Abstracts of Speakers

International Seminar on

"How Deep are the Roots of Indian Civilization? An Archaeological and Historical Perspective"

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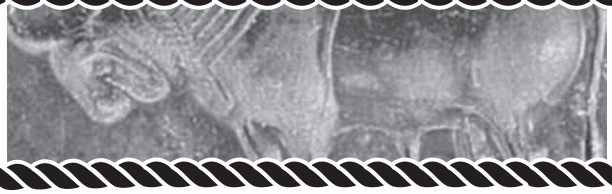

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Keynote Address to be delivered by

Professor B. B. Lal

(Former Director General, Archaeological Survey of India)

For quite some time a series of postulates have been distorting our vision of India's past. Some of these are:

1. The Vedas are no older than 1200 BCE and the Vedic people were nomads.

2. The authors of the Harappan Civilization, ascribable to the 3rd millennium BCE, were a Dravidian-speaking people. This civilization was destroyed by Aryan invaders and thereby became extinct.

3. When it was demonstrated that there was no 'Aryan Invasion', another theory was floated, namely that the Aryans were immigrants from the Bactria-Margiana Archaeological Complex of Central Asia.

Recent excavations at a number of sites in Rajasthan, Haryana, Panjab and Gujarat and a fresh study of the Vedic texts have demonstrated that all the above postulates are ill-founded. We now know for certain that ---

1. The *Rigveda* is much older than 2000 BCE. A close scrutiny of the text clearly demonstrates that the Rigvedic people were not nomads.

2. The Rigvedic domain and the area occupied by the Harappan Civilization were co-terminus and that the Vedas and this civilization are but two faces of the same coin.

3. The Harappan Civilization did not become extinct. On the other hand, many of its features are noticeable even today.

4. The roots of the Harappan Civilization, on the basis of C-14 dating, go back to the 5th millennium BCE, if not earlier. Thus, the Harappan/Vedic people were indigenous and not invaders or immigrants.

5. Further, archaeological and literary evidences combine to show that a section of the Vedic people emigrated to as far west as Turkey, via Iran, some time at the beginning of the 2nd millennium BCE.

About Professor B.B. Lal

Born in 1921 and educated at the University of Allahabad and Institute of Archaeology, London, Professor B. B. Lal was the Director General of the Archaeological Survey of India from 1968-72.

His excavations at sites associated with the Mahabharata and Ramayana have shown that there was a kernel of truth in these epics, in spite of the fact that these have witnessed heavy interpolations. The excavation at Kalibagan has added many new dimensions to our knowledge of the Harappan Civilization.

Professor Lal has published over hundred seminal papers in renowned research journals in India, USA, UK, Italy, France, etc. and over a dozen books, the latest being How Deep are the Roots of Indian Civilization? Archaeology Answers, on which is focused the current seminar.

Realizing the importance of Professor Lal's researches, the Institute of Archaeology, St. Petersberg, Russia, has conferred on him an honorary D. Litt., while the President of India has honored him with **Padma Bhushan.**

Scientific Findings of the Drainage System in NW India - The River Sarasvati

Dr. J. R. Sharma and Dr. B. K. Bhadra

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Sarasvati is known as the holiest river of India, as much as it has retained its sacred character right from the Rigvedic age to the present day. The interest attached to Sarasvati is mainly because of the great Indian civilization, which flourished on its banks more than 8000 years ago. This ancient civilization is believed to have come to a sudden end as a result of neotectonics as well as climatic change. Due to these causes, river Sarasvati which once flowed in true majesty dwindled to an ephemeral stream and finally got lost in the sands of Thar Desert. Rivers of Punjab, Haryana, western Rajasthan and the northern Gujarat, present an interesting and complex evolutionary history of drainage development dating back to middle Pleistocene. Study of River Sarasvati has exercised great fascination and unflagging interest in the minds of the Scholars and Scientists.

However, establishing the exact course of Vedic Sarasvati and its perennial source remains a debatable topic among the researchers due to lack of proper scientific database. With the advent of Remote Sensing technology and the available satellite images, it is possible to trace the drainage course in the form of buried palaeochannels. The course of the Sarasvati river buried below the sands of Thar Desert has been discovered using IRS P3 WiFS images (Gupta et al, 2004). The Sarasvati river system (present day drainages along with palaeochannels) in Haryana, Punjab and northern Gujarat has also been studied in detail by using IRS P6 AWiFS, LISS-III and LISS-IV satellite data (Bhadra et al., 2009; Sharma and Bhadra, 2009). Digital Elevation Model (DEM) from SRTM data has been studied to depict 3D view of the region. The delineated palaeochannels have been validated on the ground by using archaeological sites, hydrogeological and drilling data, rainfall data and stream discharge rates in the last 60 years. The drilled tube wells in Jaisalmer district of Rajasthan shows potable water with high discharge from the sub-surface fluvial palaeochannels. Isotopic dating of trapped water is correlated with the Harappan Civilisation.

To be a vibrant mighty river, the Sarasvati in Vedic Period must have been contributed by any major river system of the Himalaya. Presently, Sutlej and Yamuna are the two perennial rivers which are likely to be the feeder channels in the past. Beyond the range of Siwalik and Lesser Himalaya, these two rivers are fed with the permanent glaciers in the Higher Himalaya. It has been observed from the satellite images that the size of the glacier of Sutlej River is much larger than the size of the Yamunotri and Bandarpunch glaciers. But, due to tectonic changes in the past, these two perennial rivers shift their courses viz. Satluj to the west to join river Indus and Yamuna to east to join River Ganges near Allahabad.

Based on the review of different literatures, archaeological findings and synthesized scientific evidences, three following possible connectivity of the Vedic Sarasvati with the Himalayan River sources have been emerged viz. (a) Connectivity of Vedic Saraswati with Sutlej River (2) Connectivity of Vedic Sarasvati with Yamuna through Bata/Markanda River and (3) Connectivity of Vedic Sarasvati with Yamuna through Drishadvati. However, a large number of field information is required to substantiate the hypothesis.

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About Dr. Bidyut Kumar Bhadra

1. Name: Dr. Bidyut Kumar Bhadra

2. Present Position: Scientist/Eng. `SE' at Regional Remote Sensing Centre, Indian Space Research Organization (ISRO), CAZRI Campus, Jodhpur.

3. Academic Qualification: M. Sc. (Applied Geology) in 1987 from IIT, Roorkee
   Ph.D. (Himalayan Tectonics) in 1996 from IIT, Roorkee

4. Professional Experience: More than 8 years experience (2002 onwards) in the field of Satellite Remote Sensing & GIS in Palaeodrainage and Groundwater Studies.

5. Teaching and Post-Doctoral Research Experience:

7 Years at Pondicherry University from 1995 to 2002

6. Award: Young Scientist Project by Dept. of Science & Technology (DST), New Delhi in 1998

7. Publications: Contribution in Book = 2
   Published Research Papers in Journals = 19
   Papers in Seminar/Conference = 16

Sapta-Sindhu: Geographical Identification and Historical Significance

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My paper deals with the evolution of the concept of Sapta Sindhava/ Sapta Sindhu (the cradle and the country of Vedic culture/ Vedic name of India) and its geographical identification as well as its historical significance. The Vedic Sapta-Sindhu Country (RV.8.24.) originally designated the most celebrated Sarasvati River Region because the appellation "sapta" (seven) has been specifically applied to the Sarasvati River in at least three instances (RV.6: 61.10; 7:36.6; 10: 64.8-9) describing it in one case as being "the seventh, mother of rivers" (*saptathi sindhu-mata*). It eventually came to stand for the name of the vast country extending from the Ganga in the east to the Indus along with its tributary Kabul River in the northwest (RV.10: 75). The rampant confusion on the definition and identification of Sapta Sindhu in the extant scholarship stems from a failure of scholars to recognize the centrality of the Sarasvati River to the concept of Sapta Sindhu and the misconceptions of its relationship to the Indus (Sindhu) River. Actually Sapta Sindhava originally had nothing to do at all with the river Indus/Sindhu, which, however, did later become its integral part (RV 10.75) during the course of the ascendancy of the Vedic Sarasvati culture and the political hegemony of its Bharata rulers, especially Sudas.

Crucial to correctly identifying Sapta-Sindhu, the epicenter as well as the ecumene of the Vedic culture, is the identification of the mighty Sarasvati River which "flowed from the mountains to the ocean" (RV.7: 95.2) and was situated, according to the Rig-Veda (10.95.5) between the Ganga and Yamuna in the east and the Sutudri and the Parushni (modern Satlej and Ravi respectively) in the west. The failure of scholars to appreciate the direct testimony of the text on its location has been mainly due to the small size of the present-day Sarsuti stream that ostensibly could never have merited the grandiose description of the Vedic Sarasvati as "*ambitame*" (best of mothers), "*naditame*" (best of rivers) and "*devitame*" (best of Goddesses), as well as to their dogmatic belief in the Aryan Invasion Theory that militated against the correct location of this crucial river as they sought wrongly to locate it in the modern Southern Afghanistan, identify it with the Indus or make the Sarsvati its tributary, thereby advancing their view of the Aryan invasion via the northwestern mountain passes. However, the recent multidisciplinary research of the last two decades, especially in the fields of archaeology and anthropology as well as genetics, geology, hydrology, seismology, and particularly landsat satellite photography, have now conclusively identified the Vedic Sarasvati with the modern Sarasuti-Ghaggar-Hakra-Nara that ran all the way to the Run of Kachha. Certain old diehards of mainstream Indolgy notwithstanding, there is now a general scholarly consensus on this identification of the great Vedic Sarasvati River that once flowed from the Himalayas to the sea and had eventually disappeared in the sands of Rajasthan and Pakistani Bahawalpur and Sind regions. We now have an authentic view of the original Sarasvati River as well as of Sapta Sindhu. While the core of Sapta-Sindhu, the epicenter of the early Vedic culture, was confined to the land between the Sarasvati and Drishadvati rivers (RV.3: 23.4; 53.11. cf. later designations Kurukshetra/ Dharmakshetra or Brhamavarta), the Aryan ecumene so designated expanded in time to encompass the vast area from the Ganga plain in the east to the Hindukush mountains in the north-west (RV.10. 64.8-9; 10.95). The Sapta-Sindhu country thus virtually overlapped the geographical space of the Harappan culture. Since according to the Vedic texts and ancient tradition as well as modern archaeology, the mighty and perennial Sarasvati River dried up about 2000 BCE at Vinasana, identified with modern Kalibangan in Rajsthan, the chronological convergence of the Vedic culture and the Harappan civilization is unavoidable. Indeed, they were part of the same cultural milieu in time and space.

My identification of Sapta Sindhu in its original as well as in its historically expanded area eliminates the rampant confusion and inaccuracies in the extant scholarship. Further, the overlapping of the Vedic and Harappan civilizations in space and time resolves the dilemma of an entirely literary, Vedic, and another exclusively archaeological, Harappan, cultures. In time even the ancient Persians (6 th century BCE) remembered the region only as Hi(n)du instead of the Avestan original Hapta Hi(n)dus; the Greeks transcribed Vedic Sindhu, Avestan Hindus as "Indus" and the Persian "Hi(n)du" as India. The Chinese transliterated Sindhu as Shen-tu (2nd. Century BCE) and Yin-tu as the name for the whole of India. In the 7th century CE Buddhist pilgrim Xuanzang fancied Yin-tu to represent the Sanskrit word "Indu" meaning 'moon' and imagined its Buddhist denotations connected with the Full-moon night of Buddha's enlightenment (Baisakhi Purnima). The Arabic al-Hind was apparently derived from the Old Persian term for India. In short, Vedic Sindhu was pronounced as Hindu by the old Iranians; India by the Greeks; Yin-tu by the Chinese and al-Hind by the Arabs. It designated India to the south and southeast from the Hindukush mountains across the "seven rivers" (of the Sarasvati, the Sarayu and the Indus systems) that varied over time as the much later Puranic verses included even the southern rivers Narmada and Kaveri in the holy nadi-stuti (*prayer to the Rivers*). The implications of my identification of *Sapta-Sindhu* for the reconstruction of early history of India are incalculable. The word Hindu and India are the alien phonemes of the Vedic Sindhu which stood for **The Country of Rivers** as well as the name of a particular river Sindhu/Indus (RV.X. 95). We are now at the threshold of correctly writing the new history of early India-South Asia and, by extension, providing the basis for a new approach to the larger Eurasian Aryan question.

Shiva G. Bajpai, Ph.D. (SOAS, London), Professor Emeritus of History and former Director, Asian Studies, California State University, Northridge. Co-author. A HISTORICAL ATLAS OF SOUTH ASIA and author of many articles on various aspects of ancient Indian history and culture including those contributed to Hindi Encyclopedia (Vishvakosha) and Encyclopedia of Asian History.

About Shiva G. Bajpai, Ph.D. (London)

Bajpai, Shiva G. Ph.D. (SOAS, University of London, UK) served as Professor of History and Director of Asian Studies at California State University, Northridge, and Los Angeles from 1970 to 2003. As a Professor Emeritus, he still continues to teach courses in Indian history and culture at that institution. He has also taught at the Banaras Hindu University (1958-68) and worked at the University of Minnesota (1967-1970). He has published, many articles on various aspects of Indian history and culture and contributed dozens of articles to the Hindi Vishvakosha (Encyclopedia) and to the Encyclopedia of Asian History. He co-authored a major reference work: A Historical Atlas of South Asia (1978: University of Chicago Press & Updated 2nd edition. 1992: Oxford University Press; 2005: The Digital Library of South Asia, Chicago University Press.) His works in progress include The Empire-State (Raja-Mandala): Dynamics of Geopolitics in Classical India and Early India in World History. Following the California Textbooks' Controversy he has collaborated with the Hinduism Today in their publications of Hindu History Lesson Supplements in five parts (2007- 2010) to the World History School textbooks.

