HISTORICAL ARCHAEOLOGY OF INDIA
The papers presented at the national seminar arranged by the Department of Archaeology, University of Calcutta, Calcutta from July 26 to 29, 1988
HISTORICAL ARCHAEOLOGY OF INDIA
A DIALOGUE BETWEEN ARCHAEOLOGISTS AND HISTORIANS

Editors
AMITA RAY: SAMIR MUKHERJEE
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PREFACE

Of the many aspects of the study and research of ancient and mediaeval Indian History which have attracted the notice of the serious scholars during the last two decades, the most important is perhaps the methodology.

In recent years there has been a marked tendency to speak of history as a 'science' and group this discipline with other social sciences. This means that the subject is based on reason. Quite naturally, therefore, ancient and mediaeval history tends to depend increasingly on archaeology as source material. The purpose is to view the growth and development of different patterns of culture based on material objects which may be envisaged in archaeology, in conjunction with historical data. Discussion along this line would require a thorough understanding of the recent development of archaeology and the material contents unearthed so far, so that sets of propositions could provide a reconstitution of past events for undertaking a "structural study of society and the major trends of societal change in terms of archaeology and literary tradition." With this aim in view, a national seminar was held from July 26 to 29, 1988, in the Department of Archaeology, University of Calcutta, highlighting certain basic issues of relevance to both archaeologists and historians, such as the archaeology-literature relation, the transitional phases of different periods, spread of agrarian society, role of technology, and trade, the phenomenon of urbanization and its impact in the socio-cultural life, including the growth and development of regional culture.

The present volume embodies the papers read and submitted at the national seminar. About thirty delegates belonging to the disciplines of archaeology and history, participated in it. As a large number of papers arrived only with the delegates, it was not possible to maintain a uniform standard in this volume. Besides, the non-receipt of some papers already read in the seminar and the sudden cancellation
by some scholars at the last moment have compelled us, most reluctantly, to exclude some important areas.

In spite of these lapses and shortcomings we hope that a seminar of this nature was a long awaited one, and a pioneer in the field; it has been able to give some direction to set a trend whereby similar seminars will be held in future to bring the archaeologists and historians together on a common platform, for a more analytical interpretation of history and archaeological data.

To Professor R.S. Sharma, we are very thankful indeed for having agreed to give the keynote address. We express our heartfelt thanks to those who have contributed papers and have been able to come as participants and observers. We are grateful to Dr. Devi Prasad Chattopadhyay, for kindly agreeing to inaugurate the seminar, and to Dr. Bhaskarananda Roy Chowdhuri, the Vice-Chancellor of Calcutta University to preside over the function. Our sincere thanks go to Professor Bharati Ray, the Pro-Vice Chancellor for Academic Affairs, for her participation at the inaugural session. But for the keen interest of the teaching and non-teaching staff and the students of the Department of Archaeology, Calcutta University, the successful organization of the seminar would not have been possible.

Calcutta
January 1, 1990

Amita Ray
Samir Mukherjee
Distinguished Scholars:

I am deeply grateful to the Department of Archaeology of Calcutta University for having given me this opportunity of participating in your seminar. I am not a digger, but as a student of history I attach great importance to the results of digging and exploration. The problem that we want to discuss in this seminar is of a very wide ranging nature, and I can touch on only a very small segment. To me it seems that the most important problem that we face is that of interlinking history with archaeology or marriage of archaeology with history. It so happens that archaeology has not been brought into the mainstream of history. Surely archaeology stands as an independent discipline in its own right like history, but unless there is marriage between the two the one cannot profit from the other, and we also know that matchmaking in our country is a very difficult problem. So it is to this task that both historians and archaeologists have to address themselves.

Of course the scope of archaeology, as indicated in the programme here, is very wide, and it is more or less on the old lines. When students are asked to discuss the sources of archaeology, they are expected to discuss monuments, diggings, explorations, inscriptions and coins; this is archaeology in the conventional sense. I would very much like to say that we should try to delimit and confine the scope of archaeology only to explorations and excavations and exclude coins, monuments and inscriptions from it. So if we ask students to discuss the archaeological sources in Calcutta University we should not expect that they would also discuss coins, inscriptions, architecture or monuments. Archaeology now all over the world
means primarily digging and explorations. Coins, inscriptions and structures are relevant to it only insofar as they are discovered in stratified layers or in course of explorations. So this is something which has to be understood very clearly because in our textbooks even now archaeology includes anything and everything; it includes coins, it includes inscriptions, monuments and so on.

Prehistory has its own importance, but as students of historical archaeology we would like to have more and more idea of antiquities, artifactual assemblage and structures and so on from about 1000 B.C. onwards in this country, though according to professional archaeologists the early historical period begins from around 600 B.C. There is no doubt that Indian archaeology has made a lot of progress, especially during the last forty years or so, but much of this progress has been conditioned and coloured by what we want to discover; it has been conditioned by our motives, aims and objectives. Why do we want to dig? Do we want to dig because we want to prove that our state was the most prosperous, the most glorious in ancient times? Do we wish to discover the processes of social evolution, processes of economic evolution, and to unfold the stages through which settlements were founded? Both the methods of digging and interpretation depend on what we want to know. For instance in the nineteenth century European and British archaeologists were interested only in discovering what we call things of aesthetic value, unique things, rare things. This tradition continues in our publications even now. The titles of our papers speak of a unique coin from such and such a place, a unique piece of sculpture from such and such a place and so on, but the real problem is not to discover only unique and rare things but also to have some idea of the general pattern of the processes of cultural evolution, social evolution, economic evolution. Just now the Vice-Chancellor has referred to the evolution of man. This is something which deeply concerns anthropology so that the Anthropological Survey of India are going to set up a Museum of Man at Bhopal. But we are also keenly interested in this problem. This is in sharp contrast to the approach of the nineteenth century British archaeologists or even the early twentieth century archaeologists, who were more interested in discovering something which is unique, which is of aesthetic value, which is very beautiful. They were further interested in taking most of these, if possible, to the British Museum or
other European collections although similar antiquities are still found in the country because all of them could not be shipped abroad. Further, since they considered this country to be a land of religion and spiritualism, they laid the greatest emphasis on digging stupas, monasteries, temples, etc., to demonstrate that religion was all pervasive in India. That kind of thing still continues because after all religion does form an important feature of our life; but religion is not the sole factor in life. There are other aspects of life which deserve to be studied.

