 16, and 32, up to 12,800 units where one unit weighs approximately 0.85 grams. Some of the weights are so tiny that they could have been used by jewelers to measure precious metals.” (17)

That the Indus Civilization was quite prosperous where a very satisfactory lifestyle prevailed, archaeologists have come to the conclusion that most of the city populations belonged to artisan segment or traders dealing in all kinds of goods.“ Most city dwellers appear to have been traders or artisans who lived with others pursuing the same occupation in well-defined neighbourhood. Materials from distant regions were used in the cities for constructing seals, beads and other objects. Among the artifacts made were beautiful beads made of glazed stone called *fiancé*. The seals have images and were used to stamp clay on trade goods, but they probably had other uses. Although some houses were larger than others, Indus Civilization cities were remarkable for their apparent egalitarianism. For example, all houses had access to water and draining facilities. One gets the impression of a vast middle – class society.”(18)

During the past nearly one century the research carried out on Indus River Civilization has brought forward huge amount of facts revealing that the civilization was the first known planned urban settlement with beautiful cities of Mohenjodaro, and more than 1000 cities that rose on the civilization area. Much before any part of human race could create wonderful civic facilities to their citizens, bring a very wonderful society where unlike many contemporary civilizations they did not construct any palaces for their rulers or great temples, they constructed houses with all civic facilities no other civilization of the world thought of. Sanitation was their first priority and the cities ensured all citizens got fresh water and efficient mechanism for disposing off the drainage wastage.

References:

- (1) Kenoyer, Jonathan marc, "Uncovering the Keys to the Lost Indus Cities," January 1, 2005, ret'd Sept 11, 2017
- (2) Ancient Pages, ret'd Sept 11, 2017
- (3) Ancient Pages, ret'd Sept 11, 2017. Jonathan Marc Kenoyer is an American archaeologist and Professor of Anthropology at the University of Wisconsin, Madison. Wisconsin. One of the world's leading experts on the Ancient Indus Civilization, he is involved in ongoing research on the Indus Civilization. He speaks fluent Urdu, Hindi and Bengali.
- (4) New World Encyclopedia, updated April 15, 2014, ret'd Sept 16, 2017
- (5) Ibid
- (6) Creative Commons Attribution, New World Encyclopedia, Mediawiki,
- (7) Kenoyer, Jonathan Marc, "Uncovering the keys to the Lost Cities of Indus" January 1, 2005, ret'd Sept 17, 2017
- (8) Flood, Graven, professor, BBC radio talk b'cast and updated on August 24, 2009, ret'd Sept 11, 2017
- (9) Archaeological Ruins at Moenjodaro, UNESCO World Heritage. Page updated on Nov 12, 2014, ret'd Sep 9, 2017
- (10) ibid
- (11) Flood, Gavin, Radio talk on BBC updated on August 24, 2009, ret'd Sep 11, 2017)
- (12) ibid
- (13) Rodda, J. C. and Ubertini, Lucio (2004)). The Basis of Civilization- Water Science? Pg 161. International Association of Hydrological Sciences Press 2004. ret'd Sept 18, 2017
- (14) New World Encyclopedia, updated April 15, 2014, ret'd Sept 18, 2017
- (15) Sir John Marshall: Mohenjo-daro and the Indus Civilization: Being an official account of Archaeological Department, carried out by the Government of India, Asian Educational Services, New Delhi
- (16) <http://www.Harappa.com/har1.html>
- (17) Feuerstein, George Kak, Subash, Frawley, David (2001). In search of Cradle of Civilization, Weaton, Illinois, Quest Books, 83, ret'd Sept 18, 2017
- (18) New World Encyclopedia, powered by Mediawiki, last modified on April 15, 2014, ret'd Sept 18, 2017

“The city of Mohenjo-Daro was built around 2,500 BCE. The acropolis of Mohenjo-daro, a cultural and administrative centre, has as its foundation a 12 metre high artificial platform of 20 hectares. Just the platform is estimated to have required 400 days of 10,000 labourers. The lower city of at least 80 hectares had streets oriented according to the cardinal directions and provided with a network of covered drains. Many of the usually two-storied houses were spacious and protected from the dust and crowd of the streets and had bathrooms and wells. The waterengineering of Mohenjo-daro is unparalleled in the ancient world: the city is estimated to have had some 700 wells constructed with tapering bricks so strong that they have not collapsed in 5,000 years. The Great Bath was made watertight with bitumen and a high corbelled outlet made it possible to empty it easily. The massive city walls are supposed to be mainly defenses against flood water.

Asko Parpola - a Finnish Indologist and Sindhologist – “Study of the Indus Script read out at 50th session of ICES held on May 19, 2005 at Tokyo.

John Marshall

Mohenjo-daro represents the oldest of all civilizations known – At Mohenjo-daro there are still several earlier cities lying, one below the other, deeper than the spade has yet penetrated, and though the permanent rise of the subsoil water precludes the hope of our ever being able to explore the earliest settlements on this site. The mounds which hide the remains of the ancient city, or rather series of cities (since there are several of them superimposed one upon the other) are conspicuous from afar in the riverine flat, the highest of them, near the north-west corner, rising to a height of some 70 feet, the others averaging from 20 to 30 feet above the plain. The actual area covered by the mounds is now no more than about 240 acres, but there is little doubt, as we shall presently see, that floods and erosion have greatly diminished their extent, and that the deep alluvium deposited by the river has covered all the lower and outlying parts of the city.

(John Marshall “Mohenjo-daro And The Indus Civilization” – Preface. A man who finally discovered long-forgotten Indus civilization, Mohenjo-daro, Harappa, Taxila and many other sites. He was Director General of the Archaeological Survey of India.

Some scholars even claim that the Indus trade extended beyond Mesopotamia. “During 4,300–3,200 BCE of the Chalcolithic period (copper age), the Indus Valley Civilization area shows ceramic similarities with southern Turkmenistan and northern Iran which suggest considerable mobility and trade.... There is some evidence that trade contacts extended to Crete (Europe) and possibly to Egypt. Doniger, Wendy - an American Indologist: The Hindus: an alternative history.

Oxford University Press. ISBN 978-0-19-959334-7.



Lothal



Indian caretaker Hirabhai Makwana inspects the ancient bricks at the drainage site in the ancient town of Lothal



Archaeological dig of a water reservoir at Dholavira. Image courtesy Wikipedia

Indus Valley Life before Mohenjo-daro

The discovery of Indus Civilisation in the early 20th century changed the conception of ancient civilizations of the world. The discovery, the most important in the modern history, added the name of Indus Valley Civilisation to the perception of ancient civilization which, by then were identified as Egyptian, Chinese and Mesopotamian civilisations as the known civilizations of ancient world. With the new strike the scholars found an amazing world of yesteryear which hid the first ever urban culture of the world. It was revealed that it was here that a highly developed urban culture flourished whose inhabitants lived by their indigenous technologies and traded with near and far places.

“The people of this Indus Valley civilization did not build massive monuments like their contemporaries, nor did they bury riches among their dead in golden tombs. There were no mummies, no emperors, and no violent wars or bloody battles in their territory. Remarkably, the lack of all these is what makes the Indus Valley civilization so exciting and unique. While others civilizations were devoting huge amounts of time and resources to the rich, the supernatural, and the dead, Indus Valley inhabitants were taking a practical approach to supporting the common, secular, living people. Sure, they believed in an afterlife and employed a system of social divisions. But they also believed resources were more valuable in circulation among the living than on display or buried underground.” (1)

No doubt it was a great discovery, bringing scholars to reveal that how amazing that civilization was, and how they made their lives noteworthy. Volumes have been written on various aspects of the life of the ancient inhabitants of the Indus civilization. Yet leaving many questions unreplied. This

led scholars to formulate some guidelines for them. By these guidelines some periods have been evolved. For the Indus Valley, the Paleolithic era has been identified from 2,5000 to 250,000 BC, Neolithic era as from 10,800 to 3300 BC; Chalcolithic from 3500 to 1500 BC, Bronze Age from 3300 to 1300 BC and Iron Age from 1500 to 200 BC.

According to the periodisation of the Indus Valley Civilisation, the pre-Harappan era lasted 7,000 to 5,500 BC and this period is also remembered as early food producing era. The Pre-Harppan era comprises 5,500 to 3,300 BC. The early Harappan era comprises circa 3,300 to 2,800 BC and is marked as regionalization era. This era is also marked by Harappan two, Mehargarh and Kot Diji and Naushahro era. Elaborating these eras, scholars have made many observations. According to them and the periodisation, Mehargarh is a Neolithic (7,000 BCE to c. 2,500 BCE) site to the west of the Indus River, near the capital of the Kachi district in Pakistan, on the Kacchi Plain of Balochistan, near the Bolan Pass. According to Ahmad Hassan Dani, professor emeritus at Quaid-e-Azam University Islamabad the discovery of Mehrgarh "changed the entire concept of the Indus civilisation [...] There we have the whole sequence, right from the beginning of settled village life." Mehrgarh is one of the earliest sites with evidence of farming and herding in South Asia. According to Parpola, the culture migrated into the Indus Valley and became the Indus Valley Civilisation. (2)

"Mehrgarh was influenced by the Near Eastern Neolithic, with similarities between "domesticated wheat varieties, early phases of farming, pottery, other archaeological artifacts, some domesticated plants and herd animals." Gallegos Romero et al. (2011) notice that "[t]he earliest evidence of cattle herding in south Asia comes from the Indus River Valley site of Mehrgarh and is dated to 7,000 BC...

"Lukacs and Hemphill suggest an initial local development of Mehrgarh, with continuity in cultural

development but a change in population. According to Lukacs and Hemphill, while there is a strong continuity between the neolithic and chalcolithic (Copper Age) cultures of Mehrgarh, dental evidence shows that the chalcolithic population did not descend from the neolithic population of Mehrgarh, which "suggests moderate levels of gene flow." Masacernhas et al. (2015) note that "new, possibly West Asian, body types are reported from the graves of Mehrgarh beginning in the Togau phase (3,800 BCE)." (3)

"The Early Harappan Ravi Phase, named after the nearby Ravi River, lasted from c. 3,300 BCE until 2,800 BCE. It is related to the Hakra Phase. Hakra Phase, identified in the Ghaggar-Hakra River Valley to the west, and predates the Kot Digi Phase (2,800–2,600 BCE, Harappan, named after a site in northern Sindh, Pakistan, near Mohenjo-daro. The earliest examples of the 'Indus script' date to the 3rd millennium BCE." (4)

"The mature phase of earlier village cultures is represented by Rehman Dheri and Amri in Pakistan.(5) Kot Diji represents the phase leading up to Mature Harappan, with the citadel representing centralised authority and an increasingly urban quality of life. Another town of this stage was found at Kalibangan in India on the Hakra River." (6)

"Trade networks linked this culture with related regional cultures and distant sources of raw materials, including lapis lazuli and other materials for bead-making. By this time, villagers had domesticated numerous crops, including peas, sesame seeds, dates and cotton, as well as animals, including the water buffalo. Early Harappan communities turned to large urban centres by 2,600 BCE, from where the mature Harappan phase started. The latest research shows that Indus Valley people migrated from villages to cities. " (7)

As in the later stages no exact knowledge could be ascertained about the detailed lifestyle in the early Harappan era however, "... there are indications of complex decisions being

taken and implemented. For instance, the majority of the cities were constructed in a highly uniform and well-planned grid pattern, suggesting they were planned by a central authority; extraordinary uniformity of Harappan artefacts as evident in pottery, seals, weights and bricks; presence of public facilities and monumental architecture; heterogeneity in the mortuary symbolism and in grave goods (items included in burials).” (8)

Archaeological evidence show a great development in indigenous technologies which the early inhabitants used very efficiently thus bringing prosperity for them and the Indus valley.

“The people of the Indus Civilisation achieved great accuracy in measuring length, mass, and time. They were among the first to develop a system of uniform weights and measures. A comparison of available objects indicates large scale variation across the Indus territories. Their smallest division, which is marked on an ivory scale found in Lothal in Gujarat, was approximately 1.704 mm, the smallest division ever recorded on a scale of the Bronze Age.

Harappan engineers followed the decimal division of measurement for all practical purposes, including the measurement of mass as revealed by their hexahedron weights.(9)

“These Chert weights were in a ratio of 5:2:1 with weights of 0.05, 0.1, 0.2, 0.5, 1, 2, 5, 10, 20, 50, 100, 200, and 500 units, with each unit weighing approximately 28 grams, similar to the English Imperial ounce or Greek uncia, and smaller objects were weighed in similar ratios with the units of 0.871. However, as in other cultures, actual weights were not uniform throughout the area. The weights and measures later used in Kautia’s Arthshastra (4th century BCE) are the same as those used in Lothal. (10)

“Harappans evolved some new techniques in metallurgy and produced copper, bronze, lead and tin. The engineering skill of the Harappans was remarkable, especially in building docks.” (11)

There is ample evidence that the ancient Indus people had developed the healthcare institution to such level that around 7,000 years ago they had dentistry system some 4,500 years before Moenjodaro.

“In 2001, archaeologists studying the remains of two men from Mehrgarh discovered that the people of the Indus Valley Civilisation, from the early Harappan periods, had knowledge of proto-dentistry. Later, in April 2006, it was announced in the scientific journal *Nature* that the oldest (and first early Neolithic) evidence for the drilling of human teeth in vivo (i.e., in a living person) was found in Mehrgarh. Eleven drilled molar crowns from nine adults were discovered in a Neolithic graveyard in Mehrgarh that dates from 7,500–9,000 years ago. According to the authors, their discoveries point to a tradition of proto-dentistry in the early farming cultures of that region.” (12)

Researchers found a large quantity of artifacts from various Valley sites. These include bead strings, necklaces, jewelry items and pottery items that reflect a deep aesthetic sense beside a sense of utilitarian purpose. “Various sculptures, seals, bronze vessels, pottery, gold jewellery, and anatomically detailed figurines in terracotta, bronze, and steatite have been found at excavation sites.” (13) “A number of gold, terracotta and stone figurines of girls in dancing poses reveal the presence of some dance form. These terracotta figurines included cows, bears, monkeys, and dogs. The animal depicted on a majority of seals at sites of the mature period has not been clearly identified. Part bull, part zebra, with a majestic horn, it has been a source of speculation. As yet, there is insufficient evidence to substantiate claims that the image had religious or cultic significance, but the prevalence of the image raises the question of whether or not the animals in images of the IVC are religious symbols.” (14)

“ Sir John Marshall reacted with surprise when he saw the famous Indus bronze statuette of a slender-limbed dancing

girl in Mohenjo-daro: ‘When I first saw them I found it difficult to believe that they were prehistoric; they seemed to completely upset all established ideas about early art, and culture. Modeling such as this was unknown in the ancient world up to the Hellenistic age of Greece, and I thought, therefore, that some mistake must surely have been made; that these figures had found their way into levels some 3,000 years older than those to which they properly belonged Now, in these statuettes, it is just this anatomical truth which is so startling; that makes us wonder whether, in this all-important matter, Greek artistry could possibly have been anticipated by the sculptors of a far-off age on the banks of the Indus’. (15)

It has been established that the Indus people imported various kinds of raw material and harnessed it through their technology to turn them into finished goods for sale in the Valley territories and far civilizations, the evidence have been found from far places.

“The Indus civilisation's economy

Appears to have depended significantly on trade, which was facilitated by major advances in transport technology. The IVC may have been the first civilisation to use wheeled transport. (16) These advances may have included bullock carts that are identical to those seen throughout South Asia today, as well as boats. Most of these boats were probably small, flat-bottomed craft, perhaps driven by sail, similar to those one can see on the Indus River today; however, there is secondary evidence of seagoing craft. Archaeologists have discovered a massive, dredged canal and what they regard as a docking facility at the coastal city of Lothal in western India (Gujarat state). An extensive canal network, used for irrigation, has however also been discovered by H.P. Francfort. (17)

There has been a talk of Indus civilization reaching beyond its physical boundaries, which has been established from the evidence found there. “During 4,300–3,200 BCE of

the chalcolithic period (copper age) ['bronze age'- compiler], the Indus Valley Civilisation area shows ceramic similarities with southern Turkmenistan and northern Iran which suggest considerable mobility and trade. During the Early Harappan period (about 3,200–2,600 BCE), similarities in pottery, seals, figurines, ornaments, etc. document intensive caravan trade with Central Asia and the Iranian Plateau. (18) Judging from the dispersal of Indus civilisation artifacts, the trade networks, economically, integrated a huge area, including portions of Afghanistan, the coastal regions of Persia, northern and western India, and studies of tooth enamel from individuals buried at Harappa suggest that some residents had migrated to the city from beyond the Indus Valley.(19) There is some evidence that trade contacts extended to Crete and possibly to Egypt.” (19)

“There was an extensive maritime trade network operating between the Harappan and Mesopotamian civilisations as early as the middle Harappan Phase, with much commerce being handled by "middlemen merchants from Dilmun" (modern Bahrain and Failaka located in the Persian Gulf).” (20) Such long-distance sea trade became feasible with the development of plank-built watercraft, equipped with a single central mast supporting a sail of woven rushes or cloth.” (21)

"It is generally assumed that most trade between the Indus Valley (ancient Meluhha) and western neighbors proceeded up the Persian Gulf rather than overland. Although there is no incontrovertible proof that this was indeed the case, the distribution of Indus- type artifacts on the Oman peninsula, on Bahrain and in southern Mesopotamia makes it plausible that a series of maritime stages linked the Indus Valley and the Gulf region.” (22)

In the 1980s, important archaeological discoveries were made at Ras-ul- jinz (Oman), demonstrating maritime Indus Valley connections with the Arabian Peninsula.” (23)

According to Jean-Francois Jarrige, farming had an

independent origin at Mehrgarh, despite the similarities which he notes between Neolithic sites from eastern Mesopotamia and the western Indus valley, which are evidence of a "cultural continuum" between those sites. Nevertheless, Jarrige concludes that Mehrgarh has an earlier local background," and is not a "'backwater' of the Neolithic culture of the Near East." (24)

“Archaeologist Jim G. Shaffer writes that the Mehrgarh site "demonstrates that food production was an indigenous South Asian phenomenon" and that the data support interpretation of "the prehistoric urbanisation and complex social organisation in South Asia as based on indigenous, but not isolated, cultural developments". (25)

Jarrige notes that the people of Mehrgarh used domesticated wheats and barley, (25) while Shaffer and Liechtenstein note that the major cultivated cereal crop was naked six-row barley, a crop derived from two-row barley.(26) Gangal agrees that "Neolithic domesticated crops in Mehrgarh include more than 90% barley," noting that "there is good evidence for the local domestication of barley." Yet, Gangal also notes that the crops also included "a small amount of wheat," which suggested to be of Near-Eastern origin, as the modern distribution of wild varieties of wheat is limited to Northern Levant and Southern Turkey.” (27)

From the very beginning scholars have been investigating the existence of some religious faith the ancient inhabitants followed. Since they did not find any place worth worship they began looking for some other cult which might have been followed. “The religion and belief system of the Indus Valley people have received considerable attention, especially from the view of identifying precursors to deities and religious practices of Indian religions that later developed in the area. However, due to the sparsity of evidence, which is open to varying interpretations, and the fact that the Indus script remains undeciphered, the conclusions are partly

speculative and largely based on a retrospective view from a much later Hindu perspective. (28) An early and influential work in the area that set the trend for Hindu interpretations of archaeological evidence from the Harappan sites (29) was that of John Marshall who in 1931 identified the following as prominent features of the Indus religion: a Great Male God and a Mother Goddess; deification or veneration of animals and plants; symbolic representation of the phallus (linga) and vulva (yoni); and, use of baths and water in religious practice.

Marshall's interpretations have been much debated, and sometimes disputed over the following decades. (30) Marshall hypothesised the existence of a cult of Mother Goddess worship based upon excavation of several female figurines, and thought that this was a precursor of the Hindu sect of Shaktism. However the function of the female figurines in the life of Indus Valley people remains unclear; Possehl does not regard the evidence for Marshall's hypothesis to be "terribly robust". (31) Some of the baetyls interpreted by Marshall to be sacred phallic representations are now thought to have been used as pestles or game counters instead, while the ring stones that were thought to symbolise yoni were determined to be architectural features used to stand pillars, although the possibility of their religious symbolism cannot be eliminated. (32) Many Indus Valley seals show animals, with some depicting them being carried in processions, while others show chimeric creations. One seal from Mohenjo-daro shows a half-human, half-buffalo monster attacking a tiger, which may be a reference to the Sumerian myth of such a monster created by goddess Aruru to fight Gilgamesh. (33)

From the evidence available from the artifacts and archaeological remains suggest that the Indus people in the pre-Mehrgarh era lived a contented and peaceful life. No weapon has been found and the scientific research conducted on the biological remains suggest, that no death occurred to any inhabitant through violence. It was a unique utopian life followed by the coming generations into Mohenjo-daro and other settlements.

References:

- 1- UShistory.org, Early civilization in the Indus Valley, retrieved Feb 18, 2018
- 2- Indus Valley Civilisation, from Wikipedia, free encyclopedia, retrieved Feb 18, 2018
- 3-ibid
- 4- Peter T. Daniels, The Writing Systems , Oxford University; Parpola, Asko, Deciphering the Indus script, Cambridge University Press, 1994
- 5- Durrani, F. A. Some early Harppan Sites in Go0mal and Bannu Valleys in Lal B.B. Gupta S. P Frontiers of Indus Civilisation, Delhi Books , 1984
- 6-ibid
- 7- "Evidence for Ptterns of Selective Urban Migration in the Greater Indus Valley (2600-1900). A Lead and Stronium Isotope Mortury Analysis"; and "Indus Valley people migratyed from villages to cities: New Study."
- 8- Indus Valley Civilisation, from Wikipedia, free encyclopedia, retrieved Feb 18, 2018.
- 9- Feuerstein, Georg; Kak, Subhash; Frawley, David (2001). In Search of the Cradle of Civilization: New Light on Ancient India. Quest Books.
- 10- Sergent, Bernard, Genèse de l'Inde (in French). Paris: Payot. (1997)
- 11-Jump up Pruthi, Raj. Pehistroy and Hrappan Civilisation, APH Publishing.
- 12- Coppa, A.; et al. (6 April 2006). " Early Neolithic tradition of demntistry: Flint tips were surprisingly effective from drilling tooth enamel in a prehistoric population Nature
- 13- McIntosh, Jane. The Ancient Indus Valley: New Perspectives ABC-CLIO
- 14- Keay, John, India, a History. New York: Grove Press, 2000.
- 15 John Keay India discovered. Collins (1988).
- 16- Hasenpflug, Rainer, The Inscriptions of the Indus civilisation Norderstedt, Germany, 2006.
- 17-Singh, Upinder. A History of Ancient and Early Medieval India.
- 18- Parpola, Asko, Study of Indus Script, 2005
- 19- Watson, Traci, Surprising discoveries from Indus Civilisation, National Geographic. 2013
- 20- Neyland, R. S. (1992). "The seagoing vessels on Dilmun seals". In Keith, D.H.; Carrell T.L. (eds.). Underwater archaeology proceedings of the Society for Historical Archaeology Conference

at Kingston, Jamaica 1992. Tucson, AZ: Society for Historical Archaeology.

- 21- Maurizio Tosi, "Black Boats of Magan. Some Thoughts on Bronze Age Water Transport in Oman and beyond from the Impressed Bitumen Slabs of Ra's al-Junayz", in A. Parpola (ed), *South Asian Archaeology 1993*, Helsinki, 1995, pp. 745-61 (in collaboration with Serge Cleuziou)
- 22- Daniel T. Potts MARITIME TRADE: PRE-ISLAMIC PERIOD iranicaonline.org, 2009
- 23- Daniel T. Potts (2009), MARITIME TRADE: PRE-ISLAMIC PERIOD, iranicaonline.org; Maurizio Tosi: *Die Indus-Zivilisation jenseits des indischen Subkontinents*, in: *Vergessene Städte am Indus*, Mainz am Rhein 1987; and Story of Ras Al Jinz. Oman Information.
- 24- Jean-Francois Jarrige, Mehrgarh Archived 3 March 2016 at the Wayback Machine., Paper presented in the International Seminar on the "First Farmers in Global Perspective," Lucknow, India, 18–20 January 2006
- 25- Jarrige, J.-F. (1986). "Excavations at Mehrgarh-Nausharo". *Pakistan Archaeology*. 10, 1986
- 26- Shaffer and Liechtenstein 1995, 1999
- 27- According to Gangal et al. (2014), there is strong archeological and geographical evidence that neolithic farming spread from the Near East into north-west India. Yet, Jean-Francois Jarrige argues for an independent origin of Mehrgarh. Jarrige notes the similarities between Neolithic sites from eastern Mesopotamia and the Indus.

The Indus people may have lived for 700 years (2600 to 1900 BC) without war, weapons or inequality. Artefacts, such as jewellery, have been found, but not a single weapon. Many believe the idea of a Utopian Society is an impossible fantasy (Andrew Robinson - 'The Indus: Lost Civilisations'). While Neil MacGregor, former director of the British Museum sees the Utopian theory as credible, others cast doubt on the total absence of war. The Indus people were forgotten until the 1920s. So far, more than a thousand Indus settlements covering Pakistan and northwestern India have been discovered.

On Mohenjo-daro

Zulfikar Ali Bhutto

“Moenjo-daro is a very important land-mark in the panorama of the evolution of human civilization. It portrays with remarkable vividness the life of man as it was lived about five-thousand year ago. For us, it is not only a relic of our own past but also one of those embodiments of human culture which must be preserved to enrich the reservoirs of man’s knowledge and culture. The international endeavors to save the site from the dangers of water logging and salinity will no doubt become by itself a movement to the spirit of good will and co-operation displayed by the man of today in the cause of protecting the richness of human history and civilization.”

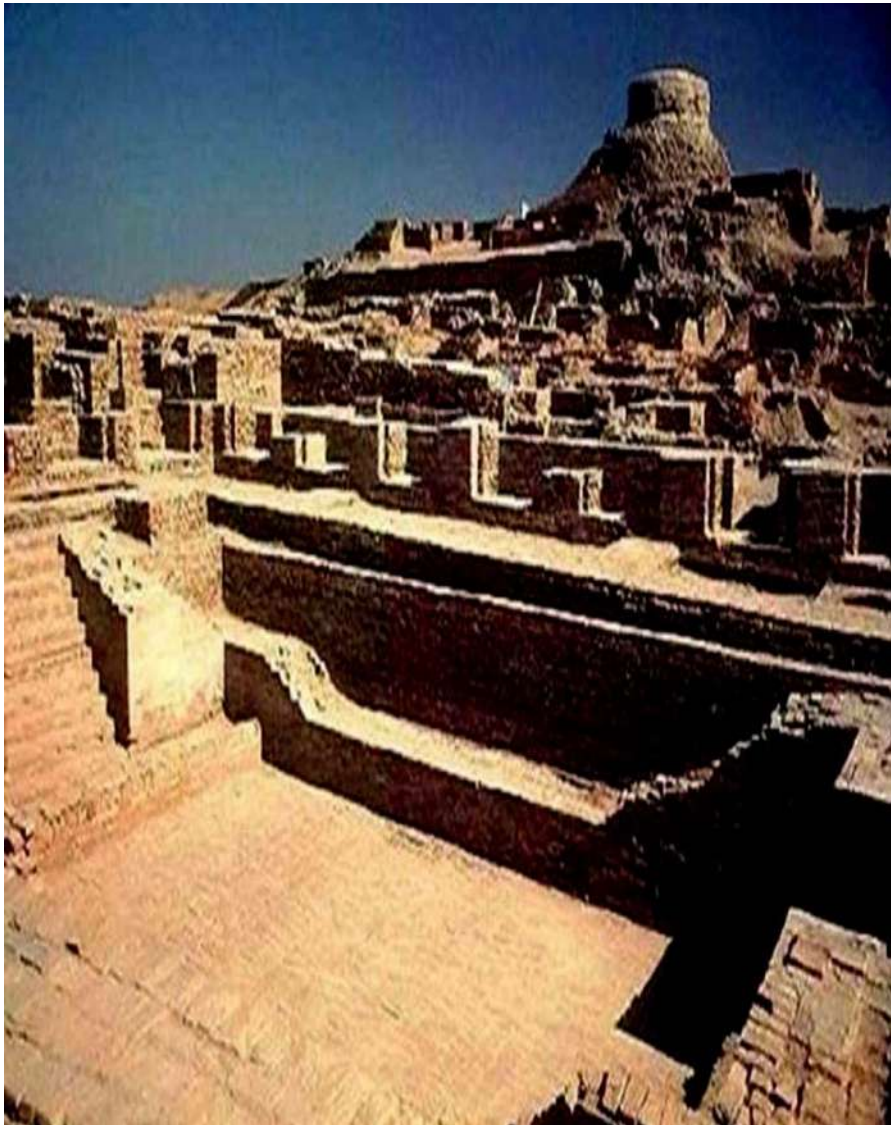
Inaugural address by Zulfikar Ali Bhutto, the then President of Pakistan, on the occasion of an International Symposium on Moenjodaro held on the 50th Anniversary of its excavations held on Friday, February 23, 1973.

Mohenjo-daro: the most precious heritage of all mankind:
Prince Takahito Mikasa of Japan

“As a student of the ancient history of Middle East, I never forget the name of Mohenjo-daro, the most ancient and most elaborately planned and constructed city in this world, which has reminded Sir Mortimer wheeler of New York’s Boardway Street. After going around the sites of the city, I realize how poor and how superficial was the knowledge obtained from books and photograph. Each block of brick, rectangular or triangular, laid vertically or horizontally, the wonderfull system of drainage in straight or loosly curved lines made a vivid impression on me. The dyer’s shop and the metal worker’s shop remind the daily life of the artisans of Mohenjo daro. This is indeed the most precious heritage of all mankind, and we do wish that it should be saved by all possible means, so that we may be able to pass it on to the next generation.”

Address by H. I. H Prince Takahito Mikasa of Japan, on the occasion of an International Symposium on Moenjo-daro, held on February 23, 1973.

MOHENJO-DARO



THE GREAT BATH



*The Age***First Grand Metropolis of
the Ancient World**

When John Marshall finally wound up his findings he was sure that the Mohenjo-daro was only the upper strata of the buried city and more cities similar to that lay beneath one under the other. Most of his finding was based on the typography of the area which lay on the bank of Indus River. He built his opinion after further digging of the remains was prevented by water-logging.

His judgment had never been disputed by the scholars following him. The attempts in 1950s and 1960s made it clear that more similar cities do exist under the explored site located in the Larkana district. Even dry drilling undertaken in 1980s had to be aborted as it could not reach the expected depth. He did not hide his observation by saying: “Mohenjo-daro, the ‘Mound of the Dead’ -- the mounds which hide the remains of the ancient city, or rather series of cities (since there are several of them superimposed one upon the other) are conspicuous from afar in the riverine flat, the highest of them, near the north-west corner, rising to a height of some 70 feet, the others averaging from 20 to 30 feet above the plain. The actual area covered by the mounds is now no more than about 240 acres, but there is little doubt, as we shall presently see, that floods and erosion have greatly diminished their extent, and that the deep alluvium deposited by the river has covered all the lower and outlying parts of the city.” (1)

Marshall’s view and subsequent opinions lay down by other scholars created two divergent views about the age of the great relic of human history. One was that Mohenjo-daro was built around 2,600 BC. The other view led by John Marshall himself

holds that the archaeological relics found from the excavated sites are not all which can be relied upon, as there might be six more cities lying underneath superimposed one upon the other, which have not been excavated owing to raised underground water level. However it is convincingly hoped that a day is not far off when these layers too would be excavated pushing the present ancient past of the Indus Valley Civilisation to many thousand years than the present estimate of nearly 5,000 years.

This is one of the most interesting phenomenons which have led to a very lively discussion among experts. Recalling the discovery of Mohenjo-daro as a most advanced civilization of the world, which took it at par with at least three other known civilizations: Egypt, Mesopotamia and China. Tracing the history of excavation Dr Michael Jansen, terms it a bewitched mound concealing an ancient civilization, and says that in 1922 when R.J. Banerji, the director of the western archaeological district based in Bombay, claimed that "... the tower was the remains of a plundered Stupa – a Buddhist monument." Subsequent study proved it otherwise. "When Sir John Marshall, Director General of Archaeology in India, first published an account of these discoveries in the Illustrated London News in 1924, the seals were compared with 164 covers an area of approximately 80 ha. The excavated areas are marked on the map with the initials of each of the dig leaders. The plan shows the layout of the city with the upper town (the 'Citadel') to the west and the lower town to the east. Also very clearly visible is the thoroughfare crossing the lower town from the north (sector DK) to sector HR in the south, although it is not possible to trace its course accurately. This plan and the alignment of the streets and alleys suggest that the theory according to which the town was built on the basis of a gridiron plan is not entirely accurate, since the streets tend more to follow a zig-zag course. Two slightly different alignments are also distinguishable: the upper town and sector HR on the one hand, and the remainder of the lower town on the other. This suggests that the city may have developed in two phases, with

the two different alignments being superimposed. It thus became the fourth great civilization after Egypt, Mesopotamia, and China. There was considerable excitement, and in the weeks that followed numerous articles on the same subject appeared in that magazine. From 1924 to 1925, Marshall, convinced of the extraordinary significance of his discovery, set virtually his entire organization to work at Mohenjodaro.”(2)

After Marshall the excavation work could not resume for many reasons, however, Sir Mortimer Wheeler, an officer of Department of Archaeology, India resumed work on Mohenjodaro till 1950. Ironically, Wheeler could work for three months only and could not continue his work at the site owing to some differences with the Pakistan government and the studies remained unaccomplished. He was followed by George Dales and the reports are still awaited.

As expert opinion attempts to explore, the unanswered questions about the Mohenjo-daro age grew its frequency, many new sites drew attention of the experts. One such case was the case of Rakigarhi site near Delhi, for which some quarters claimed that it was older than Mohenjo-daro, and said that it came into being some 7,000 BC. This was a challenge to the scholarship of experts who immediately took notice and refuted it as frivolous by claiming that even Harappans do not claim to be that much early, how Rakigarhi could be older. Eminent archaeologist Ernest Mackay refuted it on scientific grounds and said: “Whereas at Harappa thus far evidence of settlement prior to 3,500 BCE has not been found (among limited excavations), of Mohenjo-daro’s age excavator, Ernest Mackay wrote ‘Owing, however, to the fact that the bed of the Indus has risen some twenty feet or more in the course of ages, it is impossible without very costly plumbing machinery to explore the earliest levels of Mohenjo-Daro, in one place, where the excavations have penetrated forty feet below the surface of one the principle mounts, the objects found were identical with those of later levels. Below this limit digging

cannot continue, although it is obvious that the walls descend to yet lower levels in the water-logged soil, and there is no doubt that the foundations of the city are of a much earlier date than the levels it has been possible to reach; yet there is no reason to suppose that the people who originally founded Mohenjo-daro were in any marked degree more primitive than its inhabitants in later days. Both bronze and copper were found in the lowest levels excavated, a fact which is not surprising, for the former metal was in common use in Sumer some five thousand years ago. But no Neolithic material has been discovered, so it is unlikely that the site was established as early as the Stone Age.” (3)

Giving a serious study on the Mohenjo-daro remains, one becomes astounded to see a wonderland over which stood a magnificent town which was home to a very intelligent people which made all efforts to extend all civic facilities to its people 5,000 years ago

When John Marshall struck the Mohenjo-daro remains in 1920 he was overexcited to have found some prized treasure. He knew through his predecessor Cunningham that the archaeological remains were part of a rich site of an ancient civilization later known as Indus River Civilization of which Moenjo-daro was the centre. This was the site of a highly sophisticated and advanced civilization which spanned to an area almost of the present Pakistan. To Marshall this was “a spectacular discovery: the Indus Valley civilization and the twin cities of Harappa and Moenjo-daro which together pushed back (undivided) India’s history.”(4)

This was a breakthrough into the knowledge the world held before the discovery of Indus Valley civilization. When it reached the western scholars they changed their perception about the South Asia but not without making sufficient inquiries, pushing the history of Indus Civilization to four millenniums before Christ. The subsequent researches brought world scholars close to the site. Some experts even termed the

site as the home to an advanced and highly prosperous society. “Thousands of years ago, the mysterious city of Mohenjo-daro was home to an unknown, advanced and prosperous civilization that used technology and constructed buildings that were unique to the ancient world..” (5)

Jonathan Kenoyer overwhelmed by the vastness of the ancient ruins opines: “The gigantic Indus Valley civilization was one of the four great early Old World state cultures, along with Mesopotamia, Egypt and Chinas Yellow River civilization.”(6)

It has now been agreed with pride that the Indus Civilization people had attained many technological achievements which were applied to facilitate the lives of its people. It is surprising that at the time of Bronze Age when the rest of the world had little knowledge of standardized services the Moenjo-daro people lived a very sophisticated, prosperous and standardized life.

These technologies concerned almost all walks of life most of which are difficult to conceive even today. These were:

- a) Building technology,
- b) Measurement bar technology,
- c) Drainage technology,
- d) Hydropathist establishment,
- f) Tool-making technology, and
- g) Ornamental technology.

BUILDING TECHNOLOGY

When the scholars looked at the planning and the technology with which the city planning had been executed. Kenoyer notes, “That a major state had flourished on the rich floodplains of the great trans-Himalayan river was unexpected. Subsequent surveys and excavations in western India and Pakistan have uncovered more than 1,500 additional settlements distributed over an area the size of Western Europe

and twice that of Mesopotamia or ancient Egypt. Although the Indus Valley people did not produce monumental stone carvings and did not bury their dead with their wealth, they constructed large, well-planned cities and made exquisite luxury items that were traded and exported to distant markets in the Persian Gulf, Central Asia and Mesopotamia. The similarities in site layout and artifact style throughout the Indus region reflect a surprisingly uniform economic and social structure.” (7)

That the Moenjodaro had been the centre of ancient civilization of Indus valley cannot be overemphasized, one of the innumerable facts that are linked to this civilization is the standard of urban planning and its superb execution by these people at that point of Bronze Age. “Mohenjo-daro had been a remarkable construction, considering its antiquity. It has a planned layout based on a grid of streets, laid out in perfect patterns. At its height the city probably had around 35,000 residents. The buildings of the city, of particularly advanced designed, had structures constructed of same sized sundried bricks of baked mud and burned wood. The public buildings of those cities also suggest a high degree of social organization,” anthropologist John Kenoyer claims. Such is the knowledge of Indus people the noted expert is astonished to find the technology the Indus people had for preserving the foodgrain. He says: “The great granary at Moenjo-daro, designed with bays, received carts delivering crops from countryside. Ducts exist for air to circulate beneath the stored grain to dry it. Close to the granary, a building similarly civic in nature stands: a great public bath, with steps down to a brick-lined pool in a colonnaded courtyard. The elaborate bath area had been extremely well built, with a layer of natural tar to keep it from leaking, and in the center stood the pool. Measuring 12mx7m with a depth of 2m, the pool had been likely used for religious, spiritual ceremonies.” (8)

The Indus Valley civilization was a developed urban culture which had planned city settlements with all urban

facilities of housing, water management and related necessities. Some scholars believe that the standard of living was so high that even today's developed world can perceive and meet. With Moenjo-daro as its centreplace and Harappa as the second town were major centres, perhaps Moenjo-daro was the centre of the whole Valley settlements. "These cities housed about 40,000 people who enjoyed quite a high standard of living with sophisticated water systems; most houses having drainage systems, wells, and rubbish chutes."(9)

Almost all scholars and archaeologists have since 1920 agreed that "Mohenjodaro in ancient times had been most likely the administrative center of the ancient Indus Valley Civilization. The most developed and sophisticated city in South Asia during its peak. Moenjodaro's planning and engineering showed the importance of the city to the people of Indus Valley." (10)

In the planning of the Mohenjo-daro, it has been agreed that individual house had been given priority, rather it is the basic unit and related facilities had been ensured thereby. "The houses had been designed and constructed to protect inhabitants from noise, odour and thieves. That urban plan included the world's first urban sanitation systems. Within the city, individual homes or groups of homes obtained water from wells. Some of the houses included rooms that appear to have been set aside for bathing, waste water diverted to covered drains, which lined the major streets. House opened only to inner courtyards and smaller lanes. A variety of buildings stood up to two stories high. Being an agricultural city, it featured a large well and central marketplace. It had a building with an underground furnace (hypocaust), possibly for heated bathing."(11)

During the past one century research scholars have been craving for evidence to show that how and when the ancient Indus people attained these technologies to bring a highly developed society. In the human history it has been established

that cultures have grown through contact made by way of conquests or migrations. Strangely enough in case of ancient Indus people they attained technology without going into contact with any other community. Professor Gavin Flood upholds this suggestion and claims: “The Indus Civilization did not develop as a result of contact with any other civilization such as Sumer or Egypt but was an indigenous development growing out of earlier, local cultures.” (12) This also came true of the articles of daily use in the various settlements of the Indus civilization which reveal that almost all objects including bricks, utensils and house planning all present a strikingly similarity.

Since its discovery building technology of the Moenjodaro has been constantly discussed showing increasing interest in the town planning of the ancient centre. Discussing about various buildings at the Moenjodaro, a large building with surprising structure has drawn special interest. In 1950 some thirty years after the discovery of the site, Mortimer Wheeler identified this building as Great Granary, as it had some bays which could help store and keep the grain clear of any dry. However, later Jonathan Kenynor thought of correcting the viewpoint by suggesting, “... it might therefore be better termed as a ‘Great Hall’ of uncertain function.” (13)

WATER SUPPLY & DRAINAGE

After the discovery of the ancient civilization site of Moenjodaro it has been agreed that this is the earliest urban centre of the ancient time where the experts had applied their technologies to provide maximum possible civic facilities. Among them after building and town planning, water management was the most important. A town of huge size of the contemporary society the town had some 700 wells, many within the home premises. The question arises that why so many wells were built despite the fact that the Indus River flowed about two kilometers away. Perhaps the city was a prosperous city and to make the civic life free of water related issues, availability of wells was ensured.

“The ancient Indus systems of sewage and drainage developed and used in cities throughout the Indus region were far more advanced than any found in contemporary urban sites in the Middle East and even more efficient than those in many areas of Pakistan and India today. Individual homes drew water from wells, while wastewater was directed to covered drains on the main streets. Houses opened only to inner courtyards and smaller lanes, and even the smallest homes on the city outskirts were believed to have been connected to the system, further supporting the conclusion that cleanliness was a matter of great importance. (14)

The archaeologists’ findings reached a consensus that “Within the city, individual homes or groups of homes obtained water from wells. From that appears to have been set aside for bathing, wastewater was directed to covered drains, which lined the major streets ... the advanced architecture of the Harappan is shown by their impressive dockyards, granaries, warehouses, brick platforms and protective walls. The massive citadels of Indus cities that protected the Harappan from floods and attackers were larger than most Mesopotamian ziggurats.” (15)

THE GREAT BATH

Among the other structural properties is a Great Bath. It is an amazing tank understandably used for many functions. It is 12 metres long and seven metres wide with a depth of 2.4 meters. It has an access by two staircases leading to the bottom of the tank. John Marshall speaks in simple terms as: “Its plan is simple: in the centre, an open quadrangle with verandahs on its four sides, and at the back of three of the verandahs various galleries and rooms; on the south, a long gallery with a small chamber in each corner; on the east, a single range of small chambers, including one with a well; on the north a group of several halls and fair-sized room. In the midst of the open quadrangle is a large swimming-bath, some 39 feet long by 23 feet broad and sunk about 8 feet below the paving of the court,

with a flight of steps at either end, and at the foot of each a low platform for the convenience of bathers, who might otherwise have found the water too deep. The bath was filled from the well..., and the waste water was carried off through a covered drain...The Great Bath had a least one upper storey as evidenced by a stairway. A large amount of timber, possibly richly carved, must have gone to the building of the upper storey, judging from the quantities of charcoal and ashes found in the course of excavation". (16)

The construction of the bath had been attached special attention. Floor of the tank is too water tight made by finely laid down bricks with gypsum. The style is repeated in the construction of the walls. The floor has been covered with natural tar. Three edges have been sideways. Two doors were fitted to get an access to the north and south sides. A number of rooms had been constructed along the eastern edge of the building and in one room is a well which is indicative of the water supply to the bath.

Though it is quite obvious that the tank was used for collective bath but the presence of side rooms also indicate that privacy was also an important factor and the rooms offered that facility. Some experts believe that Great Bath was used for some ceremonial bath. An expert opined that "It may have been used for religious purification." (17) However, there is no evidence yet to the effect that there had been some kind of religion or faith followed by the Indus civilization people.

Michel Jansen, a scholar of 20th century, deliberating on the subject urban planning in Moenjo-daro, explains the mode and quality of the town planners in early third millennium BC and opines: "With more than 600 calculated wells Mohenjo-Daro is the city with the largest amount of wells and with the highest density in the settlement history of mankind! In addition, its kilometers of brick lined drains shows highest skills of engineer technology and surveying including leveling. While the question for the need of constructing so many wells

remains widely open, especially once the Indus as surface water source was close by, the question for the need of water drains can be answered. The whole platform system of elevations of Mohenjo-daro consists of very fine grains of silts, clay and sand of which water is the greatest enemy (see erosion patterns of today after rains). The Mohenjo-daro people met this danger in the outside platform structures as protection against the Indus floods in applying high quality bricks made of excellent clay while the inner filling of the platforms were built of (more economic) salty-sandy bricks and fillings. The drains inside the city were built to cope with the problem of draining the obviously very high water consumption (wells). Without draining the sewage water from the hundreds of bathing platforms and toilets the streets would have turned into muddy pools. It is remarkable that the burnt brick drains are the optimized technical solution to this problem. There are no indications that rain water of the summer monsoons were also drained the same way. (18)

MEASUREMENT TECHNOLOGY

One of the important technology applied by the Indus people were the measuring rod which was used for measurements of the objects in daily use. The rod made of an alloy of copper was claimed to be used as a measurement device. Rulers made from ivory were also in use during the pre-Aryan era. "Excavations at the Lothal (2,400 BCE have yielded one such ruler calibrated to about 1/6 of an inch – less than 2 millimetres.(19) Discussing the history of measurement process, Whitelaw is specific about the Moenjo-daro measurement rod and says: "... the Mohenjo-daro ruler is divided into units corresponding to 1.32 inches (33.5 mm) and these are marked out in decimal subdivisions with amazing accuracy—to within 0.005 of an inch. Ancient bricks found throughout the region have dimensions that correspond to these units.(20)

JEWELLERY

Almost 40,000 artifacts were excavated from Moenjo-daro archaeological site which include among other a number

of ornaments, pieces of jewellery made of precious and other metals. These ornaments indicate that the ancient people of Indus civilization made and wore finely ornaments which also reflect the high aesthetic sense coupled with high engineering dexterity. These ornaments some terra cotta, others made from copper, bronze, gold, beads, shells, banded sandstone, steatite beads, faience, banded agate, jade and gold. Jewellery experts after examining these pieces have come to conclusion that they have been very skillfully produced to present excellent pieces of jewellery. Gargi Gupta, speaking about a necklace, “dating 5,000 years ago, is lined with pendants of banded agate and jade beads suspended by a thick gold wire that passes through each bead. “These are very long beads and when we examined them under the microscope, we found that they had been drilled perfectly to meet in the middle.” Many art lovers and archaeologists were astounded to see the craftsmanship of high degree in producing these ornaments. In such production of gold and semi-precious metals, agate, turquoise, faience, steatite and feldspar, a high sense of precision and application is required which it obviously appears to have been attained by the Indus civilization artisans. They definitely had the high aesthetic sense and technological prowess.