"Harappan Town planning and Water harvesting"

R.S. Bisht

The Harappan city at Dholavira (Kachchh, Gujarat) has revealed an excellent and complete example of town planning for which the civilization is so well known. Dholavira has shown that the entire planning was carried out with mathematical precision which should very hard to obtain on an undulating ground registering a gradient of thirteen metres. It is amazing to find that the Harappans were well versed in determining both vertical and horizontal planes for which they might have developed sound mathematical principles.

For the first time, it was known from Dholavira that there was a gradual growth of the settlement, that the entire settlement was enclosed by a massive fortification wall while an intricate defensive system was in place with regard to principal divisions of the multipartite city, that a series of large water tanks were integral part of planning, and also that there were disposed two multipurpose grounds as well.

The entire city as well as its major and minor components was extremely proportionately resolved in well thought ratios. For an example, internal length and width of the city has a ratio of 5:4, and similarly disposed is the castle whether measured internally or externally. If a diagonal joining north-eastern and south-western corners of the city walls is drawn. It touches the north-western corner (outer) of the castle. Likewise, a diagonal drawn from the north-western corner of the city by bisecting its angle into two equal halves cuts across the similar angle of the middle town corner as well as a crossing of four major streets and then touches the north-eastern corner of the castle. Obliviously, the entire area of the city should have been first divided into squares and triangles, possibly of smaller proportions so as to obtain accuracy in layout over a large area. Not only the major components but all others whether water structures, gates, or individual houses have been proportionately designed. In fact, standardisation starts right from the building block, i.e. mud-brick always made in the ratio of 1:2:4 in terms of thickness, width and length, all throughout the territory as well as the time span of Harappan civilization.

Continuum in Town-Planning and Metrology in Harappan and Classical India

Michel Danino

Harappan town-planning is known to have followed strict norms, but so far, a precise study of Harappan proportions and a correlation with precise units of length have remained elusive. However, the site of Dholavira, with well-defined multiple enclosures and reservoirs obeying strict proportions, enables us to calculate the unit of length most likely to have been used to lay out the fortifications. Dholavira's proportions and master unit receive substantial confirmation from structures at Dholavira and several other Harappan sites, including Mohenjo-daro. The master unit (of 190.1 cm) is then related to the Lothal and the Kalibangan scales, resulting in a “Harappan *angula*” of 1.76 cm, the former being 108 times the latter; this *angula*, in turn, receives some confirmation from skeletal studies, brick sizes, seals and other artefacts.

This Dholavirian scheme of units is deeply related to historical unit systems in several ways; in particular, the *Arthashastra'*s scheme of linear measures can now be thought to have Harappan roots. Several examples from historical times — Taxila, Shishupalgarh, Thimi and the Delhi Iron Pillar, among others — are quoted as evidence of the legacy of Dholavira's *dhanus* and *angula*. Both literature and archaeology therefore support the transmission of the Harappan system of units of length and ratios to historical times — a potentially important case of continuity between India's two urbanizations.

About Dr. Michel Danino

Born in France in 1956, Michel Danino has been living in India since 1977. An independent scholar and student of Indian civilization, he has authored papers and books in French and English. Recent titles are L'Inde et l'invasion de nulle part (Les Belles Lettres, 2006, a study of the Aryan issue), The Lost River: On the Trail of the Sarasvati (Penguin India, 2010, a multidisciplinary study of the Vedic Sarasvati river) and Indian Culture and India's Future (DK Printworld, in press).

Michel Danino has lectured at higher educational and cultural institutions all over India on the Indus-Sarasvati civilization, the Aryan problem, India's scientific heritage, ecological issues, and the challenges faced by Indian culture today. His other interests include forest conservation, nature photography, and the creation of innovative educational material.

The Middle Asian Interacultural Space and the Indus Civilization: A Comparative Perspective for a Definition of Diversity

Maurizio Tosi
University of Bologna
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Not unlikely other regions of the Middle East, heartlands of pristine civilizations, the emergence of urbanism and the early state at the beginning of the third millennium BC appears from the archaeological record as a process of expansion based on the steady acquisition of production means during the two preceding millennia. It can be described as an entwined growth of population and wealth, based on an increasing capacity to produce, accumulate and distribute food. While craft specialization provides concrete visibility to the growth of complexity, the cultural foundations of these expanding polities are best evidenced by elaborated levels of ideological performances in domestic, public and funerary rituals. Cities and towns emerge across the Indus floodplains as hubs of exchange network at local and regional level, accompanied by an unique cultural continuity.

The paper will attempt to establish the uniqueness of the Indian way to civilization by comparing stepwise its process of development with that of the Middle Asian Intercultural Space (MAIS) neighbouring to the west, by considering three of its principal regional expressions of South-eastern Iran (Shahdad, Kerman and Jiroft), the Helmand Valley (Shahr-i Sokhta and Mundigak), the Oxus Civilization of Southern Central. Asia. There is a solid archaeological evidence that trade and exchanges took place among all this regions and the Indus plains during the whole of the formative period. However through a detailed scrutiny of their growth pathways in the 4th millennium BC we shall highlight the deep diversity of India,

About Prof. Maurizio Tosi

Full Professor since 1981, Maurizio Tosi has first occupied the Chair of Prehistory and Protohistory of Asia at the Istituto Universitario Orientale of Naples till 1994, and of Palaeo-Ethnology at the University of Bologna.

Born on May 31 1944, he has graduated in 1967 in Rome. Further studies included a PhD in Oriental Archaeology completed in 1972, a long stay in the German Democratic Republic mainly at the Humboldt University in Berlin as well as a post-Doctoral fellowship at the London Institute of Archaeology in 1969. In 1981-82 he was awarded the A. von Humboldt Foundation research grant that he invested in West Berlin and the RWTH in Aachen.

He has been working chiefly as a social scientist devoted to the study of early civilizations. Beginning from 1967 he has operated in many areas of the world in collaboration with different European, American and Asian institutions in Iran, Peru, Iraq, Oman, Yemen, Pakistan, Afghanistan, Mongolia and the Asian regions of Soviet Union. The most significant research projects have taken place at Shahr-i Sokhta, Iran (1967-77), Mohenjodaro, Pakistan (1981-86), Naqadah, Egypt (1977-82), Ras al-Hamra, Oman (1977-present), the Murghab Delta in Turkmenistan since 1990, the Island of Pantelleria in Sicily (1996-2008), and since 1999 he has directed explorations for the cultural resource planning of Samarkand and its territory in Uzbekistan.

Recent Archaeological Excavations at Khirsara

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Khirsara(23˚27'N: 69˚03'E) is situated 5km north of Netra and 7km south of Ravapar on the Bhuj-Narayan Sarover state highway in Nakhatrana Taluka of Distt. Kachchh. The Excavation Branch – V, Vadodara of the Archaeological Survey of India conducted excavation at Khirsara to understand the settlement and subsistence pattern of the Harappans in western Kachchh region which is relatively less known in terms of archaeological excavation/investigation and find their relation with other Harappan settlements in Kachchh, Sindh and Saurashtra. The excavation has revealed the remains of mature Harappan culture with three structural phases. The fortified settlement at Khirsara is roughly rectangular in plan with 4.62m thick habitation deposit and enclosed by a double fortification wall with four corner bastions and salients at regular intervals. Evidence of another R.R. masonry wall running parallel to the fortification wall has also been found on the northern and eastern side.
The excavation in the south-eastern portion has revealed an entrance flanked by guard rooms on either side leading to a series of 14 parallel walls which probably served as 'WARE HOUSE'.

The excavation on the south-west corner has provided evidence of bead making industry as a fairly large number of beads and drill bits have been found in this area. The excavation inside and along the northern fortification wall has revealed the residential structures with rooms and pillar bases belonging to different phases. This is evident that after every phase, the ground was levelled with colourful mud brick material. Another interesting find from the residential area is a pot burial which was on the floor within a circle with a thick pale red border. The excavation in the 'T' area has revealed a huge multi coloured mud brick floor. The mud bricks are in ratio of 1:2:4.

A variety of antiquities have been discovered during the course of excavation. Beside the two seal reported earlier, three more have been found during the current season's excavation and one of them bear ten Harappan characters. Other interesting finds include terracotta animal figurines, weights, gamesman, beads of gold, steatite, semi-precious stones, copper implements, bone implements, stone implements, shell bangles etc.

The ceramic assemblage include red ware, red slipped ware, coarse red ware, black ware, grey ware, sturdy red, grey and buff ware, reserve slipped ware of various hues, perforated ware, sherds with graffiti marks, sherds painted with geometric and naturalistic designs, sherds decorated with incised patterns etc. The shapes include pot, jar, bowl, dish, dish on stand, goblet etc

The collapse of the Aryan Invasion Theory

N. Kazanas, August 2010

The AIT started in late 18th and early 19th centuries as an explanation of the caste system. Thus various European scholars postulated an invasion from non-Indic people (Egyptian or Mesopotamian) who conquered the natives: the invaders (with a strong priestly class) became the two upper castes and the natives the two lower ones (vaishyas and shūdras). This was refined and turned into a linguistic matter after Jones made his speech about the relation between Sanskrit, Greek, Latin etc. The invaders became IE and so was formed a general theory of Aryan or IE invasions to account for the Greek, Italic, Germanic people and so on, in their historical habitats.

In mid-nineteenth cent. Max Müller turned the Theory into an entirely linguistic affair. He postulated certain dates for the composition of Indic literature and these became fixed in the minds of indologists. Thereafter, all linguistic refinements for the IE tongues (Hittite, Greek, Baltic, Slavic etc) were worked out on this model, namely that there was a PIE language which mainly through migrations and invasions spread from an unspecified centre (but not India) and developed into the present different IE language including Old Indic (=Vedic Sanskrit) and Iranian (=Avestan and Old Persian).

At the turn of the 19th to the 20th centuries this view was turned by Europeans (later the Nazis) into a thoroughly racial affair ascribing to themselves superiority. This racial doctrine has now been abandoned and we have only the linguistic one.

In the 1920s were made the first important discoveries of the ancient Indus Valley or Harappan civilisation. This should have alerted indologists to the possibility that a large part of the Vedic literature was composed by this civilisation –

which I shall call hereafter the Indus-Sarasvati Civilisation or ISC in short, since most settlements were unearthed on or along the old Sarasvati river. This did not happen. Instead, indologists (mainly sanskritists) found in the ruins of this civilisation evidence that Indo-Aryans invaded and destroyed these cities just as the *Rgveda* says, according to their own interpretation, that Indra, the chief god of the conquerors destroyed the enemy *purs* 'towns, forts'. So a big paradox remained: on the one hand, there was Vedic Literature (a vast corpus) without any other cultural (=archaeological) remains to support it; on the other, a large culture unearthed by archaeologists but without literature despite its knowledge of writing!

However, in the 1960's it was established by archaeologists that there had been no invasion , no wars, no violence, and that those towns had fallen into ruination because of natural causes, such as earthquakes which diverted the waters of some rivers and thus caused desiccation on a large scale. But the linguists persisted in their doctrine and the invasion became now "immigration". But this produced now a second big paradox, i.e. the aryanisation of this vast area where toponymics (=names of rivers, mountains etc) are Aryan (=Sanskritic), not Dravidian or names from another language: small waves of immigrants, according to linguists, produced the SJ & IA C 2 aryanisation of a country which only invasion, conquest and coercion could have effected!

Any impartial study of the facts, archaeological and linguistic, shows that there is no evidence of any kind to support the so called "waves of immigrations".
On their side, all archaeologists, Western and Indian, say emphatically that there is unbroken continuity in the development of the ISC from the seventh millennium to the sixth cent. BCE when the Persian incursions occur. There is no trace at all of any other culture intruding into the ISC.

(a) Anthropological evidence (cranial and skeletal) shows that there was no demographic disruption down to c 600, except perhaps for the period 6000-4500.

(b) Genetical studies now show that there was no inflow of genes into the Indian subcontinent prior to c 600. On the contrary there was flow of genes out of India and into the north-western regions.
Max Müller's dating of the Vedic Literature is based on fictions and has no basis whatever in reality.

The so-called linguistic evidence (i.e. isoglosses, loan-words etc) can be, and have been, shown to require no immigration. One eminent linguist at least demonstrated that the original homeland is Bactria which is adjacent to Saptasindhu, the Land of the Seven Rivers (=N-W India and Pakistan).

Positing Saptasindhu as the original homeland not only does not create problems but, on the contrary, dissolves all difficulties. For instance: (a) Vedic alone has dhātus and on the whole invariable principles in generating verbs and their conjugations and nouns and their declensions etc. (b) Vedic has both augmented Aorist (=past tense) like *á-dhāt* and anaugmented *dhāt* from √ *dhā* put'. Germanic has only anaugmented and Greek only augmented. (c) Vedic poetry has both strict metre and alliteration whereas Greek and Latin have only metrical verses and Germanic poetry has alliterative lines only without strict metre. (d) No two IE cultures (e.g. Baltic, Celtic, Germanic etc) have any IE theonyms (=names of deities) to the exclusion of Vedic. On the other hand, Vedic has 20 theonyms of which Greek has 9, Germanic 8, Italic (=Latin) and Celtic 6 and the others even less.

It is agreed by all, including Western invasionists like Witzel, that the Ṛgveda hymns were composed around the Sarasvati area. But while they give a date of composition c 1200-1000, the available literary, anthropological and archaeological evidences indicate a date before 3500. Here I summarise broadly the most important points.

1. The *Brhadāranyaka Upanisad* has a list of 60 teachers. If we allow 15 years for each one, we obtain a period of 900 years. If the *BU* is of 600 BC, as the AIT scenario wants, the list takes as back to 1500. But none of the 60 teachers nor the doctrine 'Atman is Brahman' or 'I am Brahman' appear in the *RV*; the doctrine appears in the *Atharva Veda* in an approximate form. Given that the *RV* is linguistically many centuries earlier than the *BU*, the *RV* must be put at least 500-600 earlier, i.e. before 2000!