“Sir Mortimer Wheeler was especially fascinated with this artifact, which he believed to be at least 4,500 years old. The necklace has an S-shaped clasp with seven strands, each over 4 ft long, of bronze-metal bead-like nuggets which connect each arm of the "S" in filigree. Each strand has between 220 and 230 of the many-faceted nuggets, and there are about 1,600 nuggets in total. The necklace weighs about 250 grams in total, and is presently held in a private collection in India.” (21)

The remains of these ornaments include bangles, chokers, long pendants, necklaces, rings, earrings, hair ornaments and broaches. As is generally treated the ornaments were used for expressing the representation of status symbol by a certain section of the society. One fact is obvious that these

ornaments were not buried with its owners along with his body, but passed on one generation to other. The fact is that a few ornaments have survived till now and many are used in the same manner as done by the Moenjo-daro people. The seashells were used by these ancient people as buttons. Experts believe that though the buttons were embellished in various geometric designs their use was more utilitarian than mere expression of artistry.

The aforesaid technologies there were many subtechnologies used in various walks of life. The basic tasks related to, practical life was attended by them.

References:

- 1- John Marshall, Mohejo-Daro and the Indus Civilization: Being an Official Account of Civilization, Weaton, Illinois. Quest Books, 83 years 1922 and 1927. Asian Educational Services, New Delhi, p-2, retrieved Oct 4, 2017, Preface P-5
- 2- Jansen, Michael, Ph D, Director of the research project on MohenjoDaro at the University of Achen, Germany .
- 3-Mackay, Ernest, The Indus Civilization, 1935, Pp 7-8, retrieved Sept 30, 2017
- 4- Kenoyer, Jonathan Marc, "Uncovering the Keys to the Lost Indus Cities" January 1, 2005, retrieved Sept 11, 2017
- 5- Ancient Pages, retrieved Sept 11, 2017
- 6- Kenoyer, Jonathan Marc, "Uncovering the Keys to the Lost Indus Cities" January 1, 2005, retd Sept 11, 2017
- 7- Ancient Pages, retd Sept 11, 2017
- 8-INDUS CITIES, Ancient Pages retd Sept 11, 2017
- 9- Creative Commons Attribution, New World Encyclopedia, Mediawiki
- 10) Ibid
- 11) Flood, Gravin, professor, BBC radio talk broadcast and updated on August 24, 2009, retrieved Sept 11, 2017
- 12) Ibid
- 13-Kenoyer, Jonathan Mark, Indus cities,towns and vuillages, American Institute of Pakistan Studies, 1998
- 14- Jansen, Michael, Planning: Mohenjo-Daro .. Urban, Günter (Hrsg.): Vergessene Städte am Indus.

- 15-Indus Valley Civilization, New World Encyclopedia, modified on April 14, 2014, retrieved Oct 4, 2017
- 16-Jansen, Michael, The urban form Moenjodaro A retrospective and new evidence, the need of the day,).
- 17- John Marshall, Mohenjo-Daro and the Indus Civilization: Being an Official Account of Civilisation, Weaton, Illinois. Quest Books, 83 years 1922 and 1927. Asian Educational Services, New Delhi, p-2, retrieved Oct 4, 2017
- 18-Dales F. Gorge, Civilization and Floods in the Indus Valley, Expedition magazine, Penn Museum, Pennsylvania, July 1965
- 19-Whitelaw, Ian, A measurement of All Things: The Story of Man and Measureent, Macmillan, 2007, retrieved Oct 6, 2017
- 20-ibid
- 21-McIntosh, Jane, The Ancient Indus Valley: New Perspectives, 2008, retrieved Oct 5,2017

Age of Mohenjo-daro

The British archeologist Ernest Mackay says:

“There is no doubt that the foundations of the city (Mohenjo-daro) are of a much earlier date than the levels it has been possible to reach; yet there is no reason to suppose that the people who originally founded Mohenjo-daro were in any marked degree more primitive than its inhabitants in later days. No Neolithic material has been discovered, so it is unlikely that the site was established as early as the Stone Age (roughly 3.4 million years and ending between 8,700 BCE and 2000 BCE.”

Mackay, Ernest, *The Indus Civilization*, 1935, Pp 7-8, retrieved Sept 30, 2017. He was the author of Chanhujodaro excavation (1935-36) and *Indus Civilisation and studies of Mohenjo-daro and other sites*.

About the age of Mohenjo-daro - the great relic of human history, John Marshall's view and subsequent opinions laid down by other scholars created two divergent views. One was that Mohenjo-daro was built around 2600 BC. The other view led by John Marshall himself holds that the archaeological objects found from the excavated sites are not all which can be relied upon, as there might be six more cities lying underneath superimposed one upon the other, which have not been excavated owing to raised underground water level. However it is convincingly hoped that a day is not far off when these layers too would be excavated pushing the present ancient past of the Indus Valley Civilization to many thousand years than the present estimate of nearly 5,000 years –

John Marshall, Preface "Mohenjo-daro And Indus Valley Civilization" 3 Volumes; printed by Peacock Printers, published by Culture Department, Government of Sindh.

The world's first Utopian Society

The Indus people lived in a weapon-free
Country for 2,000 years

Thomas More was a wonderful person - a thinker who thought too deep and acted in a truthful manner. Living in a very eventful era of 16th century (1477-1535) he meditated unintermitantly and conceived something his contemporaries could not. He was a lawyer by profession, a writer by deed and a statesman by aptitude. Despite being a trusted government servant of King Henry VIII he stuck to his vision and religious affiliation inviting king's wrath.

King Henry VIII was a unique ruler of Britain. He was a man of strange nature who wanted to divorce his faithful wife Queen Catherine. In fact he wanted to liberalise himself from the influence of Church, rather he wanted to act freely without any interference from the Church. The divorce was a test case. Since the orthodox Catholic Church did not permit the king to divorce his wife he decided to liberate himself from Catholic preponderance. In that spate he wanted to change the Catholic doctrine. Ultimately, he changed the Catholic guidelines and brought a new Christian discipline called Anglican Church and dissociated himself from Catholic following. After bringing the Anglican faith the king divorced his wife. This was the basis of dispute between them. At that time Thomas was Chancellor of England.

Thomas More was a reformer of social life but did not

back the changes the king wanted in the religious faith. He quit the high position. Since he did not follow the Anglican faith headed by the king Thomas More was removed, arrested, prosecuted under the charge of sedition and beheaded on July 6, 1535.

No doubt he was an independent lawyer, upholder of human rights and wanted a just society, where everyone enjoyed equality. For attaining the objective he struggled throughout his life.

Apart from his personal integrity and sagacity, he used his political wisdom for promoting human respect and civic rights. In this pursuit he came out with a wonderful perception; perhaps, no other person ever had such a thinking. He presented the idea of a world in which all citizens should have equal rights with a common culture. He idealized a society in which there should be no weapon of any kind hence no violence. He called it Utopia.

In the background of 16th century-worldwide situation, wherein expansionism was taking over all governments in power in all corners of the globe, he viewed to begin with the idea of establishing an island where this system should be applied honestly and let it work without giving personal passions to win over the reality.

Since then the perception of utopia has become a philosophical idiom being debated by intelligentsia, thinkers and opinion leaders. It is occasionally supported and frequently opposed owing to political chasms and philosophical shortsightedness.

Moving from Thomas More's political and social conditions, let us take a re-evaluation of the Moenjo-daro's Indus Valley civilization which practically cherished the Urban Utopia and avoided war for two millenniums.

Did Thomas More relive 5,150 years later?

Did Indus Valley people create an Urban Utopian Civilization?

Perhaps yes.

Many decades back this was just a wild idea. Today it is as a possibility that an association of world community was possible

Author Annalee Newitz in a study on June 24, 2014 said in her paper titled “Did this Ancient Civilization Avoid War for 2,000 years?”

“Archaeologists have long wondered whether the Harappan civilization could actually have thrived for roughly 2,000 years without any major wars or leadership cults. Obviously people had conflicts, sometimes with deadly results — graves reveal ample skull injuries caused by blows to the head. But there is no evidence that any Harappan city was ever burned, besieged by an army, or taken over by force from within. Sifting through the archaeological layers of these cities, scientists find no layers of ash that would suggest the city had been burned down, and no signs of mass destruction. There are no enormous caches of weapons, and not even any art representing warfare.

“That would make the Harappan civilization an historical outlier in any era. But it's especially noteworthy at a time when neighboring civilizations in Mesopotamia were erecting massive war monuments, and using cuneiform writing on clay tablets to chronicle how their leaders slaughtered and enslaved thousands.”

Andrew Robinson, the author of *The Indus: Lost Civilization* writing an indepth piece in the *New Scientists* opines that there is no trace of violence in the artifacts found from the remains of Indus civilization.

He says: “While multiple pieces of jewellery and the remains of various buildings have been found, not a single piece of armour or military weapons has been discovered.”

Claiming that there has been no trace of any instrument of violence it is the best example of a utopian society. “Many believe the idea of a utopian society is an impossible fantasy,” he adds.

“But there may have been one mysterious, ancient group of people that was able to fulfil the dream of life without conflict or rulers.

“Remains of the Indus civilisation show no clear signs of weapons, war or inequality.”

“Many people believe that one mysterious, ancient society may have led a Utopian life. Therefore the ancient Indus people, it has been suggested that they lived in a real, functioning utopia,” he upholds.

The Indus civilization flourished for half a millennium from about 2600 BC to 1900 BC, before it mysteriously declined and vanished from view

It remained invisible for almost 4,000 years until its ruins were discovered by accident in the 1920s by British and Indian archaeologists.

More than a thousand Indus settlements covered at least 800,000 square kilometres (300,000 square miles) of what is now Pakistan and northwestern India.

It was the most extensive urban culture of its period, with an estimated population of one million and a vigorous maritime export trade.

“All signs point to a prosperous and advanced society – one of history’s greatest,” he writes.

“The Indus Empire stretched over more than a million square miles across the plains of the Indus River from the Arabian Sea to the Ganges, what is now Pakistan, northwest India and eastern Afghanistan.

“Like their contemporaries, the Indus - who may have made up 10 per cent of the world's population - lived next to rivers, owing their livelihoods to the fertility of annually watered lands. But the remains of their settlements are located in a vast desert region far from any flowing river.

“They were forgotten until the 1920s, but since then, a

flurry of research has uncovered a sophisticated urban culture with myriad internal trade routes.

“So far, more than a thousand Indus settlements covering Pakistan and northwestern India have been discovered.

- * Annalee Newitz is the editor-in-chief of i09. She is also the author of a book *Scatter, Adapt and Remember: How Humans Will Survive a Mass Extinction*. ret'd August 26, 2017.
- ** Andrew Robinson is the author of six books including *The Indus: Lost Civilization*, ret'd August 5, 2017.

Over a large part of the ancient world cloth woven in Sindh or shipped from ports of the Indus was rated the finest. The oldest cotton fragment, found at Mohenjo-daro, has sixty ends and twenty picks per inch and is made of 34 count thread. It was because of this degree of refinement that cotton cloth was described by terms derived from Sind[h] – Sindh and Sindhian. According to Herodotus, Sindhian cloth was widely used in Egypt and the Mediterranean region around 500 BC. Extremely fine muslins from Sind[h] were used to wrap mummies in Egypt and were worn by Roman emperors - from Augustus to Hadrian. Similarly, the seventh century rulers of Mesopotamia wore Sindhian cloth.”

Arts & Crafts Pakistan, Pakistan Export Promotion Bureau, 1980.

The origins of cotton production and use go back to ancient times. The first evidence of cotton use was found in India and Pakistan, and dates from about 6,000 BC. Scientists believe that cotton was first cultivated in the Indus delta... At a later date cotton production [from Indus Valley] spread to Mesopotamia, Egypt and Nubia. It was only in the 1st century, when Arab traders brought their cotton products to Italy and Spain, subsequently cotton was introduced in Europe. During the late medieval time, cotton also became known in northern Europe.” As far the quality of cotton is concerned “the existence of developed crafts of cloth weaving and dyeing in the Indus Valley five thousand years ago has been proved by the discovery of spindle whorls, bobbins and a dye’s workshop at Moenjo-daro.

Boyle, Wickham, India and the History of Cotton, Hand/Eye Fund, Shelter Island, NY, 2017.

Indus Valley – Cotton

The miracle fibre of the Indus

The world spent about 90.4 trillion dollars in the use of cotton all over the world during the year 2016 (1) and in the year 2017, there would be an increase of one per cent. Nearly 7,000 years back not many people knew about cotton and it took many centuries to become known to today's best-settled world. Today it is called 'a luxurious and political fiber' as one economic writer termed it. "Cotton truly is a miracle fiber: it has been spun, woven, and dyed since ancient times, and it is still the most widely used fiber for cloth today. It is soft and fluffy and grows in a boll around the seeds of the cotton plant. There is almost nothing that cotton can't be turned into: clothes, bedding, tabletop, furniture, even art." (2)

This magical fibre has become a centre of an important debate. Most of the scholars say that cotton had been in the Indus Valley way back in 3,000 BC. In the early historical records mention has been made of the cotton as crop over 5,000 years ago. The authors of the Encyclopedia of Arts said in 1946, "According to records unearthed in the ruins of the city Moenjo-daro in the Indus Valley of India (now Pakistan) cotton cultivation and manufacture pursued there was early as 3,000 BC." (3)

The story of agriculture is as interesting as the history of human race itself. In an effort to find the period when the human being began feeding himself on vegetables and animals, the scholars have found that the human behavior from foodgathering to vegetation, the ancient man began depending on certain categories of wild plants and other vegetation. This was called domestication of plants and animals. As it grew

further he discovered the ways to raising some vegetation independently. Soon agriculture became one of his main activities and agriculture began independently in various parts of the world. “Wild grains were collected and eaten from at least 20,000 BC. From around 9,500 BC, the eight Neolithic founder crops --- emmer wheat, einkorn wheat, hulled barley, peas, lentils, bitter vetch, chick peas and flax were cultivated in the Levant. Rice was domesticated in China between 11,500 and 6,200 BC, followed mung, soy and azuki beans ... Cattle were domesticated from the wild aurochs in the areas of modern Turkey and Pakistan around 8,500 BC.” (4) Levant is an approximate historical geographical term referring to a large area in the Eastern Mediterranean. In its narrowest sense it is equivalent to the historical region of Syria. In its widest historical sense, the Levant included all of the eastern Mediterranean with its islands, that is, it included all of the countries along the Eastern Mediterranean shores, extending from Greece to Cyrenaica. (5)

Farm specialist and noted author Vickham Boyle on the subcontinent’s vegetative economy points out that Indus cotton was cultivated in 5th millennium BC, an important suggestion supporting the early opinion that Indus Valley was the first region of the world to have produced cotton as competent and effective domesticated vegetation. “Wheat, barley and jujube were domesticated in the Indian subcontinent by 9,000 BCE. Domestication of sheep and goat soon followed. This period also saw the first domestication of the elephant. Barley and wheat cultivation—along with the domestication of cattle, primarily sheep and goat—was visible in Mehrgarh by 8,000-6,000 BCE. Agro pastoralism in India included threshing, planting crops in rows— either of two or of six—and storing grain in granaries. By the 5th millennium BCE agricultural communities became widespread in Kashmir. Zaheer Baber (1996) [a] writes that 'the first evidence of cultivation of cotton had already developed'. Cotton was cultivated by the 5th millennium BCE - 4th millennium BCE.

The Indus cotton industry was well developed and some methods used in cotton spinning and fabrication continued to be practiced till the modern Industrialization of India. A variety of tropical fruit such as mango and muskmelon are native to the Indian subcontinent. The Indians also domesticated hemp, which they used for a number of applications including making narcotics, fiber, and oil. The farmers of the Indus Valley grew peas, sesame and dates. Sugarcane was originally from tropical South Asia and Southeast Asia. Different species likely originated in different locations with *S. barberi* originating in India and *S. edule* and *S. officinarum* coming from New Guinea. Wild *Oryza* rice appeared in the Belan and Ganges valley regions of northern India as early as 4,530 BCE and 5,440 BCE respectively. Rice was cultivated in the Indus Valley Civilization. Agricultural activity during the second millennium BC included rice cultivation in the Kashmir and Harrappan regions. Mixed farming was the basis of the Indus valley economy. Denis J. Murphy (2007)[b] details the spread of cultivated rice from India into South-east Asia.” (6) There is also a point in case that irrigation system had also initiated in the Indus Valley by that time. “Irrigation was developed in the Indus Valley Civilization by around 4,500 BCE. The size and prosperity of the Indus civilization grew as a result of this innovation, which eventually led to more planned settlements making use of drainage and sewers. Sophisticated irrigation and water storage systems were developed by the Indus Valley Civilization, including artificial reservoirs at Girnar dated to 3,000 BCE, and an early canal irrigation system from circa 2,600 BCE. Archeological evidence of an animal drawn plough dates back to 2,500 BC in the Indus Valley Civilization.” (7)

“The origins of cotton production and use go back to ancient times. The first evidence of cotton use was found in India and Pakistan, and dates from about 6,000 BC. Scientists believe that cotton was first cultivated in the Indus delta.

“The species used in ancient South Asia were *Gossypium herbaceum* and *Gossypium arboreum* which

originated in India and Africa. At a later date cotton production [from Indus Valley] spread to Mesopotamia, Egypt and Nubia. It was only in the 1st century, when Arab traders brought their cotton products to Italy and Spain, subsequently cotton was introduced in Europe. During the late medieval time, cotton also became known in northern Europe” (8) As far the quality of cotton is concerned “the existence of developed crafts of cloth weaving and dyeing in the Indus Valley five thousand years ago has been proved by the discovery of spindle whorls, bobbins and a dye’s workshop at Moenjo-daro. Several ancient chronicles including the Rigveda referred to the excellent cloth produced from the Gandhara Valley and along the banks of the Ravi. Over a large part of the ancient world cloth woven in Sind[h] or shipped from ports on the Indus was rated the finest. The oldest cotton fragment, found at Moenjodaro, has sixty ends and twenty picks per inch and is made of 34 count thread. It was because of this degree of refinement that cotton cloth was described by terms derived from Sind[h] – Sindh and Sindhian. According to Herodotus, Sindhian cloth was widely used in Egypt and the Mediterranean region around 500 BC. Extremely fine muslins from Sind[h] were used to wrap mummies in Egypt and were worn by Roman Emperors from Augustus to Hadrian. Similarly, the seventh century rulers of Mesopotamia wore Sindhian cloth.” (9)

From among the legends attached to cotton Rigveda is the earliest writing mentioning the existence of cotton. “The Rigveda tells the story of Prajapati, the first god who created the world. Prajapati, “Lord of Creatures” was sacrificed to himself by the younger gods Indra, Agni and Varuna. From his body the whole universe was made. The Rigveda says that each of Prajapati’s other parts turned into a different group of people, which is why the Indian people thought of them selves as belonging to one of four castes or groups. Throughout the entire tale of gods and animals, cotton has a role within the story. In India today, as it was for thousands of years, no matter what caste you occupy or what job you hold you will be

wearing a cotton garment, either elaborately adorned or a plain.” (10)

It cannot be said with perfection that how cotton reached Europe, but it is certain that by the trading nature of the westerners, the specie became known to them and soon they captured the production to their benefit. “Cotton was referred to in a Hindu Rig-Veda hymn mentioning "threads in the loom." It is generally believed that the first cultivation of cotton was in India, though it grew wild in several locations around the world. People living in Egypt's Nile Valley and across the world in Peru were also familiar with cotton.

“Cotton was grown by American Indians in the early 1500's, documented from sightings by the Coronado expedition 1540- 42. The Spaniards raised a cotton crop in Florida in 1556”. (11)

Interestingly, “...The English word for cotton comes from the Arabic “al-quton.” The establishment of the Islamic Empire in the late 600’s AD spread cotton production westward across the Middle East to North Africa and Spain. By the 700s the Eastern Roman Empire also started growing cotton. In West Asia and North Africa, poor people began wearing cotton clothing, but in Europe cotton was still a very unusual luxury item, imported from the Islamic Empire. By 1000AD, Italian traders brought more cotton to Europe, but as a finished luxury good it was not well recognized in Europe.”(12)

The English did not import cotton from cotton producing countries, as the British laws did not allow the import of any cloth to protect their sheep and wool industry. It was therefore not strange to mark that no cotton import was made before 15th century and whatever small amount was imported was used for the wicks of the candles. “In the 1600s, European explorers found cotton plants grown and used in the Americas. These newly-discovered species were introduced to Africa in the 18th century. The British desire for cotton would change by the 17th

century when the East India Company began importing rare fabrics from India, and coincides with the 1793 invention of the cotton gina machine that separated the seeds from the fiber and allowed cotton to displace flax and wool during the Industrial Revolution.” (13)

In the United States, cotton was not known till early 1600. “..by the early 1600's, cotton had been introduced to North America and in 1607 the first seed was planted by colonists along the James River in Virginia. The colonists had the ability to produce much cotton but were restricted by the mechanical know-how. It was Samuel Slater, an English mill worker, who changed this by migrating to America in 1790 and building the first American cotton mill from memory. With the development of the cotton mill, Eli Whitney saw the need for a faster means of removing the lint (cotton fibers) from the seed. In 1793, he patented a machine known as the cotton gin. This invention revolutionized the way lint was separated from the seed. Up to that time, for centuries, the separation process had all been done by hand. With Whitney's gin, short for the word engine, lint volume was increased for each worker from 1 lb. to 50 lbs. per day.” (14)

“Egypt under Muhammad Ali in the early 19th century had the fifth most productive cotton industry in the world, in terms of the number of spindles per capita.” (15) “The industry was initially driven by machinery that relied on traditional energy sources, such as animal power, water wheels and windmills, which were also the principle energy sources in Western Europe up until around 1870.” (16) ”It was under Muhammad Ali of Egypt in the early 19th century that steam engines were introduced to the Egyptian cotton industry.” (16)

The Lancashire Cotton Famine affected the world economy, especially that of the Britain. It happened so as described in the following few lines. “...By 1825, cotton was Britain’s biggest import and the dominant force of the economy was the Lancashire cotton industry. It was this industry that

experienced the advent of the Industrial Revolution for Britain; the move from small cottage industries, where family income was supplemented by weaving and spinning wool, towards a factory based production line using imports from across the world. A social reorganisation occurred as a result of the new factory regime. It was the birth of the British working class; a barrier between those who owned the factories and those who worked in the factories was formed.

The revolution also sparked industrialisation within rival countries; competition was impossible against the new factories with their dramatic increase in yields. Lancashire had the optimum conditions for a cotton explosion; a climate that prevented the cotton fibres splitting, water sources to power the mills that ran the factories (and then coal supplies as technology progressed), a willing work force and creative entrepreneurs with the vision and drive to construct the new regime. Raw cotton was imported into the country, mainly from the American cotton fields. Factories in the south of Lancashire spun the threads and the weaving of vast cloths occurred in the towns to the north (with Blackburn at the forefront). This system was capable of supplying the enormous demand of the Indian population: “dhootie”, cheap cotton loincloth, clothed the nation. And so Lancashire became known as the Workshop of the World.” (17).

After the Cotton Famine, the European textile industry looked to new sources of raw cotton. The African colonies of West Africa and Mozambique provided a cheap supply. Taxes and extra-market means again discouraged local textile production. Working conditions were brutal, especially in the Congo, Angola, and Mozambique. Several revolts occurred, and a cotton black market created a local textile industry. In recent history, United States agricultural subsidies have depressed world prices, making it difficult for African farmers to compete.

“India's cotton industry struggled in the late 19th century

because of unmechanized production and American dominance of raw cotton export. India, ceasing to be a major exporter of cotton goods, became the largest importer of British cotton textiles. Politics too has played an important role in its consumption and trade. It was Hindu leader Mahatma Gandhi who played a remarkable role in the undivided India. Gandhi believed that cotton was closely tied to Indian selfdetermination. “The rise of Mahatma Gandhi empowered the people of India. Gandhi and his followers were angered by the laws that sent local Indian cotton back to Britain to be milled into cloth, and then sent back to India in which the people were forced to purchase British loomed cotton rather than hand woven khadi. Gandhi saw the revival of local village economies as the key to India's spiritual and economic regeneration and he envisioned homespun khadi as the catalyst for economic independence. He built his strategy around the revival of traditional craftsmanship and skills that would feed local demand with local production. As part of Gandhi's policies of civil disobedience and non-cooperation, he encouraged people to boycott British goods, specifically cotton textiles, and encouraged Indians to use homespun and woven khadi. In India, he adopted the charka or spinning wheel as the symbol of his principle of self-sufficiency.” (18)

In the 1920s Gandhi launched the Khadi Movement, a massive boycott of British cotton goods. He urged Indians to use simple homespun cotton textiles, khadi. Cotton became an important symbol in Indian independence. During World War II, shortages created a high demand for khadi, and 16 million yards of cloth were produced in nine months. The British Raj declared khadi subversive; damaging to the British imperial rule. Confiscation, burning of stocks, and jailing of workers resulted, which intensified resistance. In the second half of the 20th century, a downturn in the European cotton industry led to a resurgence of the Indian cotton industry. India began to mechanize and was able to compete in the world market.” (19)

In today's Pakistan stands out in the cotton production

and is one of its most needed foreign exchange earner farm production. “Cotton is purely a cellulose fibre crop, one of the four major crops in the country, and is known by popular epithets as "King cotton" and "white gold". It forms the primary input for the textile industry of Pakistan.” (20)

“Cotton is integral to Pakistan's economy. According to an analysis in the USDA Foreign Agricultural Service report of 2015, it is grown as an industrial crop in 15% of the nation's land. It is grown during the monsoon months of May to August, known as the kharif period. It is also grown on a smaller scale between February and April.” (20) “Cotton is grown mostly in the two provinces of Punjab and Sindh, with the former accounting for 79% and the latter for 20% of the nation's cotton growing land. It is also grown in KhybrPakhtunkhwa KPK) and Balochistan provinces. The total land area of cotton cultivation was reported as 2,950,000 hectares (7,300,000 acres) during the 2014–15 growing season. Generally, small farmers with land holdings less than 5 hectares (12 acres) in size form the largest group of growers; [11] farmers holding less than 2 hectares (4.9 acres) account for 50% of the farms. Land holdings with 25 hectares (62 acres) under cotton cultivation form less than 2% of farms. According to a 2013 estimate, there were 1.6 million farmers (out of a total of 5 million in all sectors) engaged in cotton farming, growing more than 3 million hectares.” (22)

References:

- 1- Sue Chang, Marketwatch, San Francisco @ SueChangMW
- 2- Wickham, Boyle, Inia and the History of Cotton, Hand/Eye Fund, Shelter Island, NY, 2017
- 3-Runes, Dagobert and Schrickel Harry, Encyclopedia of the Arts, Philosophical Library, New Yourk, 1946
- 4- McTavish, E.J., Decker, J.E., Schnabel, R.D., Taylor, J.F. and Hillis, D.M. (2013). ‘New World cattle show ancestry from multiple independent domestication events, .’ Proc. Natl. Acad. Sci. U.S.A.110, 1398–

- 5-Amy Chua (2004), World on Fire: How Exporting Free Market Democracy Breeds Ethnic Hatred and Global Instability p. 212
- 6- Vickham, Boyle; References a : Baber, Zaheer (1996), The Science of Empire: Scientific Knowledge, Civilization, and Colonial Rule in India, State University of New York Press, ISBN 0-7914-2919-9. Reference b: Murphy, Denis J. (2007), People, Plants and Genes: The Story of Crops and Humanity, Oxford University Press, ISBN 0-19-920713-5.
- 7- Ibid , "Origin of agriculture and domestication of plants and animals linked to early Holocene climate amelioration", Current Science, 87 (1), Indian Academy of Sciences.
- 8- Boyle, Wickham, India and the History of Cotton, Hand/Eye Fund, Shelter Island, NY, 2017
- 9- Arts & Crafts Pakistan, Pakistan Export Promotion Bureau, 1980
- 10- Boyle, Wickham, The History of Cotton Production, July, 2010
- 11-Cotton's journey, Cotton Growth Sequence Poster, California Cotton Ginners Association, 2016
- 12- Ibid
- 13- Ibid
- 14- History, Cotton's journey, California Cotton Growers Association, 2016
- 15- Jean Batou (1991). Between Development and Underdevelopment: The Precocious Attempts at Industrialization of the Periphery, 1800-1870
- 16- Jean Batou (1991). Between Development and Underdevelopment: The Precocious Attempts at Industrialization of the Periphery, 1800-1870
- 17- Ben Johnson, The Lancashire Cotton Famine, The historic Accommodation Guide, 20116
- 18- Vickham Boyle, India and the History of Cotton, July, 2010
- 19- "Cotton – history". Plant Cultures. Royal Botanical Gardens, Kew. Retrieved 13 June 2011.
- 20- "Cotton" (pdf). Sindh Enterprise Development Fund, Government Of Sindh. Retrieved 14 November 2015.
- 21-"Pakistan: Cotton and Products Annual" (PDF). Global Agricultural Information Network (GAIN). 1 April 2015. Retrieved 13 November 2015.
- 22- "Punjab Seed Council approves cotton varieties". Pakistan Today. 16 February 2012. Retrieved 13 November 2015. and "Sindh cotton crop estimates". The Dawn. 3 December 2012. Retrieved 13 November 2015.

Indus Valley Civilization:

Weights and Measures

1st sophisticated financial exchange system?

In today's world every country has some institutional mechanism to maintain standard weights and measures. One wonders how the rest of the world would have lived without some weights and measures 6,000 years ago. For many it was not so in the Indus Valley cities and towns. They had invented their system, standardized it and observed with utmost accuracy. Today the researchers have every reason to appreciate its almost perfect accuracy. Statistics show that accuracy of these weights and measures come to around 94%. "... they were standardized with uncertainty of 6%." (1)

Looking at the world of weights and measures one is struck with the Indus Valley weights. Japanese scholar Shigeo Iwata who has made strenuous effort on weights and measures claims that, "...The history of measurement systems in India begins in early Indus Valley Civilization with the earliest surviving samples to the 5th millennium BCE. Since early times the adoption of standard weights and measures has reflected in the country's architectural folk and metallurgical artifacts." (2)

As far the quantity of weights is concerned, "A total of 558 weights were excavated from Mohenjodaro, Harappa, and Chanhu jo daro. They did not find statistically significant differences between weights that were excavated from five different layers, each measuring about 1.5 m in depth. This was evidence that strong control existed for at least a 500-year period. The 13.7-g weight seems to be one of the units used in the Indus valley. The notation was based on the binary and

decimal systems. 83% of the weights which were excavated from the above three cities were cubic, and 68% were made of chert.” (3) Author’s note: Chert is a silicious rock consisting of cryptocrystalline siliceous and sometimes including the remains of siliceous organisms such as sponges or radiolarian. It occurs as bedded masses, as well as concretions in limestone. [Chamber’s Dictionary of Science and Technology, 1999]

Noted scholar and excavator John Marshall, after his mission in the beginning of 20th century, has taken a detailed view of these weights and measures. “The Indus weights are especially interesting. Nearly all the small ones are cubes of chert, first chipped and then ground down to the appropriate weight, the advantage of chert being that it is fine-grained and hard enough to defy ordinary wear and tear (Pl. CXXXI, 20-35). Besides these there are a few small weights of dark grey slate, resembling the barrel-shaped weights of Elam and Mesopotamia. The larger stone weights were conical in form, and either furnished with a rim at the apex or pierced with a hole, through which a rope could be passed for their easier handling. These and the smaller weights, which luckily are very numerous, have all been carefully tabulated. (4)

Speaking about the possible use of weights and measures in the Indus Valley Civilisation, “The centralised weight and measure system served the commercial interest of Indus merchants as smaller weight measures were used to measure luxury goods while larger weights were employed for buying bulkier items, such as food grains etc. Weights existed in multiples of a standard weight and in categories.(5) Technical standardization enabled gauging devices to be effectively used in angular measurement and measurement for construction. (6) Uniform units of length were used in the planning of towns such as Lothal, Surkotada, Kalibangan, Lothal, Dolavira, Harappa, and Mohenjodaro.(7) The weights and measures of the Indus civilisation also reached Persia and Central Asia, where they were further modified. (8)

Historical records show a variety of changes in the weights and measures. “Early Babylonians and Egyptian records, as well as the Bible, indicate that weight was originally measures by capacities or containers such as gourds or clay or metal vessels. These were filled with plant seeds that were then counted to measure the volumes. With the development of scales as a means of weighing seeds and stones served as standards. For instance the carat still used as a mass unit for gems, is derived from the carob seed.” (9) Some historians claim that “Babylonians invented the talent as the basic unit of weight and based on their sexagesimal (60 based), divided into equal parts in terms of of that number.” (10) This unit was equal to the amount of water that filled an amphora (a kind of vase). “The Greeks used the same weight measurement as the Babylonians, but the Romans changed it. Their basic unit of weight was ‘uncia’, from which the English word ‘ounce’ is originally derived. The Unicia is a twelfth part of the ‘pes’ which is the Roman ‘foot’—our word inch is also derived from unicia. The Romans used the same word ounce, which they measured using a technique taken from the Arabs.” (11) Like most ancient Indian weights and measures foodgrains were used as basic units which later developed to systemic standard. Arabs used 45 barley grains as standard weight for the basic weighing unit of Dirhem. “ten dirhems made a Wukryeh which we call as ounce from the Latin unicia of twelfth, which name is used genetically for such a class of weight or volume.”(12)

The story of pound is also interesting. “This unit of weight, and value, was widely used in the Mediterranean area, and entered Europe mainly through land routes to become key measures of weight and money. In the northern German City States there was the Mark of Cologne in value eight ounces of silver, 3,600 grains, matching a pound weight of sixteen ounces, 7,200 grains. For the southern states, being more influenced by the Greek Attic Mina (50 staters) of 6,750 grains, had a pound of fifteen x 450 grain ounces which is the same.

“In England, King Offa accepted the ‘silver’ ounce but a

shortage of this metal obliged smaller coins. The Dirhem was halved to 222 grains for the penny, twenty of which made the ounce as before, and twelve ounces the moneyer's pound. So it was termed until the conquest, when William allowed the natives to keep their measures but had the standards moved from Winchester to the tower of London so that he could put his finger on them. Weights and measures were always held in temples, along with other sacred objects. This 5,400 grain pound was then called the Tower pound, and continued to be used only for minting coins. (13) This system has also undergone some ups and downs mainly attributed to the influence of British Empire. "This measure had come down to us as part of the British Imperial System of weights and measures which is also used in the U.S. This system of units was first defined in the British Weights and Measures Act of 1824 which was later refined and reduced. The system came in top official use across the British Empire... In 1855, a fire destroyed the Houses of Parliament in London where the standards of these weights were kept. A standard bureau was set up with prototypes for the imperial system at that time." (14) The weighing system in France has a different but very simple history. From the very beginning France adopted Metric system and it continues till date. "In the Ancient regime, before 1795, France used a system of measures that had many of the characteristics of the modern imperial system of units. There was widespread abuse of the king's standards to the extent that the lieue could vary from 3.268 km in Beauce to 5.849 km in Province.

In the revolutionary era, France used the first version of the metric system. This system was not well received by the public. Between 1812 and 1837, the mesures usuelles was used – traditional names were restored, but were based on metric units: for example, the livre became 500 g. After 1837, the metric system was reintroduced and has remained the principal system of use to this day. The names and relationships of many units of measure were adopted from

Roman units of measure and many more were added – it has been estimated that there were seven or eight hundred different names for the various units of measure. In addition, the quantity associated with each unit of measure differed from town to town and even from trade to trade to such an extent that the lieue (league) could vary from 3.268 km in Beauce to 5.849 km in Province. It has been estimated that, on the eve of the Revolution, a quarter of a million different units of measure were in use in France. Although certain standards, such as the pied du roi (the king's foot) had a degree of pre-eminence and were used by savants across Europe, many traders chose to use their own measuring devices, giving scope for fraud and hindering commerce and industry.” (15) The decimal system is quite easy to understand and easier to practice. “The kilogram is the weight of one litre of water. One-thousandth of a kilogram is a gram. All multiples and submultiples of the base unit are in powers of ten. Fractional units are not halves, but tenths, unlike the customary practice for fractions of inches and derived units are related to the base units by multiples of ten makes conversion from one unit to another particularly easy.”(16)

After much research on the Indus Weights and Measures, it has now proven that the Hindu sociologists based their system on Indus weights and measures, as indicated by M. N. Vahia and Nisha Yadav in 2007. In an research conducted by these scholars of Tata Institute of Fundamental Research, Mumbai revealed in their finding that “The Harappan weights are highly standardised with less than 6 percent fluctuation within each weight class. A certain part of this fluctuation itself may have been a result of erosion and the original weights may have been even more standardised. The weights also seem to follow a fixed ratio from the minimum value. The commonly found weights seem to be in the ratio, 3000: 1600: 300: 200: 150: 60: 32: 16: 8: 4: 2: 1. The base is 0.89 gm as the lowest weight, which is the smallest amongst the commonly found weights. This clearly agrees with the generally given ratios for

Indus weights. The error between the round off number and the average of the weights of that class is less than the standard deviation within the class and amounts to about 6% error in the manufacture of the weights and may indicate the limits to Harappan technology. It seems that the binary weights may have been used for trading in small quantities of precious materials while decimal weights may have been used of larger objects.

“An earlier study by Hemmy (1938) came to similar conclusions. Mainkar (1984), working on this data of Hemmy (1938) came to a similar conclusion. However, using subsequent excavated data of Rao (1973) from Lothal, Mainkar (1984) suggests that the weights in Lothal are similar to the weight units defined in Arthashastra. However, Venkatachalam (2002) suggest that this weight division may more akin to the ancient Tamil weights.” (17)

The British government after its takeover of India in 19th century revised it but the trade faction followed their system based on old traditions. This system continued till after independence in Pakistan. After the mid-20th century the mechanism and automation brought overall change in personal and business lives of the Pakistani citizens. In 1961 Pakistan too followed the decimal system based on French weight and measure system. Even the currency followed decimal system. However, in some quarters of the society old weighing system still prevails.

The first sophisticated financial exchange

In the recent past findings that have occurred since the unearthing of the Indus Valley Civilization reveals that the Indus Valley had “an organized system of exchange for large scale transactions.”

The Daily Telegraph Delhi Bureau chief Dean Nelson said in its report on Nov 17, 2009 issue after he spoke to Dr Bryan Wells a researcher based in Delhi, “According to a new

study of clay pots and ceramic tablets discovered almost 70 years ago in Harappa, now in Pakistan, the people of the Indus Valley had a detailed system of commodity value, weights and measures,” the report said. (18)

“ Dr Bryan Wells, a researcher based at India's Institute of Mathematical Sciences, told The Daily Telegraph he had begun work on his thesis ten years ago when he first saw photographs of the clay pots with markings which appeared to be in proportion to their relative size.

But he was not able to test his thesis until he visited New Delhi where the original pots are stored in one of the city's Mughal era forts. The three pots each had different markings, the smallest with a 'V' to indicate 'measure' and three long strokes. The medium vessel had six strokes and the largest had seven.

“When he measured them he found they were in proportionate capacity: 3:6:7. The inscriptions on the pots matched those on bas relief ceramic tablets which he believes are tokens of exchange for fixed measures of grain or other commodities

The size of the pots – the largest is 2.7 metres in circumference, and contains 65 litres – indicates an organised system of exchange for large scale transactions, he said.

The bas-relief tablets are "definitely some kind of exchange token. These pots are more than one metre wide. You're not going to be carrying them around. The chits or tablets have representative value and they are being used in an economic context," he said.

In his paper Indus Weights and Measures, to be published in the archeological journal Antiquity, Dr Wells suggests the tablets may be the equivalent of 'wage slips' or credits for work representing fixed volumes of food.

“It is possible that wages were paid with grains dispersed from a centralised storage facility or in the case of incised

tablets material for construction projects and other short-term projects," he wrote.

Although older coins and ingots have been discovered from the Mesopotamia, but Dr Wells' findings amount to a more detailed decoding of an ancient value system.”(19)

No doubt the Indus Valley Civilisation was one of the oldest world civilizations which made breakthrough among its contemporaries. It introduced various kinds of technologies unknown to the world by then. The technology of weights and measures included which became instrumental in using it for building huge structures and buildings and dykes in the Bronze Age. “They [the Indus Valley people] also evolved new techniques in metallurgy and produced copper, bronze, lead and tin. The engineering skill of Harappans was remarkable especially in building docks after a careful study of tides, waves and currents. A touchstone bearing gold streaks was found in Banawali which was probably used for testing the purity of gold.”(20)

References:

- 1-Nahia, M.N. and Nisha, Yadav, Harappan weights, Tata Institute of Fundamental Research, Mumbai, Puratatva, 2007
- 2- Iwata, Shigeo (2008), "Weights and Measures in the Indus Valley", Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures (2nd edition) edited by Helaine Selin, pp. 2254–2255, Springer, ISBN 978-1-4020-4559-2.
- 3- Ibid
- 4-Marshall, John, 1934, Moenjodaro and Indus Civilization, Extracted from Appendix II of Mackay, Further excavations of Moenjo Daro
- 5- Kenoyer, Jonathan Mark (2006), "Indus Valley Civilization", Encyclopedia of India (vol. 2) edited by Stanley Wolpert,

- 6-Baber, Zaheer (1996), The Science of Empire: Scientific Knowledge, Civilization, and Colonial Rule in India, State University of New York Press,
- 7--Nahia, M.N. and Nisha, Yadav, Harappan weights, Tata Institute of Fundamental Research, Mumbai, Puratatva, 2007
- 8- Iwata, Shigeo (2008), "Weights and Measures in the Indus Valley", Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures (2nd edition)
- 9- Calculator net, © 2008-17
- 10- Ibid
- 11- Ibid
- 12- Ibid
- 13- Dozenal Society, A brief history of the pound, 2017
- 14- Calculator net, © 2008-17
- 15-History of measurement, Metrologie francaise, retrieved 2.6.2011
- 16- Calculator net © 2008-2017
- 17-Vahia, Nisha Yadav, Harappan Weights, Tata Institute of Fundamental Research, Mumbai, , Puratatva, vol 37, 2007
- 18-Dean, Nelson, Indus Valley's Bronze Age civilization had first sophisticated financial exchange system, Daily Telegraph, London, Nov 17, 2009
- 19- ibid
- 20- Zahie Com, Rescue for Education, retrieved Jan 4, 2018

Excavations at different sites suggest that medical interventions such as dentistry and trepanation were practiced as early as 7,000 BCE in the Indian subcontinent. Organized forms of agriculture practiced by the people of the Indus civilization, the importance they gave to certain medicinal plants and trees and the emphasis on hygiene and water sanitation suggest an advanced awareness of health management. Trade routes linked the Indus valley civilization to other parts of the subcontinent and westward to Persia, Mesopotamia and the Arabian Sea, and northward to Central Asia. It is highly likely that botanical and medical commodities and knowledge were among the prized items of exchange.

Archaeologists and historians hold that it was during the Vedic era that the Indus Valley medical system spread to other parts of South Asia. “Indian medical practices were gradually dispersed all over Asia, including the southeast, Indonesia, Tibet, and Japan. Furthermore, the translation of the Ayurvedic literature into Persian and Arabic in the eleventh century A.D. led eventually to further spread of Indian medical lore into Europe as writings in Arabic became part of European culture in the Middle Ages.

*HEALTH***Health care in the
Ancient Indus Valley**

Indus Valley Civilisation introduced itself as one of the oldest civilisation in South Asia. Known for the earliest urban settlement for its most advanced hygienic settlement it provided public and private baths, a perfect sewage system with underground drains and sophisticated water supply management system. It was the first pre-historic site. These arrangements according to experts ensured maximum safeguards for creating healthy society.

“An astonishing feature of this pre-Aryan urban culture was its advanced system of public sanitation. There were numerous wells, bathrooms, public baths, sewers and chutes for collecting trash. Streets were laid out in regular fashion and houses were well built and ventilated.” (1)

In the presence of undeciphered Indus script, it is a bit difficult task to peep into the medical practices of the early Indus Valley civilization but measuring the collective urban system it is evident that some important medical system had prevailed as evident from sanitation and hygienic conditions. “Health and hygienic measures were different in various periods of Indian history. For instance the public baths and highly developed water systems during the early Indus valley civilization were not matched by succeeding peoples.

Judging from the written records, epidemics and illnesses must have been frequent throughout India's history; there is evidence for malaria, dysenteries, cholera, smallpox, typhoid fever, plague, leprosy, tuberculosis, as well as a

multitude of other catastrophic diseases such as mental illness, blindness, hepatitis, pulmonary affections, neurological disorders, parasitic infestations and other pathologic conditions of the organ systems. Traditional medicine recognized the dangers of remaining in an area where a plague or epidemic was raging, and caution was urged in choosing water and food. Smallpox was countered by inoculating people with pus from a smallpox skin boil by puncture or scarification to prevent the full-blown illness.” (2)

As study in ancient medicare continues some researchers have found exercise as an important prevention. The author of The history of Medicine in Exercise, Charles M Tipton, claims that exercise had an important place in the medication during the early Indus Valley Civilisation era. “Around 2,000 BCE, the Indus Valley was invaded by Aryans who established the Hindu culture and subsequently wrote their sacred texts and formulated the tridosa (tridhatu) doctrine or the Indian humoral theory. (3)

“Archeological and modern genetic evidence suggest that human populations have migrated into the Indian subcontinent since prehistoric times. The knowledge of the medicinal value of plants and other substances and their uses go back to the time of the earliest settlers. The vast amount of medical knowledge that has come down to modern times is the result of long evolution through trial and error and exchange of knowhow between diverse communities and regions. The process of exchange and assimilation continues, and today traditional medical practices are obliged to accommodate to the norms of modern biomedicine. However there is growing awareness among the scientific community and the general public about the intrinsic value of traditional medicine, and as a result Ayurveda, Unani and Siddha have entered the mainstream to compliment biomedicine. The challenge today is to integrate the best of the different healing traditions to meet the healthcare needs of contemporary society.” (4)

Some research brought ample evidence that healthcare, though in early stages was recorded as early as 7,000 BC. “Excavations at different sites suggest that medical interventions such as dentistry and trepanation were practiced as early as 7,000 BCE in the Indian subcontinent. Organized forms of agriculture practiced by the people of the Indus civilization, the importance they gave to certain medicinal plants and trees and the emphasis on hygiene and water sanitation suggest an advanced awareness of health management. Trade routes linked the Indus valley civilization to other parts of the subcontinent and westward to Persia, Mesopotamia and the Arabian Sea, and northward to Central Asia. It is highly likely that botanical and medical commodities and knowledge were among the prized items of exchange. Recent archaeo-botanical excavations give evidence for the use in the Middle Gangetic region of medicinal plants since the 2nd millennium BCE that are still used by Ayurvedic physicians and folk healers.”

Mehargarh, though excavated in 1974, some one century after the archaeologists hit the Indus Valley Civilisation sites, has added some new information about the once great civilization of South Asia. “The proto-historic site of Mehrgarh (variously spelt as Mehrgahr, Merhgarh or Merhgahr) was discovered by French archaeologist couple, Jean-François Jarrige and Catherine Jarrige. Jean-François Jarrige is an eminent archaeologist and Sindhologist and is presently the Musée Guimet in Paris. The French Archaeological Mission, in collaboration with the Department of Archaeology of Pakistan undertook the mammoth project of excavating the Neolithic finds of Mehrgarh between the years 1975-2000. The wide archaeological area in question - about 300 hectares - lay near the modern Mehrgarh village in Balochistan at the foot of the Bolan Pass.” (5)

The Kachi plain and in the Bolan basin (are) situated at the Bolan peak pass, one of the main routes connecting southern Afghanistan, eastern Iran, the Balochistan hills and

the Indus River valley. This area of rolling hills is thus located on the western edge of the Indus valley, where, around 2,500 BCE, a large urban civilization emerged at the same time as those of Mesopotamia and the Ancient Egypt. For the first time in the Indian Subcontinent, a continuous sequence of dwelling-sites has been established from 7,000 BCE to 500 BCE, (as a result of the) explorations in Pirak from 1968 to 1974; in Mehrgarh from 1975 to 1985; and of Nausharo from 1985 to 1996.” (6)

Scholars and archaeologists have divided Mehrgarh history into eight phases. Researcher Krist states this division according to the archaeological periods. These are: Aaceramic Neolithic founding 7,000-5,500 BC; Neolithic Period II 5,500-4,800 (16 ha); Chalcolithic Period III 4,800-3,500 (9 ha); Chalcolithic Period IV, 3,500-3,250 BC; Chalcolithic V 3,250-3,000 (18 ha); Chalcolithic VI 3,000-2,800 and Chalcolithic VII Early Bronze Age 2,800-2,600.

Archaeological evidence shows that Mehrgarh was a small farming village and was active in 7,000 -5,500 BC era. Mud bricks were used by its inhabitants. Granaries were also built from mud and clay bricks. K. Kris Hirst opines that “Mehrgarh is a large Neolithic and Chalcolithic site located at the foot of the Bolan pass on the Kachi plain of Baluchistan (also spelled Balochistan), in modern day Pakistan. Continuously occupied between about 7,000-2,600 BC, Mehrgarh is the earliest known Neolithic site in the northwest Indian subcontinent, with early evidence of farming (wheat and barley), herding (cattle, sheep, and goats) and metallurgy.... Mehrgarh was a small farming and pastoralist village between 7,000-5,500 BC, with mud brick houses and granaries.

The early residents used local copper ore, basket containers lined with bitumen, and an array of bone tools.” (7) He adds that “The earliest residences at Mehrgarh were freestanding, multi-roomed rectangular houses built with long, cigar-shaped and mortared mudbricks: these structures are very

similar to Prepottery Neolithic (PPN) hunter-gatherers in early 7th millennium Mesopotamia. Burials were placed in brick-lined tombs, accompanied by shell and turquoise beads. Even at this early date, the similarities of crafts, architecture, and agricultural and funerary practices indicate some sort of connection between Mehrgarh and Mesopotamia.” (8)

No doubt Mehrgarh is an important addition to the ancient Civilisation sites but more important is the finding of dentistry in the ancient inhabitants. He notes, “A recent study at Mehrgarh showed that during Period III, people were using bead-making techniques to experiment with dentistry: tooth decay in humans is a direct outgrowth of a reliance on agriculture. Researchers examining burials in a cemetery at MR3 discovered drill holes on at least eleven molars. Light microscopy showed the holes were conical, cylindrical or trapezoidal in shape. A few had concentric rings showing drill bit marks, and a few had some evidence for decay. No filling material was noted, but tooth wear on the drill marks indicate that each of these individuals continued to live on after the drilling was completed.” He also supports the finding of another scholar Coppa and says, “Coppa and colleagues (2006) pointed out that only four of the eleven teeth contained clear evidence of decay associated with drilling; however, the drilled teeth are all molars located in the back of both lower and upper jaws, and thus are not likely to have been drilled for decorative purposes. Flint drill bits are a characteristic tool from Mehrgarh, mostly used with producing beads. The researchers conducted experiments and discovered that a flint drill bit attached to a bow-drill can produce similar holes in human enamel in under a minute: these modern experiments were not, of course, used on living humans.” (9)

“The dental techniques have only been discovered on only 11 teeth out of a total of 3,880 examined from 225 individuals, so tooth-drilling was a rare occurrence, and, it appears to have been a short-lived experiment as well. Although the MR3 cemetery contains younger skeletal material

(into the Chalcolithic), no evidence for tooth drilling has been found later than 4,500 BC.” (10)

Like most of the medical systems, the tradition of medical care in South Asia is long associated with religion. Hinduism is the oldest religion in the region. “Hinduism is one of the oldest living religions, having evolved over a period of four thousand years. Initially it was a synthesis of the ancient religion brought in by the Aryans and the religious traditions of the Indus valley civilization. The body of literature of the Aryans known as the Veda (Sanskrit for knowledge) is the oldest scripture of Hinduism.

The foundations of traditional Indian healing, called Ayurvedic (knowledge of life) medicine, rested on these ancient teachings together with a number of commentaries and later writings by healers such as Charaka, Sushruta, and Vagbhata.” (6) The Aryans migrated to Indus Valley in 1300 BC and stayed here for many centuries and in around 900 BC scrambled to north India in the Gangetic plateau, cleared the jungles and introduced the irrigation system they had learnt from the Indus inhabitants. It was this time when Vedic era began. It was this time when they re-arranged the medical system of Indus Valley. They called it tridosa doctrine. “The essence of the doctrine was that the human body contained three dosas (humors) known as vayu, pitta, and kapha, with each having designated physiological functions (11). An important effect of the tridosa doctrine was that it removed the supernatural and importance of demons from the relationship between health and disease while establishing a foundation for the practice of medicine in ancient India. Implicit with the tridosa doctrine was, 1) dosas controlled all functions of the body, 2) disease occurred when a dosa was dearranged or not in equilibrium with other dosas, and 3) health prevailed when the dosas were in equilibrium.” (12)

Archqeologists and historians hold that it was during the Vedic era that the Indus Valley medical system spread to other

parts of South Asia. “Indian medical practices were gradually dispersed all over Asia, including the southeast, Indonesia, Tibet, and Japan. Furthermore, the translation of the Ayurvedic literature into Persian and Arabic in the eleventh century A.D. led eventually to further spread of Indian medical lore into Europe as writings in Arabic became part of European culture in the Middle Ages.

It is noteworthy that Indian religion and mysticism would permit a system of secular medicine which engaged in sound, rational practices, even though not completely free of magical and religious associations. Initially, illness was thought to result from punishment by the gods for sinning, but as belief in reincarnation developed the transgression itself would lead to retribution by nature. Humans were continually reborn until their karma (sum of actions in one existence which determined destiny in the next) entitled them to nirvana, or merging with the cosmic spirit. The universe was considered an eternal cycle of creation, preservation and destruction. Although there was a complex Vedic pantheon, the deities were but parts of the eternal whole, for Brahman, the power and spirit of the cosmos, permeated everything in the universe.

The principal Aryan divinities were Indra (god of weather and war), Varuna (all-seeing god of justice and cosmic order), Agni (god of fire and sacrifices), and Soma (personification of the hallucinatory plant—no longer identifiable—used in Aryan rituals). As the Rig-Veda stated: They call it Indra, Mithra, Varuna, and Agni, And also heavenly, beautiful Garutman. The real is one, though sages name it variously.” (13)

References:

- 1-Ancient India, Albert S. Lyons, Medical History, retrieved Jan 31, 2018
- 2-Ibid
- 3-Charles M. Tiptone, The history of exercise is Medicine in early civilizations, Advances in in Physiological Education retrieved Jan 31, 2018
- 4-Upinder Singh, Nayanjot Lahiri, Ancient India: New Research, Oxford University Press, India 2010
- 5- Kris Hirst, Mehargarh, upgraded Sept 10, 2016, retrieved Jan 31, 2018
- 6- Ibid
- 7- Coppa A, Bondioli L, Cucina A, Frayer DW, Jarrige C, Jarrige J-F, Quivron G, Rossi M, and Vidale MM, R. 2006. Early Neolithic tradition of dentistry. Nature 440(6 April 2006):755-756.
- 8,9,10- Ibid
- 11-Albert S. Lyon, Mechanical History, retrieved Jan 31, 2018-02-01
- 12,13- bid

“The ancient Indus people were aware of the mathematics, beginning with measuring rulers and quite an accurate measurement of the brick making for construction. Not only that they had set some measurements of bricks but these were used all over the areas. “The bricks used to build at these Indus cities are all uniform in size (7cmx14cmx28cm). The weights that have been recovered have shown a remarkable accuracy. They follow a binary decimal system: 1, 2, 4, 8, 16, and 32, up to 12,800 units where one unit weighs approximately 0.85 grams. Some of the weights are so tiny that they could have been used by jewelers to measure precious metals.”

(In search of Cradle of Civilization, Weaton, Illinois, Quest Books, 83, retd Sept 18, 2017).

*Indus Valley Civilisation***Brick: basic unit of
Building Indus society**

In today's world building technology has gained an unprecedented importance and with every passing day a new technology takes over giving newer meanings to the building science. The research on its various aspects has taken the social scientists to newer heights and a much wider scope has been gained by the research on the origin of the brick and the phases it has passed through ages to date. The simple reason is that because no society can exist and grow till a living abode is raised on certain grounds offering basic needs. "The importance of such objects is increased when studying early societies for which there are no written records, such as the Indus Valley civilization. Although some of the communities living in the Indus cities did use a formal writing system, it has not yet been deciphered and the detailed study of material culture provides one of the few sources of information for determining the nature of the society and for comparing it to other early cultures." (1)

The find of brick in the Indus Valley Civilization was not as a result of planned campaign but was accidental. It was more than one-and-half century when the accidental earth digging created history. "In 1856, John and William Brunton, British engineers were overseeing the building of a stretch of the East India Railway Company railroad from Karachi to Lahore, up near the Himalayas. They needed ballast for the project and had learned of the ancient ruins of Brahminabad nearby. Workers came upon quantities of fired brick there and, subsequently, used it for ballast. More bricks were found near the village of Harappa, in present-day Pakistan, along the Ravi

River, where villagers had been using them for some time. As it turns out, the bricks the Brunton brothers commanded for use on the railroad amounted to 150 kilometers of ballast. Unknown to them, they had stumbled upon remains of the Indus Valley Culture, a rich and ancient culture. However, this pilfering did great damage to these ancient ruins.

Today, the Harappa site is a UNSECO World Heritage Centre. At the time of the discovery, the area was the domain of India; however, after India was partitioned by the British, this terrain was split between Pakistan and India. So, during the initial discovery period, it was part of the British Raj. When archaeologists got around to figuring out what they had on their hands, they had a field day. It was an enormous find. Expeditions into the Indus Valley are still being carried out today.” (2)

In the history of the Indus Valley civilization the use of brick was first thought to have belonged to the Buddhist Period but it was only the finding of John Marshall which pushed the history to the Indus Valley Civilization. “The bricks were first thought to be part of a Buddhist site, until Marshall (3) attributed them to an indigenous civilization of South Asia, the Indus Valley Culture (3,200–1,300 BC, now more aptly termed the Indus Civilization), whose brick architecture extends back to 7,000 BC and the valleys of Baluchistan.”(4) The beginning of the building technology goes back to the making mud bricks which underwent a long history till a proper way for baking the bricks was invented and became an important tool technology in raising the towns and cities.

“The building material for the villages and cities of the Indus Civilization was predominantly mud brick. Only between approximately 2,600–1,900 BC, in the Mature Harappan phase, were baked bricks used in quantity, especially for walls and floors exposed to water (5 and 6). “This period of baked brick usage coincides with an elevated level of urbanism, characterized by large cities as opposed to the predominant village settlements before and after the Mature phase. In this

urban period all other Indus Civilization key technologies, including writing, shell ornaments, weights, and seals are present; these fall out of use with deurbanization after 1,900 BC.” (7)

Going deeper into the evolutionary process of building technology and the rise of town and cities in the Indus Valley Civilisation we see a deep relationship between evolution of the towns and cities keeping close ties with the improvement of house technology. “The main type of dwelling, Harappan house was of ingenious design and the bricks they made lasted thousands of years. Homes had indoor and outdoor kitchens and were made of fired or sun-dried brick. Existence of brick drainage canals in Lothal, India, a port city which used kiln fired brick extensively in its ancient dockyards. Its inhabitants learned that fired brick was more impervious to tidal waters. Each city in the region was surrounded by a brick wall, which helped control trade and flooding.” (8) Kenoyer calls the housing technology as Indus Tradition which soon became synonymous with the building technology. He classifies the tradition into four main eras. “The chronology for the Indus Valley Tradition can be divided into four Eras (Kenoyer 1991; Shaffer 1992). The Early Food Producing Era (ca. 7,000-5,500 BCE) is also commonly referred to as the Neolithic period, and is a time when domestic plants and animals are first exploited in the Indus Valley. The Regionalization Era, (5,500-2,600 BCE) corresponds to a period of regional cultural development that is subdivided into various Phases defined by specific artifact styles and regional cultural interaction. Recent excavations at the site of Harappa provide evidence for the emergence of an Early Indus state around 2,800 BCE at the end of the Regionalization Era, but the major phase of state-level development and urbanism does not begin until around 2,600 BCE. (9)

Researcher Auragzeb Khan and Carsten Lemmen of Germany elaborating say, “At the height of the Indus Civilization, there is thus an intimate relationship between key

technologies, building material, and cities. Or, translated into the social realm between social and political organization, craftsmanship and life style. The investigation of the combined evidence for technologies, material, and cities could then possibly inform us about the social, political, or organizational factors involved in its decline.’ (10) While discussing the ‘Methods and Material the scholars have in this highly crafted paper said, “We reconstruct here the chronological dynamics of brick usage by typology, and of urban area for the entire Indus domain from individual estimates. Combined with existing extensive data on Harappan artifact find sites a narrative of the characteristic rural-urban relationship in the Indus Civilization emerges “Several chronologies have been developed for the Indus Cultural Tradition, of which those by Kenoyer and by Possehl are widely employed. From these two, we here differentiate an Early Neolithic period, consisting of the Kili Gul Muhammad (7,000–5,000 BC) and Burj Basket-Marked (5,000–4,300 BC) phases, a pre-Harappan or Developed Neolithic period with the Togau (4,300–3,800 BC) and Hakra-Kechi (3,800–3,200 BC) phases, the Indus Civilization proper represented in the Early (3200–2600 BC), Mature (2,600–1,900 BC), and Late (1,900–1,300 BC) Harappan phases, and a post-Harappan phase (from 1,300 BC).” (11) It is interesting to note that the Indus Tradition dates back to many thousand years and not to 2600 BC as generally perceived. The rich paper adds, “The Indus Cultural Tradition dates back to around 7,000 BC and the foothills and valleys of Baluchistan. At the site of Mehrgarh early food production was dated to 6,500 BC (12), already early villages exhibit a planned layout, and houses were built of mud bricks. Pottery appears in the Burj period (after 5,000 BC), as well as a wide array of tools, domesticates and first copper artifacts. (13)

The occupation area, which had been initially concentrated in Baluchistan, the Makran coast, and the western borderlands of the Indus, expands north and westward into Khyber Pukhtunkhwa (K.P), Gujarat and the Punjab plains.

Use of ornamental pottery and gold emerges, along with the manufacture of compartmented seals, glazed steatite and beads. Standardized weights indicates that trade was important for the pre-Harappan economy.” (14)

Historically the first use of mud bricks (first step towards housing technology) began at Jericho or Tell Aswad site of civilization to around 7,500 BC. In the Indus Civilisation the use of mud bricks began some 500 years later or around 7,000 BC marking the beginning of the Indus Cultural Tradition. “Brick work literally lays the foundations of the Indus Cultural Tradition when it emerges after 7,000 BC. Its prominent role, however, is taken by baked bricks, which were manufactured only from the end of the Early to the beginning of the Harappan Late phase, a distinct and narrow 1500 year period within the almost six millennia long tradition. Why this shift to and away from baked bricks? Mud brick was the preferred construction material at the pre-Harappan site of Rana Gundai in Baluchistan despite abundant availability of building stones.” (15) One functional reason for using mud bricks could have been the better thermal insulation, one aesthetic reason the better sound insulation of mud brick walls. Mud bricks harden very fast—within one week of exposure to sun, and their utility as a construction material is greatly improved by the addition of straw, which increases the bending and compressive strength and avoids too much shrinkage during the drying process.” (16, 17)

Possehl explains the reason for the invention of baked brick. According to him, “Mud bricks, however, are not as resistant to water and compression as baked bricks. While most of the building continued to be performed with mud bricks, baked bricks were extensively used where their improved qualities were important. Water resistance was required for baths, drainage systems and flood protection structures, which are recurrently or permanently exposed to water. Water resistance became a key factor in the expansion of Harappan villages and cities into the Punjab flood plains and their

sustained flooding zones of the river plains were facilitated by baked brick technology.

The protective function of baked bricks is exemplified by the massive and technically refined flood protection structures around Mohenjo-daro and Harappa. Baked brick usage for all buildings in the flood-prone city Chanhu jo daro demonstrates the importance of baked-brick technology for flood protection” (18).

After the discovery of Indus Valley Civilisation, various aspects of the Indus life especially before the Aryan arrival in 1500 BC has taken centre stage and scholars are taking deeper interest in determining the lifestyle in the Early Indus Valley life. The rise of settlements during this era is of special debate and in some cases the scholars have reached at certain conclusions. Law finds that pre-Harappan cities did not appear in its main city centre Moenjo-daro but at Mehrgarh. “The first pre-Harappan cities appear as Mehrgarh, Amri, and Kot diji before 3,500 BC; they are built from mud (i.e., sun-dried) bricks. Many more villages than cities continue to expand the cultural domain along the Ghaggar Hakra River and along the Makran coast with a doubling of sites numbers after 3,200 BC. (19) In this Early Harappan phase baked bricks appear at few sites, first at Kalibangan, Kot diji, and Banawali (20)

The extension of Indus Valley Civilisation gave it an unprecedented broadening and brought wider areas to its fold. Called Mature Indus Civilisation left deep marks on the evolutionary process of human race. “At its peak, the mature Indus Civilization extends across the alluvial plains of Punjab and Sindh, Baluchistan, the Gujarat coast, and the surrounding valleys in K.P; in total, it encompasses a vast area of 1 million sq km represented by thousands of individual sites. Many large cities have been recognized amongst them are the sites of Harappa and Mohenjo-daro with a peak population of approximately 40,000 inhabitants each, the total population in the Mature phase is estimated at a few million. (21) The

Harappan extensive and long-range trade network connected by sea to the Sumerian domain and the Arabian peninsula, by land to the Bampur valley and across central Asia (22, 23)

In presence of sun-dried bricks why baked bricks got preference were due to their importance to become popular technology. “The baked brick technology, once invented, required skilled labor, standards, and natural resources. All these were available in the Mature Harappan phase. There is no evidence for scarcity of natural resources for baked brick production. Fine silt (and water) abounded in the river plains of Punjab and Sindh. Irrespective of potential climatic changes, the gallery forests along the perennial rivers provided an ample and steady supply of fire wood: Meher-Homji (24) estimated that only 200 hectares of reverie forest were required to supply baked bricks long enough to support the large city of Mohenjodaro (which was mostly built from baked bricks) for 100 years. The second requirement—standards—has been a longstanding and featured trademark of Harappan masonry. Possehl calls the typical ratio of 4:2:1 (length to width to height) of bricks the “Indus proportion”. (25)

The adherence to this ratio was ensured by the use of standardized molds that have been in use since 4,000–3,600 BC (26). While this ratio was typical at Harappa for large bricks, some cities, like Kalibangan, also used different brick ratios (3:2:1) During the Harappan Late phase brick dimensions diverged away from the Indus proportion. (27) Beyond the molds, the standards are also preserved in the craftsmen’s tradition and in social norms. The deviation from the standard in the Harappan Late phase could therefore point to a changed social norm, or to the lack of craftsmen to keep up the traditional brick manufacture. This third requirement of skilled labour refers to the craftsmanship and knowledge needed to choose the correct silts, mix the appropriate quantities of silts and water, and find the right temperature and roasting time to produce maximum strength bricks. Were key skills lost with the migration of craftsmen? There is no direct evidence. The

late appearance of bricks in the Gujarat sites, predominantly Lothal after 2,200 BC, however, could be evidence for increased need of brick producers there, when at the same time the size of Harappa already started to decrease. Outside of the Indus domain, baked brick technology appears in Susa (eastern Gulf of Persia), where they are used in monumental construction from 1,800 BC.” (28)

The Indus Civilization was centrally organized, an empire under common rule. Priestly elites seem to have exerted their power rather by moral authority than force; temples, palaces and evidence for warfare are absent from the archaeological record (29). The coherence provided by a moral authority may also be a decisive factor in ensuring the brick dimensions standard. Harappa was also a closed society: Skull features from prehistoric cemeteries indicated that urban Harappans differed from surrounding villagers; apparently, social practice discouraged mixing with people outside the city and promoted endogamy. (30) Skills, trade, authority, and elite status are social dimensions which can be mapped to the material culture.

The symbolism that held together Harappan society is mirrored in its seals. Elite status is expressed by shell ornaments. The Indus script has not been deciphered, the existence of a writing system, however, points to use for accounting and administration. Thus, the decline in baked brick manufacturing is not merely a loss of one specific technology, but also represents a considerable loss of symbolism (31).

“The Harappans were great city planners. They based their city streets on a grid system. Streets were oriented east to west. Each street had a well-organized drain system. If the drains were not cleaned, the water ran into the houses and silt built up. Then the Harappans would build another story on top of it. This raised the level of the city over the years, and today archaeologists call these high structures “mounds”. (32)

References:

- 1-Harappa, Early Development of Art, Symbol, Technology in the Indus Valley Tradition, @Harappa, 1995-2018, retrieved Jan 9, 2018
- 2-The History of Bricks: The Indus Valley, Jan Street Clayworks, Feb 17, 2011
- 3- Possehl GL (1990) Revolution in the Urban Revolution: The Emergence of Indus Urbanization. Annual
- 4-Kenoyer JM (1998) Ancient cities of the Indus valley civilization. Karachi: Oxford University Press, 260
- 5- Biagi P (2011) Changing the prehistory of Sindh and Las Bela coast: twenty-five years of Italian contribution, World Archaeology 43: 523–537.
- 6- Mortazavi M (2011) The Bampur Valley: A New Chronological Development. Ancient Asia 1: 53–61
- 7- Possehl GL (1999) Indus Age: The Beginnings. Univ. Of Pennsylvania Press.
- 8-Wikipedia, retrieved Dec 23, 2017
- 9- Richard Meadow, Early Development of Art and Symbol and Technology to the Indus Valley Tradition, @ Harappa com 1995-2017
- 10- Aurangzeb Khan and Carsten Lemmen, Bricks and urbanism in the Indus Civilisation, Institute of Coastal Research, Germany, retrieved Jan 09, 2018
- 11- Ibid
- 12- Jarrige JF, Meadow RH, Quivron G (1995) Mehrgarh: Field Reports 1974-85 – From Neolithic Times to the Indus Civilization. Karachi, Pakistan: Department of Culture and Tourism of Sindh; Pakistan and Department of Archaeology and Museum and French Ministry of Foreign Affairs, retrieved Jan 9, 2018.
- 13-Moulherat C, Tengberg M, Haquet JF, Mille B (2002) First Evidence of Cotton at Neolithic Mehrgarh, Pakistan: Analysis of Mineralized Fibres from a Copper Bead. Journal of Archaeological Science 29: 1393– And Fuller DQ (2011) Finding Plant Domestication in the Indian Subcontinent. Current Anthropology 52:

- 14- Gangal K, Vahia MN, Adhikari R (2010) Spatiotemporal analysis of the Indus urbanization. *Current Science* 98: 846–852. and Lemmen C, Khan A (2012) A simulation of the Neolithic transition in the Indus valley. In: Giosan L, Fuller DQ, Nicoll K, Flad RK, Clift PD, editors, *Climates, Landscapes, and Civilizations*, Washington: American Geophysical Union, volume 1 of Geophysical Monograph Series. pp. 107–114.
- 15- Ross EJ (1946) A chalcolithic site in northern Baluchistan: Rana Ghundai. *Journal of Near Eastern Studies* 5: 291–315.
- 16, 17- Binici H, Aksogan O, Bodur MN, Akca E, Kapur S (2007) Thermal isolation and mechanical properties of fibre reinforced mud bricks as wall materials. *Construction and Building Materials* 21: 901–906; Doyle K, Cumiskey L, Farrell R, King C, Mceniry J, et al. (2011) Optimising the engineering properties of brick reinforcement. In: EWB-UK National Research & Education Conference 2011 Our Global Future 4th March 2011. March, pp. 149–152.
- 18- Kenoyer JM (1998) *Ancient cities of the Indus valley civilization*. Karachi: Oxford University Press; Possehl GL (2002) *The Indus civilization: a contemporary perspective*. Walnut Creek, CA: AltaMira, 276 pp.
- 19- Law RW (2007) Building a South Asian Archaeological site and rock & mineral resource “Gazetteer” in Google Earth. In: *Indus Archaeological Technical Training Workshop*, 17–20.03.2007. Baroda, India: Mahara Sayajirao University
- 20- Chattopadhyaya D (1996) *History of science and technology in ancient India*, volume 1. Calcutta: Mukhopadhyaya, 556 pp.
- 21- Lemmen C, Khan A (2012) A simulation of the Neolithic transition in the Indus valley. In: Giosan L, Fuller DQ, Nicoll K, Flad RK, Clift PD, editors, *Climates, Landscapes, and Civilizations*, Washington: American Geophysical Union, volume 1 of Geophysical Monograph Series. pp. 107–114.
- 22- Rao SRR (1965) *Shipping and maritime trade of the Indus people*. Expedition 7;
- 23- Law RW (2011) *Inter-Regional Interaction and Urbanism in the Ancient Indus Valley: A Geologic Provenience Study of Harappa’s Rock and Mineral Assemblage*. Linguistics, Archaeology and the Human Past Occasional Papers. Kyoto: Research Institute for Humanity and Nature.
- 24- Meher-Homji VM (1973) Is the Sind-Rajasthan desert the result of a recent climatic change? *Geoforum* 4:47–57.

- 25- Possehl GL (1990) Revolution in the Urban Revolution: The Emergence of Indus Urbanization. Annual
- 26- Richard Meadow, Early Development of Art and Symbol and Technology to the Indus Valley Tradition, @ Harappa com 1995-2017
- 27- McIntosh JR (2007) The ancient Indus Valley: new Perspectives. Oxford, England: ABC-CLIO, 441 pp.
- 28- Gallet Y, Genevey A, Le Goff M, Fluteau F, Alieshraghi S (2006) Possible impact of the Earth's magnetic field on the history of ancient civilizations. Earth and Planetary Science Letters 246: 17–26.
- 29- Piggott S (1950) Prehistoric India to 1000 BC. Harmondsworth, Middlesex: Penguin Books, 293 pp.
- 30- Bartel B (1979) A discriminant analysis of Harappan civilization human populations. Journal of Archaeological Science 6: 49–61.
- 31- Possehl GL (2002) The Indus civilization: a contemporary perspective. Walnut Creek, CA: AltaMira, 276
- 32- Harappa, Early Development of Art, Symbol, Technology in the Indus Valley Tradition, @Harappa, 1995-2018, retrieved Jan 9, 2018

“There is sufficient archaeological evidence for the trade between Mesopotamia and the Indus Valley. Specific items of high volume trade are timber and specialty wood such as ebony, for which large ships were used. Luxury items also appear, such as lapis lazuli mined at a Harappan colony at Shortugai (modern Badakhshan in northern Afghanistan), which was transported to Lothal, a port city in Gujarat in western India, and shipped from there to Oman, Bahrain and Sumer.

- (1) "Ur seals". hindunet.org. (2) John Keay (2000). India: A History. p. 16. (3) Possehl, G.L. (2007), "The Middle Asian Interaction Sphere", Expedition 49/

Going deeper into the evolutionary process of building technology and the rise of towns and cities in the Indus Valley Civilization we see a deep relationship between evolution of the towns and cities keeping close ties with the improvement of house technology. “The main type of dwelling, Harappan house was of ingenious design and the bricks they made lasted thousands of years. Homes had indoor and outdoor kitchens and were made of fired or sun-dried bricks.

*Indus Trade***Trade in the Indus Valley Civilization**

The Indus Valley Civilization people had a very busy life that has been discussed over by scholars during the period after exploration. The researches have shown that they were the innovators of many technologies and made strides in all fields of knowledge. No doubt they made first in farming, using developed mode of transport and weaved cloth for their use and exporting to other civilizations. Evidence is abundance to hold that these people lived according to their wishes and were content with what they had achieved.

“Apart from the subsistence of agriculture and hunting, the people of Indus Valley civilization made a living for themselves by trading different goods. Trading of different goods helped the Indus expand its culture, coming into contact with faraway lands. The areas along the coastline and many rivers provided the Indus Valley people with consistent territories of water.

The Harappa people lived according to was not confined to the boundaries of their own places. Foreign trades and sea ports were found in Harappa Civilisation.” (1)

Scholars do believe that the economy of the Indus Civilization depended on agriculture and the trade. They also speak about the boat and ship building technology needed to travel overland and through the international waters. Bullock carts may be seen as a slow-moving means of communication but given the situation 3,300 years back, it was one of the dependable mode. “The Indus civilization's [IVC] economy appears to have depended significantly on trade, which was facilitated by major advances in transport technology. The IVC

may have been the first civilization to use wheeled transport.”(2)

“These advances may have included bullock carts that are identical to those seen throughout South Asia today, as well as boats. Most of these boats were probably small, flat-bottomed craft, perhaps driven by sail, similar to those one can see on the Indus River today; however, there is secondary evidence of seagoing craft. Archaeologists have discovered a massive, dredged canal and what they regard as a docking facility at the coastal city of Lothal in western India (Gujarat state).” (3)

Some scholars even claim that the Indus trade extended beyond Mesopotamia. “During 4,300–3,200 BCE of the Chalcolithic period (copper age), the Indus Valley Civilization area shows ceramic similarities with southern Turkmenistan and northern Iran which suggest considerable mobility and trade.... There is some evidence that trade contacts extended to Crete and possibly to Egypt.” (4)

When we talk about trade in the Indus Valley Civilisation, we come across two related subjects. The shipbuilding and trade itself, when we think about with other communities, especially when it comes to through sea. Research supports the proposition of trading with other civilizations but in the Indus Valley Civilisation, there are two visible points which offer archeological evidence. One in the Mehargarh and the other Lothal, in Gujarat now in India. Marine archaeologist A D Agarwal, in his paper titled Ancient Ship-building & Maritime Trade refers to R. S Rao and says that “The Harappans (or Indus Civilization) constructed the first tide dock of the world for berthing and servicing ships at the port town of Lothal.” (5)

The findings in Lothal port is not an isolated one and has many facts to reveal mostly the troops and methodology used in ship-building. An important factor is the discovery of the dockyard also reveals many facts.

“The discovery of the Lothal port and dock in 1955 highlighted the maritime aspects of the Indus Civilization. At Lothal a trapezoid reservoir measuring on an average 214 x 36 meters has been excavated, and has been identified as a dockyard. It is riveted on all four sides with continuous dry masonry burnt-brick walls, 4- courses wide, which at its greatest extant depth reaches to 3m (but might have been originally much higher). The structure was stratigraphically connected to the old riverbed of Sabarmati. Towards the southern end there is a broad and relatively shallow gap. This has been supposed to be the inlet channel of the dock. Leading from the southern wall is a narrow brick water passage, said to have functioned as a spill channel, when fitted with a sluicgate. According to S.R. Rao, the dock has been used in two stages, at the first stage it was designed to allow ships 18-20 meters long and 4-6 meters wide. At least two ships could simultaneously pass and enter easily. In the second stage, the inlet channel was narrowed to accommodate large ships but only single ships with flat bottoms could enter.” (6)

There is a convincing fact revealing that this theory is that the existence of trade with other communities was known to all Indus Civilisation. The experts add: “The terracotta models of a boat from Lothal and engravings on Indus seals give some idea of ships going to the sea. Lothal is situated near Saragwala village, about fifty miles southwest of Ahmadabad. It lies in a level plain between the Bhogava and Sabarmati rivers and at present is some twelve miles from the Gulf of Cambay coast. The siltation rate of the Sabarmati delta is known to be rapid, so that in former times the site may actually have been nearer the sea. Lothal, with its large market and a busy dock, was a great emporium where goods from neighboring towns and villages, such as Rangpur, Kath etc. were sold in exchange for imported and locally manufactured ones.

Lothal had developed overseas trade with the West Coast of India on the one hand and the Mesopotamian cities through

the Bahrain islands on the other. Among the manufacturing industries of Lothal bead making, ivory and shell working and bronze-smithy were very important. For the land transport they used bullock carts and pack animals for long distance trade. For inland waterways, flat-bottomed boats of the type suggested by the terracotta models were used. In this connection it may be noted that even today flat-bottomed boats made of reeds are used for carrying men and light goods. Perhaps the Harappans used similar boats in the lakes and rivers also. Trade on the high seas and along the coast was possible because the ships were fitted with sails.” (7)

It goes without saying that the Indus Valley Civilization was located not as a single settlement. It has already been made clear that it was a kind of federating settlement which was governed by simple rules of sanitary and cleanliness. Likewise all technologies too were interwoven with all centres. Lifestyle of Mohenjo-daro was being followed quite strictly. Though there are not much seals from there showing any relationship with ship-building at least one seal making it clear about the existence of ship-building at the central settlement.

“An engraving on a seal from Mohenjo-daro represents a sailing ship with a high prow; the stern was made of reeds. In the center, it had a square cabin. Out of five miniature clay models of boats one is complete and represents a ship with sail. The latter has a sharp keel, a pointed prow and a high flat stern. Two blind holes are also visible. One of them seen near the stern was meant for the mast, and the other on the edge of the ship may be for steering. In the second model, which is rather damaged, the stern and the prow were both curved high up as in the Egyptian boats of the Garzean period. The keel is pointed and the margins are raised. In this case, the prow was broken.

Three other damaged models found at Lothal have a flat base and a pointed prow, but the keel is not pointed nor is there any hole for fixing the mast. Apparently these flat-based craft were used on rivers and creeks without sail, while the other two

types with sail and sharp keels plied on the high seas and were berthed in the deep waters of the Gulf. Probably the canoe types of flat-based boats were the only ones, which could be sluiced at high tide. Another type of boat can be reconstructed from the paintings on two potsherds. It represents a boat with multiple oars. The Harappan ship must have been as big as the modern country crafts, which bring timber from Malabar to Gogha. On this analogy it can be assumed that a load up to 60 tons could be carried by these ships. The sizes of the anchor stones found in the Lothal dock also support this view.” (8)

D.P. Agrawal and Lalit Tiwari paper also briefs about the technology of ship-building in the ancient Indus Valley Civilisation. “The technology of boat building was a hereditary profession passing from father to son and was a monopoly of a particular caste of people. The local builders used the hand, fingers and feet as the units of measurements. In different places different kinds of boats were built for specific purposes. These boats may bear some similarity in material, techniques or in shape and size. For the construction of ship, the teak (*Tectona grandis*) wood is generally employed in India, though the selection of wood depends upon the nature and type of craft.” (9)

There is also evidence suggesting that raw material was imported from other parts and technicians in Indus Valley cities applied their technology to turn them into finished goods which were sold at various markets. “Of course, any arguments of trade being a central part of the Indus Valley Civilization cannot proceed without first demonstrating that trade actually occurred. The evidence of extensive trade lies in the archaeological record of the Indus Valley Civilization's infrastructure, most notably at the city of Lothal, and in some few cases even in the civilizations it traded with.

The most compelling evidence for trade in the archaeological record of the Indus Valley is the city of Lothal near the Arabian Sea. Lothal, by all evidence, served as an enormously important city in the Indus Valley and the entirety

of the Near East. At Lothal, archaeologists have unearthed a large dock complex capable of hosting and sending off boats capable of minor crossings of the Arabian Sea. This dock is extremely advanced, hosting an inlet channel capable of drainage and equipped with lock gates to ensure a safe water level. We know firsthand how extraordinarily built the dock at Lothal was, as boats as late as 1850 were still able to use the facility. While the dock does not necessarily prove that the Indus people were a seafaring group as the dock could have been built specifically for receiving foreign ships, it does prove that they participated in the sea trade of the day with civilizations like those in Mesopotamia. (10) Connected to the dock was a large warehouse complex where goods were stored and prepared for departure.” (11) This sea trade was not only vastly important to Mesopotamia and the Indus Valley, but also to the civilizations such as Dilmun in modern Bahrain which were in between the two civilizations and did business with and between both.” (12)

The Indus people went to great lengths to ensure the quality of this trading port, lengths great enough to ensure its integrity for more than 3000. This is the mark of a civilization which has placed a great emphasis on trading infrastructure and its integrity.(13)

“The trade relationship during the later 3rd millennium was a direct one: ships from Meluhha (the Indus) docked in Mesopotamian ports; some Meluhhans settled in Sumer; and there is a seal belonging to a Mesopotamian whose job it was to act as an interpreter of the Meluhhan language. On the other hand, there is nothing to suggest that people from Mesopotamia reached the Indus, so it is clear that the Harappans conducted the trade between the two civilizations. Mesopotamian ships sailed the length of the Gulf, as far as the western coast of Magan (Oman peninsula), trading directly with Magan and with Dilmun (Bahrain); ships from Magan and Dilmun also docked in Mesopotamian ports. Trade also took place across the Gulf, between Elam and the city-states on the Iranian

plateau in the east and Mesopotamia, Dilmun and Magan in the north and west.

“Dilmun operated as a middleman between Mesopotamia and the Indus in some of this trade, and after the Ur III State collapsed its role in this region grew: in the early 2nd millennium BC both Harappan and Mesopotamian ships sailed only to Bahrain, which acted as an entrepot between them. This would be the place one might expect to find a bilingual, but it hasn't happened yet: there are local seals with Harappan inscriptions, but the local seals are otherwise uninscribed. It seems probable that the Harappans used perishable materials for their records, and presumably this would have applied to records of their transactions in Dilmun too. A cuneiform tablet with a Harappan bilingual text might turn up here but I think it unlikely.” (14)

“There is ample evidence that the Indus trade based its trading activity on improved farm economy. For the entirety of its existence, the Indus Valley Civilization relied heavily on agriculture to sustain its population. Many crops were grown in the Indus Valley for food and other purposes, but one crop in particular changed the way the people of the Indus Valley lived forever. During the early excavation of Indus Valley sites, archaeologists found what has been determined to be the oldest samples of Cotton Thread ever found. (15) In the years that followed, it has been determined that the Indus Valley was likely the original place from where cotton was grown and spread throughout the Eurasian continent. With the many and extensive uses of the material across the ancient world, the polities of the Indus Valley that existed before the Mature Harappan period were simply not able to handle the demands of the rest of the world along with their own when it came to cotton and were forced to expand in order to handle this demand.

“It has been argued that a ‘cotton rush’ (16), an economic boom relating to one valuable resource mimicking the tobacco rush that populated the British Americas and the

gold rush that populated our own American west, is responsible for pushing forth the rapid growth that marked the transition of the Indus Valley Civilization from a group of small city states with a vague, common culture into one of the largest and most expansive civilizations of its day, with trade links across the ancient Near East to Sumer in Mesopotamia among other, smaller areas.

While this explosion of growth came after a long and slow building process, there was a rapid urbanization which lasted roughly 100 to 150 years prior to the beginning of the Mature Harappan (17), implying that something very profitable had come about that demanded expansion of the civilization. In this case, it was likely the trade of cotton in particular along with other trading goods. This is an argument that I agree with and would also make. I argue that it is no coincidence that the beginning of the upward surge in urbanization that marked the two centuries prior to the beginning of the Mature Harappan period referenced by many scholars coincided with the rise of a stable Sumerian civilization with which it has been proven the people of the Indus carried out trade with. I argue that it was both the wealth that came flowing into the Indus Valley Civilization and the economic pressure to expand that wealth through the production of more cotton and other trade goods that led to the foundation of civilization built around the ability to carry out extensive trade with foreign civilizations in order to keep more and more wealth flowing into the Indus Civilization.” (18)

Looking into the areas wherein the Indus craftsmen worked and prepared finished goods for export was making of bead necklaces. Archaeologists wonder if they (the Indus craftsmen) had attained such high degree of technology that they used high temperature to harden and glaze the ornaments of beads. They wonder how come they prepared the high temperature kilns that required temperature of over 900 Celsius and such measures to drill hard stones. “Studies on bead-making have been implemented across the Indus Valley and

nearby regions and with modern equipment archaeologists have been able to develop a fairly clear picture of a complex and detailed process by which the Indus Valley in particular made beads for trading.

The process of making beads in the Indus Valley, which was refined to its height during Period 1 of the Mature Harappan Period, began with the collection of the various types of stone involved in making them. These types of stone generally split into hard stones such as carnelian or agate and soft, talcose stones. Even early in the process of preparing collected stone for processing, technology which stood as advanced for the time was already in use. Talcose stone required hardening or glazing in high-temperature kilns. These kilns required a temperature of 940 degrees Celsius to glaze and harden into a usable form, a process that would have required much effort in gathering the proper amount of firewood and in producing material which could resist and contain the fire in the kilns. Harder stones had to be drilled in order to be used; a difficult and time-consuming process that will be elaborated on in more detail shortly.”(19)

“While discussion of the bead-making practices of the Indus Valley Civilization may just seem like a description of the process read from a compilation of reports and research already done, it's the cultural implications of the artifacts and their processes that were unearthed that bear the real significance of the foundation and the continuation of the Mature Harappan Indus Valley Civilization. The process of making beads illustrates for us very clearly that the Indus Valley Civilization considered the processes by which it created its trade goods to be very important. The amount of time and resources that went into the finished product, not to mention the improvement of the processes themselves, was large. This priority on the trade products it produced, I argue, was a result of the necessity of these practices in order to maintain a decent standard of living for the people within the Indus Valley Civilization and reflective of the trade that built

and sustained the civilization for hundreds of years at its height.” (20)

“Evidence shows Harappans participated in a vast maritime—sea—trade network extending from Central Asia to the Middle East. Harappans also engaged in shellworking, and shells used in their crafts have origins from as far away as the coast of modern-day Oman.

Trade focused on importing raw materials to be used in Harappan city workshops, including minerals from Iran and Afghanistan, lead and copper from other parts of India, jade from China, and cedar wood floated down rivers from the Himalayas and Kashmir. Other trade goods included terracotta pots, gold, silver, metals, beads, flints for making tools, seashells, pearls, and colored gemstones, such as lapis lazuli and turquoise. “Trade goods included terracotta pots, beads, gold and silver, coloured gem stones such as turquoise and lapis lazuli, metals, flints (for making stone tools), seashells and pearls. Minerals came from Iran and Afghanistan. Lead and copper came from India. Jade came from China and cedar tree wood was floated down the rivers from Kashmir and the Himalayas.” (21)

One of the ways historians know about the maritime trade network operating between the Harappan and Mesopotamian civilizations is the discovery of Harappan seals and jewelry at archaeological sites in regions of Mesopotamia, which includes most of modern-day Iraq, Kuwait, and parts of Syria. Longdistance sea trade over bodies of water—such as the Arabian Sea, Red Sea and the Persian Gulf—may have become feasible with the development of plank watercraft that were each equipped with a single central mast supporting a sail of woven rushes or cloth. Historians have also made inferences about networks of exchange based on similarities between artifacts across civilizations.