2. Linguistically the *RV* is many centuries older than the *Brāhmanas* and the *Mahābhārata*. Palaeoastronomy (astrophysicist N. Achar) has shown that astronomical references in the *Shatapatha Brāhmana* are true for the date 3000-2950. Several astronomical references in the epic are true for 3100-3000!

Thus the *RV* must be from about 3500 and before.

3. The *Rgveda* does not have many features that characterise the ISC and appear only later in post-rigvedic texts. Thus there are NOT –
(a) *istakā* the brick, mostly of raw mud, sometimes baked. This was one of the main construction materials in the Early ISC starting at about 3500. Prior to this houses were fashioned of wood with wattle-and-daub, as described in the *RV*;
(b) larger urban settlements in the *RV* as we find them in the ISC;
(c) fixed altars or hearths as described in the *Yajur* Veda and the *Brāhmanas;*
(d) ruins or ruined towns;
(e) cotton *karpāsa;*
(f)silver *rajata;*

(g) rice *vrīhi;*
(h) literacy *'lipi, lekha(-na)';*
(i) artistic iconography (sculpture, relief, seals).

Bricks are mentioned first in Yajur Veda and extensively in the Brāhmanas. Silver appears as *rajata-hiranya* in the Yajur Veda; rice vrīhi in the Atharva Veda; cotton *karpāsa*, first in Baudhāyana's *Sūtras*; and so on.

4. The river Sarasvatī is praised as a mighty and all nourishing river in all the Books or the RV except the fourth. Even in late hymns such as 8.21 or 10.64 and 10.177 Sarasvatī is said to give wealth and nourishment and the poets invoke her as «great». In 6.52 Sarasvatī is «swollen by other (three or more) rivers»; in 6.61 she is endless, swift-moving, most dear among her sisters and nourishing the five tribes of the Vedic people; in 2.41.16 Sarasvatī is «best river, best mother, best goddess»; in 7.95.2 this mighty river «flows pure from the mountains to the ocean».

The river dried up around 1900 BCE. So the *RV* is referring to a condition long before the end of the river. Archaeologists and palaeohydrologists say that Sarasvatī flowed from the Himalayas to the ocean (in the Rann of Kutch) before 3800 BCE. Satellite photos and other analyses confirm now the route of the river from the mountain to the ocean. After this period some of the rivers feeding the Sarasvatī were, due to tectonic shifts, captured by other rivers (eg the Indus and the Ganges) and so this once mighty river weakened and began to dry up reaching its final desiccation c 1900 BCE.
Consequently the *RV*, or at least all those hymns that praise Sarasvatī were composed before 3600 possibly before 4000. This date agrees with the building materials and techniques (the pre-brick phase) of the very early Harappan culture, as established by archaeologists and as described in *RV*.

Conclusion: If the bulk of several hymns of the RV were composed c 4000-3600 the Indoaryans using the Vedic language were settled in Saptasindhu at that period.Whatever else might have happened before that period, the Indoaryans were by 1700 BCE thoroughly indigenous.

About Prof. Nicholas Kazanas

Nicholas Kazanas was born in Greece in 1939. He studied English Literature at University College, Economics and Philosophy at the School of Economic Science and Sanskrit at theSchool of Oriental and African studies – all in London; also post-graduate at SOAS and at Deccan College in Pune. Prof. Kazanas taught in London and Athens and since 1980 has been Director of Omilos Meleton Cultural Institute. In Greece he has published treatises of social, economic and philosophical interest. He has many publications in Western and Indian Journals and some books. He is on the Editorial Board of Adyar Library Bulettin (Chennai). He has participated in international Conferences in London, in the USA and in India. From 1997 he has turned towards the Vedic Tradition and its place in the wider Indo-European culture. This research comprises thorough examination of Indo-European cultures, comparing their philosophical ideas and values, their languages, mythological issues and religions.

South Asian Archaeology: New Insights on Indigenous Cultural Continuity

Jim G. Shaffer

Human created artifacts, human remains themselves and, sometimes, flora and fauna remains can be found at many archaeological sites worldwide. Site stratigraphic chronology is measured against carbon dating, to interpret the varied human activities being catalogued for a specific site. Multiple archaeological site data of South Asia reveal considerable cultural continuity detailing early South Asian prehistory and history, one that resulted in the cultural complexity and innovation that defines Harappan culture. Harappan culture was part of a larger, indigenous South Asian Indo-Gangetic cultural mosaic of human populations, who responded to varying geological and environmental changes over a lengthy time period. This broader Indo-Gangetic cultural mosaic tradition of South Asia is revealed via direct archaeological evidence and absolute radiometric chronology. That data describe both indigenous South Asian cultural continuity and indigenous South Asian cultural discontinuity, in terms of human response to changing climatic and geological conditions for the time period under consideration.

Archaeology's scientific confirmation basis of absolute chronology authenticates archaeological interpretation. Historical linguistic studies of South Asian prehistory and history postulate a linking of culture, "race" and population to conjecture a proto-Indo European/Aryan homeland, with supposed migrations away from the homeland becoming the imagined "Indo-Aryan invasions". The discipline of archaeology reveals concrete data, not conjecture. Interpretations of South Asian prehistory and history must be described by confirmed data validity.

About Prof. Jim G. Shaffer. Ph.D.

Beginning in the mid-1960s Dr. Shaffer conducted numerous archaeological surveys and excavations into the prehistory of the American Southwest. His research focus subsequently shifted, and remains, on the prehistoric and early historic cultures of "greater" South Asia. Since the late 1960s he has conducted archaeological field research throughout Afghanistan, Pakistan, and India. This research focuses on the Bronze through Iron Ages (ca. 5000 B.C. - A.D. 500) of this region, including excavations at the Harappan site of Allahdino; the Bronze Age site of Said Qala Tepe, Afghanistan; and, Watgal, a Southern Neolithic site in central India. He has also conducted numerous archaeological surveys in these regions especially in the states of Haryana, Rajasthan and Karnataka. In addition, he has written several articles on issues surrounding the Indo-Aryan invasions. He was a Fulbright-Hayes Professor at the University of Islamabad, and an Indo-American Fellow at the University of Delhi. Since 1972 he has been a faculty member at the Department of Anthropology, Case Western Reserve University, Cleveland, Ohio, USA.

Rigvedic Harappans : Their Roots and Legacy

Bhagwan Singh

- All the old civilizations of the world are transplanted except Harappan civilization (HC), which had its root in the soil. It was the culmination of activities running over many millennia.

- Agricultural revolution which was the bloodiest revolution as well took place in South Asia leaving the horrible memories of Devasur wars..

- The credit goes partly to the geographical situation of the subcontinent which, during the last glaciation, harbored innumerable refugees speaking innumerable tongues and possessing divergent skills developed to fight the vagaries of nature and securing means of sustenance in their homelands. Congregation and interaction among those bands and gradual sharing of those tricks and devices was responsible for the innovations and experiments in technology including opening small pockets of artificial production leading to settled farming, animal husbandry and finally to urban revolution. As such it is not South Asia but the representatives of the entire humanity assembled in a unique congress who gave birth to human civilization.

- Rigveda is the fruition of the cultural activities running over many millennia during which span graphic symbols (graffiti) for recording speech, metres, figures of speech, linguistic analysis, elementary astronomy, cultural traits and poetic truths, myths and legends, social mores, means of land and water transport had all been developed and perfected within the technical limitations of the Age. This progressive stage of Indian culture and civilization which reached its maturity in Sarasvati Valley has hardly been explored. What we know better is the stagnant and degenerative phase of this civilization which started with problems created by Sarasvati leading to shift of centres on the banks of Indus and its tributaries, as well as to the coastal areas.

- Correspondence between Harappan material and Rigvedic allusions is as faithful as a print is to its block, or a sealing to the seal. Geographical mapping based on the two sources is co-extensive and co-terminus. Both give the same picture of agriculture, animal-husbandry, industry, trade and commerce. The same types of houses, lakes, roads, cross-roads, streets and by-lance, the same drainage system both open and covered, the same pit-holes, the same sanitary scheme and the same civic administration. ·

- To hold Aryan-speaking branch to be the sole author of Indus-Sarasvati civilization is substantially incorrect. We find a symbiosis after the bitter and bloody conflict arising out of profit-sharing, narrated in samudra-manthan episode. The three cultural strains may roughly be termed Aryan (agriculture> trade and civic control), Dravidian (wood craft, stone craft and metallurgy) and Mundari (land tilling, animal domestication, transportation and medicine). The two are inalienable as two faces of the same coin.

- It is incorrect to say that any part of the sub-continent was at any point of time inhabited or occupied by any one of the three. We find small bands of people roaming and foraging at the hunting and gathering stage irrespective of linguistic or cultural bonds like other creatures. They can not be classed in any familial scheme.

About Shri Bhagwan Singh (1931-)

Post graduate from, Gorakhpur University, 1958. Originally a creative writer. Acquired working knowledge of all the scheduled languages except Kashmiri and Manipuri in sixties.

Published literary books and translated ones more than thirty, mostly predate 1973. His books on language and history include:

1. Sthananamon kaa bhaashavaigyanik adhyayan (1973)
2. Arya-Dravida Bhaashaaon ki Moolbhuut Ekata (1973)
3. Harappaa Sabhyataa aur Vaidik Sahitya, in two volumes (1987)
4. The Vedic Harappans, (1995)
5. Bharat taba se aba taka (1996)
6. Bharatiya sabhyata ki nirmiti (2004)
7. Duusarii Paramparaa kii Khoja, serialised in Naya Gyanodaya (2007-2009), being published as Bharatiya Paramparaa kii Khoja.

His other books being published in 2010 are (1)

i. Bhaashaa aur Itihas
ii. Kosambi, mithak aur yathartha;
iii. Praacina Bharat ke itihaskar

Presently working on The Rigveda and its legacy.

Roots of South Asian Civilization: A New Perspective in Light of Recently Excavated Lakhan-jo-daro Site

Prof. (Dr. Nilofar Shaikh)

The continuous research now has proved scientifically about the sequential development of Indus civilization within the region of South Asian subcontinent. This is the largest civilization that has borne urban centers long ago when several parts of the world were still living mere village life. The process of development was so steady that early villages like Amri, Kot Diji Saraikhola, Kalibamgan, Rehman Dheri, Lothal and the settlements from Baluchistan grew as an early town. The technology, trade and commercial activities, interaction system was smooth and required raw material which was arriving in each town regardless of the hindrances and ruggedness of routes. Those early period people /humans were fully aware of exploitation, transportation and commercialization of the commodities which were culturally utilized for sociopolitical life. The research has shown that those early people were in touch with the communities around them in the areas of Afghanistan, Iran and beyond. The process had started much earlier and is deeply rooted into the history of human beginning from Stone Age. The Stone Age activity clusters of Bypass and all along the surface of Rohri Hills and Veesar Valley in the Thar Desert are such examples. The Indus culture crossed through all transitory eras until appearance of early villages which were dotted everywhere on the South Asian soil.

After seven hundred years experience of living in villages and towns; during 2500 BCE, the fully developed cities emerged at highly strategic locations. In those cities several aspects were of high concern (a) living pattern (b) trade (c) agriculture and (d) herding. They lived in burnt bricks structures in well planned style. Their trade focused internally and externally using both land and water routes; industries were established within city area and at resource areas. They understood seasonality for growing the crop and cultivated crops in all seasons of the year. The animals were authentic source of food and transportation. The life during this urban phase was exemplary and major aspects and features can be traced through cultural assemblage discovered through scientific excavations. I bring here an episode from very recently excavated site of Lakhan-Jo-Daro.

About Nilofar Shaikh

Dr. Nilofer Shaikh is Vice Chancellor of Shah Abdul Latif University, Khairpur, Sindh-Pakistan. She happens to be the first Women Vice Chancellor in any general Universities in the province of Sindh Pakistan.

She did her Master's from Cambridge University UK in 1978 in Archaeology and continued her studies in Pakistan and completed her Ph.D. in Archaeology in 1990. Her Post Doctorate Research work was on the archaeological site of “Mohenjo Daro”. Her field is Archaeology and her specific interest is in the Chalcolithic/Bronze age of South Asia focusing on Indus Valley Civilization.

Dr. Shaikh's 33 years contribution in teaching and research is an asset towards the preservation and promotion of cultural heritage. It was due to her efforts that the Department of Archaeology at Shah Abdul Latif University, Khairpur, Sindh-Pakistan was recognized internationally. She has conducted Archaeological Explorations and Excavations in Sindh resulting in many new discoveries especially in the Rohri hills, Indus plains and the Thar Desert. Her research work has been presented in various international conferences in Greece, Italy, UK, USA, Germany and Japan. She has delivered series of lectures in different Universities within and outside Pakistan.

Dr. Shaikh has many academic and administrative accomplishments at her credit; she has recently received Presidential Award from Government of Pakistan for her services in the field of Archaeology

The Harappan Scenario in Gujarat

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Indian culture is a living culture. It is one of the characteristic features of our culture besides that of Unity in Diversity and Spirit of Tolerance. We as Indians are fortunate enough to have such a long uninterrupted cultural tradition right from the Harappan times. Harappan civilization though one of the oldest civilizations of the world apart from that of Egyptian, Mesopotamian and Chinese, achieved a high degree of sophistication. This spectacular first urban civilization of South Asia dazzled the contemporary world by virtue of its phenomenal growth and prosperity of which Gujarat represents its southern most territorial zone. A cursory glance at the Harappan studies carried out in Gujarat is enough to reveal several interesting traits of the Harappa culture and its cultural dynamism. Now Gujarat has emerged as one of the densely populated regions in the entire Harappan domain. Extensive research since 1930's have not only led to the discovery of more than 600 sites showing different degree of Harappan affiliation but also increased our understanding regarding the intellectual legacy left by the Harappans. Among the many things that the Harappans of Gujarat left behind nothing is more evocative than the imprints of their cultural tradition in our mind.