References:

- 1- Puneet Kuthiala, Thoughtdots, leaning the footprints, Ancient India, India Story, retrieved Jan 18,2018
- 2- Hasenpflug, Rainer, The Inscriptions of the Indus Civilization Norderstedt, Germany (2006).
- 3- Singh, Upinder. A History of Ancient and Early Medieval India, retrieved Jan 22, 2018.
- 4- The Hindus: an alternative history. Oxford University Press. ISBN 978-0-19-959334-7.
- 5- Agarwal, D P & Lalit Tiwari, Ancinet Ship-Building & Maritime Trade, retrieved March 11, 2018
- 6- Ibid
- 7- The extended paper of D. Agarwal, D P & Lalit Tiwari, Ancinet Ship-Building & Maritime Trade, retrieved March 11, 2018
- 8- Rao, S. R.1979, 1985.
- 9- D. Agarwal, D P & Lalit Tiwari, Ancinet Ship-Building & Maritime Trade, retrieved March 11, 2018
- 10- During Caspers Elizabeth, Further Evidence for Central Asia Materials from the Arabian Gulf, journal of the Economic and Social History of the Orient, 1994,retrieved Jan 21, 2018
- 11- Mulchandani, Anil, A Walk Through Lothal, 1998, updated April 21, 2009, retrieved Jan 21, 2018
- 12- Potts, D T "Rethinking Some Aspects of Trade in the Arabian Gulf, World Archaeology 24, 1993, University of central Florida, Orlando, April 1, 2009
- 13- Alexander, Carson Trade and Economy in the Indus Valley, How Trading Abroad Built the Indus Valley Civilisation, retrieved Jan 21, 2018
- 14- McIntosh, Jane, The Ancient Indus Valley, New Perspectives, jump up McIntosh, new Perspectives.
- 15 11- Shaikh, Khurshid R., and Syed M. Ashfaque. Moen-Jo-Daro: A 5,000-year-old Legacy. Paris: United Nations Educational. Scientific and Cultural Organization, 1981.
- 16, 17- Possehl, Gregory L. "Revolution in the Urban Revolution: The Emergence of Indus Urbanization." Annual Review of Anthropology 19 (1990): 261-82. JSTOR. JSTOR. University of Central Florida, Orlando. 21 Apr. 2009

- 18- Kenoyer, Jonathan M. "Trade and Technology of the Indus Valley: New Insights from Harappa, Pakistan." World Archaeology 29 (1997): 262-80. JSTOR. JSTOR. University of Central Florida Library, Orlando. 01 Apr. 2009
- 19- Ibid.
- 20-The Hindu, retrieved on Jan 23, 2018, 21-BBC, London, 2014, retrieved March 13, 2018

Two thousand five hundred years before the birth of Lord Christ and more than three millennia prior to Jibril's visit to Prophet Muhammad commanding him to Recite in the name of the Lord Who Created, on the right bank of the Indus lived simple extraordinary people, who were not barbarians but sophisticated social dwellers of the largest of all known cities of the Indus civilization - 4 miles in circuit and 100 hectares in size - Mohenjo Daro. This site was unearthed by the famous archaeologist Sir John Marshall in the 20's, who found it in a very good condition, relatively well preserved. The remains revealed a sophisticated urban planning, immaculate sanitary network and a progressive society under a reverent authority. John Marshall felt that with its excavation, it would prove a rival to any other site of prehistoric age, Dales referred to it as a splendour, as a walk in its streets gave the feel of a modern town setting with great potential of yielding clues to the early and formative phases of the Indus civilization.

Abdul Hamid Akhund MOHENJO DARO - WHITHER WAY
FORWARD –

*Indus language***The Indus script**

Looking for roots

The first Indus seal was not found from Mohenjo-daro itself but from Harappa, over 700 km away when in 1875, Alexander Cunningham found a seal calling it a "most curious object" unknown to the world. Fifty-six years later, Sir John Marshal unearthed Mohenjo-daro in 1921 and found a large number of Indus seals similar to that found from Harappa. With the opening of about one thousand more small and big sites in India, Pakistan and Near East, it became known that the Indus Valley civilization was spread over one million square kilometers, intensifying the mystery especially of the origin of the Indus script.

Cunningham's seal bore six characters. In an attempt to decipher, he said: "These letters were alien to India especially for the reason of humpless bull over it." He concluded that the inscriptions of six letters over it "were no Indian", "but only after two years in 1877, he had second thoughts and proposed a tentative meaning on the hypothesis that the inscription is written in ancient Indian letters of as early as Buddha himself". He was followed by discoveries of similar seals from Harappa by another researcher Langworth Dames in 1886.

Harappan site was identified as the ruins of an ancient civilization as early as 1853, but was never excavated till 1921 by John Marshal when it began unravelling a number of archaeological material from Mohenjo-daro which included the seals bearing a script that had never dug before from any archaeological site in India. This pushed the subcontinent's civilization much beyond Aryan era (1500 BC).

In 1922 R. D. Banerjee thought the site might be concealing some of the historical relics. For the existence of the Buddha's stupa, he first took it a site belonging to Buddhist era. During early excavations, he found some seals and tablets similar to those found from Harappa. It was a mere coincidence which finally led to extensive digging at Mohenjo-daro in 1921. About 2,500 seals had been found in the following years. The findings were subsequently published in 1931, 1938 and 1940 by Sir John Marshall "Mohenjo-daro and the Indus Civilization (1931)" (1), Earnest Mackay "Further excavations at Mohenjo-daro" (1938) (2), and by M. S. Vats "Excavations at Harappa" (3).

Earnest Mackey hit another mound Chanhudaro in 1935, which added 80 inscriptions to the Indus script. S. S. Rao excavated about 70 seals from Lothal. (4) This was followed by the discovery of 15 more relatively smaller Indus Valley sites, but the number of seals found from there was fewer, establishing that Mohenjo-daro was the centre of the civilization.

By this time, G. R. Hunter's work "The script of Harappa and Mohenjo-daro and its connections with the script" (5) appeared in 1934 in which he had discussed about 800 seals which had been discovered till 1927.

Since the discovery of the first seal, the scholars have been trying to read the Mohenjo-daro script and establish its origin, but before a headway could be made, a mystery has cast over, as, similar seals had also been discovered from some Near East, Middle East and other areas later known to be part of Indus Civilization. About 40 seals were discovered from Kish, Lagash, Umma and Susa in 1921, about ten years before the extensive excavation of Mohenjo-daro. This led to an early assumption that the seals and the script are of Sumerian origin.

In 1924, Sir John Marshall came out with the first perceptions on the Indus script. In his work "First light on a long forgotten civilization: new discoveries of an unknown

prehistoric past in India" tried to decipher the inscriptions. This was immediately followed by A. H. Sayce (6) who compared the Indus seals with the proto-Elamite tablets and ceramics found in Susa and called them identical. C. J. Gadd and Sydney Smith followed him the same year and making comparisons between Indus and Mesopotamian civilization traced a similarity between Sumerian pictograms and Indus seals and established that they had a 'closer kinship'. However, they failed to trace an origin whether they belonged to the same family or they owed something to each other.

In 1925, L. A. Waddell in his paper "Indo-Sumerian seals deciphered" (7) assumed that "by bearing a similarity in Indus and Sumerian seals, the people of Mohenjo-daro were Aryans and began to attribute the inscriptions to the names and titles of their heroes, priests and religious fathers of the Indus valley during the Vedic era", a finding which was later discarded by the scholars as 'imperfect'.

In 1926, Sir John Marshal claiming a similarity between the seals of Indus and Sumerian civilizations, tried to establish the origin of the Indus script and attributed the similarity to "close cultural relationship between the prehistoric civilizations of Indus and Sumer, not as implying that the people of these two regions were of the same stock or so spoke the same language." Explaining about the cylinder seals he said, "The cylinder seals of Mesopotamia constitute her most original art," wrote "after citing scholar Heri Frankfurt, who said, "much the same has been said about the very different square stamp seals used by the ancient Indus civilization. Cylinder seals are 'small, barrelshaped stopje object[s] with a hole down the center, rolled on clay when soft to indicate ownership or to authenticate a document ... used chiefly in Mesopotamia from the late 4th to 1st millennium BCE. Many of the handful of cylinder seals found at ancient Indus sites or Mesopotamia ones with Indus themes are collected below. " (8)

A few years later, the archaeological remains of

Mohenjodaro had become known to the world and by 1931, a number of papers appeared on various aspects of Indus civilization and its inscriptions. Another scholar C. J. Gadd was the first to make a breakthrough on scientific grounds, but he fell short of reaching a conclusion. In his paper titled "Sign list of Indus script" (9), he opined that it had both syllabic as well as ideographic symbols and possibly the seals bore the names of the owners of the seals and the longer descriptions also had the titles with the names. He, however, termed the script as IndoAryan language without giving reasons for such conclusion.

The same year, a new phenomenon was presented saying that perhaps a Dravidian language was spoken in the Indus valley in the centuries immediately preceding Aryans. Marshal was first to point out in 1926 who also cited Brahui as a Dravidian language as cited by many scholars but again failed to gain some strong arguments in its support.

Sydney Smith in his work "Mechanical nature of early Indus script" (1931) held that some symbols bore a specific meaning while the others were ideograms. He thought that the symbols did not only express names but also some characteristics were recorded over them.

S. Langdon in the same year tried to unravel the mystery but his attempt was directed at deciphering the script as of Brahmic origin, however, he was the first scholar to assure that the Indus script had attained syllabic representation. He also said that it was in no way related to Sumerian symbols, yet, it was more close to Egyptian Hieroglyphics than Sumerian Cuneiform, forming his opinion over what he said that Brahmic script was not related to any Semitic group. Langdon assumed that Brahmic script was derived from the Indus script.(10)

Dr Prannath and Swami Shankar Anand in 1931, without making an authentic attempt into the investigation, opined that Indus script was derived from Brahmic. Among all the studies made during these years, G. R. Hunter's attempt appeared more

scientific. In 1934, his work "Script of Harappa and Mohenjo-daro" appeared and held that these were mostly phonetic signs deriving existence from pictographic and ideographics. To his deductions, the seals could be divided in many groups according to the period of their origin. Some of the seals belonged to earlier period i.e., 4,000 BC, while some belong to 3,500 BC era and this is obvious from the brief variation the seals bear". (11)

From the similarity in Sumerian and proto-Elamitic and more similarity to that found from the Jumaditul Nasr -- earliest findings of Sumer circa 3,500 BC, Hunter thought that this was the era when the Sumerians learnt from proto-Indian seals.

When the findings from Crete came to the fore, a striking similarity appeared with his conclusion that perhaps, during ancient times, there was only one race which used the pictograms in various parts of the world. Discussing possible derivation of Brahmi from Harappa and Mohenjo-daro (Langdon's theory), Hunter observed that "...some of the latter's signs had acquired phonetic values by the time they were borrowed by the Hindus or that which is equally possible by an earlier race who passed them on to Hindus".

Debating over Sabaen, Safaon and Cypriot and portion of Phoenician script, Hunter observes that "...they are derived from proto-Indian, due to ... commercial intercourse by sea via the Arabian Sea, the Red Sea and the Mediterranean's". (12) Calling Mohenjo-daro people as Indian, Hunter establishes that "... it is possible that the Indians had the monopoly on seafaring as far as the Gulf of Sumer, which would account for the Hiram's eagerness for an alliance with Solomon that would allow Phoenicians to establish a base at Eziongerber".

In 1934, Piero Meriggi, a German scholar, wrote a paper "Zur Indus Schrift" who after his investigation "considered Brahui as only possibility". His approach was quite elaborate but he also " ... expressed his scepticism over achieving a phonetic decipherment, because Brahui has changed so much

in the past 4,000 years. Accordingly, he attempted to only a semantic interpretation by finding out the grammatical structure of the texts and hence the phrase formulate by explaining the pictograms from the objects they depicted. The Indus script is, however, highly standardised and it is often very difficult to recognise the objects that simplified signs try to render." (13)

Henry Heras in his work "Studies in proto-Indian Mediterranean culture" (1953) thought the Indus script belonged to Dravidian language. He coined a proto-Dravidian term for the Indus language and said: "The signs of Moenjodaro do not stand for syllables and much less for consonant sounds only, but express full worlds" -- a theory advanced by Hunter "who considering certain Indus signs to be diacritics, had earlier suggested them to be vowel indicators by analogy with the Brahmi script, which he following Langdon, erroneously held to be descended from the Indus script". (14) Heras opted for two methods to determine his findings:

- a. Applying a phonetic value of Dravidian word for the objects depicting pictogram and
- b. Applying semantic meanings of the similar signs in the prehistoric scripts. Although his approach failed to decipher the script, however, a possibility grew that the hypothesis may meet some success.

As some Briton and American scholars continued efforts to read the Indus script in 1950s, some Soviet scholars in 1960s began attempts to decipher the Indus script led by academician Yuri Knowrozov, with the assistance of the computer. After preparing some initial reports, the Soviets finally came out with their findings first in 1968 and then in 1970. They had adopted a system by feeding variations of the Dravidian values and relative pictographic symbols as well as attributing semantic values to the equivalent in Dravidian. Their chief finding was that it was a Dravidian language, however, their interpretation of the plants and stars was an interesting conclusion, yet it was not prone to the criticism for the lack of proper decipherment.

This corresponded to another attempt by some four Finnish experts: Asko Parpola, Sampo Koskeniemi, Simo Parpola and Petti Alto of the Scandinavian Institute of Asian Studies, Copenhagen. This was the beginning of what was going to be a scientific study. But when they started, they faced the difficulty in producing a "reliable critical edition of texts". They collected all texts available in Pakistan and India numbering to about 2000 seals and inscriptions added by some 500 unpublished texts in 1971. By 1973, such sign-lists were prepared particularly with the aid of computer.

Although the earlier findings were prepared a report appeared in 1975 in Royal Asiatic Society Journal. In the findings the scholars had to consider every possibility including the Brahmi and Mesopotamian kingship, which of course was dropped after initial investigations.⁽¹⁵⁾ With the classification of pictograms and signs, and with indepth study to attribute equivalent semantics, it gave a breakthrough.

Their attempt about analysing grammatical structure with results that point to an "agglutinative language of the type represented by Dravidians while excluding many other possibilities". They also tried to "find out the intended meaning of certain pictograms by analysing their contexts and analogical texts in known writing, especially in Sumerian and Indian seal inscriptions ... and sought confirmation of these tentatively established meanings from the pictograms with which they were expressed." They took it granted that if the sign in question "has not been used ideographically, that is as a direct symbol for the object it depicts, but according to rebus principle of early logosyllabic scripts of every other word as well, irrespective of meaning, that was pronounced like the name of that object, there is a chance of a phonetic interpretation. It involves identification of a known meaning in which a phonetic similarity of link words with different meanings used to express through the pictogram sign".

Barring previous studies and findings, the Finnish

scholars too assumed Dravidian as basis for investigation into many interpretations. Discussing these possibilities, Asko Parpola opined that “... they however remain hypothetical as long as they stay isolated, but when different interpretations coverage by coming side by side in the texts or in the ligatures and together make good sense, they gain validity which increases with the number of such convergencies”. To him any interpretation which has peculiar reference to the object bearing the inscriptions must conform to the object itself and the “historical background of the Indus civilisation”. He, with the help of this approach has made certain interpretations which appeared in his work “Further Progress in the Indus Script Decipherment” and “Recent Developments in the Study of Indus Script”, wherein he has more than any other scholar been able to study the ancient script and drawn some meanings in phonetics as well as the semantics.

In the later attempts by an American scholar Walter A. Fairervis Jr in 1983, adopted somewhat similar method as applied by Asko Parpola.(16) He arranged the entire stock of 2,800 seals, inscriptions, pictograms and graffiti on pottery according to their characteristics and began reading them. Faced with the problem of short lines and the absence of any long texts, Walter also arranged the inscriptions into groups of similar pictograms and inscriptions with subsequent developmental signs (he through to be suffixes or prefixes) and then attributed values and semantics to the symbols, which he thought, would be helpful in deducing the meaning. To him the presence of pictorial motifs with writing may help deduce the appropriate meaning. He begins to investigate with the presumption that ancient Indus script was of proto-Dravidian origin, but attributes different meaning to the pictograms than Parpola; he, however attributes some phonetics he draws from the Dravidian equivalents. His style of forming grids of the pictograms and inscription seem working. Some of his findings are that the seals were the property of the highly placed people of the Indus and some noble people who traced their lineage

with sun, moon and the stars and their association was represented through some of these signs. He thinks that the other leaders “known from the seals were the heads of the associations (guilds) such as that of the coppersmiths, storehouse overseers, irrigation supervisors and landowners, a category we have seen included a woman”. (17)

Walter does not see the signs of any religion on the Indus seals but does cite some inscriptions that might have been a reference to some religious discipline. However, “there is a possible horned deity referred to the copper one or the red one and a possible mother deity but at the moment these distinctions are not confirmed. Lesser figures included drummers and singers perhaps to summon assemblies or perform at ceremonies”.

His another direction is about the existence of a system under which a class of people existed who were “in charge of weights and measures and to supervisors of the distribution of the stores, the grinding of the flour and probably hunting operations, a custodian of fire”.

To his findings, there did not exist any military institution at Mohenjo-daro, but cites some signs which suggest that there existed some kind of guardianship “... in terms of a responsibility for the care of crops and the preservation of herds and flocks”.

As far ascertaining the family of the Indus language, he upholds that it was “an early Dravidian tongue and that the Harappan scribes struggled to put that language into graphic form as a method of identifying the elite of Indus valley civilisation”. But he does not rule out the wide range intercourse of the languages at that time enriching the important languages of the era. About the loan words, he suggested that Harappan civilisation covered a very wide area making it possible that a “number of non-Dravidian words must have entered the language just as Dravidian words were later borrowed by the speakers of Indo-Aryan”.

Although, Walter Fairservis attributes syllabic values to some 100 inscriptions on seals and pottery, it has yet to be ascertained by scholars as to how it provides key for further decipherment, for which he says “no doubt what has been put forth will be found to have flaws”, nonetheless, it furthers the process of evolving a system that might not be far off.

From the day the first seal was found more than a century ago and the hypothesis to resolve the riddle, has led to modern theories and scholarly pursuits, which till now have not achieved a marked achievement nor these have led to evolving a stone like that of Rosetta, it appears that it has advanced to success. However, one unanimity in the recent findings has been achieved: the Indus valley language was a protoDravidian language; that it was both pictographic and idiographic and was in the process of transition into complete idiographic script and that it was written from right to left.

In 1996 Gregory Possehl came out with a survey which was not an attempt to decipherment. However efforts continued and in the latest theory is the Vedic Harappan theory of writing suggesting that the script was invented by Indians who migrated to Iran in fourth millennium BC. Despite, huge work on the Indus Script has been undertaken, the origin of Sindhi language stands unresolved.

The first statement about the origin of Sindhi language appeared in 1872, when Dr Ernest Trumpp, an official of the English government and an orientalist published “Sindhi alphabet and grammar” as part of the education campaign launched by the government in Sindh. He wrote: “The Sindhi is a pure Sanskritical language, more free from foreign elements than any other North Indian vernacular. The old Prakrit grammarians may have had their good reason to designate the Apbhramsha dialect from which the modern Sindhi is derived as the lowest of all Prakrit dialects, but now as we compare Sindhi with its sister tongues, we must assign to it, in a grammatical point of view, the first place among them. It is

much more closely related to old Prakirit than the Marathi, Hindi, Punjabi and Bengali of our days and it has preserved an exuberance of the grammatical forms, for which all its sisters may well enjoy it.

“For, while all the modern vernaculars of India are already in a state of complete decomposition, the old venerable mothertongue being hardly recognisable in her degenerated daughters in Sindhi has, on the contrary, preserved important fragments of it and erected for itself a grammatical structure, which suppresses in beauty of execution and internal harmony by far the loose levelling construction of its sister.

“The Sindhi has remained steady in the first stage of decomposition after the old Prakirit, whereas all the other cognate dialects have sunk some degrees deeper, we shall see that the rules which the Prakirit grammarian Karamadishvara has laid down in reference to Apbhramsha, are still recognisable in the present Sindhi, which by no means can be stated of the other dialects. The Sindhi has, thus become an independent tongue, is very materially differing from them.”

Sir George Grierson (1851-1941) in his work “Linguistic Survey of India” (1919) laid some fundamental principles, including the study about the origin of Sindhi language. According to him, Sindhi is a direct descendant of Sanskrit – an outer branch of Indo-Aryan group of languages. He brackets it with Lahanda, which “was spoken in north and north-east India”. To him Sindhi was derived from Prakirit and Apbhramsha to give birth to Verachada, which later developed into present Sindhi language. He concludes: “Sindhi has preserved many phonetic and grammatical peculiarities which have disappeared elsewhere and there is a typical example of outer languages. In ancient times Sindhi included the old Verachada country and to the present day the language retains special features which were recorded hundreds of years ago as characteristics of the old Verachada Apbhramsha from which it descended.”(18)

For quite a long time, the theory of George Grierson was accepted by majority of researchers, mostly due to the absence of scholarly attempts in other related fields of anthropology, archaeology and historical linguistics. Most of the scholars engaged in one discipline, failed to appreciate the findings in other related sciences, while few associated themselves with modern and scientific approaches. This also happened with the grammatical studies, as pioneered by Ernst Trumpp. The first work in the post-Independence period was “The Ancestry of Sindhi” in 1957 by Jairamdas Daulatram from India, who upheld perception of Sindhi Verachada Apbhramsha relationship but said Verachada Apbhramsha was originated in Sindh Desa, albeit deducing: “Sindhi was evolved not from Verachada Apbhramsha but from the local variety of Prakirit, which had developed along its own lines in the lower Indus valley, with its centre of life at Brahmaka ... or Brahmanabad.”(19)

After the Independence, while the debate over the controversial issue continued, Dr Nabi Bakhsh Baloch came out with his work “Sindhi Boli ji Mukhtasir Tareekh” (1959) in which discerning his first stance, he thought that Sindhi language “is not a descendent of Sankirit, but a proto-Prakirit language belonging to some Indo-Aryan group”. To him, Lahanda and Kashmiri languages are sisters to it, for they also bear the similar characteristics of Dardic languages. Sindhi language, especially the ancient language of Moenjodaro bears the characteristics of Sumerian languages. Sindhi language might have been influenced by Iran during the rule of Kanshiks (144- 78 AD). After Iranian influence, Sindhi developed from Sanskrit through Apbhramsha. From eighth century till 11th century, Arabic language cast deep and permanent influence over Sindhi language.”

Dr Baloch drawing long history of Sindhi, speaks of various linguistic influences, which finally changed the structural character of Sindhi, deducing that these long and deep influences, which changed its structure, “... it is not

possible to establish the roots and origin of many words.” Although, he points out to a proto-Prakirit origin, but does not hesitate to say that ancient Sindhi language “... perhaps belonged to Semitic group of languages”.

In 1962, Popti Hiranandani brought out her work “Bhasha Shastar” from India in which she opined that Sindhi was born out of Sanskrit and further elaborated that perhaps the two languages may have the same root, so to say “... are sisters born of some Indo-Aryan language”. Krishan Chandar Jetli was another Indian scholar who presented somewhat similar perception. (20)

This was followed by a work of Sirajul Haq Memon “Sindhi Boli” in 1964, in which the author traced down the historical linguistic process and also tried to decipher the seals found from Mohenjo-daro. In attempting this, the author tried to prove that Sindhi was not born of Sanskrit, but it was vice versa. “There is relationship between Sanskrit and Sindhi, but not which is talked about... if Sindhi is indebted to Sanskrit a great deal, Sanskrit is born of Sindhi, if not directly, at least indirectly.” In his work, Siraj showing its relationship with Brahmi said that Sanskrit was born of Sindhi. He also cited instances of Brahmi and Egyptian hieroglyphic and tried to attribute some values to the Indus seals. This evoked a new kind of interest among Sindhi scholars.

Prof Ali Nawaz Jatoi and Dr Ghulam Ali Allana initiated the studies in the phonological and grammatical structure of the language. Dr Allana's study in London on linguistics broadened his vision about studying the linguistic history and improved his earlier stance. In his book “Sindhi Boli Jo Bunn Buniyad” (1974), an extended paper of his previous essay, Allana makes a different approach and insists on studying the structural formation of the language i.e., studying the syllabic similarities, in two or more languages, phonetic characteristics and the grammatical areas. Discussing phonological and phonetic characteristics of Sindhi and Sanskrit, he draws his

conclusions:

- Sindhi is not a derivative of Sanskrit language,
- Sindhi is a Sindhu-Prakrit independent language, which was spoken in the lower part of the Indus valley, and
- Sindhi, Sanskrit, Varchanda (ancestor to Dardi languages) all belong to one group.

His conclusions provided some additional grounds for the study: Before the Aryans there existed a language which was of non-Aryan and non-Semitic origin; the language of Mohenjodaro era belonged to a Dravidian group; the phonological and grammatical structure retains a similarity with Dravidian languages; Sindhi language is fundamentally a non-Aryan Dravidian language to which other Dravidian languages bear the origin.

A similar study involving investigation into the grammatical structure of Sanskrit and possible influence of Turkmenian languages had already been discussed by Caldwell, was also taken up by Allana in his work. He deduced that Caldwell's similarity found in Dravidian and Sindhi languages, points out that the ancient Sindhi language belonged to Turanian group, which later gave birth to Mohenjo-daro language, ancestor to Dravidian, Brahui and Sindo or ancient Sindhi language.

This was a brief resume of the studies made by scholars about the origin of Sindhi language who had tried to arrive at a conclusion in academic manner: historically and linguistically. But there were still many relevant areas which held a possible key to the solution -- the archaeological and anthropological and a possible decipherment of the Indus seals' texts by comparative studies.

This area faced two setbacks in the initial stage: the anthropological and the historical. Since the opening of the great Indus culture in the 19th century, a bleak effort had been made to establish the anthropological relationship of the people who inhabited Sindh. The issue became more mysterious when

in the absence of the historical evidence it was difficult to establish that how the migrations had taken place in prehistoric times.

Recent findings of the studies on the Indus Script

In 2005, world renowned Finish scholar on Indus Script Asko Parpola came out with some findings undertaken by him and the quite knowledgeable paper titled Study of the Indus Script read out at 50th session of ICES held on May 19, 2005 at Tokyo and drew deep interest in the recent study made by the scholar. Finding it quite interesting the author made it available as a part of this paper. (21) The excerpts:

First a few words about the historical context of the Indus script. The Indus or Mature Harappan Civilization was the most extensive urban culture of its time, about 2600–1900 BCE. Its area comprised one million square kilometres, and more than one thousand of its settlements have been identified so far. Yet the very existence of this Bronze Age Civilization was unknown until 1924, when Sir John Marshall announced its discovery on the basis of excavations that were started at the two largest sites, Harappa in the Punjab and Mohenjo-daro in Sindh. Ever since archaeological and other research has been constantly enlarging our knowledge of this early civilization. (22) Particularly important have been the long-continued recent excavations at Harappa (23) and Dholavira.

The Indus Civilization came into being as the result of a long cultural evolution in the Indo-Iranian borderlands. From the first stage of development, (24) about 7,000–4,300 BCE, some twenty relatively small Neolithic villages are known, practically all in highland valleys. People raised cattle, sheep and goats. They cultivated wheat and barley and stored it in granaries. Pottery was handmade, and human and bovine figurines attest to fertility cults. Ornaments reflect small-scale local trade.

Stage two, about 4,300–3,200 BCE, is Chalcolithic.

Village size grew to dozens of hectares. Settlements spread eastwards beyond the Indus to Cholistan to the delta of the ancient Sarasvati River, apparently with seasonal migrations. Copper tools were made, and pottery became wheel-thrown and beautifully painted. Ceramic similarities with southern Turkmenistan and northern Iran also suggest considerable mobility and trade.

Stage three is the Early Harappan period about 3,200–2,600 BCE. Many new sites came into existence, also in the Indus Valley, which was a challenging environment on account of the yearly floods, while the silt made the fields very fertile. Communal granaries disappeared and large storage jars appeared in house units. Potter's marks suggest private ownership and stamp seals bearing geometrical motifs point to development in administration. Irrigation canals were constructed, and advances were made in all crafts. Similarities in pottery, seals, figurines, ornaments etc. document intensive caravan trade with Central Asia and the Iranian plateau. There were already towns with walls and a grid pattern of streets, such as Rahman Dheri. Terracotta models of bullock carts attest to improved transport in the Indus Valley. This led to considerable cultural uniformity over a wide area.

A relatively short but still poorly known transition phase, between 2,700–2,500 BCE, turned the Early Harappan culture into the Mature Indus Civilization. During this phase the Indus script came into being. The size of the burned brick, already standardized during the Early Harappan period, was fixed in the ratio 1: 2: 4 most effective for bonding. Weights of carefully cut and polished chert cubes form a combined binary and decimal system.⁽²⁵⁾ The society became so highly organized that it was able to complete enormous projects, like building the city of Mohenjo-daro around 2,500 BCE. The acropolis of Mohenjo-daro, a cultural and administrative centre, has as its foundation a 12 metre high artificial platform of 20 hectares. Just the platform is estimated to have required 400 days of 10,000 labourers. The lower city of at least 80

hectares had streets oriented according to the cardinal directions and provided with a network of covered drains. Many of the usually two-storied houses were spacious and protected from the dust and crowd of the streets and had bathrooms and wells. The water-engineering of Mohenjo-daro is unparalleled in the ancient world: the city is estimated to have had some 700 wells constructed with tapering bricks so strong that they have not collapsed in 5,000 years. The Great Bath was made watertight with bitumen and a high corbelled outlet made it possible to empty it easily. The massive city walls are supposed to be mainly defenses against flood water.

The absence of palaces and temples — which may well be illusory (26) makes the Indus Civilization strikingly different from its counterparts for instance in Mesopotamia and Egypt. Another reason is the Harappan concern for civic amenities such as wells and drains, with the result that their cities attest to considerable social equality. It is thought that the political power was less centralized and more corporate.(27)

Development of water traffic made it possible to transport heavy loads along the rivers, and to start direct sea trade with the Gulf and Mesopotamia. Over thirty Indus seals and other materials of Harappan origin, such as stained carnelian beads, have been found in Western Asia. On the other hand, a single Gulf seal excavated at the Harappan port town of Lothal is the only object of clearly Western Asiatic origin discovered in the Greater Indus Valley.

Around 2000–1900 BCE the Indus Civilization came to an end in the Indus Valley, although it lingered some centuries longer in Gujarat and Maharashtra. Multiple reasons are assumed to have caused this downfall of urban life, which led also to the disappearance of the Indus script. The Harappans are estimated to have numbered about one million. This population continued to live, but the culture gradually changed. One important factor of change was that new people started coming to Greater Indus Valley. First among these were the

long-time neighbours of the Indus Civilization, people of the Bactria and Margiana Archaeological Complex (c. 2,600–1,400 BCE).(28)

IS THE INDUS SCRIPT A WRITING SYSTEM?

Quite recently, students of the Indus script have been confronted with the question: Is it really a script? Does it constitute a real writing system in the sense of being tightly bound to language? This is categorically denied in an article provocatively entitled “The collapse of the Indus script thesis: The myth of a literate Harappan Civilization.” The paper, published in December 2004 by Steve Farmer, Richard Sproat and Michael Witzel, was discussed in a longer noncommittal note by Andrew Lawler (2004) in the Science journal.

Lawler’s Review

“Outsider revels in breaking academic taboos” is Lawler’s heading for a page-long characterization of the main author, Steve Farmer, who is a historian by training. Farmer turned his attention to India in 1999, and Lawler quotes him saying, “I didn’t know anything about this stuff. I was the naive outsider too dumb not to recognize the field’s taboos.” Lawler quotes several scholars who are unconvinced, among them Gregory Possehl, who says: “I don’t think his ideas are interesting or viable, and I’m surprised they have raised interest.”(30)

At this point, however, that interest is undeniable,” concludes Lawler (p. 2028), who points out that Farmer “has attracted important converts, including his co-authors.” In an interview with Lawler, Michael Witzel, Professor of Sanskrit and Indian Studies at Harvard University, “says he was shocked when he first heard Farmer’s contention in 2001. . . . ‘So I was very skeptical’. Now he is throwing his scholarly weight behind the new thesis” (p. 2026–7).

Richard Sproat: Conclusions from General Statistics One of the authors, Richard Sproat, is a noted computer linguist. He

seems to be responsible for the comparison of the Indus sign frequencies with Egyptian, Sumerian and Chinese texts and Scottish heraldic blazons. Sproat's conclusions are that "such studies can show that the Indus system could not have been a Chinese-style script, since symbol frequencies in the two systems differ too widely, and the total numbers of Indus symbols are too few. But studies of general sign frequencies by themselves cannot determine whether the Indus system was a 'mixed' linguistic script . . . or exclusively a system of nonlinguistic signs" (p. 29).

Thus Sproat actually does not deny the possibility that Indus signs may represent a script similar to the Mesopotamian type, though he thinks it is different from the Egyptian type. This difference is demonstrated in a statistical table, which shows that signs are repeated within a single inscription much more often in Egyptian cartouches than in Indus seals of a similar length. In later times, many cartouches were written with uniconsonantal signs virtually amounting to an alphabetic script, where this type of repetition is natural. If Sumerian seals were similarly analysed, undoubtedly the figures would be closer to those of the Indus seals.

The Principal Arguments of Farmer et al.

The principal arguments of Farmer et al. for the drastic conclusions of the paper are the following. "Indus inscriptions were neither able nor intended to encode detailed 'messages', not even in the approximate ways performed by formal mnemonic systems in other nonliterate societies" (p. 42) because they are too short — on the average only five signs long — (p. 22, cf. also Lawler 2004: 2028) and because they contain too many rare signs— between 25 to 50 per cent of the around 400–600 different signs are attested only once. (31)

Moreover, they miss the kind of sign repetition evidenced in the Egyptian cartouches: "Most importantly, nowhere in Indus inscriptions do we find convincing evidence of the

random-looking types of sign repetition expected in contemporary phonetic or semi-phonetic scripts” (p. 29–30; cf. also p. 48).

None of these arguments is conclusive, and can be easily converted. The Chinese writing system has a very large number of signs that are rarely used in newspapers. All ancient scripts built especially the logo-syllabic ones, had their rare signs. The repetition argument needs a longer discussion.

Sign Repetitions within Single Inscriptions

Although Farmer et al. in passing refer to logo-syllabic writing systems of the Mesopotamian type, their functioning and their argumentation implies that in order to represent a language-based script the Indus signs should largely be phoneticized in the manner of the Egyptian cartouches. However, in early logosyllabic scripts one sign often stands for a complete word. Even a seal with a single sign can express its owner, and there is mostly little reason for sign repetition in short seal texts written in an early logo-syllabic script of the Sumerian type.

Farmer et al. themselves admit that “some Indus signs do repeat in single inscriptions, sometimes including many repetitions in a row” (p. 31). However, they do not accept the evidence of such duplications: “Whatever the origins of these different types of duplications,(32) all that is critical for our purposes to note again the lack of any suggestion in them of the random-looking repetitions typical even of monumental scripts like Luwian or Egyptian hieroglyphs” (p. 36).

Yet sign repetition within single inscriptions does occur, also repetition of the type so vociferously missed by Farmer et al. The sequence of two signs and a third sign are repeated in a ten-sign text in M-682. A different sequence of two signs is repeated in the ten-sign text K-10. One sign is repeated three times, but not in a row, in the ten-sign text M-634, and a different sign is similarly repeated three times but not in a row

in the six-sign text 1093.(33) Two further signs in addition to those already mentioned occur twice but not in a row in the eleven-sign text M-1169 and the eight-sign text M-357 respectively. The last mentioned text is a “bar-seal,” a category considered particularly crucial for the script thesis by Farmer et al. (p. 33).

LOST TEXTS

When Farmer et al. wonder how a script with so many singleoccurrence signs could possibly have worked over a wide area they speak as if our present corpus of texts would represent everything there ever was. But thousands of seals come from Mohenjo-daro alone and yet less than one tenth of that single city has been excavated. The number of single occurrence signs would surely be reduced if the whole city was excavated. Indeed, an integral part of the thesis of Farmer et al. is the claim that the types of inscriptions we know from the excavated material is everything there ever was. They categorically reject the much repeated early assumption that longer texts may have been written on “birch bark, palm leaves, parchment, wood, or cotton cloth, any of which would have perished in the course of ages” (Marshall 1931: I, 39).

Alexander’s historians mention cloth as writing material used in the Indus Valley. Cotton has been cultivated there since Chalcolithic times, and is supposed to have been one of the main export items of the Harappans. Yet all the millions of pieces of cotton cloth produced by the Harappans have disappeared, save just a few microscopic fibers preserved in association of scrap pieces of metal. Along with seed finds, however, those fibers do preserve the information that cotton was actually cultivated and processed. In the same way, the thousands of short inscriptions on durable materials have preserved the information that the Indus Civilization did have a script of its own.(34)

That the Indus script changed very little in 600 years is

taken as evidence that there were no manuscripts, as the scribes everywhere tended to develop a cursive style. However, allographs show that Indus signs were occasionally simplified very much. Moreover, the Egyptian hieroglyphs preserved their monumental pictographic shapes for 3,000 years.

Farmer et al. also miss evidence for Harappan writing equipment. They discredit four respected Indus archaeologists— Ernest Mackay, George Dales, Masatoshi Konishi and B. B. Lal — who have interpreted some finds as writing equipment, because these interpretations “are no longer accepted by any active researchers” (p. 25). Konishi’s paper was published in 1987 and B. B. Lal wrote as recently as 2002.(35)

The Parallel of Non-Linguistic Symbolic Systems

If the Indus signs do not form a language-based writing system, what was their function? Farmer et al. see in them “a relatively simple system of religious-political signs that could be interpreted in any language” (p. 45). The non-linguistic symbols of Mesopotamian iconography are mentioned as a particularly close and relevant parallel. These are images representing various deities, celestial phenomena, animals and plants, tools and commodities, and more abstract symbols like the swastika and an omega-looking sign. There is no question that these symbols— which are arranged in regular rows with a definite order only in stelae and boundary stones dated between 1500 and 600 BC— do resemble the Indus signs, and are therefore highly useful for their pictorial understanding, but the same applies to the pictograms of other ancient scripts.

Massimo Vidale (in press) stresses the fact that the Indus script—with its 400 standardized signs, which occur with recurring sequences in standard rows that have a preferred direction — is far from being “simple” when compared to nonlinguistic symbolic systems closer to the Indus script in space and time. Vidale discusses in detail the different systems of potter’s marks and iconographic symbols used during the

third millennium at the Namazga V sites (southern Turkmenistan), Shahr-i Sokhta (Iranian Sistan), Tepe Yahya, Shahdad, Jiroft (all in Iranian Kerman), Rahman Dheri (in northwestern Pakistan), Mehrgarh and Nausharo (in Pakistani Baluchistan) and the more than 400 Dilmun seals of the Gulf used in early second millennium BC. “It is clear that the inclusion of such restricted (but in their contexts presumably efficient) symbolic systems in their samples would have highlighted the non-comparability of the Indus script to such codes, thus lessening the impact of a good part of the authors’ [i.e., Farmer et al.] arguments. This is why, I believe, these systems were not considered. It is also clear that in the known contemporary systems, non-linguistic symbols behaved quite variably, and that archaeological data question the superficial claim that positional regularities are easily found in ‘countless nonlinguistic sign systems’,” concludes Vidale

Why Did the Harappans not Adopt Writing?

“The critical question remains of why the Harappans never adopted writing, since their trade classes and presumably their ruling elite were undoubtedly aware of it through their centuries of contact with the high-literate Mesopotamians” (Farmer et al. 2004: 44). That the Harappans should have intentionally rejected writing like the Celtic priests of Roman times, being averse to encode their ritual traditions in writing like the Vedic Brahmins (p. 44), is not an overwhelmingly convincing explanation. It is true that some complex societies did prosper without writing, for example the Incan empire which instead used a system of knotted strings (p. 47; Lawler 2004: 2029). But writing has been a most effective tool of administration, and the Indus script was created in the transitional period as part of a thorough reorganization of the Harappan culture, which included also standardization of weights and measures and led to the expansion and 500 years’ duration of the Mature Harappan Civilization over a million square kilometers. The Harappans are not likely to have

committed long literary texts to writing, and may have restricted themselves to recording economic transactions and other administrative affairs (as was done, for example, in Mycenaean Greece).

Pointers to a Writing System in the Indus Texts

One of the first testimonies of phonetic writing in Egypt is the famous palette of Narmer (c. 3,050 BCE). Above the head of the king, who smites his enemy with a mace, is depicted the facade of his palace inside which are depicted a 'catfish' and an 'awl'. These signs, placed in the picture like the iconographic symbols of Mesopotamia, identify the king, but on a linguistic basis. Through the rebus or picture puzzle principle, the pictograms supply the phonetic values n'r and mr, respectively, yielding the king's name Narmer.(36)

Both in Mesopotamia (37) and in Egypt the application of the rebus principle meant a breakthrough in the creation of language-based writing. The signs used in writing were standardized and written in regular lines following the order of spoken words and sounds.

That the Indus signs form a standardized system and that the Indus signs form a standardized system and that the signs are written in regular lines are very important pointers to a languagebased writing. But the most important characteristic of the Indus texts in this respect becomes evident if we do not limit their consideration to single inscriptions, as Farmer et al. do. This is the fact that the Indus signs form a very large number of regularly repeated sequences. The signs do not occur haphazardly, but follow certain rules. Some signs are limited to the end of a sequence, even when such a sequence occurs in the middle of an inscription, while other signs are usually found in the beginning of a sequence, some others are never found there, and so on.

It must be admitted that it is very difficult to construct even parts of the Indus grammar on this basis.(38)

Nevertheless, the positional sequences can be profitably exploited to analyse the Indus texts syntactically, to define the textual junctures, and to classify the signs into phonetically or semantically similar groups. Such analyses can be carried out with automated methods.(39) Data accumulated in this way will certainly be useful in decipherment once a decisive breakthrough has been achieved — in other words when the language has been identified and some signs have been read phonetically in a convincing manner. But analyses of this kind are themselves unlikely to provide that breakthrough.

CONCLUSION

Perishable archaeological material being involved, and taking into consideration the very limited amount of surviving monumental art, negative evidence is not sufficient to prove wrong the hypothesis that the Harappans wrote on palm leaves or on cloth. Richard Sproat, the computer linguist of the Farmer team, admits that by statistical means it is not possible to distinguish a logo-syllabic script of the Mesopotamian type from non-linguistic symbol systems.(40) The question of whether the Indus signs are script or not, ultimately depends on whether one can demonstrate that the language-based rebus principle was utilized. Demonstrating this successfully will actually amount to a partial decipherment. The material presently available will not, in my opinion, allow a full decipherment, or one covering most texts.

Screening and developing ideas rashly published in the first flush of enthusiasm in 1969, coherent interpretations of more than twenty Indus signs were presented in 1994. These interpretations based on the hypothesis that the underlying language is Proto-Dravidian are in accordance with the generally accepted theories of script and decipherment and make sense within the framework of the Indus Civilization and Indian cultural history. The main concern was to find different ways to check the interpretations. One basic goal has been to

achieve internal control comparable to that applied in solving crossword puzzles. If both signs of a potential compound can be interpreted, the result is controlled externally by checking whether such a compound is actually attested in the known vocabulary of Dravidian languages. Semantically the results should make sense in their historical context, and at best they might even solve old problems. This approach is correct, because it has been possible to go on expanding these interpretations systematically. The end of the road has not yet been reached, although the available material sets severe restrictions. Without caring to demonstrate in detail what is wrong with these specific interpretations,(41) Farmer and his colleagues dismiss them offhand in one single phrase, speaking of “the failure of the Dravidian model to generate verifiable linguistic readings of a single Indus sign” (Farmer et al. 2004: 21).

Evidence for writing Dravidian language

Obstacles to Decipherment

How can the Indus script be deciphered? We must turn to successful decipherments of ancient scripts and to the known history of writing for methodological guidance. Becoming acquainted with decipherments of other ancient scripts, one also becomes conscious of the immense obstacles in the case of the Indus script. Most ancient scripts have been deciphered with the help of translations into known scripts and languages. But here no such translations exist. Even worse, historical information, such as was available from the Bible and the Greek historians in the case of the Persian cuneiform, is almost totally missing. The script was forgotten long before the earliest preserved literary records of South Asia were composed, so the later Indian sources tell us nothing about the Indus Civilization.

The Indus script is not closely and obviously related with any other known writing system which could help defining the phonetic values of the Indus signs. In addition, several further facts make the problem of the Indus script unusually difficult to tackle. As already stated, all surviving texts are very short—even the longest text is merely 26 signs. This means that we probably have no complete sentences but mostly just noun phrases. There are no clearly distinguishable word dividers, which have been of great help in the analysis of for instance the Aegean scripts. And though numerous signs are clearly pictographic, many are so simplified that it is virtually impossible to understand what they depict.

No wonder, then, that after about one hundred published attempts at deciphering the Indus script, the problem remains unsolved—that at least is the general verdict.⁽⁴³⁾ Why have these attempts failed? Very often the material has been

manipulated in unacceptable ways to fit preconceived ideas. Apart from this, the most popular method has been to equate Indus signs with similar-looking signs of other, readable scripts, and to read the Indus signs with their phonetic values. This method, however, works only when the scripts compared are closely related, and even then there are pitfalls. It is true that some Indus signs have close formal parallels in other ancient scripts. For example, the Indus sign looking like a mountain can be compared with signs occurring in Sumerian, Egyptian, Hittite and Chinese scripts. But each of these parallel signs represents a different language and has a different phonetic value, even if the meaning is the same or similar.

METHODOLOGY

What, then, is sound methodology? Some preparatory tasks have proved useful in the decipherment of all kinds of scripts. They include collecting all available texts into a comprehensive and reliable text edition. In the case of the Indus script, the texts are being published both in photographs and in standardized, computer-drawn form. (44) Concordances systematically recording all occurrences of individual signs and their sequences in the texts, and various other kinds of statistics have been prepared. (45) Compilation of a reliable sign list, which distinguishes between distinct signs and their merely graphical variants, belongs to the most fundamental tasks. (46) All these tasks are interrelated and affect each other, and revisions are required. Fundamentally, there are two principal unknowns to be tackled in the decipherment of any ancient script, namely the script type and the underlying language or languages.

THE LANGUAGE PROBLEM

The language problem is most crucial. If the language of the Indus script belonged to a language family not known from other sources, the Indus script can never be deciphered. Compare the case of Etruscan: though written in an easily read

alphabetic script, this isolated language is not much understood beyond the texts covered by copious translations. But as the Harappan population numbered around one million, there is a fair chance that traces of the language(s) have survived in the extensive Vedic texts composed by Indo-Aryan speakers who came to the Indus Valley from Central Asia during the second millennium BCE. Aryan languages have been spoken in the Indus Valley ever since, but an Aryan language could not have been spoken by large numbers of Mature Harappan people. The culture reflected in the Rigvedic hymns is quite dissimilar from the Indus Civilization. Particularly important is the fact that the domesticated horse has played an important role in the culture of the Indo-Iranian speakers, and there is no unambiguous evidence for the presence of *Equus caballus* in South Asia before the second millennium BCE.(47)

While various minority languages are very likely to have been spoken in the Greater Indus Valley,(48) there appears to have been only one written language. The sign sequences of the Indus texts are uniform throughout their area of distribution in South Asia.

The argument is reinforced by the fact that some of the Indus seals found in the Near East contain typical Indus signs and sequences— this concerns especially the square seals most common in South Asia— while on some other Indus seals— especially the round seals similar to those of the Gulf and Elamite culture, and the cylinder seals of the Mesopotamian type— have common Indus signs but in sequences completely dissimilar from those occurring on native Harappan texts. Statistically, one would expect that the most frequently attested sign (the occurrences of which constitute almost 10% of the Indus texts) would very often be found next to itself, but this is never the case in the Indus Valley. The combination is attested on a round seal probably found in Mesopotamia, which contains only frequently occurring signs of the Indus script, but in unique sequences.

This suggests that Harappans residing in the Near East

had adopted the local language(s) which differed from the Indus language. The cuneiform texts speak not only of a distant country called Meluhha which most scholars identify with the Greater Indus Valley, but also of Meluhha people who resided for generations in southern Mesopotamia. According to its inscription, one Old Akkadian cylinder seal belonged to "Suilishu, interpreter of the Meluhhan language. Thus the Meluhhaan language did differ from the languages commonly spoken and understood in the ancient Near East, above all Sumerian, Akkadian and Elamite. The Harappan trade agents who resided in the Gulf and in Mesopotamia became bilingual, adopted local habits and local names, and wrote their names in the Indus script for the Harappans to read. Historically the most likely candidate for the written majority language of the Harappans is Proto-Dravidian. The 26 members of the Dravidian language family are now mainly spoken in Central and South India. However, one Dravidian language, Brahui, has been spoken in Baluchistan for at least a thousand years, as far as the historical sources go.(49) Even areal linguistics of South Asia supports the hypothesis that the Indus language belonged to the Dravidian family. The retroflex consonants, which constitute the most diagnostic feature of the South Asian linguistic area, can be divided into two distinct groups, and one of these groups is distributed over the Indus Valley as well as the Dravidian speaking areas.(50) Most importantly, numerous loanwords and even structural borrowings from Dravidian have been identified in Sanskrit texts composed in northwestern India at the end of the second and first half of the first millennium BCE, before any intensive contact between North and South India. External evidence thus suggests that the Harappans most probably spoke a Dravidian language.(51) Tools for reconstructing Proto-Dravidian are available. (52)

References

- 1- Marshall, John, Asian Educational Service (1931), Govt of India, retrieved Oct 16, 2017
- 2- Mackay, Ernest H. An official account Archaeological Excavations at Mohenjo-daro carried out by the Government of India between the years 1927 and 1931. Retrieved on Oct 15, 2017
- 3- Vats, M. S. OCL, 39921785, retrieved Oct 15, 2017
- 4- Rao, Rajesh. P. N., Indus Research Centre, Raja Muthia Research Library, Chennai, India, retrieved on Oct 15, 2017
- 5- Hunter G. R., with an introduction by S. Langdon (1934), Kagan Pearl, Trneduer & Co, London, 1934, retrieved on Oct 15, 2017
- 6- Gadd and Smith (1924), Seals from the Near East and contacts with Sarswati and Sindh Valley, David Potts, retrieved on Oct 15, 2017
- 7- Indian Antiquity Bombay, Journal of American Oriental Society, 1925.
- 8- Marshall, John, Sir, Sumerian connection with ancient cylinder Indus seals, 1927, retrieved on Oct 16, 2017
- 9- Gadd, C.J., "Sign list The script of Harappa and Moenjodaro and its connection with other scripts," London, 193
- 10- Langdon, The script of Harappa and Moenjodaro and its connection with , Oxford, 1933, retrieved on Oct 16, 2017
- 11- Hunter, C.R. Script of Harappa and Moenjodaro and its connection with other scripts, with a note from Prof Langdon., London, 1934.
- 12- Ibid
- 13- Parpola, Asko, Study of the Indus Script, paper read at 50th ICES meet, Tokyo on May 19, 2005
- 14- Heras, Henry, Studies in Proto-Indian Mediterranean cultures, 1955
- 15- Royal Asiatic Society Journal, 1975, retrieved Oct 18, 2012
- 16- Robinson, Andrew, Ancient civilization: Coding the Indus Script, October 2015, Millennium Publishers Ltd, Spring Nature, retrieved Oct 16, 2017
- 17- Mahadevan, Iravathan review on the work authored by William Fairervis on Indus Script, Harappan Com, 1997-3015, retrieved on Oct 17, 2017
- 18- Grierson, George, Linguistic Survey of India, Calcutta, vol 8, Indo-Aryan Family, North-West Group, Specimen of Sindhi

- and lahnada, Calcutta, 1919, retrieved on Oct 18, 2017
- 19- Daulatram, Jairamdas, Ancestry of Sindhi, India, 1957, retrieved Oct18, 2017
- 20- Hiranadani, Popti, Bhasha Shastar, Sindhi Sahitya Academy, Bombay, India, 1962
- 21-Paper read at the 50th Tokyo session of ICES held on May 19, 2005. The author has shortened the text distributed at the conference and made a few additions (in particular, note 14 and consideration of two papers by Massimo Vidale that I received in a preliminary form in July 2005).
- 22) The results are being collected in a book series in progress called The Indus Age by Gregory L. Possehl, with a monumental volume on The Beginnings (1999). Possehl has recently produced a summary for the general public (2002). Several other good surveys have come out during the past few years as well: Jansen et al. 1991; Kenoyer 1998; Indus Civilization Exhibition, 2000; McIntosh 2002. There are also two good websites, one of them in Japan, providing up-to-date information: <http://www.harappa.com>; <http://bosel.cc.u>
- 23) See reports of the Harappa excavations by Meadow et al. and <http://www.harappa.com>.
- 24) I am following here the periodization suggested by Possehl (2002).
- 25) The ratios are 1/16, 1/8, 1/6, 1/4, 1/2, 1 (= 13 g), 2, 4, 8, 16. . 800
- 26) Massimo Vidale (in press b) suggests the presence of a palace complex that consists of “houses” (including a private bath resembling the Great Bath) in the HR area of Mohenjo-daro.
- 27) Cf. Possehl 2002: 56–57, 148–149.— One could compare the ‘republics’ of northeastern India in early historical times, governed by a ga’na or sa’mgha, and described by Sharma (1968). They have roots in Vedic times, when “the many \$ajan-s . . . denied permanent overlordship to any in their midst” (Scharfe 1989: 233; cf. Sharma 1968: 8–12). “According to a later Buddhist tradition there were 7,007 \$ajan-s in Vaisali ruling jointly through their assembly; K[au’tilya’s] A[rtha&s\$arastra] XI 1, 5 speaks of the men of the sa’mgha-s that live on the title \$ajan” (Scharfe 1989: 233). Strabo (Geography 15,1,37), referring to anonymous writers in the plural (Megasthenes is mentioned as the source in the next sentence), states: “They tell also of a kind of aristocratic order of government that was composed outright of five thousand counsellors, each of whom furnishes the [[new]] commonwealth with an elephant” (tr. Jones 1930: VII, 65; I

- suggest deleting the word new in Jones' translation of *toi koinoi*) (cf. Scharfe 1989: 233, n. 24).
- 28) For the BMAC, see especially Sarianidi 1986; 1990; 1998a; 1998b; 2001; 2002; 2005; Amiet 1986; Hiebert 1994; Kosarev et al. (eds.) 2004 [2005]; for new evidence from Gilund, a site of the Chalcolithic Ahar-Banas Complex of Mewar, Rajasthan, see Possehl et al. 2004. See also Parpola 2002a; 2002b.
- 29) "Possehl's book is a valuable survey, but the reader should be warned that it contains some serious factual errors and many misprints" (Robinson 2002: 331a). For a competent shorter survey, see Robinson 2002: 264–295.
- 30) Lawler 2004: 2028.
- 31) "Further evidence that clashes with the Indus-script thesis shows up in the large number of unique symbols (or 'singletons') and other rare signs that turn up in the inscriptions. . . . A number of inscriptions also contain more than one singleton in addition to other rare signs, making it difficult to imagine how those signs could have possibly functioned in a widely disseminated 'script' (Farmer et al. 2004: 36). Among the three examples quoted in MS 2645 is claimed to have two 'singletons'; however, if this seal is genuine and not a forgery, as I strongly suspect (it comes from antiques trade, not from excavations), the two signs are variants of the signs no. 11 and 337 in the sign list in Parpola 1994: 70–78.—Most of the rare signs occur in the midst of more frequent signs.
- 32) I agree with Farmer et al. that some of these duplications imply quantification (cf. Parpola 1994: 81). The duplication of some other signs is surmised to "emphasize their magical or political power." Farmer et al. do not mention that such sign reduplications can reflect linguistic reduplications—often emphatic as in Dravidian (and other Indian languages) in onomatopoeic words, or grammatical, as in Sumerian nominal plurals. See also the interpretation of the 'eye' + 'eye' sequence in the final section of this paper.
- 33) I.e., Marshall 1931: III, pl. 106, no. 93. For the other texts quoted here see Joshi & Parpola 1987 and Shah & Parpola 1991.
- 34) A fragment of a convex partially burnt sealing with two impressions of one and the same stamp seal on the outside preserves faint script signs on the inside (DK 12145 = Mackay 1938: I, 349 and II, pl. XC: 17 = M-426 in Joshi & Parpola 1987: 105; now in the care of the Archaeological Survey of India as ASI 63.10.201). The inside of this sealing

should be carefully examined with microscope to determine whether it really was fixed on a wooden rod and whether the script signs were written on that rod.

- 35) Lal's book does not count because it is popular and politically biased (Farmer et al. 2004: p. 25).
- 36) Cf., e.g., Gardiner 1957: 7; Ray 1986; Ritner 1996: 73.
- 37) Cf. Michalowski 1996: 35; Cooper 1996: 42.
- 38) Cf. Parpola 1994: 86–97.
- 39) See Parpola 1994: 97–101.
- 40) My colleague Kimmo Koskeniemi, who is Professor of Computer Linguistics at the University of Helsinki and has participated in research on the Indus script, asked by e-mail Dr. Richard Sproat the following question: "It appears that we agree that plain statistical tests such as the distribution of sign frequencies and plain reoccurrences can (a) neither prove that the signs represent writing, (b) nor prove that the signs do not represent writing. Falsifying being equally impossible as proving. But, do I interpret you correctly?" In an e-mail sent to Kimmo Koskeniemi on Wednesday 27 April 2005, Dr. Sproat answered to this question with one word: "Yes."
- 41) I expect detailed criticism which points out specific faults in theory or in factual data. In the present case the rules are very few indeed, in accordance with the generally accepted theory, and do not change from case to case but are the same throughout, so I refuse to accept the implication that the general criticism leveled against all attempts (including that of Hrozný) applies here too: "by exploiting the many degrees of freedom in the ways that speech maps to scripts, it is possible by inventing enough rules as you go to generate half-convincing pseudo-decipherments of any set of ancient signs into any language— even when those signs did not encode language in the first place. The absurdity of this method only becomes obvious when it is extended to large bodies of inscriptions, and the number of required rules reaches astronomical levels; hence the tendency of claimed decipherments to provide only 'samples' of their results, prudently restricting the number of rules to outwardly plausible levels." (Farmer et al. 2004: 20f.). The small number of interpretations in my case simply results from the limitations of the available material, which does not allow any extensive decipherment.
- 42) For detailed documentation and illustrations, I refer to my earlier publications (Parpola 1994; 1997). As I will not be discussing

the study of the Indus script in all its aspects, I would like to make a reference also to relevant chapters of various recent books: Robinson 1995: 144–148; 2002: 264–295; Kenoyer 1998: 68–79; McIntosh 2002: 140–155; Possehl 1996; 2002: 127–139; Rogers 2005: 201–203.

- 43) Cf. Possehl 1996; Robinson 2002: 264–295.
- 44) For the first two volumes of the *Corpus of Indus Seals and Inscriptions*, see Joshi & Parpola 1987; Shah & Parpola 1991. The third volume is due to appear shortly.
- 45) For the time being, see Mahadevan 1977; Koskeniemi & Parpola 1979–1982.
- 46) For the present, see Parpola 1994: 68–82. Bryan Wells is preparing a new sign list as his Ph. D. thesis (Wells 1998 is his M. A. thesis on the same topic).
- 47) For the horse, cf. Meadow 1991; Meadow & Patel 1997. For the prehistory of the Aryan languages and their introduction to South Asia, see now Carpelan & Parpola 2001; Parpola 2002a; 2002b (for the Aryan affinity of the Dśasa language); 2004 [2005]; 2005; Kochhar 2000; Driem 2001: II, 1070–1103.
- 48) Cf. Kuiper 1991: 89–96 for a list of 383 “foreign words in the Rigvedic language”; Lubotsky 2001; Parpola 2002a: 92–94; and Witzel 2003 [2004] for the original non-Indo-European language of the Bactria and Margiana Archaeological Complex (BMAC); for the Austro-Asiatic, Tibeto-Burman and Burushaski languages, cf. Parpola 1994: 142 and van Driem 1999; 2001: I, 295–297; 421–433; II, 1202f.
- 49) Cf. Elfenbein 1987, and Parpola 1994: 160–167.
- 50) Cf. Tikkanen 1999.
- 51) Cf. also e.g., Driem 2001: II, 1012–1038; Rogers 2005: 203.
- 52) See Burrow & Emeneau 1984; Krishnamurti 2003, with further references

"The river Sindhu (Indus) too is flowing with a current of fresh blood." (3:223) "The seven large rivers including the Sindhu (Indus) though flowing eastwards then flowed in opposite directions. The very directions seemed to be reversed and nothing could be distinguished. Fires blazed up everywhere and the earth trembled repeatedly."

(5:84) "The spot where the Sindhu mingleth with the sea is that tirtha of Varuna." (3:82)

Indus Seals

Bull Seals with different writings



Indus Seals

Bull Seals with different writings



Indus Seals

Bull Seals with different writings



Indus Seals

Unicorn Seals with different writings



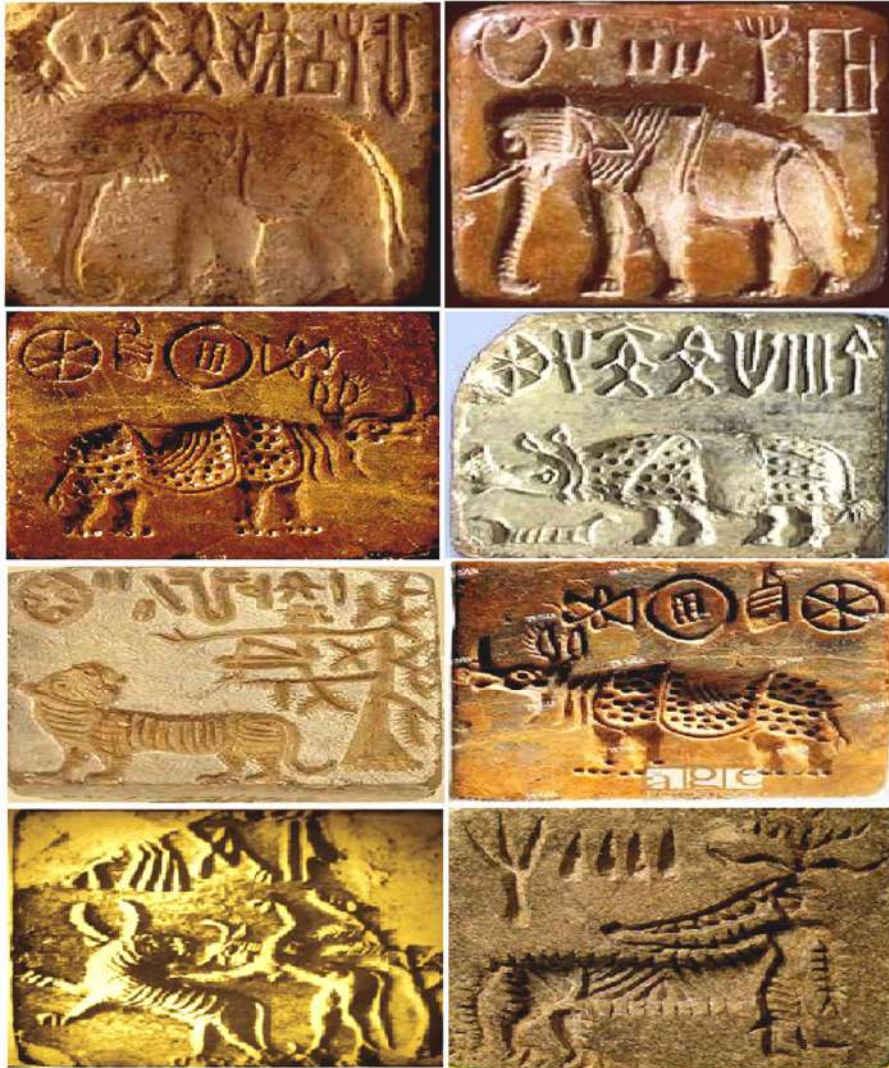
Indus Seals

Indus Valley Seals



Indus Seals

Seals with different writings



*Seals***Indus seals: what do they speak?**

In 1875, more than a century-and-a-quarter ago, Alexander Cunningham, a British officer visited Harappan archaeological site and found a seal with some six characters which he thought were not from any Indian script. In 1877 and 1884 he found some more similar seals, about which a report was published by James Fleet in the year 1912. By 1922, John Marshall, another British officer of the Indian Archaeological Department began excavating at the suspected site of Mohenjodaro in Larkana district of Sindh. He was assisted by R.D Banerji who found more similar seals. After formal excavation a number of objects from the mound site were discovered. When the first report appeared in the London Illustrated in 1924, it created a stir in the knowledgeable circles, as till then they had claimed that the world knew of three great civilizations i.e., the Ur (Mesopotamian), Egypt and the China.

Since the beginning of Mohenjo-daro civilization, some 1,200 Indus sites have been discovered. However no sizeable excavation has taken place except at a few selected points. The Finnish archaeologist Asko Parpola says: "Although excavations and explorations have since added about 250 Indus sites," only three towns, all smaller than Mohenjo-daro and Harappa, have so far yielded any sizeable number of seals and other inscriptions. Chanhujodaro in Sindh, excavated in 1935 by Ernest Mackay (findings published in 1943)" has given us 80 inscriptions. Lothal in Gujarat, dug by S.R. Rao in 1954, is said to have produced among other things 71 sealings with impressions of reeds and thread on the reverse, 12 bearing

identical inscriptions on the obverse, all found in the ruins of a burnt warehouse." So far, however, only scattered preliminary reports have appeared, comprising 70 inscriptions. The final report and more inscriptions are still to be published since the 1961 excavations by B.B. Lal and B.K. Thapar at Kalibangan in Rajasthan while 45 inscriptions are at present available for study from this site, bringing the total from these three towns to about 200 or 6 per cent of the entire corpus of Indus seals and inscriptions accessible today. Moreover, about 15 minor Harappan sites have provided us with 34 inscriptions or 1 per cent of the total material. Several fairly large new sites have been spotted and their excavations have been partly begun and partly planned, so that a steady increase in the scanty inscripational material is in sight. Mohenjo-daro, particularly, still has tremendous potential in this respect, for large parts of the city are completely untouched, and even the very small excavation by George F. Dales in 1964 brought to light 22 texts, all of which are now being published."(1)

After the discovery of seals from Harappa and later from Mohenjo-daro site, seals were also found from other sites outside the Mohenjo-daro site. "In the course of time, further discoveries have taken place. At many places outside the Indus Valley remains of that culture were seen in plenty. That led the scholars to feel that it was a civilization which covered a much wide area... It is evident that in extent it was far and wide. From Himalayas in the north to the Narmada Valley in the south the Harappan culture extended its influence. The evidence of that ancient culture has been found at several places. Famous among such places are Rupar, Kali Bangan, Chanhudaro, Sukagen Dor and Lothal. At present, the area that ancient civilization is marked from northern Balochistan in the west to Merut district of Uttar Pradesh in the east and from Rupar in the north to Gujarat in the south. As such the area of the Indus Civilization is much wider than the area covered by the ancient Nile Civilization or the Civilization of ancient Mesopotamia, or even the Yellow River Valley of China." (2)

Since the beginning of the excavation some 36,000 objects and artifacts have been dug out which include some 600 seals bearing various shapes along with pictographics. “Between 400 and as many as 600 distinct Indus symbols have been found on seals, small tablets, ceramic pots and more than a dozen other materials.” (3)

Since discovery of the first seal in 1875, to a large number found from the Mohenjo-daro digging efforts have been made to decode the signs and script have failed. The main reason for that is attributed to short length of the script. Names and inscriptions are not long enough to derive some meaning. In some cases six characters make in the inscription meaningful. Mainly there are two areas to investigate; those with pictographics and those which stand independently

“The messages on the seals have proved to be too short to be decoded by a computer. Each seal has a distinctive combination of symbols and there are too few examples of each sequence to provide a sufficient context. The symbols that accompany the images vary from seal to seal, making it impossible to derive a meaning for the symbols from the images. There have, nonetheless, been a number of interpretations offered for the meaning of the seals. These interpretations have been marked by ambiguity and subjectivity.” (4)

The Egyptian and Mesopotamian languages were resolved after long inscriptions were found. Anyhow, the similarity of Indus script with Mesopotamian findings, were made but the Indus script has an indigenous root therefore, no headway could be made. Cristian Volatti, a western scholar while explaining the structural physique of Indus script says, “Indus Script was also used in the context of ‘narrative imagery’: these images included scenes related to myths or stories, where the script was combined with images of humans, animals and/or imaginary creatures depicted in active poses. This last resembles the religious, liturgical and literary use

which is well attested in other writing systems. The structure of the Indus seals is also unique. Almost all inscriptions contain four or five characters most of which are small but some are measuring less than an inch.

“While the Indus Valley Civilization is generally characterised as a literate society on the evidence of these inscriptions, this description has been challenged by Farmer, Sproat, and Witzel (2004) who argue that the Indus system did not encode language, but was instead similar to a variety of non-linguistic sign systems used extensively in the Near East and other societies, to symbolise families, clans, gods, and religious concepts. Others have claimed on occasion that the symbols were exclusively used for economic transactions, but this claim leaves unexplained the appearance of the symbols known in any other early ancient civilizations.” (5)

“Slightly over 400 basic signs have been identified as part of the Indus Script. Only 31 of these signs occur over 100 times, while the rest were not used regularly. This leads researchers to believe that a large amount of the Indus Script was actually written on perishable materials, such as palm leaves or birch, which did not survive the destruction of time. This is hardly surprising considering that palm leaves, birch and bamboo tubes were widely used as writing surfaces in South and South East Asia. Some researchers have argued that the roughly 400 symbols can actually be reduced to 39 elementary signs, the rest being merely variations of styles and differences between scribes.” (6)

Dr Asko Parpola, who worked extensively on the Indus language and attempted to decipher Indus Script made attempts to solve the riddle but could not make a breakthrough.

The similarity of seals discovered from Ur and Mesopotamia created many theories including the one that trade between two civilizations caused the similarity. However it also gave rise to the option that these seals were marks of to identify the merchandise.

Since 1926, experts and linguists have been attempting to resolve the issue of deciphering the Indus script but have met with failure. Almost all archaeologists in Pakistan and elsewhere have laid hope on some more material which might lead to the deciphering of the Indus script. However, as V. Gordon Childe remarked, “The Indus Civilization represents very perfect adjustment of human life to a specific environment and has endured, it is already specifically Indian and forms the basis of modern Indian culture. (7)

References:

- 1- S. Privardarshini, History of the Indus Civilization, History Discussion, @history discussion Net, retrieved Oct 12, 2017
- 2- Parpola, Asko, The Indus Script, Deciphering the Indus Script, Cambridge University, 1994
- 3- Violatti, Cristian, Indus Script, Definition, ANCIENT HISTORY encyclopedia, Jun 5, 2015
- 4- quantumfuture group.org, retrieved Oct 11, 2017
- 5- Violatti, Cristian, Indus Script, Definition, ANCIENT HISTORY encyclopedia, retrieved on Oct 11, 2017
- 6- *Quantumfuturegroup.org*, retrieved Oct 12, 2017
- 7- Childe, Urban revolution, The Town Planning Review, Vol. 21, No. 1 (Apr., 1950), pp. 3-17 Published by: Liverpool University Press, retrieved Oct 12, 2017

DANCING GIRL OF MOHENJO DARO. 2500 BC



KING PRIEST OR SOCIAL WORKER



The end of Indus Valley civilization came to nearly 1900 BC. When Aryans began settling in the Indus valley, they had their beliefs and religious thinking. The Indus valley culture did not have an established religious cult or practices attached to their daily life. This also created a wedge between the two sometimes took an ugly turn. “These migrations may have been accompanied with violent clashes with the people already inhabited this region.”

Wikipedia, notified on 28 February 2017.

In between 1922 and 1934, Sir Leonard Woolley - a British archaeologist discovered the tomb of Queen Puabi dating between 2,600 – 2,400 BC during excavations at the "Royal Cemetery of Ur" in Iraq. Around 1,800 graves at Ur were excavated, out of which Puabi's tomb was clearly unique because her tomb had been untouched through the millennia. He found a forty year old, five foot tall woman who was given an elaborate burial. We know this woman as Queen Puabi from one of the three cylinder seals found on her body. She was accompanied in her death by 52 attendants and warriors, who were put to death, not by poisoning, but by driving a pike into their heads. An interesting item from Queen Puabi's tomb was a cloak of beads, made from carnelian beads, which comes from the Indus region. Thus a queen who lived in Southern Iraq, 4,500 years back, was able to obtain beads from the Indus Valley region through the trading hubs of the ancient world. The physical remains of the Queen Puabi are kept in the Natural History Museum, London. The excavated treasures from Woolley's expedition were divided between the British Museum in London, the University of Pennsylvania Museum in Philadelphia and the National Museum in Baghdad.

- [1] Vidale, M. (2011). PG 1237, Royal Cemetery of Ur: Patterns in Death. Cambridge Archaeological Journal, 21(3), 427 - 451.
- [2] Iraq's ancient past at University of Pennsylvania.
- [3] The Middle Asian Interaction Sphere by Gregory L. Possehl. The Indus Colony in Mesopotamia – Part 1, by Jk.
- [4] Wooley, Leonard (1934). Ur Excavations II, The Royal Cemetery. London-Philadelphia. p.73.
- [5] Vidale, M. (2011). PG 1237, Royal Cemetery of Ur: Patterns in Death. Cambridge Archaeological Journal, 21(3), 427 - 451.

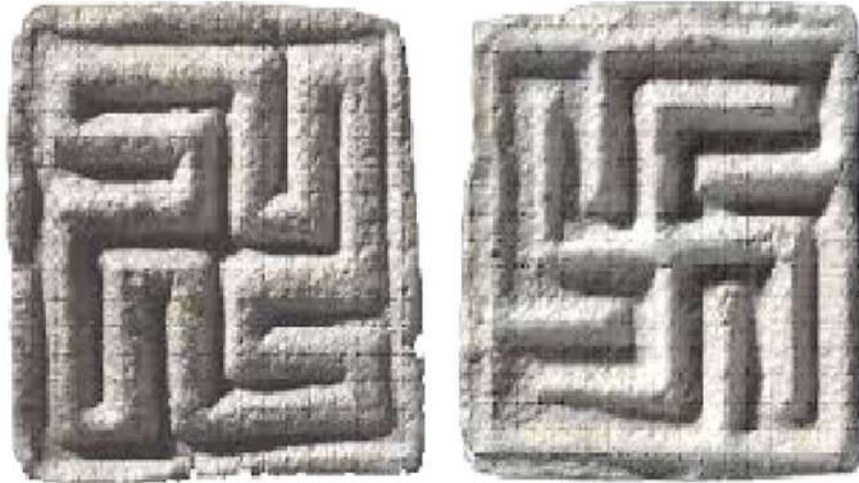
QUEEN PUABI'S JEWELLERY

Gold amulet in the form of two antelopes belonging to Queen Puabi of Ur



SWASTIKA SEALS

Indus - Swastika Seal



African Swastikas,
Aryan vs. Arya –
Stormfront



Slavic jewelry Pagan Jewelry
Amulet Swastika.



India - Swastika

Swastika – in the "V'nc'a script" 6000-7000 BC



Swastika Seals

The Swastika seals discovered from Mohenjo-daro are preserved at the British Museum, London. The word swastika is derived from the Sanskrit root swasti which is composed of su, meaning "good, well", and asti meaning "it is, there is". (1) The word swasti occurs frequently in the Vedas, and it means "well, good, auspicious, luck, success, prosperity".(2) Swastika is a derived word and connotes a form of welcome or a sign of something "associated with well-being".(3) The swastika word is derived from the Sanskrit svastika, meaning "conducive to well-being." It was a favourite symbol on ancient Mesopotamian coinage. In India the swastika continues to be the most widely used auspicious symbol of Hindus, Jainas, and Buddhists. Among the Jainas it is the emblem of their seventh Tirthankara (saint) and is also said to remind the worshiper by its four arms of the four possible places of rebirth. The Hindus (and also Jainas) use the swastika to mark the opening pages of their account books, thresholds, doors, and offerings. (4)

According to Monier-Williams, a majority of scholars consider it a solar symbol, and in the ancient Indian texts the base swasti is equivalent to "may it be well with thee! hail! health! adieu! so be it!". (5) The sign implies something fortunate, lucky or auspicious, and when applied to entrances, doors, mandalas or object it denotes or reminds of auspiciousness or well-being. (6)

In Asia, the Swastika symbol first appears in the archaeological record around 3,000 BCE in the Indus Valley Civilization – (Mohenjo-daro).(7)

It also appears in the Bronze and Iron Age cultures around the Black Sea and the Caspian Sea. Investigators have also found seals with "mature and geometrically ordered"

Swastikas which date from prior to the Indus Valley Civilisation (3,300–1,300 BCE). Their efforts have traced references to Swastikas in the Vedas at about that time. The investigators put forth the theory that the Swastika moved westward from India to Finland, Scandinavia, the British Highlands and other parts of Europe. (8)

This sacred sign symbolises spiritual principles in Hinduism, Buddhism and Jainism. In the Western world, it was historically a symbol of auspiciousness and good luck (9) but in the 1930s, the symbol was usurped by the Nazi Germany as an emblem of Aryan race identity, and as a result, it has become stigmatized in the West by association with ideas of racism, hatred, and mass murder. This use of the Swastika ended in World War II with the German surrender in May 1945, though the swastika is still favoured by neo-Nazi groups. (11) The belief that the “German race” descended from the Aryan race is one of the main reasons, the Nazi party formally adopted the Swastika or Hakenkreuz as its symbol in 1920.

There is a great debate as to what the Swastika means now. For 3,000 years, the Swastika meant life, health and good luck. But because of the Nazis, it has also taken on a meaning of death and hate. Adolf Hitler made it the centerpiece of the Nazi flag. In *Mein Kampf*, Adolf Hitler wrote: “I myself, meanwhile, after innumerable attempts, had laid down a final form; a flag with a red background, a white disk and a black Swastika in the middle”.

Swastikas also have an ancient history in Europe, appearing on artifacts from pre-Christian European cultures. For centuries a symbol of good luck and auspiciousness, the Swastika even found expression in Byzantine and Christian art.

The Swastika is an ancient symbol that has been found worldwide, but it is especially common in India. It can be seen in the art of the Egyptians, Romans, Greeks, Celts, Native Americans, and Persians as well Hindus, Jains and Buddhists. In China and Japan, the Buddhist Swastika was seen as a symbol of plurality, eternity, abundance, prosperity and long

life.

It was also used in Ancient Greece and can be found in the remains of the ancient city of Troy which existed 4,000 years ago. The ancient Druids and the Celts also used the symbol, reflected in many artefacts that have been discovered.

A Sanskrit scholar P. R. Sarkar in 1979 said that the deeper meaning of the word is, 'Permanent Victory'.

The investigators put forth the theory that the Swastika travelled from India via Tartar routes through Kamchatka to the Americas, where it appeared in both Aztec and Mayan civilizations. It also moved westward, according to these researchers, from India to Finland, Scandinavia the British Highlands and other parts of Europe. (13)

No doubt it took more than a century to open the secrets of the ancient Indus Valley Civilization, Mohenjo-daro has many secrets yet waiting for an appropriate day when its hidden parts are opened and the world would know the greatness of a civilization lived here before any other civilization.

References:

- (1) Heinrich Schliemann (1880). Ilios. J. Murray. pp. 347–348.
- (2) Monier Monier-Williams (1899). A Sanskrit-English Dictionary, s.v. svastika (p. 1283). [23] Monier Monier-Williams (1899). A Sanskrit-English Dictionary, s.v. svastika (p. 1283).
- (3) Monier Monier-Williams (1899). A Sanskrit-English Dictionary, s.v. svastika (p. 1283).
- (4) Swastika: SYMBOL, Encyclopædia Britannica (2017)
- (5) Monier Monier-Williams (1899). A Sanskrit-English Dictionary, s.v. svastika (p. 1283).
- (6) Monier Monier-Williams (1899). A Sanskrit-English Dictionary, s.v. svastika (p. 1283).
- (7) Steven Heller. The Swastika: Symbol Beyond Redemption?. Skyhorse Publishing, Inc. p. 31. (Mohan Pant, Shūji Funo.

- Stupa and Swastika: Historical Urban Planning Principles in Nepal's Kathmandu Valley. NUS Press. p. 16).
- (8) Staff (ndg) "Researchers find the Swastika predates the Indus Valley Civilization" Ancient Code; citing :lead project investigator" Joy Sen from the Indian Institute of Technology Kharagpur).
- (9) History of the Swastika". Holocaust Encyclopedia. United States Holocaust Memorial Museum 2009.
- (10) History of the Swastika". Holocaust Encyclopedia. United States Holocaust Memorial Museum. 2009. Wiener, Richard L.; Richter, Erin (2008). "Symbolic hate: Intention to intimidate, political ideology, and group association". *Law and Human Behavior*. American Psychological Association. 463–476. doi:10.1007/s10979-007-9119-3
- (11) Swastika: SYMBOL, Encyclopædia Britannica (2017)
- 13- Joy Sen, Ancient Code, retrieved on Oct 13, 2017

The mystery of cylinder seals

We have discussed seals found from Mohenjo-daro and other Indus Valley Civilization sites, here we have some aspects of the Cylinder seals also found from Indus Valley sites and hold key to the decipherment of the Indus language. Among the seals found from Indus Civilization sites only three have been discovered from Mohenjo-daro.

Besides other marks of identification, there is a brisk talk of cylinder seals bearing the figurines and script ions of Indus language. Cylinder seals are barrel shaped and made of hard stone or similar material. They were used in Mesopotamia from 4th to 1st millennium BC though cylinder seals were not found from Mohenjo-daro site but cylinder seals were found from Kalibanga site. Asko Parpola makes a clear identification by saying, "Impression of a Harappan cylinder seal from Kalibangan. Two warriors, distinguished by the hair worn in a divided bun at the back of the head, are spearing each other while they are both being held by the hand by a goddess wearing a head-dress with a long pendant (comparable to the ones decorated with cowry shells and turquoise that are worn by the women of Ladakh and Chitral), bangles on the arms, and a skirt. Next to the combat scene (where space appears to have prevented the depiction of those details), her body merges with that of the tiger (later the Hindu goddess of war and her head-dress is elaborated with animal horns and a tree branch.)" (1) A cylinder seal is, as obvious, small round cylinder and on it is engraved some written characters or figurines used in ancient times to roll on some surface preferably clay to create images in two-dimensions. "Cylinder seals were invented around 3,500 BC in the Near East, at the contemporary sites of Susa in south-western Iran and Uruk in southern Mesopotamia.

They are linked to the invention of the latter's cuneiform writing on clay tablets." (2) They were used as an administrative tool, a form of signature, as well as jewelry and as magical amulets; later versions would employ notations with Mesopotamian cuneiform. In later periods, they were used to notarize or attest to multiple impressions of clay documents. Grave and other sites housing precious items such as gold, silver, beads and gemstones often included one or two cylinder seals, as honorific grave goods.

The cylinder seals themselves are typically made from hard stones, and some are a form of engraved figurines. They may instead use glass or ceramics, like Egyptian faience. Many varieties of material such as hematite, obsidian, steatite, amethyst, lapis lazuli and carnelian were used to make cylinder seals. As the alluvial country of Mesopotamia lacks good stone for carving, the large stones of early cylinders were imported probably from Iran." (2) Most seals have a hole running through the centre of the body, and they are thought to have typically been worn on a necklace so that they were always available when needed.

While most Mesopotamian cylinder seals form an image through the use of depressions in the cylinder surface, some cylinder seals print images using raised areas on the cylinder (San Andrés image, which is not related to Mesopotamian cylinder seals). The former are used primarily on wet clays; the latter, sometimes referred to as roller stamps, are used to print images on cloth and other similar two dimensional surfaces.

"Cylinder seals are a form impression seal, a category which includes the stamp seals and finger ring seal. They survive in fairly large numbers and are often important as art, especially in the Babylon Assyrian periods. Impressions into a soft material can be taken without risk of damage to the seal, and they are often displayed in museums together with a modern impression on a small strip." (3)

Scholars also debate over the age of cylinder seals, as,

according to them they make an important source on the Indus Valley Civilization. Ernest Mackay thinks that, "The most reliable evidence of the date of the upper levels of Mohenjodaro still continues to be Dr Frankfort's seal. This seal is cylindrical in form and of a totally different shape from the majority of the seals found in the Indus valley; but as three cylindrical specimens have been found at Mohenjo-daro, all of them, it should be noted, in the upper levels of that city, it is probably that they also were sometimes used by the inhabitants. The Tell Asmar seal is, however, certainly of Indian workmanship. Not only are the animals upon it Indian, the elephant, rhinoceros, and gharial, or fish-eating crocodile, none of which ever appears on Sumerian or Akkadian seals, but the style of the carving is undoubtedly Indian." (4) John Marshall for creating clarity brought forward some details at the time of their discovery. He noted, "Seals of this group [cylinder seals, although Mackay above is not sure they are true cylinder seals], if indeed they are seals, are very rarely found at Mohenjo-daro, only five specimen being obtained in all. They all are made of ivory and differ from the cylinder seals of other countries in being very long and thin; nor are they perforated for suspension on a cord. It is possible that these so-called seals are not true seals at all. They incised characters upon them might conceivably be identification marks for a game or something similar. On the other hand, they are certainly suitable for use as seals and in this account they are included in this chapter

Professor Dionisius A. Agius, referring to C J Gadd speaks about an Akkadian seal called Shu Lishu. This seal is of special interest, so far study in Mesopotamian seals are concerned. He says, "The personal cylinder seal of Shu Ilishu - the 2nd ruler of the First Dynasty of Isin (from c. 1875 BC) showed him to be a translator of Meluhhan language. The presence of individuals or groups of immigrants from Indian subcontinent in Mesopotamia in the 3rd millennium BC was recognized since the discovery of Indus Civilization at Harappa and Mohenjodaro in early 1920s, because Indus-like seals were

found in stratified contexts in some of the most important Sumerian cities. ... It is in Sargon's time that we hear about Meluhhans, identified as people from the Indus region. Sargon, founder of the Akkadian Empire (c. 2334 – 2154 BC) boasted about ships from Dilmun, Magan and Meluhha docking in the quay of Akkad." (5)

It is not strange to come across a host of opinions about the cylinder seals belonging to Indus Valley Civilization. Gregory Possehl has shown deeper interest in the Cylinder seals. In one of his paper he mentions, "Some years ago, while perusing the great Assyriologist A. Leo Oppenheim's *Ancient Mesopotamia: Portrait of a Dead Civilization*, I found a reference to the personal cylinder seal of a translator of the Meluhhan language. His name was Shu-ilishu and he lived in Mesopotamia during the Late Akkadian period (ca. 2020 BC, according to the new, low chronology). I was interested in this man because Meluhha is widely believed to have been the Indus Civilization of the Greater Indus Valley in India and Pakistan (ca. 2500–1900 BC)—the focus of my own research. Based on Cuneiform documents from Mesopotamia we know that there was at least one Meluhhan village in Akkad at that time, with people called 'Son of Meluhha' living there. Therefore, to find evidence of an official translator was no surprise, though it is nifty when archaeology can document this sort of thing.

"To learn more I tracked down a photograph of Shu-ilishu's cylinder seal in a substantial volume found in the Museum Library—Collection de Clercq. Gathered together in the 19th century by a wealthy man, this collection is composed of objects purchased from dealers with little, if any, provenience data presented. Therefore, we do not know where Shu-ilishu's cylinder came from. Despite this, I asked our Museum's Photo Studio to make a black and white negative and several prints of the cylinder's rollout impression. I have subsequently published this rollout in several places—renewing interest in Shuilishu...This cylinder seal has now become

commonplace in discussions of Persian Gulf archaeology and the Indus Civilization's contacts with Mesopotamia. My late colleague Edith Porada, the world's leading expert on Mesopotamian seals in her day, confirmed the information presented in Oppenheim. She also noted that the seal had been re-cut from its original appearance (not unusual) and that its style was Late Akkadian (ca. 2200–2113 BC), possibly even from the succeeding Ur III period (ca. 2113–2004 BC). (6)

“During the spring of 2003, when the topic of Meluhha came up during a seminar I was teaching, I showed Porada's letter to a small group of students. Thinking afresh about the re-cutting of the seal, I decided that the reading of the inscription should probably be checked. Did it really say that Shu-ilishu was a translator of Meluhhan? I took the photograph I had copied from the Collection de Clercq to Steve Tinney, my colleague in the Museum's Babylonian Section. He was kind enough to look at it and confirm everything, at least as far as the rather poor image allowed. It occurred to me that someone should probably track down the original seal and make a fresh impression, but where was the “Collection de Clercq” now—in Paris? I was sure I would get to it someday, but that is where I left things until a splendid piece of luck dropped it in my lap.

“In the spring of 2004, the “First Cities” Show opened at the Metropolitan Museum of Art in New York. On June 10, 2004, I visited the Met with a couple of students. The show was a truly magnificent display, with treasures from the Near East and India set out in a very attractive and informed way. The Penn Museum's material from Puabi's grave at Ur was there, as was the British Museum's famous Royal Standard of Ur. The “Priest-King” from Mohenjo-daro had been lent by the Pakistan Government—he looked great!—and the Louvre had also been very generous with its loan of various objects. The students and I did our tour through the galleries and then lingered, reading labels again or with greater concentration than on the first pass through.

“I was in a gallery near the “Priest-King” when I spotted Shu-ilishu’s cylinder and a clear impression of its rollout. It was a part of the Louvre’s loan ... I showed the students and retold the story of why it is important ... The writing of Meluhha (the Indus script) remains un-deciphered, in spite of many claims to the contrary. The inscriptions are short, and this makes the job of decipherment very difficult. To break the code, what is probably needed is a body of bilingual texts, like Jean-Francois Champollion had when he deciphered the Egyptian hieroglyphics on the Rosetta Stone. The presence in Akkad of a translator of the Meluhhan language suggests that he may have been literate and could read the un-deciphered Indus script. This in turn suggests that there may be bilingual Akkadian Meluhhan tablets somewhere in Mesopotamia. Although such documents may not exist, Shu-ilishu’s cylinder seal offers a glimmer of hope for the future in unraveling the mystery of the Indus script.” (7)

The argument that the mystery behind the cylinder seals could lead to the decipherment of the Indus language has not led to success, lending the researchers to think that the scholars have not been able to find a seal with bilingual marks. “While no bilingual seal has been found so far; various Indus seals have been found in Mesopotamia. Historian Hunter observed that square Indus seals could be in Indus language while the circular ones, though in Indus script, could be encoding a nonIndus language. He has a reason for suggesting this: there is one particular circular Mesopotamian seal which has five Indus signs in a sequence not seen before; a square seal found in Kish was similar to the Indus ones...That has not helped in decipherment. The number of Indus seals found in Mesopotamia, are not too many. Around thirty seals have been found of which only ten can be dated with certainty. With trade relations lasting centuries this is a disappointing count. Hence, the hope of finding a bilingual tablet depends on finding a Sumerian Cuneiform tablet. That is a possibility since in January 2010, Iraqi archaeologists found walls and

cornerstones carrying Sumerian writings dating to the time of Amar-Sin. Hopefully future excavations will find Indus relate artifacts.” (8).

The fact that Indus Cylinder seals do hold much mysticism but there has to be some basic system to decipher the Indus language. No clue has yet become possible but the scholars do hope that time is not far to achieve that possibility but till then the editor of Encyclopedia Britannica says, “The seals first appear during the Protoliterate Period (c. 3,400–2,900 BC), and, although the earliest examples used primarily geometric, magical, or animal patterns, later seals incorporated the owner’s name and depicted a variety of motifs. Sometimes the elements were arranged in symmetrical, decorative patterns; often, however, an action was represented.... Cylinder seals were employed in marking personal property and in making documents legally binding. Their fashioning and use were adopted by surrounding civilizations, such as those of Egypt and the Indus valley. Later, relief ornament was often executed by rolling a cylinder with design recessed in intaglio over the soft clay, the principle being the same as that used to make Babylonian cylinder seals. Vases with covers in the form of a human head, with arms slipped through fixed ring handles, were made for funerary purposes until about the mid-6th century.” (9) Once the mystery shrouding the seals is resolved it will resolve all important aspects of the Indus Civilization said to be the oldest civilization of the world.