Until recently, it was believed that the Harappan civilization along with its spectacular achievements evolved quite mysteriously and then disappeared suddenly leaving little or no legacy for the later cultures. However, as new sites have been discovered and previously excavated ones were restudied revealed that it disintegrated gradually, leaving the field open for the development of subsequent proto-historic and historic cultures. In fact there are significant continuities in subsistent activities, arts and crafts, town planning and architecture, technologies and even socio-ritual practices. In this paper an attempt is made to establish Harappan customs and traditions based on the evidence found in Gujarat, in order to understand how deep are the roots of Indian civilization, both in archaeological and historical perspectives.

'The Harappan Horse- A study in comparative occurrence during Harappan & post Harappan times'

A.K. Sharma

As per our ancient literature and Epic, true horse was very much in existence and in use in Bharatvash. When Archaeological investigations were made by western Archaeologists in Bharat, acting on pre-determined course of action and plan they deliberately declared -

1) Aryans invaded Bharat and put the theory of massacre and

2) Horse came to India from west Asian countries.

Unfortunately their Indian students like A.Ghosh, H.D. Sankalia, B.B. Lal, B.K. Thapar etc. blindly accepted their master's theory as all of them were Historian Archaeologists.

From Lothal excavations when Dr. S.R. very clearly proved that he got terracotta figurines of Horse he was cajoled and doubted. In 1970 when my self and Dr. K.R. Alur while examining the animal bones from Malvan in Gujarat declared the presence of true horse, no one could gather coverage to accept a scientific finding. Again in 1972 we I conclusively proved the presence of bones of true Horse (Equus caballus Linn) from the lowest levels at Sukdata in Gujarat Mr. M.N. Deshpande and Shri Jagat pati Joshi expressed great happiness and a lecture was arranged in the auditorium of National Museum. A detailed article was published in 1992 in Puratattva. “Harrappan Horse lies buried in the duenes of ……” To this the American scholars raised doubts and said that these bones are of wild Ass. They could not see beyond wild Ass.
In Dec. 1991 in the meeting of Purattatva I was called on the dais and congratulated by Mr. M.N. Deshpande, Dr. B.B. Lal and others for my discovery. This was done after the Italian paleontologist Dr. Bokonyl after examining the bones from Suktada gave in writing that Sharma's identifications are correct the bones belong to True Horse. Since them Lall and others changed their theory.

Geological Survey of India has found fossil bones of horse from Siwalik hills of Punjab.

Now as per Zoological Survey of India reports particularly of Dr. Bhola Nath true horse bones are Known from Kalibangan, Rupar and others Harappan sites.

Let us have our own theories and scientific findings and not be led away by foreigners.

Excavations at the Early Harappan site of Bhirrana

Nandini Bhattacharya Sahu

The Harappan site at Bhirrana (Lat. 29^0 33' N; Long. 75^0 33' E) is situated in the Fatehabad district of Haryana on the right bank of the dried up river Saraswati. Excavated by Late Shri L. S. Rao[2] of the Archaeological Survey of India's Excavation Branch-I, Nagpur from 2003 to 2006, the site has yielded a four-fold cultural sequence, viz. Hakra Wares Culture; Early Harappan; Early Mature Harappan and Mature Harappan.

The Hakra Wares Culture at the site is characterised by subterranean circular dwelling pits. The most distinguishing feature of the period is the ceramic repertoire of the Hakra Wares.

The Early Harappan culture is characterized by structures built of mud bricks. The pottery of the period comprised all the six fabrics of Kalibangan I along with the pottery of the earlier period.

The succeeding Period belongs to the Early Mature Harappan phase. During this period the entire city was encompassed within a fortification wall and the concept of twin cities came into vogue. The pottery repertoire shows a mix bag of Early Harappan and Mature Harappan pottery shapes and fabrics.

The final period of occupation at the site belonged to the Mature Harappan period.

The Decline and Legacy of Harappan Civilization

K.N. Dikshit
New Delhi

It is now agreed among archaeologists that after 2000 B.C. the Harappan Civilization started showing definite signs of decline in the urban make-up of the culture. Harappa, Mohenjodaro, Lothal, Kalibangan, Surkotada, Dholavira etc. witnessed the failure of the municipal laws – the houses, drains, lanes and the roads which were maintained for centuries were now allowed to encroach upon the boundaries of each other. The specialized sectors were deserted and small workshops cropped up here and there. The granaries, the warehouses, the Great Bath, the pillared hall etc. which were meant to serve the public at large were found completely deserted.

The excavations of a number of Harappan sites including Dholavira, Harappa and Mohenjodaro, not to speak of smaller sites like Bhagwanpura and Alamgirpur and Hulas in the Gangetic valley show that some specialized industries continued to flourish even in the times of decay, for example the faience, the carnelian, etc. Examples of inscribed seals have also been found, though their number had declined. The pottery also shows marked change in quality of pot making and pot decorations. The houses were built, but very often from the materials removed from older buildings. There are plenty of other pointers in the old cities which clearly establish the fact that the end of the Harappan Civilization was a long process of decline and not a sudden demise.

Different scholars attempted a reprisal of Late Harappan Cultures and timings of their cultural disintegration in three regions viz. (a) Punjab and Sindh of Pakistan (b) contiguous area in India i.e. Punjab, Haryana and Utter Pradesh and (c) Gujarat (Dyson 1982, Alchin 1983, Dikshit 1984, Kenoyer 1989, Mughal 1989, Rao 1991, Misra 1993, Possehl 1997, Lal 1997, Bisht 1997). They have also tried to analyze the causes of change in economy, trade, food, pottery, minor antiquities, religion and burial practices.
The reason for decline of Harappan civilization is still vague. Many theories, such as, invasion, flooding, stagnation of water, changes in river courses, climatic changes, etc. have been advanced by Wheeler, Raikes and Dales. However, the extensive hydrological studies have established that the river Indus and Saraswati changed their courses several times, may be around 1900 B.C. This was caused by the loss of two of its major tributaries, the Sultej and the Yamuna – the first to the Indus and other to the Ganga. This calamity must have brought disruption in their internal/long distance trade routes connecting hinter-land with coast.

The legacy of the Harappan Civilization appears to be extremely dominant in the field of ideological foundations of the civilization. The mass of oral traditions and Vedic literature, which form part of our present-day civilization also appear to be the major legacy of the Harappan civilization. We have to, therefore, make some serious efforts to correlate the archaeological and literary evidence in order to work out the Harappan Legacy. The excavations of Harappan cemeteries at Farmana (Shinde 2009) and Sanauli (Sharma et. al. 2003-04) are pointers in this direction.

In 1930 when John Marshall published his exploration and excavation report of Mohenjodaro, he clearly visualized the worship of water, trees, snake, etc. prevalent in the present-day Hinduism as the legacy of the mature Harappan Civilization. He may not have had enough data then, but now his ideas can be examined in great details. The presence of fire-alters at Kalibangan and their continuance with Chalcolithic people throws light on the fire-workshop in India (Lal 2009).

From 1922 to 2010 we have traveled a long way to understand the Harappan / Saraswati urbanization including its origin, extent, decline and also legacy. In terms of chronology of the declined Harappan phase or post-Urban phase, the reliable data is from Gujarat and other north Indian sites. However, the C-14 dates are very few except Hulas and late levels of Mohenjodaro (Jhukar) which do not help in reconstructing any acceptable time-bracket.

From Janas to Janapadas

Dr B.R. Mani

Indian archaeology, today, has to choose between so many extremes that it is difficult to say what the scenario would be like, say after quarter of a century. The past, with its miraculous archaeological achievements with emphasis on study of ceramics and material culture should have paved the way to a greater understanding of Tradition and archaeology, but far from it, it has devised new ways and means to a more complicated chronological framework. Fortunately, some of the fresh investigative studies in recent times indicate the evolution and developments of early settlements in northern South Asia and provide evidence on rise of civilizations emerging from the Neolithic farming communities through chalcolithic cultures. In this process the settlements in groups can be indentified located within pockets of geo-political boundaries which are comparable to the Vedic janas which definitely came into existence in the third millennium BCE and were transformed into janapadas and mahajanapadas towards the end of the second millennium BCE or the beginning of the first millennium BCE, much before their normally accepted period of the sixth century BCE by which time they had been fully established with various urban centers.

The early Vedic principalities were mostly ruled by the Kings of different Kshatriya clans and other tribes. The battle of the ten kings dasarajna is described in various hymns of Rigveda and illustrates the political rivalry among the clans to get supremacy. Although many of the ten kings had their common origin of the lunar race, but the five principal clans under Puru, Yadu, Turvasa, Anu and Druhyu alongwith five lesser known ones Alina, Paktha, Bhalanas, Siva and Vishanin formed a confederacy to fight against Sudasa who was a Bharata King of the Tritsu family. In the fierce and decisive battle on the Parushni (Ravi), the Bharatas emerged victorious and the confederacy was utterly destroyed. Bharatas consolidated their empire over Brahmavartta. On the banks of Yamuna Sudasa defeated another confideracy of non-Vedic tribes of Ajas, Sigrus and Yakshus who were united under King Bheda. They were also met with the same fate and were uprouted. It is believed that by establishing political power and uniting various clans in the northern South Asia under one empire the Bharatas gave their name to the whole country.

The Bharatas gained superiority over other clans and attained supremacy in the following periods of history which though shrouded in mystery still indicate their continued predominance in the Saptasindhu region and upto Kuru-Panchala area in the Madhyadesa.

Archaeological investigations at the ancient city sites in northern South Asia indicate their early settlements going back to the second millennium BCE in most of the cases. Most of them can be identified with the city sites mentioned in the later vedic Sanskrit literature of *Aranyakas* and *Brahmanas* and fall in the early Pali and Prakrit Buddhist and Jaina texts in the context of Sixteen Great States (*shodasha - mahajanapadas*). These early settlements of the second millennium BCE became significant urban centres in the beginning of the first millennium BCE, much before the time of compilation of Buddhist and Jaina texts. The prominent city sites became the capital of the mahajanapadas. The process of developments of the janapadas and mahajanapadas continued in the early historical age when finally they were merged and unified under the Magadha empire around fourth century BCE. In this context, the evidence of settlements at these city sites of the great mahajanapadas going back to the second millennium BCE from Sarai Khola (Taxila) and Pushkalavati (Charsadda) in Gandhara; BMAC and Gandhara Grave Culture sites in Kamboja; Bairat, Gilund and Ojiana in Matsya; Mathura, Sonkh and Noh in Surasena; Hastinapura, Hulas and Alamgirpur in Kuru; Ahichchhatra, Atranjikhera, Kannoj, Sankisa and Kampilya in Panchala; Ujjain, Kayatha, Nagda, Ahar in Avanti; Eran and Tripuri in Chedi; Kaushambi and Jhusi in Vatsa; Rajghat-Sarai Mohana in Kasi; Ayodhya,Sravasti, Lahuradewa, Siswania in Kosala; Rajdhani, Narhan, Sohgaura in Malla; Rajgir, Chirand and Juafardih (Nalanda) in Magadha; Vaisali and Lauriya Nandangarh in Vrijli, Champa and Oriup in Anga and Adam and Inamgaon in Asmaka

provide valuable data. In view of the archaeological evidence from the sites of the mahajanapadas it could be authentically concluded that these political principalities and states were well established during the second millennium BCE, though the settlements started at many of these sites even much earlier.

Early Archaeology in the Gangetic Plains

By

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The Ganga plain extends from the Yamuna river in the west to the western borders of Bangladesh covering a distance of about 1,400 km and an average width of 300 km (between the Siwaliks in the north and the peninsular Uplands in the south). It occupies a total area of about 3, 57,000 sq. km and is drained by the Ganga and its tributaries like the Yamuna, and Son in the south and Ramganga, Ghaghara, Gandak and Kosi in the north. All through its course in the plains, the river is a braided stream bordered by low-lying depressions which get flooded during rains. The plain has a general gradient of about 15 cm per km from north-west to south-east although there are many micro-slopes. The maximum height is found near Saharanpur (276 m) from where it goes on decreasing towards the Sagar Islands.

Following L.D. Stamp, O.H.K. Spate and other scholars the Ganga plain may be divided into three smaller physiographic units:

1. The Upper Ganga Plain

2. The Middle Ganga Plain

3. The Lower Ganga Plain.

Archaeological investigations have revealed that the first forays of prehistoric man in the Middle Ganga plain were made at the fag end of the terminal Pleistocene and at the beginning of early Holocene period .This stage is known as the Epipalaeolithic (a transitional phase from the Late Upper Palaeolithic to the early Mesolithic). During this stage the Stone Age man from the Vindhyas used to cross the Ganga and Yamuna rivers in the north and colonise the Ganga plain.

Mesolithic Sites

More than 500 Mesolithic sites have been located in surface explorations in the eastern Vindhyas and the middle Ganga valley, of which 204 sites are located in the middle Ganga valley and the rest are in the Vindhyan area. In the Vindhyas microliths have been obtained littered either in the open-air settlements or in rock-shelters. In the middle Ganga Valley Mesolithic sites have been found in parts of Allahabad (6 sites), Pratapgarh (177 sites), Jaunpur (14 sites), Sultanpur (5 sites) and Varanasi (only 2 sites) districts of Uttar Pradesh

The history of Stone Age archaeology in the Ganga plain goes back to 1969-70 when the Mesolithic site of Sarai Nahar Rai was discovered by the archaeologists of Allahabad University. Though the first human skeleton of the Mesolithic man at Sarai Nahar Rai was excavated by the Anthropological Survey of India in 1970, it was the excavations of 1972 and 1973-74 of Allahabad University which yielded significant results including human skeletons, hearths, animal bones, microliths and other valuable evidences pertaining to habitation and settlement pattern.

The next excavated site was Mahadaha, situated on the western bank of a horse-shoe lake at a distance of 31 km to the northeast of Pratapgarh. This site was brought to light in 1978 and a 60 cm thick occupation, divisible into 4 layers, was excavated in 1977-78 and 1978-79.The excavations yielded 35 oval or circular pit hearths, 28 human graves and several patches of burnt floors/plasters along with microliths, bone tools, querns, mullers and hammerstone fragments.

The third excavated site is Damdama, situated on a slightly raised ground 5 km. towards the south west of Mahadaha. This site was discovered in 1978 and was excavated continuously for seven seasons since 1982-83, which brought to light 41 human graves, several pit-hearths, microliths, bone objects and grinding stones.

Radiocarbon Dates for Mesolithic Sites of the Gangetic Plain

Damdama	8865 65[1]
Mahadaha	5550 60^2 (st 1) 6160 60^2 (st 4) 4680 80^2 (st 1) 4110 60^2 (st 2) 4010 120 3840 130 2880 250
Sarai Nahar Rai	10395 110 (burned bone) 10050 110 (burned bone) 5040 50^2 (surface) 2860 120

The Neolithic Interlude

The term 'Neolithic' implies a certain stage of culture, not an absolute period of time. This food producing stage is marked by domestication of animals and exploitation of plant food. In the archaeological record, particularly in India, it is manifested in the shape of polished stone axes, hammer stones, anvils, querns and mullers; microlithic tools and cultivation of cereals like wheat, barley and rice; domestication of sheep / goat, pigs, and cattle; and traces of semi-permanent settlements (in the form of circular huts) and hand-made pottery. In the Vindhyas more than 40 neolithic sites have been identified in the valleys of the Belan, Adwa, Son, Rihand and the Ganga. Of these, two sites, Koldihwa and Mahagara were excavated in the 1970s by the University of Allahabad and two others. Tokwa (district Mirzapur), Jhusi and Hetapatti (both in district Allahabad) are presently under excavation by the same University.

In the mid-Ganga valley, traces of Neolithic culture were found at Sohgaura in the easrly sixties of the last century. In recent years Neolithic artefacts comprising a limited number of microliths and the characteristic cord-impressed, hand-made pottery have been found from more than a dozen sites. Of these, Imlidih Khurd and Lahuradeva have been excavated. Microlithic tools have been picked up from Susipar and Gerar in Sant Kabir Nagar district as also from the excavated site of Waina in district Ballia. The radio carbon dates of Neolithic levels at Lahurdeva put it to 6290 ±160 B.C.

The Chalcolithic Cultures

The Neolithic phase in the Middle Ganga Plain and the Vindhyas was succeeded by the Chalcolithic cultures. There is no time gap between the two cultures and a gradual evolution from the former to the latter has been witnessed at a number of sites. Excavations at sites like Koldihwa, Sohgaura, Imlidih Khurd, Waina, Bhunadih, Chirand, Chechar and Senuwar have furnished evidence pertaining to the transitional stage from the preceding Neolithic culture of the region to the Chalcolithic. The only perceptible change during the Chalcolithic is the introduction of copper in this region sometime in the later half of third millennium B.C. which resulted into a tremendous economic activity resulting into agricultural surplus in a big way and the consequent increase in human population. Whereas the Neolithic settlements were few and far between, in the Chalcolithic phase the number as well as size of the settlements increased several-fold. Exploration carried out in 14600 sq. km area has revealed more than 200 sites. Of these, about two dozen sites have so far been excavated. Important among them are Kakoria, Magha, Koldihwa, Khajuri, Banimilia-Bahera, Takiaper, Malhar, Raja Nal Ka Tila in the Vindhyas and Jhusi, Kausambi, Sringaverapura, Rajghat, Prahladpur, Masondih, Sohgaura, Narhan, Imlidih Khurd, Khairadih, Chirand, Chechar, Maner, Oriup, Champa, Sonpur, Taradih, Manjhi and Senuwar in the Ganga Valley. Radio carbon dates from Chalcolithic levels in Ganga valley are as follows:

Table showing C^{14} dates from Excavated Sites

Site	Period	Lab. N.	C^{14} dates	Calibrated Dates in B. C.
Koldihwa	Chalcolithic	PRL-223 PRL-99	1450±120B.C. 1035±155 B.C.	1745 1520
Malhar	Pre-Iron	BS-1590 BS-1593 BS-1623	3850±80BP 3650±90BP 3550±90BP	2283 (2141) 1984; 2012 (1882, 1836, 1834) 1742 1882 (1743) 1639 Period I may be placed between 1900 to 1700 -1600 (Cal 2283-1639)
Lahuradewa	Pd. II	BS-1950	3750±90BP	2135, 2079, 2056
Lahuradewa	Pd. III	BS-1939	2940±100BP	1205
Raja-Nal-Ka-Tila	Pd. I	PRL-2046 PRL-2045	3200±90BP 3360±90BP	1500-1490, 1448-1256 1240-1212; 1622-1613 1742-1378, 1348-1613
Senuwar		BS-757 BS-755	1400±110 B.C. 1500±110B.C. 1660±120B.C. 1770±120B.C	 1760 (1617) 1497 2125 (1958) 1798
Jhusi	Chalcolithic	PRL-2083	1340±90B.C.	1597 (1490, 1480, 1450) 1400
Khairadih		PRL-1049 PRL-722 PRL-513	1030±160B.C. 850±50B.C. 1120± 90B.C.	1190±160 900±90 1290±90
Narhan		BS-850 BS-852	1123±110B.C. 1133±110B.C.	1380±110 1390±110
Sohgaura		PRL-179 PRL-178	1230±130B.C. 1330±110B.C	1410±130 1490±110
Chirand		TF-444 TF-334 TF-1029 TF-1028 TF-445	715±105B.C. 845±125B.C 1050±90B.C. 1540±90B.C. 1650±100B.C.	

Chalcolithic Sites in the Lower Ganga Valley

With the introduction of copper in limited quantity, eastern India, particularly Bengal and Bihar, witnessed gradual transformation from the Neolithic to the Chalcolithic stage. The Chalcolithic remains of Pandu-Rajar-Dhibi on the Ajay river in Burdwan district had been reported way back in the early sixties but recent years have witnessed the discovery of as many as 72 Chalcolithic sites in this region. Of these, 33 Chalcolithic sites are located in Birbhum, 23 in Burdwan, 8 in Bankura, 7 in Midnapore and one in Murshidabad district. Geographically speaking, 47 sites are distributed in the Rarh plain, mainly concentrated in the Birbhum-Asansol Rarh and sporadically distributed in the Bankura Rarh. The distribution of these sites clearly shows that the Chalcolithic people of the lower Ganga valley preferred to settle along river banks, (the main rivers being the Dwarkeswar, the Ajay, the Rupnarayan, the Kunoor, the Damodar, the Kansabati, the Kopai, the Kumari and the Mayurakshi). These river valleys provided new and fertile alluvium after the end of the

rainy season every year, where cultivation was possible even without ploughing. Another attraction was the abundance of aquatic fauna like fish (including carp), tortoise and snail. Of the 72 known sites, 12 have been excavated.

Concluding Remarks

A study of the data obtained through excavations of Chalcolithic sites in the middle and lower Ganga plain reveals that:

1. The introduction of metal (copper) witnessed a spurt in activity in every walk of life and a significant increase in the number and size of the settlements. These sites are found below the 90 m contour line and are located on higher *bhangar* land which is above the flood level. These sites are almost always found along the river banks. Of the nearly 200 sites, 13 have been excavated. The radiocarbon dates from Sohgaura, Khairadih, Narhan, Chirand, Sonpur and Senuwar indicate that Chalcolithic cultures were firmly established in around 2500 B.C. in the Sarayupar plain and by 2000 B.C. in Bihar.

2. As compared to the preceding Neolithic culture, there is a dramatic increase in the number and size of the Chalcolithic sites. Obviously this was due to sharp increase in population. The social structure of the Chalcolithic folk has not been worked out in detail because the excavation at most of these sites were conducted on a very modest scale. Some sort of stratification in the society during the Mesolithic period has been suspected on the basis of grave-goods from Mahadaha. A similar situation must have obtained in the Chalcolithic society as well.The presence of various type of ceramic wares and small objects of stone, bone, ivory etc. indicates the specialization of crafts by certain individuals/ families in the Chalcolithic society.

3. We do not have any indication about the religious beliefs of the Chalcolithic inhabitants of the Middle Ganga plain. It may be recalled that “a place of worship” has been identified at Baghor in district Sidhi in Madhya Pradesh. This place of worship has been dated to the Upper Paleolithic period. Further, the discovery of a figurine of a Mother Goddess made on bone and found from the eroded Gravel III in Lohanda nala, a tributary of the Belan river, has been dated to the Upper Paleolithic period. It provides the earliest evidence of a belief in the supernatural. The burials of the Mesolithic sites of Pratapgarh provide ample evidence of belief in the after- life, but no such evidence is forthcoming from the Chalcolithic sites. The only evidence is that of the post- cremation pit- burials from Sonpur and Chirand which indicates that this custom was prevalent in some parts of Bihar but this evidence is missing on the other sites. The absence of burials in the Chalcolithic levels indicates that the method of cremation for the disposal of the dead body, which became the principal mode in the later–day Hindu society, had its roots in the Chalcolithic culture.

4. The faunal remains from these excavations have received adequate attention in recent years and a broad picture of animal exploitation has begun to emerge. It is now clear that while hunting was the main occupation during the Mesolithic age, selective domestication of some animals began during the Neolithic times. For example while only two domestic species - cattle and goat are present in the Neolithic phase at Tokwa, in the succeeding Chalcolithic phase four more animals - buffalo, domestic pig, sheep and domestic ass where added to this list. At the same time the spectrum of wild animals became much narrower in the Chalcolithic phase as compared to the preceding Neolithic phase. Only four wild animals - gaur, blackbuck, four horned antelope and spotted deer are present in the Chalcolithic levels of Tokwa. The wild fauna at Senuwar comprises only four horned antelope, spotted deer, nilgai, barking deer and wolf. More or less a similar picture obtains at other sites also.

5. An insight into the economic activity of the Chalcolithic inhabitants has been provided by the “site catchment analysis” in the case of Senuwar. A catchment area is that area from which resources are taken to support human population and occur within reasonable walking distance from a site. The tecnique was first used by Vita- Finzi and Eric Higgs in 1970 for reconstructing the prehistoric economy of Mount Carmel in Palestine. From this study it has been shown that several resources were available within and in the close vicinity of the ancient site of Senuwar such as clay for pottery and terracotta objects, house building materials, domestic animals, fishes and other domesticated animals. The arable land around this site was quite sufficient for agriculture. However, the raw material for preparing the lithic blades (agate, chalcedony, jasper, milky-quartz etc.) was obtained from a distance of 8 to 9 km, from the foothills of the Kaimur hill ranges. A similar situation must have obtained on other Chalcolithic sites also.

6. The archaeo-botanical remains from Jhusi, Malhar, Imilidih, Narhan and Senuwar have been studied in quite a great detail. This study indicates that by about 7000 B.C. almost all cereals, pulses and oil seeds which form the staple food of the present–day inhabitants of the Middle Ganga plain were grown in this region. The only serious omission is the pegeon-pea (Arhar) which is presently missing from the archaeological record. Presently its first cultivation in the Ganga Valley has been recorded at Charda and is datable to circa 800 B. C.

7. The economic base of the Chalcolithic culture of the Lower Ganga plain (including Sarayupar region) comprised rice as well as wheat and barley. Here we find that the cultivation of two crops a year was firmly established during the Chalcolithic period and almost all the cereals which were the staple food of the urban settlement of the Harappa culture in the north-west, were being cultivated by the Chalcolithic people in this part of the country as well.

8. The radiocarbon dates from the Neolithic-Chalcolithic sites of the Middle Ganga plain have conclusively proved that these cultures were a younger contemporary of the Harappa culture. Here the natural question arises as to whether the Chalcolithic people were in contact with this mighty city-civilization.The discovery of more than one hundred tiny beads of steatite from the Neolithic deposits at Imilidih Khurd and Lahuradewa and several steatite beads from Chirand provide an indication of such a contact, but this remains to be firmly established by further research. This link between two cultures is further buttressed by certain pottery types like the dish-on-stand which occurs on several sites like Lahuradewa, Narhan and Chirand.

9. On the basis of the archaeo-botanical evidence Saraswat (2004) believes that since Harappan trade with Mesopotamia had declined around 2000 B.C., the late Harappan people migrated from their homeland to different regions and some of them came to the Kaimur region. From the Kaimur region the tradition spread in inland regions of the Middle Ganga plain and a number of sites like Chirand, Taradih, Maner and Chechar-Kutubpur are a testimony to this. Harappan influence has also been noticed by some scholars in the pottery types of this period. The button-based goblet, dish-on-stand, and a knobbed ware from Chirand are taken as further proofs of this eastward migration of the late Harappans.

10. Analysis of copper objects from Senuwar shows that the coppersmiths of this site had definitely started smelting copper ores since 1950 B.C.- 1300 B.C. (Neolithic-Chalcolithic) for procuring metallic copper. The trace element analysis of this metal from Senuwar suggests that the source of copper was Singhbhum copper belt of Bihar, particularly the Rakha mines. The metallurgical analysis of a copper axe from Imilidih Khurd has been given above.

11. Excavations at Raja-Nala-ka-Tila, Malhar and Dadupur provided early dates for the introduction of iron in the Middle Ganga Valley. A number of radiocarbon dates from these sites put the introduction of this metal to about 1600 B.C. if not earlier. This is a new development which has wider ramifications and the stratigraphic position of this metal in future excavations needs to be watched carefully.

12. The discovery of well established village cultures based on the cultivation of two crops a year by rotation method in eastern U.P. and Bihar demonstrates an uninterrupted cultural continuity uninfluenced by any external stimuli from about from c. 2500 B.C. in the Sarayupar plain and c. 2000 B.C. in Bihar. This discovery has exploded the popular theory that this part of the country was “aryanised” by clearing dense forests only around the eighth to seventh century B.C. as proposed by some scholars while giving a historical explanation of the Videgh Mathava legend of the *Satapatha Brahmana*. We know that there is only casual reference to this region in the early Vedic literature, but by the late Vedic period it had become an important administrative unit due to the formation of the Kosala and Videha kingdoms. The region is first mentioned in the *Satapatha Brahmana*, a text that relates to the spread of Aryan culture. In this text we read about Videgha Mathava, the king of Videhas. Accompanied by the preist Gotama Rahugana, he carried the sacrificial fire from the banks of the Saraswati river eastward across Kosala and the Sadanira and established a settlement known as Videha after the tribal name of Mathava.