References

- 1- A cylinder seal, East, Fourth to First Millennium B.C., by Edith Porada © 1993 College Art Association., The Art Bulletin, Vol. 75, No. 4, Dec., 1993.
- 2- Wikipedia, Cylinder seals, updated on Oct4, 2017 ret'd on Nov 27, 2017
- 3- Ernest MacKay Ernest J. Mackay, The Indus Civilization, 1935
- 4- John Marshall, Mohenjo-daro and the Indus Civilization, 1935
- 5- Dionisius A. Agius, Emeritus Professor of Arabic and Islamic Material Culture at the University of Exeter. Classic ships of Islam (BRILL, 2008).
- 6- A research paper by Gregory L. Possehl on Meluhha, Meluhhan language and the Shu-ilishu's Cylinder Seal, is worth reading. He is the Professor of Anthropology at the University of Pennsylvania and the Curator-in-Charge of the Museum's Asian Section.
- 7- Ibid
- 8- Possehl, Meluhha, Meluhhan language and the Shu-ilishu's Cylinder Seal, 2008
- 9- Jump to [www. Britannica/cylinder-seals](http://www.Britannica.com/cylinder-seals), retrieved on Nov 28, 2017

“It is in Sargon’s time that we hear about Meluhhans, identified as people from the Indus region. Sargon, founder of the Akkadian Empire (c. 2334 – 2154 BC) boasted about ships from Dilmun, Magan and Meluhha docking in the quay of Akkad. Dionisius A. Agius, Emeritus Professor of Arabic and Islamic Material Culture at the University of Exeter. *Classic ships of Islam* (BRILL, 2008).

“There is a tablet dating to 2,200 BC which mentions an Akkadian who was the holder of Meluhhan ships: large ships that were transporting precious metals and gem stones (Simo Parpola, Asko Parpola, and Robert H. Brunswig, “The Meluhha Village: Evidence of Acculturation of Harappan Traders in Late Third Millennium Mesopotamia?,” *Journal of the Economic and Social History of the Orient* 20, no. 2 (May 1977): 129-165).

“As the identification of the land of Meluhha with the coastal areas controlled by the Indus Civilization is almost universally accepted, the textual evidence dealing with individuals qualified as “men” or “sons” of Meluhha or called with the ethnonym Meluhha, living in Mesopotamia and of a “Meluhha village” established at Lagash and presumably at other major cities as well, inescapably points to the existence of enclaves settled by Indian (Indus) migrants...”

Massimo Vidale - Professor of Archaeology at the University of Padua in Italy, who has extensively written on the Indus Valley Civilization.

Meluhha – I

The origin of black-headed people Who the Sumerians were?

Since the finding of Indus Valley civilization seals from ancient Mesopotamian archaeological site the scholars have been constantly looking for any relationship between the two civilizations. The point in the debate is not that they had established ties with the outer world, an important aspect is the question whether there had been so close ties that similar seals had been discovered from Mesopotamian archaeological site. These seals bear very close similarity indicating that there had been a contact between them. There is unmistakable evidence similarity in the seals from Indus Valley and Mesopotamian site was not accidental but the similarity came owing to the trade contact with Mesopotamian people. There is also a possibility that during the process of trade the Indus traders might have established a settlement there and some families would have settled there to facilitate trade functions. In that search the scholars have been investigating various possibilities. During the studies the scholars have come across with some names like that of a community named Meluhhan. Scholars have shown possibility that these might be the people from the Indus Valley who happened to be there for any reason. Noted Finnish scholar Asko Parpola strongly supports the hypothesis that Meluhha were the people from Indus Valley, according to him, "Throughout the history of Sumer, we find one name -- Meluhha or Meluhhan -- referred repeatedly for the people of the Indus Valley. Almost all scholars suggest that Meluhha was the Sumerian name for the Indus Valley Civilization. (1)

While extending his explanatory note Asko Parpola says, “... almost all scholars suggest that Meluhha was the Sumerian name for the Indus Valley Civilization. They identify Meluhha (earlier variant Me-lah-ha) from earlier Sumerian documents with Dravidian mel akam ‘high abode’ or ‘high country’. Many items of trade such as wood, minerals, and gemstones were indeed extracted from the hilly regions near the Indus settlements. They further claim that Meluhha is the origin of the Sanskrit mleccha, meaning ‘barbarian, foreigner’. (2) Simo Parpola further adds, “More recent opinion tends to locate the Meluhha of the third and early second millennium not on the Arabian Peninsula, but rather in the vicinity of Baluchistan (Pakistan) if not part of the Indus civilization itself.”

It is fascinating to note that by the Ur III Period, the Meluhhan workers residing in Sumeria had Sumerian names.(3) Another scholar from Germany, Professor Michael Jansen, who also visited Mohenjo-daro in the 1980s to map and photograph the ancient site thinks on the same lines. He says, “Sumerian texts repeatedly refer to three important centers with which they traded: Magan, Dilmun, and Meluhha. The location of Meluhha, however, is hotly debated. There are scholars today who confidently identify Meluhha with the Indus Valley Civilization on the basis of the extensive evidence of trading contacts between Sumer and this region. ...the 3rd millennium BC is also marked by increasing contact and trade between the Indus Valley, Baluchistan, the countries of the Persian Gulf, eastern Iran, and Central Asia; from 2,500 BCE Mesopotamian texts refer to the importance of trade with eastern regions such as Dilmun (Persian Gulf) and Meluhha (almost certainly the Indus Valley.” (4) There are scholars today who confidently identify Meluhha with the Indus Valley Civilization on the basis of the extensive evidence of trading contacts between Sumer and this region. They include McIntosh, (5); Dr M. A. Naeem (6); John Keay (7); and Possehl (8).

Parpola says that it is fascinating that by the Ur III period, the Meluhhan workers residing in Sumeria had

Sumerian Toponym Meluhha and Sanskrit Melccha. (9) Asko Parpola who leads the debate over the identity of Meluhha location says, “Again, after a gap of about two hundred years, we are known to another village named ‘Maluhha’ in the territory of the old City State of ‘Lagash’ during Ur III period (c. 2112 BC — circa 2004 BC). Some Cuneiform documents of the third millennium BC even refer to the people or ‘sons of Meluhha’ who had undergone a process of acculturation into Mesopotamian Society of Ur III.” (10) Noted Indian historian M K Dhavalikar also joins the debate and pinpoints the Indus Civilization as the location of Meluhha. He says, “ ... considerable discussion has so far taken place about the identification of Dilmun, Magan and Meluhha and there are now seems to be a consensus that Dilmun (Timun) was the region around Bahrain in the Persian Gulf, and Magan (or Makan) was the southern coast of Baluchistan and Sindh which is presently known as Makran. Meluhha was either the entire region of the Indus Civilization or only Gujarat.”(11)

Massimo Vidale, Italian Professor of archeology, who has extensively written on the Indus Valley Civilization, notes, “As the identification of the land of Meluhha with the coastal areas controlled by the Indus Civilization is almost universally accepted, the textual evidence dealing with individuals qualified as “men” or “sons” of Meluhha or called with the ethnonym Meluhha, living in Mesopotamia and of a ‘Meluhha village’ established at Lagash and presumably at other major cities as well, inescapably points to the existence of enclaves settled by Indian (Indus) migrants...” (12)

Another noted scholar, Dionisius A. Agius, opines, “It is in Sargon’s time that we hear about Meluhhans, identified as people from the Indus region. Sargon, founder of the Akkadian Empire (c. 2334 – 2154 BC) boasted about ships from Dilmun, Magan and Meluhha docking in the quay of Akkad. (13)

Scholars identify Meluhhans as traders and holders of ships engaged in trade activities in Mesopotamia during the

Sargon period. In Sargon I's reign (ca. 2370 BCE), a reference is made to 'holder of a Meluhha ship'. A seal in British Museum (ca. 2250 BCE) lists enemies of King Naram-Sin, among them is a 'man of Meluhha' by the name of Ibra. 'Meluhha was used as a personal name for some people. Urkal and Ur-dlam were called the 'sons of Meluhha'. A person called Ninana is identified with the village of Meluhha. (Simo Parpola, Asko Parpola, and Robert H. Brunswig add the existence of tablet of Akkadian era. It is reported, "There is a tablet dating to 2,200 BC which mentions an Akkadian who was the holder of Meluhhan ships: large ships that were transporting precious metals and gem stones." (14)

Scholars believe that many Meluhhans stayed in Mesopotamia during Akkadian rule. "During the Akkadian times, the Meluhhans were considered as foreigners, but by Ur III period they became part of society – paying tax and distributing grain — like other Sumerian villages." (15)

Scholars have also identified some places called after Meluhha people, who practically became so engrossed in the Mesopotamian society that they adopted local customs and became part of the host society. They acted in such way that scholars have to affirm that they played a positive role in Sumerian economy. They have even found some places which had been named after Meluhha. Simo Parpola, Asko Parpola, Robert Brunswig and Charles Keith (16) affirm the existence of a Meluhha village. "A large number of foreigners stayed back, adopted local customs and played an important role in Sumerian economy. These foreigners stayed in a village — a Meluhhan village — from 2,062 BC; we have documents from this period. This village was located in an area called Lagash in southwestern Mesopotamia.

"Guabba was probably a harbor town under the jurisdiction of the Girsu/Lagas but by the time of Ur III, it was not near the sea, but could only be reached by inland waterways. (17) Till the year 1977 no one gave the attention

towards one essay published in Istanbul, Turkey. The trio comprising Simo Parpola, Asko Parpola and Robert H. Brunswig wrote, "In 1977, based on ten Ur III texts from Lagash / Girsu were published about the Meluhhan village. The text which connects the Meluhhan village with Guabba is located in the Istanbul Archaeological Museum and was first published in 1912; no one noticed the connection till recently. Hopefully with revived interest in this topic, scholars will keep an eye for such clues which will help us solve this puzzle." (18)

An American academician and linguist Dr Clyde Wunters in 1963 brought out a new vision and thought that Meluhans originated from two countries below East Egypt. According to him, "The ancient Dravidian people lived in Kush. From here they spread across Asia and Europe to found many important ancient civilizations, including the Harappan civilization of the Indus Valley.

The Mesopotamians applied the term Meluhha to ancient Kush and Punt, the countries below and east of Egypt according to Samuel Noah Kramer - in *The Sumerians* (University of Chicago Press, 1963). The Akkadians, according to Kramer the Meluhha was "the place of black men". Since the Sumerians were called the "black headed" people, the reference to Meluhha as the land of the black man probably refers to Kush-Punt as the original homeland of the Sumerians. This was also the homeland of the Dravidans as supported by the discovery of similar styles among the Kushites and Harappans." (19) The Indian archaeologist B.B. Basi Lal notes, "The first mention of the Meluhha in the texts were written during the rule of Ramses II letter to the Hittites (KUB III 52) where he mentions that he was sending men of Meluhha to the Hittite royal court. (20)

Another scholar D. Potts referring to Albright says that "In many texts written by Esarhaddon and Assurbanipal (both Assyrian emperors) the terms Kashi and Meluhha interchange repeatedly. However, he makes it clear that "The Assyrians

frequently referred to the Meluhha as salmuti 'black'. The Meluhhaites, according to the inscriptions of Sargon II (c. 712 BC) mention the "bowmen, chariots and horses of the king of Meluhha", together with the Egyptians fought the Assyrians in Palestine. Later the Assyrian king Assurbanipal of Assyria, noted in his inscriptions that he "marched against Magan (Egypt) and Meluhha (Kush) in order to defeat the armies of Tarku (Taharqa), king of Egypt and Kush." (21)

Doubts have been created after scholars met different names identifying Meluhhan people, for instance places like Dilmun. Noted historian Romela Thaper, known for her work on Indian history and claims that Saurashtra was an important factor in identifying Meluhans. She refers to Kramer who believed that "Dilmun was the name of the Sumerians called the Indus Valley. This name Dimun or Dilmon could have been pronounced as telman. She says, "This view is supported by the fact that part India was called Dilmun. An important part of North India-Pakistan is Saurashtra. This was a major center of Harappan civilization and the Brahmana Dravida." (22)

As far the location of Meluhha village is concerned scholars do not accept some agreed location owing to absence of details necessary for this objective. Historian Jayakrishnan identifies it with Guabba. A large number of granaries existed in Guabba where the temple was located. The granaries had to deliver barley and the Meluhhan village granary was one of them. Thanks to the meticulous record keeping by the Sumerians we have a good idea of what the Meluhhans did. In 2,062 BCE, a scribe of the builders received barley from the Meluhhan village." (23) South African scholar Petrus Vermaak supports his suggestion that Guabba, the Meluhan village was located in southern Mesopotamia. (24)

Who were the Sumerians?

While the scholars have failed in locating the exact point to have been called Meluhha a breakthrough can be made if we

can reach a timeline that when the Sumerians began calling Meluhhans. D. Potts of Germany thinks, that perhaps the Sumerians began calling the Indus people in 5,500 BC. He says, "... when Meluhha or Meluhhan name was given by the Sumerians to the people of Indus Valley? Maybe in 5,500 BC, when [the] black--headed Sumerians arrived in Sumer, later identified as Ubaidians. They did not speak the Sumerian language but a language isolate. No one knows where from they arrived in the Sumerian region; probably from the Indus Valley. There is a great confusion in history over the origins of the Sumerians. Either they were Sumerians, Ubaidians or Meluhhans – all of them were a non-Semitic and black headed people." (25)

This point also led to another intriguing question that when the Sumer was settled. All leads being collected at one point the question raises about the beginning of the Sumer civilization. Though the editors of Britannica term the question as mystery, they throw some light on the subjects, saying "Sumer was first settled between 4,500 and 4,000 BCE by a 'non-Semitic people' (probably people from the Indus Valley) who did not speak the Sumerian language. These people later were called Ubaidians for the village Al-Ubaid, where their remains were first discovered. The Ubaidians were the first civilizing force in Sumer, draining the marshes for agriculture, developing trade and establishing industries, including weaving, leatherwork, metalwork, masonry and pottery. After the 'Ubaidian immigration' to Mesopotamia, various Semitic peoples infiltrated their territory, adding their cultures to the Ubaidian culture and creating a high pre-Sumerian civilization.

"The origin of the Sumerians remains a mystery till this day. They called themselves Saggiga (the 'black-headed' or 'baldheaded ones') and their country - Kengi ('civilized land'). Some believe they came from around Anatolia or modern day Turkey. Others suggest they might have come from India and were Caucasian in origin." (26)

Modern historians have suggested that Sumer was first permanently settled between c. 5,500 and 4,000 BCE by a 'West Asian people' who spoke the Sumerian language an agglutinative language isolate." (27) When did Ubaid period is determined is also not firmly determined however it is "... marked by a distinctive style of fine quality painted pottery which spread throughout Mesopotamia and the Persian Gulf. During this time, the first settlement in southern Mesopotamia was established at Eridu c. 6,500 BCE, by farmers who brought with them pioneered irrigation agriculture. It is not known whether or not these were the actual Sumerians who are identified with the later Uruk culture." (28)

These citations point to the fact that the Meluhhans arrived in Sumer and took part in social and economic buildup. Scholars have yet to determine the Sargon and Akkadian periods to decide the Meluhhans' stay and role in the Mesopotamian society

References

- 1- Parpola, Asko; Simo; On the relationship of the Sumerian Toponym Meluhha and Sanskrit Mleccha, *Studia Orientalia*, 1975.
- 2- Ibid
- 3- Jansen, Michael, Moenjo-Daro- city of the Indus Valley, *Endeavour*, New Series, Vol 9, No 4, 1985 Per gamon Press
- 4- McIntosh, (2008)
- 5- Nayeem, Dr M. A. (2009)
- 6- John Keay (2000)
- 7- Possehl (2007)
- 8- Parpola, *Studia Orientalia*, 1977
- 9- Ibid
- 10- Ibid
- 11- Dhavalikar, M.K, Meluhha – The Land of Copper, 2011
- 12- Vidale, Massimo, Aspects of Palace Life at Mohenjo-Daro, 2010
- 13- Dionisius A. Agius, Emeritus Professor of Arabic and Islamic Material Culture at the University of Exeter. *Classic ships of Islam*, Brill, 2008
- 14- Simo Parpola, Asko Parpola, and Robert H. Brunswig, “The Meluhha Village: Evidence of Acculturation of Harappan Traders in Late Third Millennium Mesopotamia.” *Journal of the Economic and Social History of the Orient* 20, no. 2 May 1977
- 15- P.S Vermaak, “Guabba, the Meluhhan village in Mesopotamia,” *Journal for Semitics* 17, no. 2 (2008)
- 16- “The Meluhha Village: Evidence of Acculturation of Harappan Traders in Late Third Millennium Mesopotamia.” *Journal of the Economic and Social History of the Orient* 20, no. 2 May 1977
- 17- ibid
- 18- ibid 19-
- 19- D. Potts, “The road to Meluhha”, *Journal of Near Eastern Studies*, 41(4) (1982) Samuel Noah Kramer is one of the world-renowned experts in Sumerian history and Sumerian language.
- 20- Lal, Basi, an Indian archaeologist and former Director General of the Archaeological Survey of India, also served on various UNESCO committees).
- 21- D. Potts, “The road to Meluhha”, *Journal of Near Eastern Studies*, 41(4) (1982)
- 22- Thaper, Romila A History of India, Penguin Hiastory, 1990, New Delhi.

- 23- Narain, Jayakrishnan, The Indus colony in Mesopotamia, Part 1, 2009
- 24- Vermaak, Petrus, Guabba, Meluhan Village in Mesopotamia, 2008
- 25- Potts, The Road To Meluhha, Journal of Near Eastern Studies, 41(4) 1982 retrieved Dec5, 2017
- 26- Sumer - San Jose State University, California, USA; Sumer ancient region, Iraq; Britannica Online Encyclopedia. Britannica.com. Retrieved Dec 5, 2017
- 27- The Ubaid Period in Heilbrunn Timeline of Art History. Department of Ancient Near Eastern Art. The Metropolitan Museum of Art, New York, October 2003; also 'Ubaid Culture', The British Museum; Carter, Rober and Graham, 'Beyond the Ubaid', University of Durham, April 2006.
- 28- Wolkstein, Dianna and Kramer, Samuel Noah "Innana: Queen of Heaven and Earth", 2001

“ In 2062 BC, a scribe of the builders received barley from the Meluhhan village. In 2057 BC, there is account of grain delivery, the details of which is mentioned against a tablet of one Ur-Lama, son of Meluhha; the inventory of barley deposits in 2047 BC mentions the quantity from the Meluhhan village. By 2046 BC, there is a debt note: UrLama, son of Meluhha has to recompense some wool. In 2045 BC, the list of grain rations mentions the son of Meluhha, who was the serf of the Nanse temple from the delta. (P.S Vermaak, “Guabba, the Meluhhan village in Mesopotamia,” *Journal for Semitics* 17, no. 2 (2008): 553 – 570).

“There is also a text dating to this period which mentions that Lu-Sunzida, a man of Meluhha, paid 10 shekels of silver to Urur, son of Amar-luku as a payment for a broken tooth. This law seems to be an earlier version of the code of Hammurabi (1792 – 1750 BC), which states that “if one knocks out the tooth of a freeman, he shall pay onethird mana of silver.”

(Hammurabi (King of Babylonia.), (University of Chicago Press, 1904).

Meluhha – II

* The Indus colony in Mesopotamia

* More on Meluhhan Village

Who the Meluhhan were has been partly discussed in the previous chapter; however it needs more on their lifestyle and other activities. There is much to be explored on other related aspects. Michael Jansen, the archaeologist from Germany is confident that Meluhhans were no other than the people from the Indus and claims that they conducted trade as one of their economic activity. Describing the background of the activities of old Indus Valley people he says, "...Huge neolithic and chalcolithic settlements have recently been excavated in the plain of Kachi, 200 km north of Mohenjo-Daro, the largest city in the Indus Valley, revealing the emergence of techniques in architecture - mainly terrace construction - and in the crafts and farming which were used later in the Harappan cities. But the 3rd millennium BC is also marked by increasing contact and trade between the Indus Valley, Baluchistan, the countries of the Persian Gulf, eastern Iran, and Central Asia: from 2,500 BCE Mesopotamian texts refer to the importance of trade with eastern regions such as Dilmun (the Persian Gulf) and Meluhha (almost certainly the Indus Valley). We may thus assume that this pattern of trade and contact favoured the emergence of urban societies in the Indus valley and elsewhere, as borne out by the appearance of large settlements in Central Asia (Namazga-Depe and Altyn-Depe, where objects produced by the Harappan civilization have been found.”(1)

“There is sufficient archaeological evidence for the trade between Mesopotamia and the Indus Valley. Specific items of high volume trade are timber and specialty wood such as ebony, for which large ships were used. Luxury items also

appear, such as lapis lazuli mined at a Harappan colony at Shortugai (modern Badakhshan in northern Afghanistan), which was transported to Lothal, a port city in Gujarat in western India, and shipped from there to Oman, Bahrain and Sumer.” (2)

No doubt the Meluhhans engaged in a number of economic activities involving some advanced technological know-how. The old Mesopotamian record shows many skills were involved in the trade. Grain was the main item of trade. It involved import into Mesopotamia and its record appropriately maintained. Historian P S Vermaak describing Guabba brings forth an important piece. According to him, “ In 2062 BCE, a scribe of the builders received barley from the Meluhhan village. In 2,057 BCE, there is [an] account of grain delivery, the details of which is mentioned against a tablet of one Ur-Lama, son of Meluhha; the inventory of barley deposits in 2,047 BCE mentions the quantity from the Meluhhan village. By 2,046 BCE, there is a debt note: Ur-Lama, son of Meluhha has to recompense some wool. In 2,045 BCE, the list of grain rations mentions the son of Meluhha, who was the serf of the Nanse temple from the delta.” (3)

What kind of trading elements bore eminence also reflects the need of the community and lifestyle in those days. It is also important to note that how deeply Meluhhans were interested in trading with far places. The details also show the world conditions for trading activity. “There are scholars today who confidently identify Meluhha with the Indus Valley Civilization (modern South Asia) on the basis of the extensive evidence of trading contacts between Sumer and this region. Sesame oil was probably imported from the Indus River region into Sumer: the Sumerian word for this oil is illu (Akkadian: ellu). One theory is that the word is of proto-Dravidian origin: in Dravidian languages of South India, el or ellu stands for sesame. An alternative, proposed by Michael Witzel, is that it derived from a "para-Munda" language spoken in the Indus Valley Civilization.” (4)

Experts are trying to determine the Meluhhan role and trade activity, it is strange to note that the first mention of Meluhhan came from none but Egyptian texts. “The first mention of the Meluhha in Egyptian texts was written during the rule of Ramses II letter to the Hittites (KUB III 52) where he mentions that he was sending men of Meluhha to the Hittite royal court. (5) Albright in his treatise mentions “In many text written by Esarhaddon and Assurbanipal (both Assyrian emperors) the terms Kashi and Meluhha interchange repeatedly (see: W.F. Albright, “Magan, Meluha and the synchronism between Menes and Naram-Sim.” (6)

The Assyrians frequently referred to the Meluhha as salmuti ‘black’. The Meluhhaites according to the inscriptions of Sargon II (c. 712 BC) mention the “bowmen, chariots and horses of the king of Meluhha”, together with the Egyptians fought the Assyrians in Palestine. Later the Assyrian king Assurbanipal of Assyria, noted in his inscriptions that he “marched against Magan (Egypt) and Meluhha (Kush) in order to defeat the armies of Tarku (Taharqa), king of Egypt and Kush.”(7)

Al-Sulaiti, Qatari scholar and fossil collector draws some identification about the people from Indus Valley who travelled to Gulf region and settled there. “... The Gulf region is dotted with the remnants of the settlements of the people from the Indus Valley civilization period. He particularly mentioned findings in Mannar in Abu Dhabi and some places in Kuwait. Another important find at Al-Ruwaida was glass bangles, inlaid with lacquer paintings and parts of necklaces and shells used as ornaments by the ancient visitors... These decorative items were similar in style and materials used by the inhabitants of the Indus Valley during their heydays,” he said. Talking about the Indus Valley connection, al-Sulaiti said the “ox” figured prominently on the shards of pottery and coins recovered from the Qatari site. “We also found needles made of brass in one of the graves.” The Indus Valley civilization was based at Mohenjo-daro in Sindh and Harappa in Punjab in Pakistan. (8)

Al-Sulaiti referring to historians says, "... The Indus Valley people traded seals, painted pottery and lapis lazuli in exchange for copper and tin and several other items from Oman and the Gulf states. The Baloch and Sindh ports also carried out extensive trade with African ports in Ethiopia, Somalia, Zanzibar, Kenya and Tanzania.

"Al-Sulaiti said extensive excavations and research would lead to more definite information on these traders who established temporary settlements as encampments at certain points on their regular routes. (9)

Specific items of high volume trade are timber and specialty wood such as ebony, for which large ships were used. Luxury items also appear, such as lapis lazuli mined at a Harappan colony at Shortugai (modern Badakhshan in northern Afghanistan), which was transported to Lothal, a port city in Gujarat in western India, and shipped from there to Oman, Bahrain and Sumer. (10)

About the skill the Meluhhans deployed in trade activities included weaving, mining, metal exploration and cattle-raising. Vermaak says. "Besides weavers, the village also had shepherds; the Ur III texts also mention a Meluhhan goat. The temple of Ninmar had two gardens out of which one was Meluhhan. This was probably a garden planted with fruit trees from Meluhha and provided fruits for the goddess. Also by the Ur III period, the Meluhhans had adopted Sumerian names. It seems the overseer of the Nanshe temple was a Meluhhan and there was a Meluhhan worker in the temple. Thus instead of following their religious traditions, the Meluhhans adopted the Sumerian ones. (11)

As a process of settled life the direct trade with Meluhhans declined which would have caused a great turmoil social and economical both. But it appears that the Meluhhans who called themselves as foreigners stayed back and embarking upon assimilating with the host country and its social system. One scholar says, "Even though direct trade

declined, a large number of foreigners stayed back, adopted local customs, and played an important role in Sumerian economy. These foreigners stayed in a village — a Meluhhan village — from 2062 BC; we have documents from this period. This village was located in an area called Lagash in southwestern Mesopotamia which had cities like Girsu, Nina, and a port city and area called Guabba which had the temple of Nin-mar. The Meluhhan village in Guabba and was associated with this temple.”(12)

It is now estimated that some Indus families had settled in Mesopotamian land for facilitating their activity. It appears that it worked well. However, in the beginning of Third millennium BC the trade activity declined for which there appear no reason but it is believed that Sumerian had learnt much and by themselves undertook most of the trade. Indian archaeologist Jaykrishnan Nair mentioning this in his paper titled ‘The Indus colony in Mesopotamia’ says, “Even though direct trade declined, a large number of foreigners stayed back, adopted local customs, and played an important role in Sumerian economy. The Indus region was noted for the cultivation and weaving of cotton and during the trade activity with Mesopotamia also introduced weaver in the host country. This was in addition to the granaries the Indus people had settled there. This gave two-way growth to the economic ties. Jaykrishnan Nair says that, in this activity, women and children were also employed, to bring prosperprity to the families. He writes, “Apart from the granary, a few people of Guabba—4,272 women and 1800 children—worked in the weaving sector. The Indus region was famous for cotton since 4,000 BCE: one of the earliest evidence for exports from the subcontinent is Baluchistan cotton which was found in Dhuwelia, a seasonal hunting site in Jordan. It is quite likely that the skilled weavers of Guabba were from the Indus region.” (14)

References

1. Jansen, Maichael, Mohenjo-Daro, city of the Indus Valley, Endeavour, New Series, Vol 99, No 4, 1985
2. "Ur seals". hindunet.org; John Keay, 2000;. India: Possehl, A History; 2007, "The Middle Asian Interaction Sphere", Expedition.
3. Vermaak, P.S. "Guabba, the Meluhhan village in Mesopotamia," Journal for Semitics 17, no. 2 (2008)
4. McIntosh, 2008
5. Clyde A Winters, linguist and anthropologist at the University of St Xavier, Chacago
6. The Journal of Egyptian Archaeology, vol. 7
7. D. Potts, "The road to Meluhha", Journal of Near Eastern Studies, 41(4) (1982)
8. Al-Sulaiti, Qatari exploer and fossil collector, mohammad Ali al-Sulaiti, in an interview with Gulf Times, Doaha, Qatar, on March 26, 2008
9. Ur seals,. hindunet.org; John Keay (2000), India: A History ; Possehl, G.L. (2007), "The Middle Asian Interaction Sphere", Expedition 49/1
10. Vermaak, P.S. "Guabba, the Meluhhan village in Mesopotamia," Journal for Semitics 17, no. 2 (2008)
11. Charles Keith Maisels, The emergence of civilization, Taylor & Francis, 1990.
12. Nair, Jaikrishnan, Paper sent posted by Nair, on November 23, 2009.
13. Possehl, Gergory, Ancient Mesopotama: Portriat of a Dead Cicilization, Univesity of Chicago, 1964

What could be the factual place or region that was called Meluhha by the Sumerians either Mohenjo-daro, Harappa or Mehrgarh. The Indus Valley Civilization covers much of Pakistan, northeastern Afghanistan; western India, extending to Uttar Pradesh in the east.[1] Indus sites have also been discovered on the Beas River near Jammu, at Alamgirpur on the Hindon River, 28 km from Delhi, in Maharashtra, Rajasthan, Haryana, Lothal, Gujrat and in Dholavira. Indus sites have been discovered as far away as Turkmenistan.

(1) Dales, George F. (1962). "Harappan Outposts on the Makran Coast". *Antiquity*. 36 (142): 86.

(2) Ranganatha (1973). *Lothal and the Indus civilization*. London: Asia Publishing House. ISBN 0-210-22278-6.

Meluhha - III

The Ubadians and Mitannis Sumer settlements before Indus people

When we speak about Meluhha people in Mesopotamia we come across a number of other related factors which represent a composite shape. This could be due to many causes however, the fact remains is that every aspect reflects one or the other reality.

The evidence of the existence of the Indus Valley people has been found in all sites which were known to be Indus Valley Civilization sites. In searching such venues the scholars find many names and communities, which could belong to the Indus Valley however they tend to show various characteristics.

Tracing the historical background of these people, the editors of Encyclopedia Britannica mention Ubadians as predecessors to the early Sumerian people. They mention that this happened in around 4,500 BC and they were the first non-Semitic people to migrate to Sumerian enclave.

“Sumer was first settled between 4,500 and 4,000 BCE by a ‘non-Semitic people’ who did not speak the Sumerian language. These people later were called Ubaidians for the village Al-Ubaid, where their remains were first discovered. The Ubaidians were the first civilizing force in Sumer, draining the marshes for agriculture, developing trade and establishing industries, including weaving, leatherwork, metalwork, masonry and pottery. After the “Ubaidian immigration” to Mesopotamia, various Semitic peoples infiltrated their territory, adding their cultures to the Ubaidian culture and creating a high pre-Sumerian civilization.” (1) Some historians believe that Sumer was settled much before that. We have already agreed to

the findings that "... Sumer was first permanently settled between c. 5,500 and 4,000 BC by West Asian people who spoke the Sumerian language as an agglutinative language isolate." (2)

Scholars suggest the identification of Ubaid Period by some cultural marks especially the painted pottery, which also marks the beginning of Uruk culture. "The Ubaid Period is marked by a distinctive style of fine quality painted pottery which spread throughout Mesopotamia and the Persian Gulf. During this time, the first settlement in southern Mesopotamia was established at Eridu c. 6500 BC, by farmers who brought with them pioneered irrigation agriculture. It is not known whether or not these were the actual Sumerians who are identified with the later Uruk culture.(3)

"The Uruk period is a continuation and an outgrowth of Ubaid with pottery being the main visible change." (4)

Digging about the origin of Sumeria to find a lead to Meluhha we find many places where D. Potts finds some interesting clue. He says, "Out of all these places, which one could be the exact site that can be called Meluhha. There is one more question; when Meluhha or Meluhhan name was given by the Sumerians to the people of Indus Valley? Maybe in 5,500 BC, when black headed Sumerians (or Meluhhans) arrived in Sumer, later identified as Ubaidians. They did not spoke the Sumerian language but a language isolate. No one knows where from they arrived in the Sumerian region; probably from the Indus Valley. There is a great confusion in history over the origins of the Sumerians. Either they were Sumerians, Ubaidians or Meluhhans – all of them were a 'non-Semitic and black headed people - the first civilizing force in Sumer" (5)

In fact the origin of Meluhhan is linked to the places which are identified as places associated with Meluhhans. One lead takes us to the existence of Ubaidians. "Out of all these places, which one could be the exact site that can be called Meluhha. (6)

“That Meluhha and "Magan" were kingdoms ‘adjacent to Egypt.’ Assyrian King Assurbanipal writes about his first march against Egypt:

"In my first campaign I marched against Magan, Meluhha, Tarka, king of Egypt and Ethiopia, whom his father Esarhaddon, king of Assyria had defeated and whose land he brought under his sway." (8).

“The Assyrians frequently referred to the Meluhhan as salmuti ‘black’. Assyrian king Sargon II (c. 712 BC) mention the “bowmen, chariots and horses of the king of Meluhha”, together with the Egyptians fought the Assyrians in Palestine.” (7) “That "Meluhha" and "Magan" were kingdoms ‘adjacent to Egypt.’ (8)

The Mitanni factor

We have seen the role of ancient Indus Valley people in various sites in South Asia. In that course we also come across another group of people called Mitannis. They also thrived on Mesopotamian land and engaged in various activities. The origin of Mitannis is also shrouded in mystery. Scholars believe they were of Aryan stock who ventured into Mesopotamia through Iranian route. Researchers have found names of the Indian gods called Indra and Varuna in Mitannian records which understandably lead them to think that they were of the India origin. The editors of Encyclopedia Britannica think: “Mitanni was founded by the Indo-Iranians in Mesopotamia and Syria. Although originally these Indo-Iranians were probably members of “Aryan tribes” that later settled in India, they apparently broke off from the main tribes on the way and migrated to Mesopotamia instead. There they settled among the Hurrian peoples and soon became the ruling noble class, called Maryannu (warriors in Sanskrit). Mitanni Empire (IndoIranian) was centered in northern Mesopotamia that flourished from about 1500 BCE to about 1360 BCE.

At its height the empire extended from Kirkuk (ancient Arrapkha) and the Zagros Mountains in the east through

Assyria to the Mediterranean Sea in the west. Its heartland was the Khabur River region, where Wassukkani, its capital, was probably located. The Hurrians came from northwestern Iran, but until recently very little was known about their early history. After 1500 BCE, isolated dynasties appeared in Mesopotamia with “Indo-Aryan” names, but the significance of this is disputed. The presence of Old Indian technical terms in later records about horse breeding and the use of the names of “Indian gods” (such as, for example, Indra and Varuna) in some compacts of state formerly led several scholars to assume that “numerous groups of Aryans” closely related to the Indians, pushed into Anatolia from the northeast. They were also credited with the introduction of the light war chariot with spoke wheels. This conclusion, however, is by no means established fact. The kingdom of Mitanni was a feudal state led by a warrior nobility of “Aryan or Hurrian origin...” Because only a few Mitanni settlements have been unearthed in Mesopotamia, knowledge of Mitanni arts and culture is as yet insufficient.” (10)

In fact they had established their rule on the region called Mitanni Empire. This created a tilt in the international politics way back in 2nd millennium before Christ. Perhaps the most outstanding Mitannian king was Saustatar (Shaushshatar; reigned c. 1500 BCE –c.1450 BCE), who is said to have looted the Assyrian palace in Ashur. The last independent king of Mitanni was Tushratta (died c. 1360 BCE), under whose reign Wassukkani was sacked by the Hittite king Suppiluliumas I. Thereafter Mitanni became part of the Hittite Empire and was called Hanigalbat. Shortly afterward, however, Mitanni was captured by the Assyrian King Adad-nirari I (reigned c. 1307–c. 1275 BCE) and again by Shalmaneser I (reigned c. 1275–c. 1245 bc), who turned the territory east of the Euphrates River into an Assyrian province. No native sources for the history of Mitanni have been found so far. The account is mainly based on Assyrian, Hittite and Egyptian sources, as well as inscriptions from nearby places in Syria.”(11)

The word Mitanni in itself has been interpreted in different meanings. Some of these attribute various aspects of the name Mitanni. "The name Mitanni is first found in the "memoirs" of the Syrian wars (c. 1480 BCE) of the official astronomer and clockmaker Amenemhet, who returned from the "foreign country called Me-ta-ni" at the time of Thutmose I (Egyptian king)." (12)

"Some proper names and other terminology of the Mitanni exhibit close similarities to "Indo-Aryan" suggesting that the Indo-Aryan elite imposed itself over the Hurrian population in the course of the Indo-Aryan expansion. In a treaty between the Hittites and the Mitanni, the deities Mitra, Varuna, Indra, and Nasatya (Ashvins) are invoked. Kikkuli's horse training text includes technical terms such as aika (eka, one), tera (tri, three), panza (pancha, five), satta (sapta, seven), na (nava, nine), vartana (vartana, turn, round in the horse race). The numeral aika "one" is of particular importance because it places the superstrate in the vicinity of Indo-Aryan proper as opposed to Indo-Iranian or early Iranian (which has "aiva") in general."(13)

Scholar George Roux discusses names of Mitanni community. He thinks that these names lead to their Aryan origin. "The names of the Mitanni aristocracy frequently are of "Indo-Aryan origin" but it is specifically their deities which show Indo-Aryan roots (Mitra, Varuna, Indra, Nasatya), though some think that they are more immediately related to the Kassites." (14) "The Mitanni warriors were called marya, the term for warrior in Sanskrit as well." (15)

As stated above the Mitannis established their empire by being warriors. They controlled trade routes ensuring safety to the economic interest. "The Mitanni kingdom was referred to as the Maryannu, Nahrin or Mitanni by the Egyptians, the Hurri by the Hittites, and the Hanigalbat by the Assyrians." (16) "The Mitanni controlled trade routes down the Khabur to Mari and up the Euphrates from there to Charchamesh. For a time they

also controlled the Assyrian territories of the upper Tigris and its headwaters at Nineveh, Arbil, Assur and Nuzi (17)

The foreign policy of Mitanni during its early years was based largely on competition with Egypt for control of Syria, but amicable relations were established with the Egyptian king Thutmose IV (r. 1425–17 BCE). In due course, Egypt and Mitanni became allies, and King Shuttarna II himself was received at the Egyptian court. Amicable gifts were exchanged. Mitanni was especially interested in Egyptian gold. This culminated in a number of royal marriages: the daughter of King Artatama I was married to Thutmose IV. Kilu-Hepa, or Gilukhipa, the daughter of Shuttarna II, was married to Pharaoh Amenhotep III, who ruled in the early 14th century BCE. In a later royal marriage Tadu-Hepa, or Tadukhipa, the daughter of Tushratta, was sent to Egypt. When Amenhotep III fell ill, the king of Mitanni sent him a statue of the goddess Shaushka (Ishtar) of Nineveh that was reputed to cure diseases. Shaushka was goddess of fertility, war and healing, worshipped by the Mitannis, Hittites and Hurrians. (18)

References:

1. Enclopedian Britannica, Ubaidian Culture - Trade Networking and the Rise of Mesopotamia, updated 2006
2. "The Ubaid Period (5500–4000 B.C.)" In Heilbrunn Timeline of Art History. Department of Ancient Near Eastern Art. The Metropolitan Museum of Art, New York (October 2003);
3. "Ubaid Culture", The British Museum [4] "Beyond the Ubaid", (Carter, Rober A. and Graham, Philip, eds.), University of Durham, April 2006.
4. Jean-Jacques Glassner (2003). The Invention of Cuneiform: Writing in Sumer. Repr 2006
5. Wolkstein, Dianna and Kramer, Samuel Noah Innana: Queen of Heaven and Earth, 1983
6. (D. Potts, "The road to Meluhha", Journal of Near Eastern Studies, 41(4) (1982)
7. Ibid
8. Ibid

9. Sachs & Hunger (1988). *Astronomical Diaries & Related Texts from Babylonia*, vol.2. Vienna: Verlag der Österreichischen Akademie der Wissenschaften
10. D. Potts, "The road to Meluhha", *Journal of Near Eastern Studies*, 41(4) (1982) pp.279-288)
11. *Encyclopedia Britannica*, 2006
12. *Encyclopedia Britannica*, 2006
13. Amenemhet, His memoir was published by L. Borchardt, "Altägyptische Zeitmessung" in E. von Basserman-Jordan, *Die Geschichte der Zeitmessung und der Uhre*, vol. I. (Berlin/Leipzig) 1930, pp 60ff, noted in Astour 1972.
14. Paul Thieme, The 'Aryan' Gods of the Mitanni Treaties. *JAOS* 80, 1960, 301-17.
15. Georges Roux, *Ancient Iraq*, p. 229. Penguin Books, 1966.
16. Mayrhofer, *Etymologisches Wörterbuch des Altindoarischen* Heidelberg 1986-2000; Vol. II 358.
17. Astour, 'Ḫattusiliš, Ḫalab, and Ḫanigalbat' *Journal of Near Eastern Studies* 31.2 (April 1972:102–109)
18. Michael Roaf, *Cambridge Atlas of Mesopotamia* maps pp 134–135).
19. *Dictionary of Deities and Demons in the Bible*. Brill. pp. 758–759. ISBN 90-04-11119-0.

*Indus Valley links unearthed in Qatar***Meluhha – a sailor country**

A BURIAL site of traders from the Indus Valley, estimated to be 5,000 years old, has been found on the north-west coast of Qatar, strengthening the theories of commercial exchange between the ancient peoples of the Middle East and the subcontinent, according to Qatari explorer, archaeologist and fossil collector, Mohamed Ali al-Sulaiti. He concluded, “For the Indus Valley people, the Arabian Sea opened the doors for journey beyond the Arabian world through the Arabian Gulf and the Red Sea right into the ancient civilization of Mesopotamia and Egypt. It is these voyages that gave to the Indus land its earliest name of “Meluhha” (sailor country) in the Babylonian records. “They brought in porcelain objects for selling in the Gulf countries including Qatar, Bahrain, Oman and Abu Dhabi. They also mined copper ore for making the brass from the Buraimi Mountains in Oman and probably smelted it in Qatar,” said al-Sulaiti, who has found many fragments of brass, an alloy of copper and zinc, at Al-Ruwaida. Rice was found at the burial site, which has been carbonized with the passing of time” said al-Sulaiti, who is a US-educated engineer. According to al-Sulaiti, the Indus Valley civilization had close bonds of culture and trade with the Gulf countries. The Gulf region is dotted with the remnants of the settlements of the people from the Indus Valley civilization period. He particularly mentioned findings in Mannar in Abu Dhabi and some places in Kuwait. Another important find at Al-Ruwaida was glass bangles, inlaid with lacquer paintings and parts of necklaces and shells used as ornaments by the ancient visitors. The Indus Valley people traded seals, painted pottery and lapis

lazuli in exchange for copper and tin and several other items from Oman and the Gulf states. The Baloch and Sindh ports also carried out extensive trade with African ports in Ethiopia, Somalia, Zanzibar, Kenya and Tanzania. (Interview of al-Sulaiti was published in Gulf Times Doha, Qatar on March 26, 2008 by Professor K.T. Chacko.

“The Cuneiform inscription from Mesopotamia (ca. 2020 BCE) explain that there was at least one Meluhhan village in Akkad with people living there called ‘Son of Meluhha.’ A cylinder seal belonged to Shu-ilishu, who was a translator of the Meluhhan language. “The presence in Akkad of a translator of the Meluhhan language suggests that he may have been literate and could read the undeciphered Indus script. Shu-ilishu’s cylinder seal offers a glimmer of hope for the future in unraveling the mystery of the Indus script.”

Professor Gregory L. Possehl of Pennsylvania University.

An Indo-Aryan elite (Mitannis) imposed itself over the Hurrian population. In a treaty between the Hittites and the Mitanni, the deities Mitra, Varuna, Indra, and Nasatya (Ashvins) are invoked. Kikkuli's horse training text includes technical terms such as aika (eka, one), tera (tri, three), panza (pancha, five), satta (sapta, seven), na (nava, nine), vartana (vartana, turn, round in the horse race). The numeral aika "one" is of particular importance because it places the superstreet in the vicinity of Indo-Aryan proper as opposed to Indo-Iranian or early Iranian (which has "aiva") in general.

(Paul Thieme, The 'Aryan' Gods of the Mitanni Treaties. JAOS 80, 1960, 301-17).

Questions Unanswered

With no worship place found
Question of religious belief
Remains unanswered

Since its discovery in 1921, attempts have been made universally to explore the historical facts of Mohenjo-daro as much as possible. However, many basic questions remain unanswered. The reason is that physical causes hinder the exploration and stopping the further research that was carried during 1921-1965. As the attempts to decipher the Indus script continue without success, the experts confine themselves to establish certain important facts saying: “The Mohenjo-daro site is the first urban centre in the entire South Asia; it is the largest urban settlement in the Bronze Age (3,300-1,300 BCE); it reached its maturity in 2,600-1,900 BCE period when no other civilization in South Asia matched its maturity and in the opinion of some scholars of the European civilization too; and it spread from the banks of Indus River extending its wings to Arabian Sea, from Balochistan-Iran borders to Gujarat (now in India) and into Afghanistan.

In 2,600 BC when other parts of the continent suffered from social and cultural stagnation, the Indus Valley Civilization served as an important cultural and trading centre of the settlements on its banks. It was the centre of the cultural and social order plying on the banks of Indus River. “In total, over 1,052 cities and settlements have been found, mainly in the region of the Indus and its tributaries.” (1)

Since its exploration all attempts to decipher its writing have failed, blocking almost all chances of resolving many

disputed issues about the site. The very question as to who were the original inhabitants of the Indus Valley civilization remains unanswered. The question that what was their language; are the seals brand names of the products or record of the taxes paid to the authority finds no answer. Who those individuals were and whose statues have been discovered are other questions that are keys to many queries. Were social figures, administrative officials or figures of social and administrative eminence inscribed on seals?