13. That the neoltihic-Chalcolithic of the Middle Ganga plain are non-Harappans and non-Aryans is generally accepted on all hands. The contributions of these pioneers in the making of Indian culture are too many to be enumerated. However, the question remains as to whether we can give a name to these people. It is suggested that they could be Vratyas and Kikatas who are forefathers of the present-day tribal population of the Vindhyas and the Chotanagpur plateau. The term 'Vratya' was possibly a collective name given to a group of people whose way of life was different from those who claimed to be Aryans. As the primitive people of India they seem to have contributed much to the growth and development of Indian culture. They differed from the Vedic Aryans and developed their own system of thought and culture.

    The Vratya has been glorified in the Atharwaveda (XV). According to Monier-Williams the word Vratya means a man of mendicant or vagrant class, a tramp, outcaste, low or vile person, either a man who had lost caste through the non-observance of ten principal Sanskaras, or a man of particular low caste descended from a Sudra and a Kshatriya and according to some the illegitimate son of a Kshatriya who knows the habits and intentions of soldiers.

    Weber believes that the Vratya is derived from the word Vrata (troop), the chief of a band of wanderers of Aryan extraction, but absolutely independent, free from the fetters of Brahmnical hierarchy and not following the Aryan way of life.

    Radhakrishna Choudhary thinks that the Vratyas were a class of people different from the Aryans and did not abide by the Vedic law or custom. They were original inhabitants of eastern India (Magadha). The *Atharvaveda* and the *Kausitaki Upanishad* are the living examples of their contributions in the intellectual field. They were worshippers of pre-historic form of Siva. It is only in the Vratya tradition (*Prasna* and *Svetasvatara Upanishads* of the *Atharvaveda*) that we have a succinct account of their cult.

14. It has been suggested that these first farmers may be tribals like the Kikatas of the Rigveda who have been said to be relying more on pastoralism. They seem to have abandoned their habitations by the fourth millennium for reasons not known to us. In this context it may be pointed out that the earliest settlement at Mehrgarh (Pakistan) belonging to the 6th millennium (Stage I consisting of Periods I-II, Neolithic) has been found to have some biological affinity with those in the Ganga Valley. This observation of biological anthropologists is significant and needs further probe.

The Battle for Ancient India

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For more than two decades, the politics of the past has been an important part of the theoretical literature of archaeology and ancient studies, although, apart from two books by the present author and some papers both by him and others, India does not figure in this literature. The purpose of the present paper is to outline how and why the study of ancient India including its archaeology has come to be related to different power structures and ideologies which have dominated the Indian scene from the beginning of the British rule to the present period.

On the most basic level, the controversy is about the position of India in the scheme of world civilizations. Has it ever been an original and innovative centre of technology and other material traits of life outside the domain of religion and philosophy ? In the middle of the nineteenth century Max Muller provided the image of an inwardly turned India, and in the more modern times, A.L.Basham tried to perpetuate this image through his *The Wonder that was India*. This image of the other worldliness of India persists strongly even in the contemporary world. If anything related to India is a reasonably popular field of study in the Western universities, that is Indian religion and philosophy. The recent emphasis of a section of expatriate or non-Resident Indians on the hidden or unexplored depths of Indian wisdom in the Vedas, etc. is a part of this tradition. Similarly, the preoccupation of a large number of people with the various imagined mysteries of the Sarasvati river is a part of this tradition too.

But there are also people to whom the idea of a spiritually rich India is redolent of an unacceptably Hindu India. From this point of view , the Sarasvati has to be argued as a mythical river and Hinduism has to be interpreted as a phenomenon which developed only after the Aryans came to India. From this perspective, Hinduism is as much native to the Indian soil as Islam and Christianity are. All of them came with the influx of new people, the Aryans in the case of the Hindus, the Muslims in the case of Islam and the Europeans in the case of Christianity. The idea of continuity of the Indian civilization does not suit the beliefs of this group of people.

Within this primary frame, there are various shades of opinions regarding various fields. The first is the unqualified acceptance of the idea of correlation between race, language and culture, of which the Aryans, Dravidians, etc. are logical offshoots. This led to the concept of the Aryan rule of India on the one hand and the genesis and persistence of the Dravidian movement on the other. These concepts have many ramifications and deserve detailed discussions exposing their hollowness. If the Dravidian movement in Tamil Nadu has assumed a form in which scholars extolling the virtues of Tamil civilization are handsomely rewarded, the Aryanists in Tamil Nadu refuse to dissociate the origins of the Tamil civilization from the perceived migrations from the north. When a scholar of the stature of I.Mahadevan refuses to take the date of the earliest Brahmi inscriptions in Tamil Nadu earlier than the third century BC, even though in the neighbouring Sri Lanka they date from the mid-5th century BC and the archaeological sequence at sites like Kodumanal takes the Brahmi-inscribed sherds to c.500 BC, the most charitable explanation I can offer is that to Tamilians of higher castes, the idea of an early literate Tamil antiquity is not particularly acceptable.

The terms like the Aryans, Dravidians, etc. are still freely used in Indian archaeology with unhappy implications. B.B.Lal, for instance, puts the 'Aryan homeland' in India whereas to those familiar with the concerned literature behind the Aryan idea, this Aryan idea is nothing but a racist myth and should be discarded forthwith. On the other hand, there is no lack of attempts in recent times to seek the Aryans in such places as Bactria or the southern part of Siberia.

The second sub-area of dispute is the extent to which the different technological elements like food-production, metallurgy, etc. are the results of diffusionary spreads or indigenous developments. At almost every stage of the Indus civilization we have encountered such disputes, including those about its chronology, and in a later context, still there are people unwilling to accept an early date for the beginning of iron in India.

A detailed item by item discussion on these and other issues is beyond the scope of the present paper, but it may be useful if we remember the contexts which have given rise to them. Finally, it is worth remembering that the study of ancient India still suffers from certain basic infra-structural problems such as the absence of a national level laboratory devoted to various kinds of dating and other scientific and technical analyses of archaeological objects. It would also be nice if the concerned archaeologists could publish their findings without waiting for their retirements.

About Prof. Dilip K Chakrabarti

Dilip K Chakrabarti is Emeritus Professor of South Asian Archaeology at Cambridge University. He has authored 25 books, besides editing 5 volumes and authoring about 200 articles, notes and reviews. He was awarded Hony. D.Litt by M.J.P. University, Bareilly, and S.C.Chakrabarti medal of the Asiatic Society, Kolkata. He received the Ranade book-

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Partitioning the Past: India's Archaeological Heritage after Independence

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This paper discusses the fate of Indian monuments and antiquities, especially antiquities and sites of the Indus civilization, after India gained freedom from British colonial rule on 15th August 1947. 1947 saw a redrawing of the political map as a consequence of which a united India came to be partitioned into the two nation states of India and Pakistan. In the enormous literature that has been generated on the aftermath of partition and independence, what has not been considered are the pressures and problems that India's archaeological past had to face on account of the demographic deluge on the one hand, and the division of assets on the other.

This is somewhat surprising since an extraordinary irony must have stared everyone in the face. As the two nations came to be divided along religious lines, India became the inheritor of a rich Islamic heritage. The new boundaries had partitioned the archaeological map in such a way that, as Mortimer Wheeler, India's Director General of Archaeology in 1947 put it, Pakistan was “found to include almost the whole of the known extent of the earliest civilisation of India, that of the Indus valley”. Simultaneously, “almost all the Mohammadan monuments of the first importance” remained in India.

I propose to look at some of the challenges faced by the Archaeological Survey of India as it coped with the impact of independence and the partition on monuments, on museum collections, especially those relating to Mohenjodaro and on the nature of Indus research itself.

Decrypting Indus Valley Script: what it means to the Study of Indian Civilization

Dr. S Kalyanraman

Languages of present-day India can be explained from a common source. *The Indus Script Cipher* (2010) by S. Kalyanaraman, is premised on India as a linguistic area. Thus a list of lexemes common to all major language families of India is compiled surmising them to be derived from the common semantic -- and hence, cultural -- pool. Language is but a social contract in a cultural continuum of a civilizational area. Hopefully, the next generation of scholars will not have to repeat the refrain: “The Indus Script has not been deciphered so far…” The rebus decryption of the script occurs by matching glyptic elements of hieroglyphs of the script with homonyms from the list of lexemes. The decryption identifies a set of homonyms, all of which are related to the repertoire of stone-workers (lapidaries) and the glyphs used in their writing system. This work, evidencing the language union (sprachbund) contributes to historical studies emphasizing the essential cultural continuum from the days of Indus Valley (Sarasvati-Sindhu) civilization into India's historical periods.

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Dr. S. Kalyanaraman is Director, Sarasvati Research Centre, President, Ramasetu Protection Movement and BoD member of World Association of Vedic Studies. His research interests are: Vedic Sarasvati River and Hindu civilization, decrypting Indus Script, National Water Grid and creation of Indian Ocean Community. He was a senior financial and IT executive in Asian Development Bank, Manila, Philippines and in Indian Railways. His publications include: Indian Lexicon -- a multilingual dictionary of over 25 ancient Indian languages, Sarasvati in 11 volumes, Indian Alchemy -- Soma in the Veda, Indus Script Cipher. He is a recipient of many awards including Vakankar Award, Hedgewar Prajna Samman and Sivananda Eminent Citizen Award. Website: http://sites.google.com/site/kalyan97

THE ART OF WAR IN ANCIENT INDIA

Maj Gen G D Bakshi SM, VSM (retd)

The Impact of Techno-Economic and Techno-Military Triggers. Indian history can be scientifically studied in terms of the impacts of a series of techo-ecnomic triggers that generated phase transitions in the historical process. The techno-military triggers ushered in the local Revolutions in Military Affairs (RMAs) that decisively shaped the course of history .In ancient India these techno- military triggers were provided by the use of horse Chariots by the Aryans which gave them the military edge over the forest tribes and other adversaries.

The Mahabhartan Four Arms (Chaturanga Bala) Military Paradigm By the time of the Mahabharata War, a four arms based military paradigm had crystallized in South Asia. It was premised upon the combined Arms manoeuvre of four variable speed manoeuvre masses of the war chariots, the War elephants, the barebacked horsed cavalry and the ubiquitous foot infantry. Tactical battle arrays and battle drills called "Vyuhas" were derived from representative games like Chusar(Chess). This form of war gave rise to an aristocracy of Kshatriya Princes who became the" Maharathis"or great car warriors and dominated the social caste hierarchy as the ruling class.

The Mauryan Paradigm Shift to War Elephants. The major RMA in ancient India however was brought about by the massed use of war elephants by the Mauryas. The Elephant became the Indian liet motif of war. Its use in the mass generated " Shock and Awe". The War Elephant was a far superior platform than the Chariot. It could carry 6-8 archers as opposed to just two in the chariot. Its prime advantage lay in its tremendous mobility in any terrain whatsoever. The military revolution was created by its use in the Mass by the Mauryas. Kautilya relegated the Chariot to largely ceremonial purposes and created a Shock Arm of some 9000 War elephants in the Imperial Mauryan Army. It was with this instrument that he first unified India in a vast and highly centralized Mauryan Empire. This unification was largely accomplished in just 25 years. The Caste equations changed in favour of the Shudras who manned these war elephants. The era of the Maharathi was over.A huge corps of War elephants was prohibitively expensive and required the economic resources of a huge and tightly centralized empire of sub-continental proportions.

Ancient Tribal Art: Chalcolithic Pottery Paintings

Dr. Veena Datta

Much before the great river valley civilizations took root in the flood plains of the Ganga & Yamuna; the Chalcolithic cultures had grown in the river valleys of the central India & Deccan. These cultures of the copper age flourished primarily along the river valleys of the Narmada, Chambal & Son & their tributaries. These Chalcolithic people were illiterate. There is no evidence of any written script. The only decipherable records of the civilization are the pottery paintings on the shards of broken earthen ware discovered at many of these ancient sites. These simple & elegant paintings open up an ethno-universe of surprising diversity and vibrance. They present a fascinating glimpse into those ancient tribal cultures.

These primitive tribal cultures represent the first transition phase from the nomadic hunter gatherer stage of human evolution to settlements in the Deccan river valleys that carved passages through dense forest tracts. Their dwellings were simple and rudimentary huts. The only decipherable record of this Chalcolithic civilization that has survived the ravages of time is the pottery paintings on the shreds of broken earthenware discovered at these ancient sites and settlements. These simple pottery paintings have a fascinating tale to tell of those tribal cultures and settlements of the Chalcolithic period of Indian history. The creative imprint of those ancient potters has survived the ravages of the centuries. The painted motifs, figures and designs speak a simple but elemental language that transports us over the aeons and throws a powerful searchlight on those vanished cultures, on the lifestyles and collective experiences of those simple tribal people.

Within the ambit of Chalcolithic Art, however, a closer examination indicates the presence of distinctive regional sub-styles in terms of painting techniques (filled in wash or cross hatching and use of dots etc.) and regional uniqueness of motifs and design patterns. Creativity and innovativeness in folk art appear on a regional or geographical basis. To pick out these minor stylistic variations, an attempt was made to establish the typology and basic features of the common motifs and designs.

The pottery paintings of the Chalcolithic period could be studied from the artistic point of view as the folk art of that period. The motifs and designs pattern, of the folk artists are cultural and ethnic constants. We find the basic line motifs and themes repeated endlessly. In such art there is little scope for individual creativity or thematic variations. The folk art form is usually transmitted from father to son and each motif, line and design pattern is carefully taught by example. The child painter learns on the job.

Stylistic variations therefore are not individual but regional. Each culture generates its own repertoire to motifs and designs by which it can be easily recognized.

Can we distinguish stylistic variations within Chalcolithic painting themselves? The quest for such stylistic variations is facilitated when we start with the premise that folk art will have minor regional variations in style and composition within the same larger cultural framework. The simplest regional classification within the Chalcolithic culture that was spread over Central India and the Deccan can be formed on the basis of identifying the individual river valleys.
Each river valley forms an enclosed eco-system. The intervening hill ranges serve to enclose or clearly demarcate it from the others. To that extent its inhabitants are likely to acquire unique sub-cultural identities within the larger cultural context. The folk artists amongst them would express this sub-cultural context in terms of slight variations in painting style, the creation of unique or localized symbols, and the application of particularized techniques of painting in preference over others (e.g. complete filling in as opposed to cross hatched figures or simple line work).

When we closely examine the Chalcolithic ceramic paintings on this basis, we can identify three somewhat distinct stylistic patterns. A correlation of these with the sites of origin of the ceramic ware seems to bear out the River valley hypothesis. The four sub-styles that can be identified in the Chalcolithic pottery paintings are as follows:-

A] The Narmada River System
B] The Chambal River System
C] The Godavari River System
D] The Bhima River System

On the whole the Chalcolithic pottery painting provides us the unique insight into the proto historic cultures of central India and Deccan. The fact that the Chalcolithic people were illiterate only emphasizes the value of the pottery paintings as a form of communications of ideas, images and impressions which give a direct peep into the minds of the Chalcolithic people. The evidence here is primary and direct almost as if these paintings were pictographic records of their life and times. Not only do these paintings mirror the external reality but also provide us a direct insight into the inner physiological landscape of the Chalcolithic mind. This insight is an invaluable aid to understanding that proto historic culture.

Archaeology of Panchal with special reference to Ahichhatra

Dr. Bhuwan Vikram

Panchal as an administrative and political unit comes up to be mentioned first in the list of 16 Mahajanapadas around the 6th century BC. However, as a region or as people it was referred to in the earlier texts like vedas, brahmanas, epics, etc. As a political unit the Panchal Janapada was one of the largest in spread and coverage area and was extended from Himalayan foothills in the north to the Chambal River in south. On the west, Kuru and Sursena janapadas shared their boundaries with Panchal, while on the east Kosal and Vatsa guarded it. Thus the jurisdiction of Panchal covered the modern districts of Pilibhit, Barreilly, Badaun, Etah, Farrukhabad, Kannauj.

Here, it would be little out of place to delve upon the significance of Panchal during the Vedic and later vedic periods as there would be no evidence to support. Therefore, I will not harp upon it. As an archaeologist, I would like to see the expanse of the region and various settlements of this region and the archaeological time frame of these sites and how well they fit into the makeup of the personality of the region. How far it would be possible for us, archaeologically, to pronounce the people as Panchal? and; whether It would be appropriate to study the site / settlement as belonging to a regional affiliation or should the individuality of each site / settlement be respected? are some of the questions which need to be answered.

The land is drained mainly by river Ganga and Yamuna and several smaller tributaries. It is more or less flat terrain having a very gentle general gradient towards east-southeast. Lying between the Himalayan foothills and the gullied wasteland (bihad) of river Chambal, Panchal is part of the Gagetic trough filled mainly with the Himalayan wash brought down by Ganga and Yamuna. The area, thus, is practically devoid of stones larger than small pebbles that the large rivers could carry down to this far. Therefore, possibility of prehistoric sites being located in this area is very less even if they were here they got buried under the huge deposition brought by the river floods; however, some variant facets of early Neolithic sites may be expected which used animal bones instead of stones, but so far no such site has been identified in this region.

Thus, for the reconstruction of the archaeology, pre-Historic period is discounted; but, the area appears to be well settled and inhabited by the period when the first urbanism was in the flourish in the valleys of Saraswati and Sindhu (the Indus). Though the antiquity of Copper Hoard implements and Ochre Coloured Pottery ware cultures (if they may be called as culture at all) is as yet a debatable subject matter, yet they may be placed closer to the mature Harappans, if

not as contemporary of the pre Harappans or early Harappans. Thus, the cultural or archaeological history of the land begins with the people who used a pottery which has been very loosely and in broader sense defined as Ochre Coloured Pottery. Copper Hoards – finding of copper implements in varying combinations and numbers have so far been found in total isolation of any cultural element and as such have remained open for purely conjectural build up of hypotheses leading to wide, wild and ever changing interpretations. Therefore, it is not yet firmly and surely associated to any culture.

Ochre coloured Pottery culture is accepted as the first in this janapada, which is chronologically followed by Painted Grey Ware, Black and red ware, Northern black polished ware, red polished ware, stamped ware and mica-dusted red ware covering the chalcolithic, early Iron Age, iron age and the second urbanism – the age of sixteen great states, Mauryan, Sunga, Kushan, Gupta and later periods.

A cursory archaeological survey of the region throws up several settlements, big and small, representing different time frames ranging from early historic period to the late medieval periods. Many sites show resilience for surviving the onslaught of time for long period and show multi-temporal cultural progression, while some other sites appear to have lived only a short span. Since, the present study is focussed on Panchal, here those sites are taken up which started their journey in the pre-Mauryan times. In doing so is hidden a latent desire to identify, howsoever tentative it may be, who were the Panchal?

The earliest cultural remains that are encountered in this region are those belonging to Ochre Coloured Pottery. Ahichhatra, Atranjikhera, Jakhera and several smaller sites in Barelley and Etah districts have OCP as the starter, while Sankissa, Kampil, Kannauj, etc. begin with PGW. Now, the question –**'who were the Panchal?'** resurfaces. Whatever be the answer, in either case, there will be a follow-up question **'who were the predecessors or successors?** Answer : either OCP or PGW; Here, the Hastinapur evidence as deduced by Lal may be considered:

After Period I at Hastinapur, "the site was deserted by the inhabitants of this Period well before the arrival of their successors, since there was no cultural overlap between the two."..... .... (Lal, Ancient India -10-11; 1954-55; p. 11)

.... "The flood (of Period II), heavy as it was, must have entailed an enormous loss of life and property. The inhabitants seem to have been so much upset that they decided to abandon the site. Consequently, there was no habitation at Hastinapur for some considerable time." (ibid. p. 15.)

".....occupation of the site resumed (in Period III) by a population which had now completely given up the Painted Grey Ware...." (ibid.)(Parentheses added by author)

'Were they not the same people?'

Settlement Pattern

Although the Janapadas were a political unit but the boundaries were probably not so rigid and many times people of the border areas chose to be affiliated to one or the other janapadas. It can be easily believed that the Janapadas had many villages which supported the towns that in order supported the big cities. Archaeologically we do have some information about some of the big/bigger settlements which also find mention in literature, but many of the smaller settlements are very hard to find. Therefore, for the purpose of understanding the settlement pattern, here some of the larger sites shall be taken into consideration like Ahichhatra, Atiranjikhera, Sankisa, Kampilya and Kannauja.

Ahichhatra was the capital city of the Panchal Janapada (undivided as well as of North Panchal) and Kampil (Kampilya) became the capital city of the south Panchal, when the Panchal janapada was divided in to two as uttar Panchal and dakshin Panchal. The other sites were important otherwise.

From the spread of the sites it is good to see that the average distance between two sites is around 40 kms. This distance is important in so far as the location of moderate size settlements as it might suggest the primary criteria for the location of a site. It may be the distance covered in a day by cart. If this surmise be true, a site may be expected between Sankissa and Kannauj which are more than 80 kms apart. It is highly probable that there be a site in between them of the same period and of similar size. In this distance calculations only the straight distances 'as crows-fly' are considered and no study for least cost path has been carried out nor has any terrain study been undertaken.

Most of the sites are almost corresponding to each other in size which averages around 100 hectares, going by the size these sites can be considered as provincial centres, with their own cluster of support base of sites. Not many explorations have been carried out to make an authoritative statement, however, we can safely and logically conjecture a network / web of satellite, self-sufficient units which supported the large settlements and also supported the rout-network and trade traffic.

Out of the above sites only two sites i.e. Kampilya and Kannauj (Kanyakubja) are located on the Ganga, probably because they are located farther from the high gradient zone of Ganga meaning that the river is sobered up off its

turbulent behaviour and is reduced in its destructive properties; where as the other sites like Ahichhatra, Atiranjikhera, Sankissa, etc. are sufficiently away from the major rivers and are near but not on the banks of even the smaller tributaries of the Ganga or Yamuna, indicating the less reliance on rivers and more on the natural or man-made rain-fed lakes or ponds.

Culturally most of the sites begin with OCP/PGW period. It is easier to understand the cultural makeup of these sites, although sites like Sankissa and smaller sites near it show religious overtones and may differ in one or two elements. However, an understanding of the prevailing culture may be made from some of the excavations carried out at Atiranjikhera, Jakhera, etc. with special attention paid to Ahichhatra's recent excavations.

The above settlements, be they small or big, do not appear to come up at the same time. Some start up with OCP, while others, though not thoroughly verified, are late in appearance. It shows the gradual spread of the people and occupation of the Ganga-Yamuna valley. However, as the region is concerned, it is not known whether the OCP using people also called it Panchal or otherwise. Yet here, for the easy understanding, the area is referred to as Panchal regardless of the context of time. Most of the sites have not been excavated and therefore any word regarding their antiquity will, but remain tentative.

The Material Culture of Panchal

Very few sites have been excavated in this region; however, a reasonable picture could be drawn as most of the sites mentioned above have been excavated on some scale. Just to refresh our memories a brief description of the results of the excavations at these site

Kanauj: A limited excavation, by Shri K. K. Sinha on behalf of the Excavations Branch, at the mound representing the ancient city of Kanyakubja, revealed four cultural periods, through its 40-ft. thick deposit.

Period I could be dated to 1000 B.C. and later by the find of a sherd of the Painted Grey Ware and a mass of red and black-slipped ware associated with it. There were no structures.

Period II had a single brick structure of large-sized bricks. From the find of the Northern Black Polished Ware and associated wares, the Period could be dated to 600 to 200 B.C.

Period III was divisible into as many as seven structural sub-periods, the structures being mostly of burnt bricks but occasionally of rubble as well. From the earliest levels of the Period came pottery, of red ware, with impressed designs and symbols typical of Kushan times. The terracotta figurines (pl. XXVIII B) showed a wide range: a male figure with its elbows forming round openings at the -sides, a well-made head with protruding eye-balls and hair with a flattish knot at the top, crude figurines and a satti-satta plaque recall similar finds from Ahichchhatra; the last object, dated at Ahichchhatra to early medieval times, helps to fix the terminal date of the Period.

Period IV showed seven sub-periods, the buildings being mostly of small brick's known as lakhauri. Many structures were built in lime-mortar, and some were plas-tered with the same material. The bricks, glazed ware and other pottery of the Period indicated its late medieval date. (Indian Archaeology: A Review -1955-56, pp. 19-20)

Sankisa: Excavations at Sankisa are important in view of the fact that no proper record of the exposed structures and antiquities or stratigraphy is available. Further, its location in a zone where cultural trends from different areas might have influsenced the inhabitants during protohistoric times makes a good study. Excavation in the year 1995-96 by Dr. B

R Mani revealed a 'tentative' four-fold cultural sequence:
Period I: Painted Grey Ware (c. 9th century BC to c. 600 Century BC)
Period II: Northern Black Polished ware (c. 6th century BC to 3rd century BC)
Period III: Sunga period (c. 2nd century BC to 1st century BC)
Period IV: Kushan period (c. 1st century BC to 3rd century AD)
(Mani, BR; Excavations at Sankisa-1995-96, Puratattva No. 26, pp. 43-49)
Kampil: Among the capitals celebrated in the Indian epic Mahabharata, Kampilya is the only one not yet identified with certainty. The intuitions of General Alexander Cunningham (1878) and the further investigations of Dr B B Lal (1955), Dr V N Misra (1961) and Professor K K Sinha identified the location of Kampilya, as **'drupad ka tila'** in the surronding area of the present day Kampil village, in the district of Farrukhabad, in the mid-Ganges Valley. The ancient bank of the Ganges had been intensively settled for a long period, at least from the 12th century BC to the 1st century AD, from Painted Grey Ware to the Kushan periods. The walls of the city measure 780 by 660 meters and are perfectly oriented toward the points of the compass.(Gian Giuseppe Filippi; The Importance Of Being India
Part 10 : The Kampilya Archeological Project, from internet)

Atranjikhera: Located on the right bank of Kali nadi, in district Etah, Atranjikhera has been identified as Pi lo sa na of Huein tsang. Prof. R C Gaur, AMU, excavated the site to reveal a unique continuity of occupation running into seven Periods diagnostically represented by

Period I: OCW
Period II: Black-and-red ware
Period III: PGW
Period IV: NBPW
Period V: Red ware of Kushan
Period VI: Post Kushan
Period VII: Glazed ware (medieval)

Ahichhatra: Ahichhatra is one of those archaeological sites which have continuously attracted the attention of scholars and researchers. After Captain came General. General was pursuing Heuen Tsang and his chase brought him here in the year 1863-64-65. He was a serious researcher and has left equally serious account of this site and his work. Apart from the truthful wordy description he left the most accurate to-the-scale drawings and his first hand observation. Ahichhatra as identified by Sir Cunningham is a site near Ramnagar village some 15 km north of Aonla on road to Shahbad. Enclosed by 30 to 35 ft high rampart wall Ahichhatra is roughly triangular in shape with wide base running NS for 1462 metres towards west and the longer, pointed end wedges into east for more than 2000 metres. The high rampart with bastions at regular interval dotting the entire length opens at several points to allow entry into the city.