Two pertinent questions have haunted the scholars for the whole period since the discovery. Number one riddle is about the administrative system controlling the city; and two, was there any religion observed by the inhabitants, or did they have worship places and mode of worship. The findings of some artifacts have evoked some quizzing questions that are being discussed; some speculative replies claim that female figurines represent deities. Other speaking about various artifacts claims that they represented certain deities. Absence of some temple or worship places hold that the Indus civilization people did not have a religion to follow.

An unexplained situation arose after numerous seals and figurines were discovered from the excavation of the Mohenjodaro site on which many scholars pointed out to the existence of some religious beliefs of the Indus civilization people. The presence of terracotta figurines of some females gave birth to the opinion that those belong to some goddesses that were being worshiped. This also led to the belief that these are the representations of Mother Goddess. A peculiar statue shows the female figure is wearing some ornaments with a headgear. Her bronze figure is smoke-stained deriving the general feeling that it might be a goddess which at the time of worship was placed amid incense burning.

Interestingly the statuette dubbed as the Dancing Girl, 10.5 centimetres (4.1 in) high and about 4,500 years old, was found in 'HR area' of Mohenjo-daro in 1926. It drew a different

suggestion from Sir John Marshall, who without claiming that it was a figurine of some goddess highly praised the quality of the artisanship applied to it. He is of the view that how come a civilization other than Europe had developed such wonderful skill and high quality of artistry and craftsmanship at such an early period of civilization. He says: "When I first saw I found it difficult to believe that they were prehistoric; they seemed to completely upset all established ideas about early art, and culture. Modelling such as this was unknown in the ancient world up to the Hellenistic age of Greece, and I thought, therefore, that some mistake must surely have been made; that these figures had found their way into levels some 3,000 years older than those to which they properly belonged." (2)

In 1973, British archaeologist Mortimer Wheeler described the item as his favorite statuette: "There is her little Baluchi style face with pouting lips and insolent look in the eye. She's about fifteen years old I should think, not more, but she stands there with bangles all the way up her arm and nothing else on. A girl for the moment, perfectly confident of herself and the world. There's nothing like her, I think, in the world." (3)

The archaeologist Gregory Possehl said of the statuette, "We may not be certain that she was a dancer, but she was good at what she did and she knew it". The statue led to two important discoveries about the civilization: first, that they knew metal blending, casting and other sophisticated methods of working with ore, and secondly that entertainment, especially dance, was part of the culture.

About the presence of some religion some opinion arose at the discovery of a symbol on a tablet which was deciphered as an illustration of Pashupati or Shiva worship.

Sir John Marshall who led the first campaign in Mohenjodaro in 1921 believes that the Mohenjo-daro inhabitants followed a religion of Shiva worship. Also he holds that they worshipped animals too. He has reasons for that and

elaborates by saying: “My reasons for the identification are four. In the first place the figure has three faces and that Siva was portrayed with three as well as with more usual five faces, there are abundant examples to prove. Secondly, the head is crowned with the horns of a bull and the trisula are characteristic emblems of Siva. Thirdly, the figure is in a typical yoga attitude, and Siva was and still is, regarded as a mahayogi—the prince of Yogis. Fourthly, he is surrounded by animals, and Siva is par excellence the ‘Lord of Animals’ (Pasupati) — of the wild animals of the jungle, according to the Vedic meaning of the word pasu, no less than that of domesticated cattle.” (4) Since then, many scholars followed him as they claimed that Marshall’s identification had been accepted universally.

After Marshall laid down his opinion about the possible Shiva worship perception and identification of the Pashupati figure found from Mohenjo-daro excavation, many experts have sounded their support. Sanujit Ghose explaining his standpoint says, “One famous seal displayed a figure seated in a posture reminiscent of the lotus position, surrounded by animals. It came to be labelled after Pashupati (lord of beasts), an epithet of Shiva. The discoverer of the Shiva seal (M420), Sir John Marshall and others have claimed that this figure is a prototype of Shiva, and have described it as having three faces, seated on a throne in a version of the cross-legged lotus posture of Hatha Yoga. Yogi's penis is erect, with both testicles prominently visible. The precise placement of both heels under the scrotum is an advanced Tantric Yoga technique known as Bandha, meaning knot or lock. It is normally used to sublimate and redirect sexual energy and can endow the practitioner with spiritual powers... “A large tiger rears upwards by the yogi's right side, facing him. This is the largest animal on the seal, shown as if warmly connected to the yogi; the stripes on the tiger's body, also in groups of five, highlight the connection. Three other smaller animals are depicted on the Shiva seal.

It is most likely that all the animals on this seal are

totemic or heraldic symbols, indicating tribes, people or geographic areas. On the Shiva seal, the tiger, being the largest, represents the yogi's people, and most likely symbolizes the Himalayan region. The elephant probably represents central and eastern India, the bull or buffalo south India and the rhinoceros the regions west of the Indus River. Heinrich Zimmer agrees that the Pashupati figure shows a figure in a yoga posture." He continues: "The people of the Indus Valley also appear to have worshipped a male god.

"What are thought to be linga stones have been dug up. Linga stones in modern Hinduism are used to represent the erect male phallus or the male reproductive power of the god Shiva. But again, these stones could be something entirely different from objects of religious worship. Even today, Siva is worshipped in both human form and that of the phallus. The deity sitting in a yoga-like position suggests that yoga may have been a legacy of the very first great culture that occupied India." (5)

After a long debate Professor Gavin Flood said: "Religion in the Indus Valley seems to have involved temple rituals and ritual bathing in the 'great bath' found at Mohenjodaro. There is some evidence of animal sacrifice at Kalibangan. A number of terracotta figurines have been found, perhaps goddess images, and a seal depicting a seated figure surrounded by animals that some scholars thought to be prototype of the god Shiva." (6)

A very striking discovery was the finding of the statuette of a man perhaps a noble person. After the discovery many views about his social status and importance have been presented. Some argued that the reverence shown to the figure is reflective of his social status. Perhaps he was a noble person who commanded a respectful position in the society, or perhaps he was a priest father or a priest king. But since there appears no sign of a king's administration ruling the Mohenjodaro which was the principal city of Indus Civilization urban

centres, many archaeologists hesitated to call him priest father or priest king in clear terms.

“Seated male sculpture or Priest King (even though no evidence exists that either priests or kings ruled the city). That 17.5 cms tall stature represents another artifact which has become a symbol for the Indus valley civilization. Archaeologists discovered the sculpture in Lower town at Mohenjo-daro in 1927, found in an unusual house with ornamental brickwork and a wall niche, lying between brick foundation walls which once held up a floor.

“The bearded sculpture wears a fillet around the head. An armband and a cloak decorated with trefoil patterns that were originally filled with red pigment. The two ends of the fillet, falling along the back and though the hair, has been carefully combed towards the back of the head, without a bun. The flat back of the head may have held a separately carved bun, like the other traditional seated figures, or it could have held a more elaborate horn and plumed headdress.

“Two holes beneath the highly stylized ears suggest that a necklace or other head ornament had been attached to the sculpture. Eyes deeply incised, may have held inlay. They shaved upper lip and a short combed beard frames the face. The large crack in the face resulted from weathering or may have happened in the original firing of that object.” (6)

Discussing the question that who ruled the ancient urban settlement, Possehl suggests that,”... Though there is no evidence that priests and monarchs ruled Mohenjodaro, archaeologists dubbed this dignified figure a ‘Priest-King’. (7)

All archaeologists agree that Mohenjo-daro was the administrative and trading centre of the Indus Civilization. “Excavations reveal large, orderly walls of massive brick buildings with high sophisticated sanitation and draining systems... The street layout shows an understanding of traffic with rounded corners to allow turning of carts easily, and dividing the city into 12 blocks. Except for the west-central

blocks, the basic unit of city planning was the individual houses.” (8)

The absence of a clue to the Indus script and failure to evolve a Rozetta stone-like mechanism is the main hurdle in the way of finding a key to the mystery as to who ruled Mohenjo-daro. However, till then on the basis of evidence attained so far, it has been agreed that there had been no kingship to rule such a busy urban settlement. The presence of military rule has been abundantly ruled out especially when no evidence of weapon has been found or even an illustration depicting some violent act been traced down. It has been suggested that people ruled the city through the signs of seals. The seals included the signs bearing some animals and writing inscribed therein.

Scholars at the All About God, claim: “The rulers carried seals with animal symbols and writing and wore ornaments of rare material. Each animal symbol represented some form of power and wore ornaments of rare material: the bull symbolized the leaders of the herd, virile and strong; the elephant symbol was attached to goods being traded, the buffalo represented a posture of defense to protect; the tiger was used by minor administrative officers; the unicorn appears to be an important symbol of the elite and was used in governing the different settlements, assuming the economic and political power in the major cities.” (9)

Though extensive studies have been conducted yet many questions remain to be answered and the answers must be substantiated. Discussing the city’s state of affairs, Indus expert John Roach refers to Gregory Possehl says,” The city lacks palaces, temples, or monuments. There is no obvious central seat of government or evidence of a king or queen. Modesty, order and cleanliness were apparently preferred. Pottery and tools of copper and stoner were standardized. Seals and weights suggest a system of tightly controlled trade.” (10)

Evidence establishes that Mohenjo-daro was centre of the

Indus Civilization, however, there is no evidence that a religious temple was built and existed in the whole civilization. John Marshall who initiated the search does not agree that a temple existed or any worshipplace for which he offers a very lengthy contention.

References:

1. Sunajit, "Religious Development in Ancient India," Ancient History Encyclopedia, May 01, 2011, retrieved August 30, 2017
2. Mackay, Ernest John, Excavations at Mohenjodaro, Annual report of the Archaeological Survey of India, 64-75, retd Sept 2, 2017
3. Possehl, Gregory, Archaeological Ruins of Mohenjodaro, Unesco World Heritage site, retrieved Sept 4, 2017
4. Collection , Prehistory & Archaeology, National Museum, New Delhi, updated Feb 03, 2014, retd Sept 4, 2017
5. Flood Govin, Professor. Flood is a British scholar of comparative religion specialising in Shaviasm and phenomenology but with research interests that span South Asian traditions. From October 2005 through December 2015 he served in the Faculty of Theology University of Oxford and as the Academic Director. This is an excerpt from his talk on BBC on August 24, 2009, retd on August 2, 2017
6. Posseh;, Gregory. Priest King. Mohenjodaro, Glimpses of South Asia before 1947, retd Sept 04, 2017
7. Ibid
8. Ghose, Sunajit, Ancient History Encyclopedia, retd Sep 04, 2017
9. Rouch, John, Mohenjodaro, National Geographic Partners, LLC, @ 1996-2017, retd Sept 04, 2017

*Religion Free Society***Did the Indus people live
without any religion?**

Scholars puzzled as they fail to find a trace of any
worship place or a religious monument in the Indus
Valley Civilization

In the middle of 2016, Sindh government lodged a strong protest with the Indian government calling on it to press Ahoutosh Gwarker to offer an apology for producing a feature film pictured in the background of Mohenjo-daro. The cause of Sindh government's resentment was the defective background on which the film was made. In contrast to the fundamentally accepted facts about the world's rich archaeological and cultural relic protected by the United Nations Educational, Scientific and Cultural Organization (UNESCO), the film Mohenjo-daro was termed harmful to the name and fame of attached to the great centre of civilization.

The presumed objective of the producer was to highlight the importance of the international heritage centre; ironically, the film was not based on established historical facts but on certain whimsical presumptions. Thus it became a mockery of the great cultural site and highly-valued treasure defeating the very cause of research on the subject.

Since the discovery of Mohenjo-daro archaeological site in 1921 attempts have been made universally to explore its historical facts as much as possible, however, many basic questions remain unanswered. The reason is physical causes hindering the exploration and stopping the further research that done by experts since its opening. As the attempts to decipher

the script of Mohenjo-daro continue unanswered the experts have confined themselves to establish certain important facts saying that:

- The Moenjodaro site is the first urban centre in the entire South Asia.
- It is the largest urban settlement in the Bronze Age (3,300- 1,300 BC).
- It reached its maturity in 2,600-1,900 BC period when no other civilizations in South Asia matched its maturity and in the opinion of some scholars the Europeans civilization.
- *It spread on the banks of Indus River extending its wings to Arabian Sea, from Balochistan-Iran borders to Gujarat (now in India) and into Afghanistan. Seals have also been found from Near East.
- What kind of religion was followed or there was no religion at all.

In 2,600 BC when other parts of the continent staggered from social and cultural stagnation, the Mohenjo-daro served as an important cultural and trading centre of the settlements on its banks. It was the centre of the cultural and social order plying on the banks of Indus River. “In total, over 1,052 cities and settlements have been found, mainly in the region of the Indus and its tributaries.” (1)

Since its exploration all attempts to decipher its writing have failed, blocking almost all chances of resolving many disputed issues about the site. The very question as to who were the original inhabitants of the Moenjodaro remains unanswered. The question that what was their language; are the seals brand names of the products or record of the taxes paid to the authority finds no answer. Who those individuals were and whose statues have been discovered are other questions that are keys to many queries. Were social figures, administrative officials or figures of social and administrative eminence inscribed on seals?

One pertinent question has haunted the scholars for the whole period since the discovery: Was there any religion observed by the inhabitants, or did they build worship places and what mode of worship they believed? The finding of some artifacts have evoked some quizzing questions that are being discussed; some speculative replies claim that female figurines represent deities which were being worshiped by the Indus Civilization people. Other speaking about various artifacts, saying that they represent certain deities. Absence of any temple or worship place hold that the Indus civilization people did not have a religion to follow. Instead of building huge and monumental temples, they laid more emphasis on making better living of their people.

References:

1. Sunajit, "Religious Development in Ancient India," Ancient History Encyclopedia, May 01, 2011, retrieved August 30, 2017

The editors of New World Encyclopedia suggest, “There were Indus civilization settlements spread as far south as Mumbai (Bombay), as far east as Delhi, as far west as the Iranian border, and as far north as the Himalayas. Among the settlements were the major urban centers of Harappa and Mohenjo-daro, as well as Dholavira, Ganweriwala, Lothal, and Rakhigarhi. At its peak, the Indus civilization may have had a population of well over five million.”

New World Encyclopedia, updated April 15, 2014, ret'd Sept 16, 2017.

*Pre-Vedic Era***Religion in the Indus Valley- I**

“Ancient architecture had two functions: to consolidate power and security, and to amuse the gods. The wealthier the society the more essential these functions became,” (1) so wrote world’s online site Cadius.org in a brief article about the history of architecture

Undoubtedly the remark speaks a lot about the role of building houses in the ancient past. However, the author of the above piece would have been closer to the reality had he known about the houses built by the then creators and architects of the ancient archaeological relic in the Indus Valley much before Egypt and Ur Civilizations.

The write-up describes various schools of architecture in the world from Egypt to Greece up to modern art of architecture. Strangely enough it speaks about pyramids of Egypt to Greeks, Romans, Chinese and Japanese to modern designing of Royal Pavilions in Brighton, and other schools and yet fails to mention the urban planning and execution of Mohenjo-daro and other cities of Indus Valley Civilization. In doing so, this private organization is not alone. “Preceded by thousands of books and corpuses on the architecture have failed to mention the architecture of the most ancient urban centre which by the archaeologists of post-Moenjodaro described as the most advanced urban centre of the ancient Indus valley civilization.” (2)

For over a century since the discovery of Indus Civilization, especially the great ancient urban centre Mohenjo-

daró, the scholars have been struggling to arrive at a consensus decision regarding many important aspects on this magnificent Bronze Age civilization. The issue of whether the Indus Valley Civilization inhabitants followed some religion or practiced some kind of religion or cult has been debated very hotly. After the discovery of Mohenjo-daro archaeological site in 1922 by John Marshall and scholars following him have categorically announced that there has been no place for a king or a worship place making it such a 'religion-free' centre of great surprise to the modern world that this civilization existed at least 3,000 years before Christ. (3) Some expert archaeologists even go a step further saying that the buried city some six layers beneath the excavated part of Mohenjo-daro might push the history of the Indus Valley Civilization to 7,000 BCE.(4)

As far religion is concerned a brief discussion about the beginning of religion was appropriate to explain the subject. As a general definition says that since the human being began living in an eco-system, they began following some beliefs which later developed into a faith. However, there is consensus on the fact that in some communities this faith began at a later period while in some communities it was soon after social and economic settlement. Joshua Mark, Professor of philosophy and history commenting on the subject of Religion in the Ancient World opines: "In ancient times, religion was indistinguishable from what is known as 'mythology' in the present day and consisted of regular rituals based on a belief in higher supernatural entities who created and continued to maintain the world and surrounding cosmos. These entities were anthropomorphic and behaved in ways which mirrored the values of the culture closely (as in Egypt) or sometimes engaged in acts antithetical to those values (as one sees with the gods of Greece). Religion, then and now, concerns itself with the spiritual aspect of the human condition, gods and goddesses (or a single personal god or goddess), the creation of the world, a human being's place in the world, life after death, eternity, and how to escape from suffering in this world or in

the next; and every nation has created its own god in its own image and resemblance.” (5)

He also discusses the evolutionary process of religion and also takes up the issue of one god or many gods. Basing his/her necessities during the lifetime, he is of the opinion that “...the ancient people felt that no single god could possibly take care of all the needs of an individual. Just as one would not go to a plumber with one's sick dog, one would not go to a god of war with a problem concerning love. If one were suffering heartbreak, one went to the goddess of love; if one wanted to win at combat, only then would one consult the god of war.” (6)

“The earliest evidence of religious ideas dates back several hundred thousand years to the Middle and Lower Paleolithic periods. Archaeologists refer to apparent intentional burials of early Homo sapiens from as early as 300,000 years ago as evidence of religious ideas. Other evidence of religious ideas include symbolic artifacts from Middle Stone Age sites in Africa. However, the interpretation of early Paleolithic artifacts, with regard to how they relate to religious ideas, remains controversial. Archeological evidence from more recent periods is less controversial. Scientists generally interpret a number of artifacts from the Upper Paleolithic (50,000-13,000 BCE) as representing religious ideas. Examples of Upper Paleolithic remains associated with religious beliefs include the lion man, the Venus figurines, cave paintings from Chauvin Cave and the elaborate ritual burial from Sungir.” (7)

After the intellectual awakening achieved by industrial revolution and learning, new thinking about the origin of religion and related subjects also got new heights, especially in the philosophical approach about the major religions. New theories aimed at replacing the old concepts propped up. The new theories were led by eminent historians, and social scientists. Edward Burnett Tylor (1832-1917) (8) was among the first theorists, who led the philosophy of animism (Latin

word *anima* means breadth, spirit, and life). This religious belief lays that “objects, places and creatures all possess a distinct spiritual essence Although each culture has its own different mythologies and rituals, "animism" is said to describe the most common, foundational thread of indigenous peoples' "spiritual" or "supernatural" perspectives. The animistic perspective is so widely held and inherent to most indigenous peoples that they often do not even have a word in their languages that corresponds to "animism" (or even "religion"); the term is an anthropological construct. (9)

Herbert Spencer (1820–1903) was another theorist who supported the theory of animism. (10) Some theorists termed Spencer's thinking as flawed. John Lubbock (1834-1913) uses another term, fetishism, on the subject. “The concept was popularized in Europe circa 1757, when Charles Brosses used it in comparing West African religion to the magical aspects of ancient Egyptian. Later Auguste Comte employed the concept in his theory of the evolution of religion, wherein he posited fetishism as the earliest (most primitive) stage, followed by polytheism and monotheism. However, ethnography and anthropology would classify some artifacts of monotheistic religions as fetishes.” (11)

As theorizing continued religious scholar Max Muller (1831- 1880) said that religion began in hedonism. This phrase implies that “ ... at heart religion is a Consciousness of the Infinite; from the latter he formed the belief that religion could only be understood through comparison. As he famously put it, “He who knows one, knows none.”(12)

Another religious scholar Wilhelm Mannhardt (1831-1880) claimed that religion began with naturalism which stood with mythological explanation of natural events.... . “This was not because of a specific interest in rituals. His interests lay with mythology, and all his life he regarded himself as a mythologist. In focusing on mythology Mannhardt was in tune with the spirit of his age, but to undertake a systematic study of

rituals was something new. At the time the novelty of this approach went practically unnoticed and Mannhardt himself barely reflected on method. There are complicated relations between a scholar's ideas and the ideas of his time, between what he intends to do and what he actually does and achieves.”(13)

It is still being debated that when the religion began in the world. The studies undertaken by now it has been opined that Mesopotamia was the birthplace of religion in the then world. In the opinion of religious expert Joshua Marks, “When religion developed in Mesopotamia is unknown, but the first written records of religious practice date to c. 3,500 BCE from Sumer. Mesopotamian religious beliefs held that human beings were co-workers with the gods and labored with them and for them to hold back the forces of chaos which had been checked by the supreme deities at the beginning of time.” (14)

He also mentions that in the first known religion what was the status of human being vis a vis gods and notes: “Humans were created, in fact, for this very purpose: to work with and for the gods toward a mutually beneficial end. The claim of some historians that the Mesopotamians were slaves to their gods is because it is quite clear that the people understood their position as co-workers. The gods repaid humans for their service by taking care of their daily needs in life (such as supplying them with beer, the drink of the gods) and maintaining the world in which they lived. These gods intimately knew the needs of the people because they were not distant entities who lived in the heavens but dwelt in homes on earth built for them by their people; these homes were the temples which were raised in every Mesopotamian city.” (15)

After hectic efforts experts now have reached a conclusion that at the height of Sumerian civilization the temples had attached all importance to the worship houses. Researcher Joshua believes that during the Akadian Empire the temples had attained the central position. The temples were the

center of the city's life throughout Mesopotamian history from the Akkadian Empire (c. 2334-2150 BCE) to the Assyrian (c. 1813- 612 BCE) and afterwards. The temple served in multiple capacities: the clergy dispensed grain and surplus goods to the poor, counseled those in need, provided medical services, and sponsored the grand festivals which honored the gods. Although the gods took great care of humans while they lived, the Mesopotamian afterlife was a dreary underworld, located beneath the far mountains, where souls drank stale water from puddles and ate dust for eternity in the 'land of no return.' This bleak view of their eternal home was markedly different from that of the Egyptians. (16)

The Egyptian civilization is said to have temples entered the life of Egyptians during 1379-11362 BC period when the country was ruled by Amenhotep IV. Similar to Mesopotamian religious life, it is said that it had preserved the written record of Egyptian religious practice. "Egyptian religion was similar to Mesopotamian belief, however, in that, human beings were coworkers with the gods to maintain order. The principle of harmony (known to the Egyptians as ma'at) was of the highest importance in Egyptian life (and in the afterlife), and their religion was fully integrated into every aspect of existence. Egyptian religion was a combination of magic, mythology, science, medicine, psychiatry, spiritualism, herbology, as well as the modern understanding of 'religion' as belief in a higher power and a life after death. The gods were the friends of human beings and sought only the best for them by providing them with the most perfect of all lands to live in and an eternal home to enjoy when their lives on earth were done." (17)

One of the early civilizations is the Chinese one. Historical evidence suggests that it existed there in 4,500 BC making it one of the oldest religious system practiced in China and the territories under its influence. The evidence speaks of animism and mythological beliefs were being observed, the images of these had been discovered. These images belong to Xia dynasty circa 2,070 BC. During this period many gods led

by a chief god Shangti were being worshipped. “In order to pass from one's earthly life into heaven, one had to cross the bridge of forgetfulness over an abyss and, after looking back on one's life for the last time, drink from a cup which purged all memory. At the bridge, one was either judged worthy of heaven - and so passed on - or unworthy - and slipped from the bridge into the abyss to be swallowed up in hell. Other versions of this same scenario claim the soul was reincarnated after drinking from the cup. Either way, the livings were expected to remember the dead who had passed over the bridge to the other side and to honor their memory.” (18)

References

1. Cadius.org in a brief overview about the history of, retrieved on Oct 9, 2017 architecture
2. Creative Ancient World, New World Encyclopedia, Retrieved on Sept 17, 2017
3. Keynor, Jonathan, Ancient -----
4. Jairam V, “The Religion of the Indus Valley civilization”, Search Hinduwebsite, retrieved Sept 17, 2017 He firmly believes that the Indus Civilization flourished between 3,500 BC and 2,000 BC, with its antecedents dating as far back as 7,000 -6,000 BC during Neolithic period.
5. Mark, Joshua, Religion in the Ancient World, ANCIENT HISTORY Encyclopedia, retrieved on Sept 16, 2017. Joshua J. Mark is a freelance writer and scholar who has lived in Greece and Germany, traveled through Egypt, and presently lives in upstate New York with his family. He is co-founder, editor, and a director of Ancient History Encyclopedia.
6. Ibid
7. Wikimedia, History of religions, retrieved on Oct 30, 2017
8. "Religion". Encyclopedia Universal Ilustrada Europeo-Americana, 70 vols. Madrid. 1907-1930
9. Diamond Jared. "chapter 14, From Egalitarianism to Kleptocracy". Guns, Germs, and Steel: The Fates of Human Societies.
10. Herbert Spencer's thinking was not approved by many thinkers on the subject.
11. Charles de Brosses, jump up to fetishism, wwwmedia, retrieved Nov 1, 2017.

12. Max Mullar, www://Wikipedia, retrieved on Nov 1, 2017
13. Edited by TORE AHLBÄC, THE PROBLEM OF RITUAL Based on Papers Read at the Symposium on Religious Rites Held at Åbo, Finland on the 13th-16th of August 1991.
14. Mark, Joshua J, Religion in the Ancient World, Definition, ANCIENT HISTORY ENCYCLOPEDIA, retrieved on Nov 1, 2017.
15. Ibid
16. Ibid
17. Ibid
18. Mark, Joshua, Religion in the Ancient World, Definition, ANCIENT HISTORY ENCYCLOPEDIA, retrieved on Nov 1, 2017

The Greeks who conquered Sindh in 325 BC under the command of Alexander the Great rendered it as Indós, hence the modern Indus. The ancient Iranians referred to everything east of the river Indus as Hind. When the British came to India in the 17th century, they applied the Greek version of the name Sindh to all of South Asia, calling it India.

Choudhary Rahmat Ali (28 January 1933). "Now or Never.
Are we to live or perish forever?".

Pre-Vedic Era
Indus religion

Religion in Indus Valley-II

Since the opening of Moenjo-daro archaeological site a host of questions have placed experts and scholars into a situation of anxiety as despite advancement in sciences and a number of scientific disciplines have come up no solution is coming forth. The reason cannot be attributed to one or two causes: the main cause is the absence of a Rosetta-like stone which could help decipher the Indus Valley script. From the site scattered over a large area only 250 to 400 pictographs have been discovered. Unlike Egyptians and Sumerians no long inscription has been found evoking a number of questions unanswered by the archaeologists. The question of Indus Script has been discussed in detail in one of the previous chapters, however, it remains focal point as without the knowledge of Indus script not only the language of Indus Valley Civilization could not be known but an important question about the existence of a religion in the Indus Valley also cannot be resolved.

Unlike sister civilizations of the Indus Valley, no temple or any worship place has been found leading the experts believe that perhaps there was no religion being followed by the inhabitants of the Indus Valley Civilization. In the absence of any other sign which possibly relates to some religious cult, many attribution have been made to symbols on Indus seals and tablets and hint at a cult including the animism, zoolatry or tree worship, or even the religious practice in the form of Great

Bath. Experts have yet to establish the status of some religion in the pre-Aryan era which may go beyond 3,400 BCE.

The Mohenjo-daro site is the first urban centre in the entire South Asia; reached its maturity in 2,600-1,900 BC period when no other civilization in South Asia matched its maturity and in the opinion of some scholars the European civilization too failed to match it.

In 2,600 BC when other parts of the continent suffered from social and cultural dryness, the Indus Valley Civilization served as an important cultural and trading centre of the settlements on its banks. It was the only urban centre of the cultural and social order plying in the area of one million square kilometers of the South Asia. "In total, over 1,052 cities and settlements have been found, mainly in the region of the Indus and its tributaries." (1)

Since its discovery two pertinent questions have haunted the scholars. Number one riddle is about the administrative system controlling the city centres; and two, was there any religion observed by the inhabitants, or did they have worship places when worship was undertaken. The finding of some artifacts has evoked some quizzing questions that are now being discussed; some speculative replies claim that female figurines represent deities. Others speak about various artifacts claim that they represented certain deities. Absence of some temple or worship place holds that the Indus civilization people did not have a religion at all.

An unexplained situation arose after numerous seals and figurines were discovered from the excavation of the Mohenjodaro (1921) site on which many scholars pointed out to the existence of some religious beliefs. The presence of terracotta figurines of females gave birth to the opinion that those figurines belong to some goddesses that were being worshiped. This also led to the belief that these are the representations of Mother Goddess. A peculiar statue shows the female figure is wearing some ornaments with a headgear. Her

bronze figure is smoke-stained deriving the general feeling that it might be a goddess which at the time of worship was placed amid incense burning.

Interestingly the statuette dubbed as the Dancing Girl of Mohenjo-daro drew a different suggestion from Sir John Marshall, who without claiming that it was a figurine of some goddess highly praised the quality of the artisanship applied to it. He is of the view that how come a civilization other than Europe had developed such wonderful skill and high quality of artistry and craftsmanship at such an early period of civilization.

The archaeologist Gregory Possehl said of the statuette, "The statue led to two important discoveries about the civilization: first, that they knew metal blending, casting and other sophisticated methods of working with ore, and secondly that, entertainment, especially dance, was part of the culture.

About the presence of some religion an opinion was made at the discovery of a symbol on a tablet which was deciphered as an illustration of Pashupati or Shiva worship. The illustration has also figures of animals.

Sir John Marshall believes that the Mohenjo-daro inhabitants followed a religion of Shiva worship. Also he holds that they worshipped animals too.

After Marshall laid down his opinion about the possible Shiva worship perception, many experts have sounded their support. Marshall explaining his standpoint says,

"One famous seal displayed a figure seated in a posture reminiscent of the lotus position, surrounded by animals. It came to be labelled after Pashupati (lord of beasts), an epithet of Shiva. The discoverer of the Shiva seal, Sir John Marshall and others have claimed that this figure is a prototype of Shiva, and have described it as having three faces, seated on a throne in a version of the cross-legged lotus posture of Hatha Yoga. Yogi's penis is erect, with both testicles prominently visible. The precise placement of both heels under the scrotum is an

advanced Tantric Yoga technique known as Bandha, meaning knot or lock. It is normally used to sublimate and redirect sexual energy and can endow the practitioner with spiritual powers.

“A large tiger rears upwards by the yogi's right side, facing him. This is the largest animal on the seal, shown as if warmly connected to the yogi; the stripes on the tiger's body, also in groups of five, highlight the connection. Three other smaller animals are depicted on the Shiva seal. It is most likely that all the animals on this seal are totemic or heraldic symbols, indicating tribes, people or geographic areas. On the Shiva seal, the tiger, being the largest, represents the yogi's people, and most likely symbolizes the Himalayan region. The elephant probably represents central and eastern India, the bull or buffalo south India and the rhinoceros the regions west of the Indus River. Heinrich Zimmer agrees that the Pashupati figure shows a figure in a yoga posture.” (7)

Many other seals have been found depicting the same figure, but not in the same detail. The deity is wearing a headdress that has horns, the shape being reminiscent of the crescent moon that modern image of Siva shows on his forehead.” (8)

The concept of fertility god is as old as religion itself. In ancient religions it is represented in the form of an erected phallus. At present in temples it is placed in the centre or some place conveniently observed by the temple visitors where the believers are seen seeking blessings.

The deity sitting in a yoga-like position suggests that yoga may have been a legacy of the very first great culture that occupied India.” (9)

After a long debate Professor Gavin Flood said: “Religion in the Indus Valley seems to have involved temple rituals and ritual bathing in the ‘great bath’ found at Mohenjodaro. There is some evidence of animal sacrifice at Kalibangan.” (10)

A very striking discovery was the finding of the statuette of a man perhaps a noble person. After the discovery many views about his social status and importance have been presented. Some argued that the reverence shown to the figure is reflective of his social status. Perhaps he was a noble person who commanded a respectful position in the society, or perhaps he was a priest father or a priest king. But since there appears no sign of a king's administration ruling the Mohenjodaro, many archaeologists hesitated to call him priest father or priest king in clear terms. Discussing the question that who ruled the ancient urban settlement, Possehl suggests that, "... Though there is no evidence that priests and monarchs ruled Mohenjodaro, archaeologists dubbed this dignified figure a 'Priest-King'. (13)

No doubt that there appears no sign which can firmly communicate presence of a religion in the Indus Valley centres, however, the manner in which the bust of priest father was discovered speaks about the reverence it was accorded during its discovery from the house. Marshal himself mentions that "... it was found in a building with unusually ornamental brickwork and a wall-niche".

All archaeologists agree that Mohenjo-daro was the administrative and trading centre of the Indus Civilization. "Excavations reveal large, orderly walls of massive brick buildings with high sophisticated sanitation and draining systems... The street layout shows an understanding of traffic with rounded corners to allow turning of carts easily, and dividing the city into 12 blocks. Except for the west-central blocks, the basic unit of city planning was the individual houses." (14)

The absence of a clue to the Indus script and failure to evolve a Rosetta stone-like mechanism is the main hurdle in the way of finding a key to the mystery as to who ruled Moenjodaro. However, till then on the basis of evidence attained so far, it has been agreed that there had been no

kingship to rule such a busy urban settlement. The presence of military rule has been abundantly ruled out especially when no evidence of weapon has been found or even an illustration depicting some violent act been traced down. It has been suggested that people ruled the city through the signs of seals. (15)

Discussing the city's state of affairs, Indus expert John Roach refers to Gregory Possehl says, "The city lacks palaces, temples, or monuments. There is no obvious central seat of government or evidence of a king or queen. Modesty, order, and cleanliness were apparently preferred. (16)

The inconclusive results

John Marshall in his first report he placed before media in London deals with the issue of whether there existed some kind of religion or some cult in Mohenjo-daro and Harappa sites of the Indus Valley Civilization. Dealing with that he took up the question of some building structures in close vicinity of the Great Bath. He says, "Whether these spacious and elaborate edifices were uncertain private houses or not has yet to be determined. Quite conceivably some of them were probably temples. In Mesopotamia the temples of the gods were to all intents and purposes copies were temples of the royal palaces dwellings where a god could eat, drink, and make merry like any mortal prince, and even be wedded on occasion to his priestess. It may be, therefore, that the same idea held good at Mohenjo-daro, and that some of these exceptionally large buildings were erected as homes for the gods. The first, second, fifth, and sixth of the buildings enumerated above would have been specially appropriate for this purpose.

All this, however, is sheer conjecture. Like the Minoans, the Indus people may have had no public shrines at all, or if they had them, the shrines may have been wholly unlike their ordinary other residences. Among the buildings of Mohenjodaro are several whose purpose we have not structured

and yet succeeded in discovering, and any one of these might have been a shrine as well as anything may also have else.”(17)

A general thinking prevails among the scholars including archaeological experts who undertook the initial excavation hold the view that not enough building structures have been found that could have been used for religious purposes. John Marshall is of the opinion, “Certain structures, as we have already seen, may have served as temple materials or religious buildings of some sort or other, but nothing now remains in them unearthed, neither shrines nor altars nor statues nor cult objects-to prove what their purpose was nor is there a structural monument of any kind at either of these sites which can positively be said to have had a sacred character.” (18)

He also delves upon the three-faced male god besides mother goddess. Seated in a low Indian throne and had been described by Mackay. Marshall denies the identity as three-faced male god Siva. He denies Mackay suggestion that it was representation of proto-type historic Siva god. “The God who is three-faced, is seated on a low Indian throne in a typical attitude of Yoga, with legs bent double beneath him, heel to heel, and toes turned downwards. His arms are outstretched, his hands, with thumbs to front, resting on his knees. From wrist to shoulder the arms are covered with bangles, eight smaller and three larger; over his breast is a triangular pectoral or perhaps a series of necklaces or torques, like those on the later class of Goddess figurines from Baluchistan; and round his waist a double band. The lower limbs are bare and the phallus (Urdhvamedhra) seemingly exposed, but it is possible that what appears to be the phallus is in reality the end of the waistband. Crowning his head is a pair of horns meeting in a tall head-dress. To either side of the god are four animals, an elephant and tiger on his proper right, a rhinoceros and buffalo on his left. Beneath the throne are two deer standing with heads regardant and horns turned to the centre. At the top of the seal is an inscription of seven letters, the last of which, for lack of room at the right-hand top corner, has been placed between the elephant and the tiger.

“From the foregoing it will be seen that the attributes of the deity are peculiarly distinctive. In the first place, he is threefaced (trimukha), and we are at once reminded that in historic times Siva was portrayed with one, three, four, or five faces and always with three eyes, and that the familiar triad of Siva, Brahma and Vishnu is habitually represented by a three faced image. Of the three-faced Siva that is, Siva without Brahma and Vishnu.

“Indeed, the question presents itself whether the three-faced deity on our Mohenjo-daro seal is not a syncretic form of three deities rolled into one. I do not mean by this that the philosophic idea of a triad associated with the doctrine of the absolute had taken shape at this early period, but simply that the cult of this particular god- call him Siva or by whatever name we like-had been amalgamated with other cults, and that the fact was signified by giving him three faces instead of one. In support of this suggestion it is to be recalled that the conception of the triad or trinity is a very old one in India, though it was possibly not until the historic period that it assumed a philosophic aspect, and that it was equally old in Mesopotamia, where such triads as those of Sin, Shamash, and Ishtar or of Anu, Enlil, and Ea were long antecedent to the Aryans. In this three-faced God from Mohenjo-daro, therefore, it may be that the germ of the same idea is expressed.’ It is more likely, however, that in the first instance the god was provided with a plurality of faces in token of his all-seeing nature; that these images afterwards suggested the trimurtis of Siva, Brahma and Vishnu; and that the latter in their turn subsequently inspired such images as those referred to above.”(19)

If the buildings near the Great Bath have nothing to do with religion and he insists that these are sheer conjectures. He also rules out that there existed a mother goddess. He aptly says that “There is no example of the ancient Aryans, whether in India or elsewhere, having elevated a female deity to the supreme position occupied by these Mother Goddesses.” (20)

He is very firm to say that there could be some kind of religion with the pre-Aryan inhabitants of Indus Valley Civilization people but there appears no firm evidence about it. However, some archaeologists have given importance to water and sanitation. "With more than 600 calculated wells MohenjoDaro is the city with the largest amount of wells and with the highest density in the settlement history of mankind. In addition, its kilometers of brick lined drains shows highest skills of engineering technology and surveying including levelling. While the question for the need of constructing so many wells remains widely open, especially once the Indus as surface water source was close by, the question for the need of water drains can be answered. The whole platform system of elevations of Mohenjo-daro consists of very fine grains of silts, clay and sand of which water is the greatest enemy. The Mohenjo-daro people met this danger in the outside platform structures as protection against the Indus floods in applying high quality bricks made of excellent clay while the inner filling of the platforms were built of (more economic) silty-sandy bricks and fillings. The drains inside the city were built to cope with the problem of draining the obviously very high water consumption (wells). Without draining the sewage water from the hundreds of bathing platforms and toilets the streets would have turned into muddy pools. It is remarkable that the burnt brick drains are the optimized technical solution to this problem. There are no indications that rain water of the summer monsoons were also drained the same way." (21)

There is also a suggestion that the early Vedic teachings were driven from the wisdom of pre-Aryan inhabitants. "Conflict of what is Aryan and what is non-Aryan. Up to the present, however, the efforts made by views on pre-Aryan scholars in this direction have led only to conflicting and inconclusive results, the inferences Aryan religion, drawn by some being diametrically opposed to those drawn by others. Thus, Monier Williams and Hopkins, taking the commonly accepted view, regarding the contribution made to Hinduism by

the Dravidian or other pre-Aryan races as almost a negligible quantity, or perhaps even worse than negligible, since in their estimation it comprised only the most barbaric and degrading features of Hinduism. Oppert, on the contrary, placed the religion of the non-Aryans on an altogether higher plane. "They believed," he writes, "in the existence of one supreme spirit of Heaven, with who was associated and admitted to an equal and eventually even superior share of power, the Goddess of Earth. Both ruled supreme over the good as well as the evil spirits who disturbed and tortured men; over men and the entire world. Associated with this doctrine was a belief in the transmigration of souls after death. Which of these two estimates is nearer to the truth can now only be decided by the discovery of actual monuments of the pre-Aryan period. It is that invests the new materials from Mohenjo-daro and Harappa with such surpassing interest-an interest that will still further be enhanced if and when the legends engraved upon many of them can be deciphered." (22)

Various archaeologists and scholars have taken pains to find out the facts from a huge heap of evidence but owing to some hurdles it has become difficult to decipher the Indus script letting in failure of other related issues and as Marshall and other investigators expressed the hope that one day it will be resolved bringing answers to all questions.

References

1. Sunajit, "Religious Development in Ancient India," Ancient History Encyclopedia, May 01, 2011, retrieved August 30, 2017
2. Mackay, Ernest John, Excavations at Moenjodaro, Annual report of the Archaeological Survey of India, 64-75, retd Sept 2, 2017
3. Possehl, Gregory, Archaeological Ruins of Mohenjodaro, UNESCO World Heritage site, retrieved Sept 4, 2017
4. Collection, Prehistory & Archaeology, National Museum, New Delhi, Feb 3, 2014, retd Sept 4, 2017
5. Possehl 2002
6. Marshall, John, 1931, Mackay & 1937-38
7. Ibid
8. Possehl, Gregory, Priest King, Moenjodaro, Glimpses of South Asia before 1947, retd Sept4, 2017
9. Ibid
10. Professor Flood is a British scholar of comparative religion specialising in Shivaism and phenomenology but with research interests that span South Asian traditions. From Octob
11. All About History org retd Oct 31, 2017
12. Ibid
13. Ibid
14. Ghose, Sunjit, Ancient History Encyclopedia, retd Sept 4, 2017
15. All About History
16. Rouch, John, Moenjodaro, National Geographic Papers, LLC 1996-2011 retd Sept 4, 2017
17. John Marshall, Being an official account of Archaeological Excavations at Mohenjo-daro carried out by the Government of India between the years 1922 and 1923, 1931
18. Ibid
19. Ibid
20. Jansen, Michael, The urban form from Moenjodaro, a retrospective and new evidence, the need of the day, retrieved Nov 6, 2017
21. Marshall, report 1931 to 2005 through December 2015 he served in the Faculty of Theology University of Oxford and as the Academic Director. This is an excerpt from his talk on BBC on August 24, 2009, retd on August 2, 2017

Mohenjo-Daro – the Mound of the Dead - in Pakistan,
a city which dates back some 5000 years.

Now, only sixty years after its discovery, the city is literally falling to pieces in front of our eyes. It is threatened by mineral salts, in particular sodium sulphate, which are eating away the brick walls of which the city is built. This threat existed long before excavations were started, since analysis of the bricks reveals that the salts were already present when Mohenjo-Daro was last occupied. However, the buildings unearthed over the past fifty years have been deteriorating more and more. This means the loss not only of a major tourist attraction but also of the most important site of the Indus valley culture

Michagl Jansen, Director of the research project on MohenjoDaro at the
University of Aachen.

Religion in Indus Valley-III

Perception of Oneness of God

Rise and decline of Varuna

Less than a century ago when the Indus Civilization became known to the English colonial rulers of the subcontinent, new vistas were opened to the world archaeologists and scholars of human history. The newly-discovered relics raised many questions with some perceivable answers, however, many queries remain unanswered till today. A large number of antiquities decried the older perception about the ancient civilizations which said that three civilizations, i.e., Mesopotamian, Egypt and Chinese were the oldest remnants of the human history. The new information brought Indus Civilization to the fore and the scholars had to claim that this civilization ranked among the ancient civilizations. Many even claimed that the Indus Civilisation was the older than the aforementioned civilizations whose script could not be deciphered yet.

There are varying opinions about the beginning of Vedic era (1500-800 BC) when the Aryan migrants took control of the Indus Valley Civilization. At the time, the Aryans were pastoral nomads with no knowledge of a living in settled life. Basing upon historical evidence, authors and historians have expressed belief that the ancient Indus Valley Civilization was much rich and advanced. "The so-called Aryans abandoned their mother lands migrated on large-scale in search of food, shelter and better life, towards the regions highly developed with a technological and infrastructural advancement such as the Indus Valley Civilization and Sumer (Iraq and Syria). The first wave of migration started probably in the late 18th century

BC. In Sumer, they were generally designated as Hurrians and in the Indian subcontinent these migrants came to be known as Aryans. For the Indus Valley, they moved from Central Asia, crossed the Hindu Kush Mountains and entered at first in the Punjab and later in Sindh. This was a migration on large scale and used to be seen as an invasion, which was believed by some scholars to be behind the collapse of the Indus Valley Civilization; this hypothesis is not unanimously accepted today. (4) However, on arrival in the Indus Valley Civilization, they were confronted with the idea of Oneness of God - "One god, almighty and omniscient" known as Varuna. He was described as a thinker and guardian of the Truth. In him, it is said, all wisdoms are lodged and gathered; he is the divine Seer who nurtures the seer-knowings of man. It is said of him that, he is upholder of the worlds; he knows the hidden names of shining ones. (1)

Varuna was also considered as the Supreme Being and Creator of the Universe, who never demanded "worship" from the human beings therefore the archaeologists could not find any worship place in all over the Indus Valley. (3) On the basis of these findings one can assess that the ancient Indus people were the first in history, who had a belief in the Oneness of God, roughly 800 years before the birth of Abraham. They created a worshipless and weapon free secular society based on strict morals, justice and peace. After the conquest of the Indus Valley by the Aryans, Varuna was degraded and his powers and attributes were gradually shifted to Indra – the Aryan god of war, conqueror of the Indus Valley.

This was the period when Hammurabi (1792 BC - 1750 BC) forged Babylonian Empire from a small city state of Babylon, by way of conquest, introduced and raised his own tribal god "Marduk" as the Supreme Being and Universal god, who had acquired powers and attributes of fifty other gods, including An, Enlil and Enki – both Supreme in the Sumerian Pantheon." (4) The rishis, the composers of the hymns of the Rigveda, were considered inspired poets and seers (in post-

Vedic times understood as "hearers" of an eternally existing Veda, Srauta means "what is heard"). According to Hammurabi, the god Shamash handed over to him the first major Code of Laws to run the affairs of his empire.” (8)

The authors of Larousse Encyclopedia describe Sargon of Akkad as the one who created the first major empire in the history during the 24th and 23rd BC. Emperor Sargon introduced and raised his tribal god Shamash as the Supreme god of Justice while ignoring the Trinity of the Sumerian gods – An, Enlil and Enki.