Captain Hodgson, who happen to visit this site in 1833, became interested in the impressive ruins. Hodgson records that it was popularly known at that time as "Pandu Raja ka Kila", it spread in very large area and had 34 bastions, etc. Alexander Cunningham who came some 40 years later could find only 32 bastions and mentions several folklores and traditions, identifies the site as Ahichhatra (Adisadra of Ptolemy and Ahi-chi-talo of Huen Tsang), however, he never once mentions the site as "*Pandu Raja ka Kila*". He mentions the place as "*Drupad ka Kila*" instead.

Considering the dimensions of the site covering an area of over 187 hectare, it is, however, interesting to note that there is no perennial source of water despite the site being located between Ramganga and Ganga. It is no doubt one of the largest (area wise) and probably the longest surviving site in India. The earliest known culture here is that of ochre coloured ware and the habitation moves along with changing paraphernalia in tune with changing times until the iconoclastic tendencies coupled with the catastrophic earthquake disrupt the city for good around 11^{th}-12^{th} century AD. With whatever modest and conservative estimation settlement here survived for more than 3000 years (from 2000 BC to 1100 AD).

Archaeological Studies

General, since basically a relic hunter, sunk holes on many a mound in search of Buddha and Buddhist relic caskets. Although he did not leave a well documented report of these excavations yet he marked the places well on map **(Figure 1)**. However, the lapse of 150 years is a long period of time to obliterate many signs of his probing. The lapse is also sufficient to reshape the surface that General had seen and described.

Fűhrer followed Cunningham in 1885 with a different objective and made some excavation of which he did not leave any detailed account. After him site was again subjected to digging for antiquarian remains further in 1888 by one Sadaruddin, zamindar of Rampur also tried some excavation.

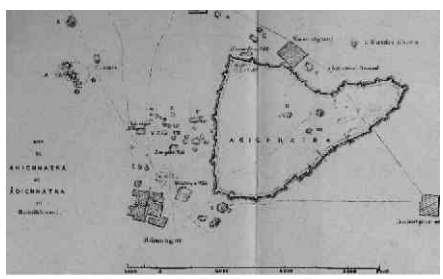

Figure 1

Earlier Excavations

Serious archaeological excavation was first held between 1940-44 when Roa Bahadur K N Dikshit along with his team headed by A. Ghosh camped here and carried out a large scale excavation. Scale of the excavation can be judged from the fact that rail tracks with swivel push carts were used to move the excavated earth. These have been imported from Berlin

During this excavation a lot of earth was removed and a plethora of cultural information was acquired. The excavation was spread throughout the site on ten mounds – AC I, AC II, AC III, AC IV, AC V, AC VI, AC VII, AC VIII, AC XII and AC XV – covering a large area. Though the exact locations of the excavations could not be identified yet a vague idea can be had from the map below (Figure. 3) (boxes are the additions by the author they do not show the area covered under excavation). The plan of the city was made in the year 1940, which also shows the grids defined for documentation and identifying the different area/sectors of the site. Major focus of the excavation was, however, laid on AC-I, AC-II & AC-III.

AC-I & AC-II are mounds with isolated peaks marked as Temple 1 and Temple 2 by Sir Alexander Cunningham. These two mounds yielded two gigantic stepped pyramidal structures made of burnt bricks. No records are published about these excavations. Archaeological material retrieved from AC-III area was relied upon to reconstruct the cultural buildup of the site with supplements from nine other areas.

Temple 1/ AC I yielded the classical terracotta images of the twin river goddesses Ganga – Yamuna and the beautiful heads of Shiv and Parvati (now on display at National Museum, New Delhi)

Not much is known about the area of excavation but detailed reports on pottery terracotta art and study on beads are available. It is after this site that the term Northern Black Polished ware was added to the vocabulary of Indian archaeology. The Grey ware which was first reported here although without any clear stratigraphic position was later christened as Painted Grey Ware. The report also mentions of some enigmatic ware. However, no plans or other details about the structures unearthed are available. The entire cultural material from the site was divided into 9 periods.

Stratum I	A.D. 850 to 1100	Early Medieval
Stratum II	A.D. 750 to 850	Post Gupta
Stratum III	A.D. 350 to 750	Gupta
Stratum IV	A.D. 100 to 350	Kushan
Stratum V & VI	100 B.C. to A.D. 100	Sunga – Kushan Trandition
Stratum VII	200 to 100 B.C.	Mauryan
Stratum VIII	300 to 200 B.C.	NBP
Stratum IX	Before 300 B.C.	Pre-NBP/PG Ware????

Table 1

Thereafter, some twenty years later N R Banerji came to the site for two seasons (1963-64, 64-65) with a crystal clear mandate to draw a cultural sequence and a time line in the light of post Hastinapur scenario. To re-examine the lower levels with a view to tracing the relationship, if any, between the Painted Grey Ware, which was first discovered on this site, and the Northern Black Polished Ware. In the two seasons of excavations large grounds were covered at two sectors named as ACT 1 and ACT 2 respectively. Attempts were also made to grid the entire site dividing it into 16 sectors. In these two years at rampart was cut at one point, midriff like partition wall was also cut.

This excavation too was not reported beyond the brief notes in the Indian Archaeology : A Review for the concerned years.

Period	**Deposite**	**Sequence**
Period IV	**2.1 m**	**Kushan-Gupta**
Period III	**1 -2 m**	**NBP Ware**
Period II	**1 m**	**PG Ware**
Period I	**60 cm.**	**OCP**

Table 2

However, the excavation served its purpose by fulfilling its mandate as it confirmed the chronological superiority of PGW over NBPW. But the biggest contribution was the discovery of a regular deposit of OCW (OCP) underlying the PGW (in primary context) **(Table 2.)**. In spite of the great potentiality being established, the site was again left to remain in oblivion for a long period until Dr. Durraiswamy Dayalan of Agra Circle pitched tents for excavation after a gap of 39 years in 2004 but lost interest in a month and half. The excavation was pronounced closed even before the trenches could go down to one metre depth. During this short sojourn an opening in the northern wall was found to have a raised side-walk with brick-on-edge pattern and the street of rammed brick nodule in mud-lime mix along with other finds

Fresh Excavation

In the year 2007 knives and pickaxes were once again sharpenned to work at Ahichhatra, this time the site was destined to see the application of new technologies in archaeological investigations in addition to the traditional methods. A project for Multi-disciplinary Studies at Ahichhatra, Bareilly was initiated in collaboration with IIT (Kanpur). Global Positioning System (GPS) and Total Station surveys were done extensively to generate dense data for preparing contour plan and elevation models as also the fly through models. High-precision global positioning system was used which has an accuracy of 1mm (courtesy IIT, Kanpur). Entire site was gridded following the established practice. In addition to the GPS survey Total Station were used to generate dense data which was utilized to form contours plan and digital elevation model (DEM) of the area.

Ground Penetrating Radar (GPR) was used selectively to procure 2D / 3D profiles of the sub-surface features for later ground-truthing by excavation and also along the excavated remains to check the veracity of the GPR profile as well as to find the horizontal and vertical extension of the remains

Various types of satellite imageries were processed and analysed to deduce inference to archeological tune. A Geographic Information System (GIS) platform has also been developed. For the first time, after General Cunningham, attention was focused on the vast spread of low-rising habitation mounds punctuated with a string of isolated mounds of some height towards west beyond the walls. Some 34 trenches were opened and good results were obtained ranging from Mauryan to $10^{th}/11^{th}$ century A.D.

Excavations in the next season (2008-09) were planned to confirm the early deposit with a view to confirm the expanse of the OCP and PGW areas and with specific aim to retrieve palaeo-botanical data which could be utilized to generate a record of ancient plant economy of Ahichhatra on one hand and also to provide a series of dates relying on C^{14} calculations of the charred grains and wood particles. Scientists of BSIP were roped into the gamut of multidisciplinary approach. Small area exposed in the last phase of the PGW level yielded a burnt floor of rammed earth with storage pots embedded, with profusion of Grey ware sherds most bearing paintings on interior/exterior and other associated material and pottery.

Apart from the pottery a large number of other cultural material has been found which include a large variety of objects made on varied material. Most of the objects are the usual finds from the respective periods which been reported from many sites, but some of the finds are unusual which may be defined here. These objects go on to speak about the life style of the Panchal people.

Food and Subsistence

The preliminary palaeobotanical studies have shown promise and hope, the C^{14} dates are yet to come. The samples obtained through floatation comprised of rich organic content of small sized wood charcoal pieces along with, carbonized seed and fruit remains of field crops belonging mainly to cereals, legumes/pulses of west Asian origins viz. *Hordeum vulgare* (Barley), *Triticum aestivum* (Bread-wheat), *Pisum arvense* (Field-pea), *Lathyrus sativus* (Grass pea), and *Lens culinaris* (Lentil), along with indigenous viz. *Oryza sativa* (Rice), *Vigna radiate* (Green gram), *Vigna mungo* (Black gram), *Cajanus cajan* (Pigeon pea ? Arhar ?), *Setaria sp.* (Italian millet), etc.
A number of weeds associated with winter and summer season crops as well as wild taxa viz. *Eleusine indica* (Goose grass), *Andropogon sp* (Blue stem grass), *Poa sp.* (Blue or meadow grass), *Carex sp., Fimbristylis sedge, Cyperus sp.* (Flat sedge), *Panicum sp.*, *Chenopodium sp.*(White Goose foot/Bathua), *Cleome sp.*(Hurhur), *Ziziphus sp* (Jujube), *Coix lachryma-jobi* (Job's tear), *Echinochloa crus-galli* (Barnyard/sawan), *Polygonum barbatum, Anagallis arvensis* (Pimpernel/Jonkh-mari), *Desmodium gangeticum* (Tick clover), *Panicum sp.* (Panicum grass), and *Elaeocharis sp.*(Spikerush sedge) of palaeo-ethnobotanical significance have also been found.

The samples investigated have proved productive, revealing **advanced agricultural practices** in this region of Upper Ganga Plains in ancient times. Though neither the OCP levels nor the natural soil could be reached as the excavation was stopped due to unfavorable weather conditions but hopes are alive as the excavation is not yet over.

People supplemented their diet with meat of various animals, the details are yet to come. Even from Atranjikhera, evidence of only Bos indicus has been reported.

Important Inferences

After almost 150 years of intermittent investigation, with ever growing body of evidence and intelligence, both human and artificial, certain inferences could be drawn on the basis of the accumulated data.

Satellite imageries of various resolutions clearly show the intelligence of the early settlers in the selection of the site for their habitation which was approachable only from the west-north-west and which was protected by natural barriers as observed by Huen Stang as defended by “natural obstacles”. Seasonal runnels on either side of the site render it more inaccessible. Though no perennial river flows by the site, such a large settlement was well sustained by large and small natural water bodies and some modified by the settlers. The ground water could have been the easiest water source. The initial settlement was to the eastern side. Size of the OCP settlement could not be ascertained but some good markers are obtained from the excavations of 1940-44, 1963-65 and 2008-09, for the spread of PGW people. Total area so far known under PGW is 40 hectare, marked with red outline and the triangles denote the spots yielding PGW sherds.

Surface study and satellite imageries helped in identifying detailed openings in the defence wall. Although, at present due to animal and human traffic and agricultural activities (use of tractors, etc.) the defence wall has been breached at several point which now on ground appear as majestic gateways, yet a set of parameters defined after the study to identify the gates –

1. Cup formation indented into the city-space, which might have served as a holding area.
2. Presence of projecting bastions on either side of opening.
3. Linear depressions, forking or otherwise, leading from the opening inside the city. These depressions are the streets.
4. Presence of small but tall mound/s immediately outside the opening. These mounds contained temples (baat mangala/marg devta/dikpala) and/or sarais.
5. Large open space immediately inside the openings wherefrom streets issue. (this condition is applicable only to major gates which probably allowed entry to goods and traders)

Applying these parameters nine gates were identified, of these six were major entry point which fulfilled all the four conditions, while the remaining three were smaller and fulfilled at least two conditions

A settlement which had made a modest beginning with OCP using people became a substantial settlement under the PGW using people. It saw the flourish with people using NBP ware when the site was fortified (PGW settlement must also have had a defence wall) and considerably expanded. It is not yet confirmed whether the entire length of the defence was built in the NBP period or the settlement was somewhat smaller. GPR profile at one spot suggest of another defence wall like evidence. Which indicates that either the present shape is the latest not the original or different mounds had their own defences. However, the point of maximum expanse of the site was achieved during the Mitra – Panchal period when the defence wall could not contain the population, and perforce population was allowed to spill out to the west of the city and continued to the Gupta period. The population settled outside appears to be that of craftsmen, coppersmiths, potters, etc. In the post-Gupta period the settlement again start shrinking as the eastern part is cordoned off.

Some inferences could be drawn about the end of the prolific city. Pieces of brutally chipped images of deities lying buried below the suddenly collapsed walls were encountered in a vast area silently telling the story of sad death of the city. The iconoclasm could well be treated as confirming the doubt expressed by General Cunningham “I am more disposed to ascribe the fracture to the hammer of the Muhammadans” while describing the stone lingam. However, the evidences gathered indicate that this was not the reason d'être, a seismic wave which probably was not too far separated in time, caused the damages which proved beyond the resilience and the rebuilding capacity of the populace still left which either shifted to Vodamayuta (modern Budaun) or perished. Thus, the collapsed city was allowed to bury itself in its own dust by 11th - 12th cent AD.

About Dr. Bhuvan Vikrama

Dr. Bhuvan Vikrama, born 13th February 1968, obtained Master's degree from RML Avadh University, Faizabad UP (1988) and Diploma in Archaeology from IA, New Delhi (1995) and submitted a dissertation on “Temples and the Stages of Economic & Societal Evolution”.
Joined the Archaeological Survey of India in 1997.
He has more than 20 research papers published and presented at various national and international publications and platforms. Have put in eleven seasons of excavation at sites like Lalkot, Dholavira, Siswaniya, Humayun's Tomb, Ayodhya and Ahichhatra.
Obtained Ph. D from the RML Avadh University in 2001 on “The Decline of Indus Valley Civilization : Socio-Economic Factors”.
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