As a consequence of human behavior and custom of conquest the Assyrians also imposed their gods over the defeated nations. “...when the Assyrians conquered the entire region of the Near East between the 14th to the late 7th century BC they introduced and imposed Assur – their tribal deity as the Supreme Creator and national god of Assyria. All the former Supreme gods - Marduk, An, Enlil, Enki and Shamash were superseded by Assur. It was proclaimed by the Assyrians that the conquered peoples had been abandoned by their gods. (9)

Since there is no other evidence about the existence of Varuna as god of the Indus Valley Civilization, the Vedas speak about it. “At the time of the composition of the Veda, Varuna's prestige was waning before that of Indra, but he retained some importance for many centuries. Most important of these was Mitra, widely worshipped in Iran and later in the Roman Empire during early Christian centuries. Mitra was considered a god mainly connected with vows and compacts.” (10). In Avestan Mitra meant: "covenant, treaty, agreement, promise." In Sanskrit, mitra means "friend" one of the aspects of bonding and alliance.

“Around Varuna sat his scouts, or spies (spa!), who flew all over the world and brought back reports on the conduct of mortals. Varuna was the guardian of Rta - the cosmic order, a concept which was perhaps the highest flight of Rig Vedic

thought. The world takes its regular course, day follows night and season succeeds season, because of Rta; man must live according to Rta; in later days Varuna was the severe punisher of sins.” (11)

The Vedic description tells about the workstyle of Varuna who is said to be a strong disciplinarian. He was against wrongdoers and always thought of a wrong-free society. He thought of a society clean of sinners. Not only did Varuna punish the sins of individuals but, like the Yahweh of the Old Testament (God of Israel), he visited the sins of his ancestors upon him, and his ubiquity ensured that there was no escape for the sinner. (12)

Lord of physical and moral order, Varuna is omnipresent.” (13) Once the people of the Indus Valley were conquered by the Aryans, their priests carefully started changing in phases the powers and attributes of Varuna, “Shinning with a ‘sombre light’. They linked Varuna with the moon, that reservoir of sacrificial liquid, Soma.” He presides over the care of ambrosia throughout the alternating waxings and wanings of the planet. Moreover, the moon is the abiding place of the dead, and so Varuna shares with Yama, the first person who died, the title of King of the Dead. Varuna is represented now as a white man riding on a sea monster, the makara, and holding lasso – an allusion to his functions as judge. Hence the name of Pasi, as well as the epithets given to him as the supremely wise, Prasetas, or as lord of the waters, Jalapati, Jadapati and Amburaja.

Rig Veda initially records Varuna as god of high integrity and terms him as the most important of Vedic gods. The Rig Veda says that he did not like those who did not keep their word and would punish them. “A dozen hymns are addressed to Varuna in the Rig Veda as one of the most important of the Vedic gods. In pre-Vedic times, he was the supreme lord of the cosmos, the keeper of divine order, the bringer of rain, [and] the enforcer of contracts. He is called

omnipotent and omniscient; he is responsible for the sun to move in the sky, for day and night to stay separate, and for the earth to keep its form; he watches the flight of every bird, is present at every gathering, and knows every thought. His name means 'he who covers'. Varuna is the keeper of the celestial waters, those which flow from the openings in the sky in the form of rain. He was the cosmic hangman and his usual method of punishment was to capture the offender with his noose. He was also a lord of the dead and could confer immortality if he so chose. Later this position was shifted to Yama – the Aryan god of death.” (14)

The Vedic description tells us that Varuna had thousand eyes and could oversee the whole world. However, he is pictured as riding in a chariot drawn by seven swans and holding the lotus, noose, conch and a vessel of gems as well as with an umbrella held over his head. An excerpt from Rig Veda hymn would help understand Varuna god. “Varuna was the god of the vast luminous heavens, viewed as embracing all things, and as the primary source of all life and every blessing. Nothing equals the magnificent terms in which the hymns describe him. The sun is his eye, the sky is his garment, and the storm is his breath. It is he who keeps the heavens and the earth apart, and has established them on foundations that cannot be shaken; who has placed the stars in the firmament, who has given feet to the sun. He has made everything and preserves everything; nothing can do harm to the works of Varuna. No one can fathom him; but as for him, he knows all and sees all, both what is and what shall be.” (15)

Noted religious scholar Auguste Bath describes Varuna's lifestyle in these words, “From the heights of heaven, where he resides in a palace with a thousand gates, he can discern the track of the birds through the air and of the ships over the seas. It is from thence, from the height of his throne of gold on its foundations of brass that he watches over the execution of his decrees, that he directs the onward movement of the world, and that, surrounded by his emissaries, he regards with an eye that never slumbers over the doings of men, and passes judgment

upon them. For, he is before all the upholder of order in the universe and in human society, and his sovereignty is the highest expression of law, both physical and moral. He inflicts terrible punishments and avenging maladies on the hardened criminal; but his justice discriminates between a fault and a sin, and he is merciful to the man that repents. It is also to him that the cry of anguish from remorse ascends, and it is before him that the sinner comes to discharge himself of the burden of his guilt by "confession." (16)

The first Aryan scripture Rig Veda raises words of praise for him and a hymn to Varuna mentions a prayer in these words and says that this prayer is of a man afflicted with dropsy. Dropsy is medical condition which means Oedema.

Rig Veda the prayer is titled as "A description of the experience" which says:

"Let me not go to the House of Clay,
O Varuna! Forgive,
O gracious Lord, forgive!
When I go tottering
Like a blown-up bladder,
Forgive
O gracious Lord, forgive!
"Holy One,
In want of wisdom
I have opposed you.
Forgive,
O gracious Lord, forgive!
Though in the midst of waters,
Thirst has seized your worshipper
Forgive
O gracious Lord, forgive!
Whatever sin we mortals have committed against the
people of the gods, if, foolish, we have thwarted your
decrees
O gods
Do not destroy us in your anger!" (17)

As per ancient faith, Varuna attained high respect for his clear and truthful attitude towards human race. In the Early Vedic writings he was termed as “Protector of oaths who rewarded truthfulness, virtue and lawful behavior. He was referred to as lord of the truly spoken word, and also as Creator, since creation happens by means of the divine word (“me”) (8)

As a result of conquest, the invading Indra replaced Varuna and became the king of gods. “Varuna was degraded as god of the oceans, rivers and of dead. The souls of those who drowned went to him, and he was attended by the naps. Varuna faded away with the ascendancy of Indra. His lofty position may have lived on, however, for he may be the same as the Zoroastrian supreme god Ahura Mazda. Robert Graves drawing a parallel with old Persia writes: “Varuna should appear to us as an Indian transposition of the god preached by Zoroaster. Nothing escapes him. He restrains with his bonds those who break rules. He rewards and punishes, taking into account intention and penitence. He directs the physical as well as the moral world. His decrees (vrata) regulate the motions of the heavens and the circulation of waters — two closely connected facts. Of course some have exaggerated the apparent identity of Varuna with Uranus - a primal Greek god.

Lord Varuna presides over the sky, the air and the waters. The wind is his breath, the stars are his eyes. He sees everything going on in the world, including every secret thought. 'He follows the track of the birds which fly in the sky like the wake of a ship' ploughing through the waves (Rig-Veda, I. 25); and knows the past and the future. He is a witness of every action; he is the 'third party' present at every gathering. No authority is equal to his.” (18)

“Lord Varuna is considered to be present in the whole world. The lord is embodiment of the sky and he is associated with clouds, water, rivers, and ocean. In addition to that he is considered to be the sustainer of live by providing rain and

crops. According to the Puranas he has thousand eyes and oversees the whole world. A few temples of the Indian subcontinent depicted him as riding on a crocodile. In the Vedas Lord Varuna is portrayed as omniscient and omnipotent. A legend associated with the festival of Rakhi is that of the worship offered to the sea god, Lord Varuna in Western India. On the Raksha Bandhari day devotees make offers of coconut to him.”(19)

At the time of Veda’s composition, the unknown compilers mentioned hymns in praise of Varuna and Indra. However Indra took the largest share, one-fourth of the Rig Veda. Indra is praised in 250 hymns, revered in many ways making him the highest god even in terms of weapons: a sword, a net, a noose, a hook, or a conch he used to kill the demon.” (22) On the other side, Varuna is co-praised as the supreme in some 50 hymns, thus showing him one of the Vedic deities.” (21)

Although the archeaologists have not been able to lay hands on the real sources revealing the existence of religion in the Indus valley before arrival of the Aryans, details linking Varuna with pre-Aryan religious figure can be debated. Or if there was no religion or any cult, Varuna’s mention as all omnipotent lord needs new explanation. In the presence of Varuna the non-existence of any religious function or worship place can be attributed to the Varuna’s character that he did not demand worship. May be this point can be explored as and when some more firm evidence becomes available.

References

1. People, member of an ancient Semetic people who controlled S. Babylon from the late 8th century to the later 7th century. A dialect of Babylonian spoken by this people. (Harper Collins Publishers 2014).
2. Munda is a language family spoken by about nine million people in central and eastern India and Bangladesh. They constitute a branch of the Austrasiatic language family which means they are related to languages such as Mon and Khmer languages and Vietnamese as well as in Thailand, Laos and Southern China. Wikipedia Asian Month, retrieved Nov 11, 2017
3. New Larousse Encyclopedia of Mythology, Robert Graves, 1990
4. Johannes Renger, Hammurabi King of Babylon, Encyclopaedia Britannica. Hammurapi (born, Babylon [now in Iraq]—died c. 1750 BCE), sixth and best-known ruler of the 1st (Amorite) dynasty of Babylon (reigning c. 1792–1750 BCE), noted for his surviving set of laws, once considered the oldest promulgation of laws in human history. Like all the kings of his dynasty except his father and grandfather, Hammurabi bore a tribal Amorite name belonging to the Amnanum. Only scanty information exists about his immediate family: his father, Sin-muballit; his sister, Iltani; and his firstborn son and successor, Samsuiluna, are known by name. When Hammurabi succeeded Sin-muballit about 1792 BCE, he was still young, but, as was customary in Mesopotamian royal courts of the time, he had probably already been entrusted with some official duties in the administration of the realm. In that same year Rim-Sin of Larsa, who ruled over the entire south of Babylonia, conquered Isin, which served as a buffer between Babylon and Larsa. Rim-Sin later became Hammurabi's chief rival.
5. New Larousse Encyclopedia of Mythology, Robert Graves, 1990
6. The Indus Civilization: A Contemporary Perspective, Possehl, Gregory (2002)
7. Jastrow, Morris, Aspects of Religious Belief and Practice in Babylonia and Assyria, University of Michigan, 1971 (reprint),
8. The Encyclopedia of Middle Eastern mythology & Religion
9. Donald A. Mackenzie, Myths of Babylonia and Assyria, "Ashur the National God of Assyria", 2012
10. A L Basham, The wonder that was India, Rupa & Co, New Delhi, India, ISBN 028399-2577-3

11. Ibid
12. Ibid
13. Graves, Robert, Gods of universal power, in New Larousse Encyclopedia of Mythology, 1990.
14. Lindermans. M.F., Encyclopedia Mythica, Hindu Mythology, updated Oct 14, 2013, retrieved Nov 14, 2017
15. Rig-Veda, iv. 42, 3; i. 24, IO; i 25, I4.
16. Barth, Auguste, THE RELIGIONS OF INDIA, Sixth Edition, S. Chand and Company Ltd, pp 15. New Delhi.
17. Barth (1834-1916) was a renowned scholar whose remarkable work *Les religions de l'Inde* appeared in 1882 and was translated in English in 1882. His work also appeared in India.
18. The prayer is translated by Wendy Doniger, retrieved from All About Heaven, on Nov 14, 2017
19. Graves, Robert, Gods of universal power, in New Larousse Encyclopedia of Mythology, 1990.
20. Graves, Robert, Gods of universal power, in New Larousse Encyclopedia of Mythology, 1990
21. Daniélou, Alain (1991). *The Myths and Gods of India: The Classic Work on Hindu Polytheism from the Princeton Bollingen Series. Inner Traditions.* pp. 108–109. ISBN 978-0-89281-354-4.
[15] T. A. Gopinatha Rao (1993). *Elements of Hindu iconography.* Motilal Banarsidass. p. 111. ISBN 978-81-208-0878-2.
22. Hervey De Witt Griswold (1971). *The Religion of the R̥gveda.* Motilal Banarsidass. ISBN 978-81-208-0745-7.
23. Alain Daniélou (1991). *The Myths and Gods of India: The Classic Work on Hindu Polytheism from the Princeton Bollingen Series.* ISBN 978-0-89281-354-4.

INDEX

A

- A. H. Sayce, 26,159
 Abu Simbel, 14, 30,31
 Afghanistan, 42,63,92, 121,
 141, 152, 238, 240, 243,
 257,266,
 Africa, 101, 103
 African, 103, 230, 240,254,
 274
 Agni, 100, 125
 Ahmad Hassan Dani, 33, 58
 Ahura Mazda, 301
 Akkad, 218, 220, 255,297
 Akkadian, 186,217,218,
 219, 220, 223, 227, 228,
 229, 232,238, 276
 Albert Einstein, 32
 Albright, 229, 239
 Alexander, 157, 199, 279
 al-Sulaiti, 239, 240
 Altyn-Depe, 237
 Ambrosia, 298
 Amburaja, 298
 American, 44, 53, 101, 102,
 103, 104, 150, 162, 164,
 212, 229
 Amri, 17, 59, 134
 Ancient, 11, 12, 13, 14, 15,
 17, 18, 19, 20, 24, 25, 27,
 28, 29, 30, 33, 39, 41, 42,
 43, 44, 45, 46, 47, 48, 51,
 52,57, 61, 62, 63, 64, 70,
 73, 74, 77, 78, 79, 80, 81,
 83, 84, 85, 88, 91, 92, 95,
 96, 97, 99, 100, 109, 110,
 112, 114, 120, 122, 123,
 124, 127, 129, 130, 131,
 144, 147, 149, 150, 157,
 159, 161, 164, 167, 168,
 169, 170, 172, 173, 176,
 178, 183, 184, 186, 200,
 202, 208, 211, 212, 213,
 215, 218, 225, 226, 229,
 239, 247, 253, 259, 262,
 271, 272, 273, 274, 279,
 284, 285, 288,295, 296,
 301,
 Ancient bricks, 83
 Ancient Greece, 213
 Andrew Lawler, 174
 Andrew Robinson, 96, 98
 Anglican, 94
 Angola, 103
 Annalee Newitz, 91,93
 Apbhamsha, 166, 167, 168
 Arab traders, 96, 100
 Arabian Sea, 92, 117, 121,
 147, 148, 152, 161, 253,
 257,266
 Arabic, 101, 118, 125, 168,
 223,
 archaeologist, 19, 20, 44,
 45, 64, 75, 121, 144, 155,
 199, 208,229, 237, 241,

253,259, 283
 archaeologists, 14, 17, 22,
 26, 30, 33, 43, 45, 47, 49,
 61, 62, 79, 81, 84, 91, 92,
 93, 122, 130, 136
 army, 15,26,91
 Arrapkha, 247
 Arthashastra, 112
 Artifact, 131, 132, 151, 152,
 201, 212
 Aryan, 28, 29, 43, 83, 119,
 120, 124, 125
 Aryan language, 160,169
 Aryan tribes, 247
 Aryans, 29, 120, 124, 159,
 160, 170, 207, 248, 288,
 290, 295
 Asia, 17, 19, 22, 23, 43, 44,
 58, 59, 62, 63,
 Asko Parpola, 24, 51, 163,
 164, 171, 199, 202, 215,
 223.
 Assurbanipal, 229, 230, 239
 Assyria, 247,248
 Assyrians, 229,230,239,247
 Auguste Barth, 29
 Ayurveda, 120
 Aztec, 213
 azuki, 98

B

B.B. Lal, 200
 B.K. Thapar, 200
 Babylon Assyrian, 216

Babylonia, 109, 219
 Babylonian, 221, 253, 296
 Babylonians, 109
 Badakhshan, 141, 238,240
 Bahrain, 18, 63, 141, 146,
 148, 149, 227, 238, 240,
 253
 Balochistan, 25, 105, 200,
 121, 122,
 Balochistan-Iran borders,
 257,266,
 Baluchistan, 12, 23, 25,
 122, 130, 132, 133, 134,
 179, 186.
 Banawali, 114, 134
 Banded sandstone, 84
 Bangles, 84, 215, 239, 253,
 259,287,
 Barley, 17, 64, 98, 109,
 122, 171, 230,235,238
 Belan, 99
 Bertrand Russell, 32
 Bible, 109, 183
 Bobbins, 13, 24,96, 100,
 Bombay, 42, 43, 74, 269,
 Brahmi, 161, 162, 163
 Brahmic, 160
 Brahminabad, 129
 Brahui, 160, 161, 170
 brickwork, 262, 285
 Britain, 89, 102, 103,104
 British, 4, 14, 30, 68, 87,
 92, 101, 103, 104, 110,
 112, 129, 130, 149, 199,

208, 211, 212, 213.
 British Empire, 110
 British Highlands, 212
 British Raj, 213
 Brittanica, 245, 247
 Bronze, 19, 42, 43, 44, 45,
 47, 58, 60, 61, 63, 76,
 77, 78, 114, 122, 171, 211
 Bronze Age, 42, 44, 45, 47,
 58, 60, 63, 77, 78, 114,
 122, 171
 Bronze-metal, 84
 Buddhism, 212
 Buddhist, 23, 74, 130, 158,
 212
 Buddhists, 211, 212
 Building technology, 12, 22

C

C. J. Gadd, 26, 159, 160
 Calcutta, 155, 216
 Canals, 131, 172
 Caspian, 43, 211
 Catherine Jarrige, 121
 Catholic, 89
 Cattle, 18, 19, 58, 98, 171,
 240
 Celts, 212, 213
 Central Asia, 19, 43, 44, 63,
 78, 135, 152, 172, 185
 Ceramic pots, 201
 Chalcolithic, 53, 58, 59,
 63, 122, 124, 144, 171, 177,
 237

Chanhu jo daro, 107, 134,
 158
 Chanhudaro, 25, 200
 Chariots, 230, 239, 247
 Charles Brosses, 274
 Charles M Tipton, 307
 China, 98, 152, 212, 276
 Chinese, 57, 175, 176, 184,
 271, 276, 295
 Christ, 42, 176, 155
 Christian, 89, 212, 297
 Civilization, 11, 12, 14, 17,
 18, 20, 21, 22, 23, 25, 26,
 27, 28, 39, 41, 42, 43, 44,
 45, 46, 47, 49, 53, 57, 62,
 74, 75, 76, 77, 78, 80, 82,
 84, 87, 88, 90, 91, 92, 93,
 99, 107, 112, 114, 117,
 119, 121, 122, 124, 129,
 130, 131, 132, 133, 134,
 136, 142, 143, 144, 145,
 146, 147, 148, 149, 150,
 151, 152, 155, 157, 158,
 159, 160, 171
 Clothing, 101
 Collection de Clercq, 218,
 219
 Collins, 19
 Community, 46, 80, 91,
 120, 225, 238, 249
 Congo, 103
 Conquered, 29, 279, 297, 298
 Conquers, 80
 Coppa, 123

Copper, 19, 53, 59, 60, 63,
76, 83, 84, 114
Coronado, 101
Cotton, 13, 18, 23, 24, 59,
95, 96, 97, 98, 99, 100,
101, 102, 103, 104, 105
Craftsmanship, 84, 104,
132, 135, 259, 283
Cunningham, 76, 157, 199

D

D. Potts, 229, 231, 246,
Danish, 4
Dates, 17, 59, 61, 96, 99
Daulatram, 168
Delhi, 20, 42, 43, 75, 112,
113, 243, 269
Denis J. Murphy, 99
Dholavira, 43, 171, 243,
269
Dilmun, 18, 63, 148, 149,
179, 218, 223, 226, 227,
230, 237
Dirhem, 109, 110
discovered, 11, 13, 14, 19,
21, 22, 26, 28, 30, 42, 43,
48, 61, 62, 76, 87, 91, 92,
93, 98, 101, 114, 121,
123, 144, 158, 173, 199,
202, 208, 211, 213, 215
Dockyards, 81, 131
Dor, 25, 200
Dr Allana, 169
Dr Bryan, 112, 113

Dr Frankfort's, 217
Dr Gurbaxani, 33
Dr Nabi Bakhsh Baloch,
168
Dr Prannath, 160
Dr. Parveen Shah, 33
Drainage system, 11, 21,
41, 45, 47, 79, 133
Drainage technology, 44, 77
Dravidian, 160, 162, 163,
164, 165, 166, 170, 181,
182, 183, 186, 226, 229,
238, 290
Dravidian language, 160,
182, 166, 170, 170, 181,
182, 183, 186, 226, 229,
238, 290
Dravidians, 163
Drilled teeth, 123

E

Economic, 44, 63, 78, 83,
97, 104, 113, 149, 150,
180, 202, 223, 232, 237,
238, 240
Edward Burnett, 273
Egypt, 13, 14, 20, 24, 30,
31, 38, 42, 44, 46, 53, 77,
80, 95, 96, 100, 102, 180,
199, 221, 229, 230, 239,
247, 250, 271, 295
Egyptian, 102, 109, 146,
160, 169, 175, 176, 178,
201, 216, 220, 239, 248,

249, 250, 276
 Einkorn, 98
 Emblem, 211, 212, 260
 Encyclopedia, 13, 24, 36,
 43, 97, 221, 245, 247,
 269, 297
 England, 89, 109
 English, 60, 101, 102, 109,
 166, 295
 Enki, 296, 297
 Enlil, 288, 296, 297
 Entertainment, 20, 259, 283
 Ernest Mackay, 14, 30, 75,
 87, 178, 199
 Eurasian continent, 149
 Europe, 44, 53, 77, 96, 100,
 101, 102, 103, 104, 109,
 111, 118, 125, 229, 259
 European, 101, 103, 104,
 118, 125, 212, 257

F

Farmer, 174, 175, 176, 177,
 178, 179, 180, 181, 182
 Filigree, 84
 Florida, 101
 Flush toilets, 47
 France, 110

G

G. R. Hunter's, 158, 160
 Gadd, 26, 159, 160, 217
 Gandhara, 24, 100
 Gandhara Valley, 24, 100

Gandhi, 104
 Gargi Gupta, 84
 Generation, 27, 33, 65, 70,
 85
 George Dales, 75
 George F. Dales, 200
 George Roux, 249
 German, 109, 161, 212
 Germany, 131, 212, 231,
 237
 Gods, 4, 28, 34, 100, 125,
 247, 272, 275, 276, 286,
 297
 Gossypium arborescens, 99
 Gossypium herbaceum, 99
 Granaries, 81, 98, 122, 171,
 172, 230, 241
 Granary, 45, 78, 80, 230,
 241,
 Greece, 19, 62, 98, 180,
 213, 259, 271, 272, 277
 Greek, 19, 60, 62, 109, 183,
 212, 279, 301
 Greeks, 109, 212, 271, 279
 Gregory L. Possehl, 208
 Gregory Possehl, 19, 166,
 174, 218, 259, 263, 283,
 286
 Guabba, 228, 229, 230, 235,
 238, 241
 Guinea, 99
 Gujarat, 22, 25, 60, 62, 132,
 134, 136, 141, 144,
 173, 199, 200, 227, 238,

240, 257, 266
Gujarat state, 22, 62, 144

H

Hafizur Rahman, 33
Hakra river, 59, 134
Hammurabi, 235, 296, 297
Harappa, 11, 14, 21, 25, 28, 42, 43, 45, 63, 75, 76, 79, 130, 131, 134, 135, 136, 143, 157, 158, 161, 171, 200, 217, 239, 243, 269, 286, 290
Harappan, 19, 23, 58, 59, 60, 61, 63, 65, 81, 91, 111, 130, 131, 132, 133, 134, 135, 136, 141, 142, 147, 149, 150, 151, 152, 157, 165, 166, 171, 172, 173, 174, 178, 179, 185, 186, 199, 200, 215, 223, 230, 237, 238, 240
Harappan Civilization, 91, 171, 174, 179, 230, 237
Harappans, 18, 60, 75, 114, 136, 144, 146, 148, 149, 152, 173, 177, 179, 181, 285, 186
Hemmy, 112
Henry Heras, 162
Herbert Spencer, 274
Herodotus, 13, 24, 95, 100
Himalayan, 17, 44, 77, 261, 284

Himalayas, 129, 152
Hindu, 65, 101, 104, 111, 120, 215, 296
Hinduism, 124, 261, 289
Hiram's, 161
Hiranandani, 169
Hittite, 184, 229, 239, 248
Hrappan, 59, 81, 229
Hurri, 249
Hurrians, 248, 296
Hydropathist establishment, 44, 77
Hygiene, 21, 27, 117, 121
Hypocaust, 46, 79
Hypothesis, 24, 43, 65, 157, 162, 166, 181, 186, 225, 296

I

Ihsan Ali, 33
India, 13, 19, 22, 23, 24, 39, 42, 44, 47, 59, 62, 68, 75, 77, 81, 92, 93, 96, 97, 98, 99, 100, 102, 104, 107, 112, 124, 129, 130, 144, 145, 157, 163, 167, 169, 174, 186, 211, 212, 213
Indo-Aryan, 167, 168, 169, 185, 249, 256,
Indo-Iranian, 171, 185, 249, 256
Indo-Iranians, 247
Indonesia, 118, 125
Indra, 29, 125, 247, 248,

- 296, 301, 302
- Indus, 11, 12, 13, 14, 15,
17, 18, 19, 20, 21, 22, 23,
24, 25, 26, 44, 45, 46, 47,
48, 49, 50, 51, 52, 53, 55,
73, 77, 78, 79, 80, 81, 82,
83, 84, 85, 86, 87, 88, 90,
91, 93, 95, 96, 97, 98,
100, 101, 102, 103, 105,
115, 116, 117, 120, 122,
124, 125, 126, 127,
128, 129, 130, 131, 132,
133, 136, 137, 140, 141,
142, 144, 145, 146, 147,
149, 151, 152, 153, 154,
155, 156, 158, 175, 177,
178, 179, 180, 181, 182,
183, 185, 186, 187, 188,
191, 192, 193, 194, 195,
196, 197, 198, 199, 200,
201, 202, 203, 204, 205,
206, 207, 208, 209, 210,
211, 212, 213, 214, 215,
216, 217, 218, 219, 220,
223, 224, 225, 226, 227,
228, 233, 235, 236, 239,
240, 242, 243, 244, 248,
251, 253, 255, 256, 258,
259, 263, 264, 265, 266,
269, 270, 273, 275, 277,
286, 287, 288, 291, 292,
293, 294, 295, 301, 302,
309, 311, 312, 313, 315,
316, 317, 318, 322, 324,
328, 330, 331, 332, 340
- Indus Civilization, 12, 13,
14, 17, 20, 21, 22, 23, 25,
26, 27, 42, 43, 44, 46, 47,
49, 57, 62, 76, 77, 80, 82,
84, 87, 91, 92, 99, 117,
121, 130, 131, 132, 134,
136, 143, 144, 145, 150,
155, 158, 159, 160, 171,
172, 173, 174, 177,
181, 183, 185, 200, 203,
215, 217, 218, 219, 221,
223, 226, 227, 258, 261,
262, 264, 267, 269, 271,
282, 285, 295.
- Indus delta, 96, 99
- Indus River, 22, 43, 49, 58,
62, 73, 76, 80, 92, 122,
144, 238, 257, 261, 266,
284
- Indus script, 13, 26, 59, 64,
119, 136, 157, 158, 159,
160, 162, 164, 166, 171,
172, 173, 174, 177, 178,
179, 183, 184, 185, 186,
201, 202, 203, 220, 255,
257, 263, 281, 285, 290
- Indus Valley, 5, 11, 12, 13,
14, 17, 18, 19, 20, 21, 22,
23, 24, 25, 26, 27, 28, 29,
30, 34, 41, 42, 43, 44, 45,
46, 53, 57, 58, 59, 60, 61,
63, 64, 65, 74, 76, 77, 78,
79, 88, 90, 96, 97, 98,

- 99, 100, 107, 108, 112,
113, 114, 117, 118, 119,
120, 121, 122, 124, 129,
130, 131, 134, 141, 142,
143, 144, 146, 147, 148,
149, 150, 151, 157, 158,
159, 160, 165, 166, 168,
170, 172, 173, 177, 185,
186, 200, 202, 207, 208,
211, 213, 214, 215, 218,
221, 223, 225, 226, 227,
229, 230, 231, 237, 238,
239, 240, 243, 245, 246,
247, 253, 257, 258, 261,
262, 265, 271, 272, 281,
282, 284, 285, 286, 289,
293, 295, 296, 297, 298,
302
- Indus Valley civilization,
11, 12, 14, 17, 18, 20, 21,
22, 23, 25, 26, 28, 34, 41,
42, 43, 45, 53, 57, 76, 77,
78, 79, 88, 90, 99, 107,
112, 117, 119, 121, 124,
129, 130, 142, 143, 144,
146, 147, 149, 150, 151,
157, 202, 207, 211, 213,
215, 217, 218, 223, 225,
226, 227, 238, 239, 243,
253, 257, 258, 262, 265,
271, 272, 281, 282, 286,
289, 295, 296, 297
- Indus Valley Civilization,
245
- Inhabitants, 12, 19, 20, 21,
27, 30, 34, 46, 57, 60, 64,
76, 79, 87, 123, 124, 131,
134, 217, 239, 258, 259,
266, 267, 272, 281, 282,
283, 289
- International waters.
Bullock, 12, 19, 20, 21,
27, 30, 34, 46, 57, 60, 64,
76, 79, 87, 123, 124,
131, 134, 217, 239, 258,
259, 266, 267, 272, 281,
282, 283, 289
- Iran, 53, 63, 144, 152, 166,
168, 172, 215, 257, 266,
297
- Iranian border, 43, 171, 269
- Iranian plateau, 18, 63, 149,
172
- Iraq, 295
- Irrigation, 99, 124, 165,
172, 232, 246
- Italian, 101, 227
- Italy, 96, 100
- Iwata, 23, 107

J

Jadapati, 298
Jainism, 212
Jains, 212
Jalapati, 298
James River, 102
Japanese, 23, 107, 271
Jean-François, 121

Jericho, 133
 Jewelers, 49, 127
 Jewelry, 61, 152, 216
 Jiroft, 179
 John Keay, 19, 226
 John Kenoyer, 45, 78
 John Lubbock, 274
 John Marshall, 11, 13, 19,
 21, 23, 28, 29, 30, 41, 48,
 52, 61, 65, 73, 74, 76, 81,
 88, 108, 130, 155, 158,
 171, 199, 217, 259, 260,
 264, 272, 283, 286, 287
 Jonathan Kenoyer, 42, 77
 Jonathan Kenynoer, 275
 Joshua Mark, 28, 272, 275

K

Kali, 25, 200
 Kalibangan, 59, 200
 Kamchatka, 213
 Karachi, 129,
 Kashmir, 99, 152
 Kengi, 231
 Kenoyer, 44, 45, 77, 78,
 131, 132
 Khyber Pass, 43
 Khybr-Pakhtunkhwa, 105
 Kili Gul Muhammad, 132
 King Henry, 89
 King Henry VIII, 89
 kingdoms, 247
 Kirkūk, 247

Kish, 13, 26, 158, 220
 Koskenniemi, 163
 Kot Digi, 17, 59,
 Kramer, 229, 230
 Krishan Chandar, 169
 Kush, 229, 296

L

Lahanda, 167, 168
 Lancashire, 102, 103
 Lancashire cotton industry,
 102
 Langash, 13, 26, 158
 Langdon, 160
 Langdon's theory, 161
 Langworth Dames, 157
 lapis, 59, 141, 152, 216,
 238, 240, 253
 Larkana district, 73, 199
 lazuli, 59, 141, 152, 216,
 238, 240, 254
 linguistic, 167, 168, 169,
 175, 178, 179, 180, 181,
 182, 186, 202
 London, 28, 74, 110, 169,
 199, 286
 Lord of Creatures, 100
 Lothal, 22, 25, 43, 60, 62,
 83, 108, 112, 131, 136,
 141, 144, 145, 146, 147,
 148, 158, 173, 199, 200,
 238, 240, 243, 269
 Luwian, 176

M

- M K Dhavalikar, 227
 M. N. Vahia, 111
 M. S. Vats, 158
 Magan, 18, 148, 149, 218, 223, 226, 227, 230, 239, 247
 Mahabharata, 15, 32
 Mahatma Gandhi, 104
 Mahatma Ghandi, 104
 Mainkar, 112
 Makran, 132, 134, 227, 243
 Makran coast, 132, 134, 243
 Mannhardt, 274, 275
 Marathi, 167
 Maryannu, 247, 249
 Masonry, 135, 145, 231, 245
 Massimo, 178, 223, 227
 Mayan, 213
 Measurement bar technology, 44, 77
 Measures, 12, 22, 23, 48, 60, 107, 108, 109, 110, 111, 113, 114, 119, 150, 165, 179
 Medieval, 96, 100
 Mediterranean, 13, 24, 95, 98, 100, 109, 161, 162, 248
 Mehargarh, 17, 18, 58, 121, 122, 123, 144
 Mehrgarh, 58, 59, 61, 64, 65, 121, 122, 123, 132, 134, 179, 243
 Meluhha, 12, 18, 22, 24, 25, 63, 148, 186, 218, 219, 220, 223, 225, 226, 227, 228, 229, 230, 231, 235, 237, 238, 239, 240, 243, 245, 246, 247, 253
 Meluhhan, 18, 25, 148, 186, 217, 218, 219, 220, 223, 225, 226, 227, 228, 229, 230, 231, 232, 235, 237, 239, 240, 241, 246, 247, 248, 255
 Meluhhan language, 18, 148, 186, 217, 218, 220, 255
 Menes, 239
 Mesolithic, 43
 Mesopotamia, 13, 18, 19, 22, 24, 25, 27, 41, 42, 44, 63, 64, 67, 74, 78, 91, 95, 100, 117, 121, 122, 141, 148, 149, 150, 159, 173, 180, 186, 202, 215, 216, 217, 218, 223, 227, 228, 232, 237, 238, 241, 245, 246, 247, 248, 253, 255, 275, 286
 Mesopotamian, 12, 18, 22, 26, 57, 63, 81, 145, 148, 149, 152, 159, 163, 175, 176, 178, 181, 185, 201, 211, 216, 217, 219, 220,

- 225, 226, 227, 228, 232,
237, 238, 241, 247, 275,
276
Mesopotamian ziggurats, 81
Metropolis, 73
Michael Jansen, 20
Michel Jansen, 82
Microscopy, 123
Middle Ages, 118, 125
Middle East, 13, 26, 47, 70,
81, 101, 152, 158, 253
Migrated, 58, 59, 63, 120,
124, 166, 247, 295
Migrations, 46, 80, 171,
172, 207
Military, 91, 165, 263, 286
Millenniums, 42, 76, 90
Miracle fibre, 97
Mitanni, 245, 247, 248,
249, 250, 256
Mithra, 125
Mitra, 249, 256, 297
Moenjodaro, 17, 20, 46, 47,
61, 69, 78, 79, 80, 100,
108, 162, 168, 266, 271,
285,
Moenjo-daro, 11, 13, 19,
25, 26, 69, 70, 76, 77, 78,
79, 80, 82, 83, 85, 90, 96,
100, 134, 281
Mohammad Rafique
Mughal, 33
Mohenjo-daro, 1, 3, 5, 11,
13, 14, 15, 18, 20, 21, 24,
25, 28, 29, 30, 31, 41, 42,
43, 44, 45, 46, 47, 51, 52,
57, 59, 62, 65, 70, 73, 74,
75, 76, 77, 78, 79, 82, 83,
87, 88, 95, 134, 146, 157,
158, 159, 161, 165, 169,
170, 171, 172, 173, 177,
199, 200, 201, 211, 213,
215, 217, 219, 226, 237,
239, 243, 257, 258, 259,
260, 261, 262, 263, 265
Mortimer, 70, 75, 80, 84,
259
Mound of the Dead, 73, 293
Mozambique, 103
Mukhtasir Tareekh, 168
Mumbai, 44, 112, 270
Mung, 99
Musée Guimet, 122
Museum, 41, 68, 208, 218,
219, 228, 229
Mycenaean, 180

N

- Nadeem, 33
Namazga-Depe, 237
Naram-Sim, 239
Narmer, 180
Nausharo, 122, 179
Necklace, 84, 216, 262
Neolithic, 30, 58, 59, 61, 64,
67, 76, 87, 98, 121, 122,
123, 131, 132, 171, 239,
Nile River, 14, 31

Nile Valley, 101
 Nisha Yadav, 111
 Noah, 229
 North, 11, 17, 18, 21, 25,
 43, 48, 74, 81, 82, 101,
 102, 103, 124, 132, 149,
 166, 167, 186, 200, 230,
 237, 269
 Northern Europe, 96, 100
 Nubia, 96, 100
 Nuggets, 84

O

Oedema, 300
 Oman, 63, 240, 253, 254,
 Ornamental technology, 44,
 77
 Ornaments, 23, 63, 84, 85,
 131, 136, 150, 171, 172,
 239, 253, 258, 263, 282
 Orthodox catholic, 89
 Oryza, 99

P

Pakistan, 17, 42, 43, 44, 47,
 68, 75, 77, 81, 92, 93, 95,
 98, 104, 112, 121, 130, 157,
 163, 203, 218, 219, 230,
 Pakistani, 112, 179
 Palestine, 230, 239, 247
 Panorama, 69
 Parveen Talpur, 33
 Pashupati, 259, 260, 261,
 283, 284,

Pasi, 298
 Peninsula, 18, 25, 63, 135,
 148, 226
 Pennsylvania, 208, 255
 Persia, 108, 301
 Persian, 44, 63, 78, 118,
 125, 152, 183, 218, 226,
 227, 232, 237, 246
 Peru, 101
 Petti, 163
 Phenomenons, 74
 Phoenicians, 161
 Piero Meriggi, 161
 Platforms, 81, 83, 289
 Political, 33, 90, 97, 132,
 173, 178, 189, 263
 Pottery, 61, 132, 133, 164,
 171, 172, 232, 239, 240,
 246, 253, 263
 Prajapati, 100
 Prakirit, 166, 167, 168, 169,
 170
 Prasetas, 298
 Pre-Aryan, 28, 43, 83, 119,
 282, 289, 290, 302
 Prefixes, 164
 Pre-Harappan, 58, 132, 133,
 134
 Prehistoric, 19, 26, 62, 64,
 120, 136, 155, 159, 162,
 171
 Priest-King, 219, 262, 285
 Priests, 159, 179, 162, 285,
 298

Professor Gavin, 46, 80,
261, 284
Puabi's, 208, 219
Punjab, 17, 105, 132, 133,
134, 135, 171, 239, 296
Puranas, 302
Purity, 11, 27, 114

Q

Qatari, 239, 253
Queen Catherine, 89

R

R.J. Banerji, 74
Rahman Dheri, 172, 179
Rajasthan, 200, 243
Rakhial Morai, 35
Rakhigarhi, 43, 269
Rakigarhi, 75
Raksha Bandhari, 302
Rana Gundai, 133
Ravi, 17, 59, 129
Richard, 174, 181
Rig Veda, 43, 298, 299,
300, 302
Rigveda, 24, 29, 100
Romans, 109
Ruper, 25, 200

S

S.R. Rao, 145, 199
Samuel, 102, 229
San Andrés, 216

Sanskrit, 4, 25, 124, 166,
167 174, 186, 211, 213,
226, 227, 247, 249, 297
Sarasvati River, 43
Sargon, 218, 223, 227, 228,
230, 232, 239, 247, 297
Sargon II, 230, 239, 247
Scandinavia, 212, 213
Scholars, 12, 13, 22, 24, 25,
26, 27, 28, 30, 34, 42, 43,
44, 45, 46, 53, 57, 58, 64,
73, 75, 76,, 77, 79, 88, 97,
111, 122, 132, 134, 143,
144, 155, 158, 159, 160,
162, 163, 164, 166, 168,
169, 170, 174, 186, 200,
211, 216, 220, 221, 225,
226, 227, 228, 229, 230,
232, 238, 245, 246, 247,
248, 257, 258, 320, 261,
263, 265, 266, 267, 272,
281, 282, 287, 289, 290,
295, 296
Seals, 13, 20, 23, 25, 26, 41,
49, 60, 61, 63, 65, 74, 131,
133, 136, 145, 146, 149,
152, 157, 158, 159, 160,
161, 163, 164, 165, 166,
169, 170, 172, 173, 175,
177, 179, 185, 199, 200,
201, 202, 208, 211, 215,
216, 217, 218, 219, 220,
221, 225, 253, 258, 263,
266, 281, 282, 284, 286

- Seasonal Ghaggar, 43
 Sesame, 17, 59, 99, 238
 Settlements, 11, 19, 21, 23, 27, 32, 41, 43, 44, 45, 46, 52, 65, 68, 77, 78, 79, 80, 92, 93, 99, 130, 134, 171, 172, 226, 237, 239, 240, 245, 248, 253, 257, 263, 266, 269, 282
 Shaffer, 64, 131
 Shahdad, 179
 Shigeo, 23, 107
 Shiva, 259, 260, 261, 283, 284,
 Shortugai, 141, 238, 240
 Shu Lishu, 217
 Shu-ilishu's, 218, 220, 255
 Shuttarna, 250
 Siddha, 120
 Simo, 25, 163, 226, 228, 229
 Sindh, 13, 24, 30, 95, 100, 168, 227, 239, 240, 254, 265, 279
 Sindhian, 13, 24, 95, 100
 Sindhu, 43, 191
 Sir John Marshal, 13, 26, 157, 158, 159
 Sirajul Haq Memon, 169
 Slaves, 275
 Smith, 26, 159, 160
 south, 17, 22, 23, 25, 43, 58, 62, 64, 76, 79, 82, 99, 103, 118, 119, 121, 124, 125, 130, 144, 183, 185, 186, 200, 202, 230, 238, 247, 257, 261, 266, 269, 279, 282, 284
 South Asia, 22, 58, 62, 64, 76, 79, 99, 124, 144, 183, 185, 186, 257, 266, 282
 South Asian, 64, 186
 Soy, 98
 Spain, 96, 100, 101
 Sproat, 174, 175, 181, 202
 Spun, 13, 23, 97, 103
 Stupa, 74
 Suemrian, 245
 Suffixes, 164
 Sugarcane, 99
 Sukagen, 25, 200
 Sumer, 41, 46, 76, 80, 150, 161, 226, 231, 32, 238, 245, 246, 295
 Sumerian, 25, 26, 65, 135, 150, 158, 159, 160, 161, 163, 168, 175, 176, 217, 218, 220, 225, 226, 227, 228, 231, 232, 238, 240, 241, 245, 246, 275, 296, 297
 Sumerian origin, 26, 158
 Suraj Bhan, 33
 surviving, 23, 107, 181, 183
 Susa, 13, 26, 136, 158, 159, 215
 Swami Shankar Anand, 160
 Swasti, 211
 Swastika, 178, 211, 212, 213

Sydney, 26, 159, 160
Symposium, 69, 70
Syria, 98, 152

T

Taharqa, 230, 239
Tamil, 112
Tarka, king, 247
Tarku, 230, 239
Tartar, 213
Taxila, 41
Technologies, 11, 21, 23,
27, 39, 41, 44, 46, 47, 57,
60, 77, 79, 80, 85
Temples, 31, 49, 110, 136,
173, 263, 267, 275, 276,
284, 286, 302
Tepe, 179
Terracotta, 61, 145, 146,
152, 172, 258, 261, 282
Textile, 103, 105
Thomas, 89, 90
Tombs, 34
Tool-making technology,
11, 21, 41
Tools, 17, 172, 178, 186, 263
Trans-Himalayan, 44, 77
Turkey, 98
Turkmenistan, 53, 63, 144, 172
Tushratta, 278

U

Ubadians, 245
Ubaidians, 231, 245, 246

Umma, 13, 26, 158
Unani, 12
UNESCO, 14, 31
Unmistakable, 225
UNSECO, 130
Uranus, 301
Urban, 11, 12, 17, 18, 19,
20, 21, 23, 27, 41, 43,
45, 46, 47, 49, 57, 59, 78,
79, 80, 81, 82, 90, 92, 93,
119, 122, 131, 132, 136,
155, 171, 173, 237, 257,
261, 262, 263, 266, 269,
271, 282, 285, 286
Ur-Lama, 235, 238
Uruk culture, 232, 246
Utopia, 90
Utopian, 65, 68, 89, 91, 92
Uttar Pradesh, 25, 200, 243

V

Varchanda, 170
Varuna, 28, 29, 100, 125,
191, 247, 248, 249, 256,
295, 296, 297, 298, 299,
300, 301, 302
Vedas, 211, 212, 297, 302
Vedic, 29, 43, 118, 124,
125, 159, 166, 179, 185,
260, 289, 295, 297, 298,
299, 301, 302
Venkatachalam, 112
Verachada, 167, 168
Vermaak, 230, 235, 238, 240

Vickham Boyle, 98
Virginia, 102
Vishnu, 288

W

Warehouses, 81
Wassukkani, 248
wastewater, 81
weights, 12, 22, 23, 49, 60,
107, 108, 109, 110, 111,
112, 113, 114, 127, 131,
133, 165, 172, 179, 263
West Asian, 59, 232, 246
Wheat, 17, 58, 64, 98, 122,
171
Wheeler, 70, 75, 80, 84,
259
Whorls, 13, 24, 96, 100
William Brunton, 129

William the Bastard, 4
Windmills, 102
Witzel, 174, 202, 238
Wood, 45, 78, 135, 141,
147, 152, 177, 226, 237,
240
Woven, 13, 23, 24, 63, 95,
100, 104, 152

Y

Yahya, 179

Z

Zagros, 247
Zaheer Baber, 98
Zoroaster, 301
Zoroastrian, 301
Zulfikar Ali Bhutto, 69