Since earlier archaeologists were interested in unique things of aesthetic value or only in religious structures, they discarded many other antiquities. If you read the earlier excavation reports, you will find many instances of this type. For example there is an excavation report of D.B. Spooner on Bulandibagh, a site near Kumrahar in Patna. There he mentions many important objects at Bulandibagh and then speaks of a large number of minor antiquities which are not worthwhile. So my point is what Spooner and other archaeologists consider to be minor antiquities are really of major importance. Unless you take into account all the various antiquities that are discovered during the course of excavation, you cannot have a total picture. Take the case of iron. When did iron become important in this country? Only from 1950 onwards it assumed some kind of importance. The old attitude towards iron amounted to some kind of contempt for it. Therefore, iron implements were discarded, and then in the moist and humid climate of eastern Uttar Pradesh, Bihar and particularly of Bengal these things got corroded. In eastern India, it is very difficult to recognize them. They become shapeless, corroded; you cannot make use of them. So a good deal of refuse left by the ancients was really treated as refuse by the archaeologists with the result that the excavations conducted by the earlier diggers do not help us to form an adequate or even a preliminary idea of our material culture.

Till recent times we could boast of the great Harappan Culture. Unfortunately, both Harappa and Mohenjo-Daro went to Pakistan. So we were left with nothing important to show. Therefore, the Archaeological Survey of India started looking for what we call Harappan sites. After all we must prove that we had a glorious Bronze Age within the political boundaries of the present India. So they started
digging on a large scale with that aim in view. Then there is another problem. We get antiquities from 600 B.C. or 500 B.C. onwards, but we have nothing between 1500 B.C. on the one hand and 600 B.C. or 500 B.C. on the other. So the problem was to fill in the gap. How to fill in the gap? Therefore they started looking for iron which came to be associated with the Aryans. There was an old revivalist view that the Aryans originated in this country. Now if this could be proved archaeologically this would confer some kind of superiority on India. Important Western diggers took the view that whatever was good and great in this country came to India from outside. The idea of a palace at Patna (Kumrahar) came from Persepolis in Iran. Many things found in south India came from Rome. The Harappan Culture came from the west. Whatever we had in this country came from outside. Now we take an extreme position. I do not know what you call it, but I consider it chauvinistic and parochial to hold that whatever is good and great exists in India. If it is the question of Aryans they originated in India, if it is the question of iron it originated in India, if it is a question of rice, wheat, barley anything, all these originated in India, and from India they travelled all over the world. So this is the other extreme in which some of us are indulging.

There is also the tendency to push back the dates of the antiquities. We naturally take the help of what we call MASCA correction or calibrated dates to correct carbon$^{14}$ dates. They help us quite a lot. But the tendency is to push back the dates in many cases in which carbon$^{14}$ dates are neither consistent nor available. When somebody claims that there was English education in his family in the time of the East India Company, this is to make him more respectable and prestigious. The same thing is happening in archaeology. They go on pushing back dates without any basis. I do not mean to say that this is the dominant tendency, but this is an important tendency of which we have to be aware. Historians and archaeologists who have been duped by revivalism are the victims to this tendency. I am sure archaeology could be very much useful to a historian. Whosoever wishes to write the history of Vaishali or the history of Kosala mainly on the basis of genealogical lists contained in the Purāṇas would start from about 2000 B.C. on the basis of generation calculation, and you have such books. But then if you start digging Ayodhya, where is the evidence for large settlements in Ayodhya
before the seventh century B.C. or sixth century B.C.? If there are no large-scale settlements where did Rāma rule? Surely we have some settlements even before the sixth century B.C. in the middle Gangetic plains, but can these poor, Black-and-Red Ware pitiful deposits be considered to be the archaeological correlates of the kingdom of Rāma as observed by Vālmiki? These are the problems which we have to consider.

Formerly we had text-aided archaeology, i.e., we read accounts of Hsūan Tsang, we read accounts of Fa-hsien and so on. They mentioned certain places with Buddhist associations. We read the Purāṇas, which mentioned certain tīrthas and so on, and having read those things we started digging to locate places. This is called text-aided archaeology. First we read the texts and then we wanted to look for places which answered the descriptions of the texts; but now as a result of diggings, especially in the post-Independence period in which our archaeologists have done a very good job, what we need is archaeology-aided texts. The process has to be reversed now. If certain finds discovered in diggings are identified in the texts also it helps us to date the texts, for the archaeological finds can be dated more approximately. For instance, archaeological discoveries make it difficult to argue that certain terms in Vedic texts attest the existence of metal-money in the Vedic period. But where are the actual finds of such money? The present position is that we do not have coins, as far as we know, before circa 500 B.C., though opinions may differ regarding the precise date. So this is how we have to utilize the archaeological evidence. Now archaeology has reached a position in which it can supplement information contained in literary texts in a constructive and positive manner. For example, take the case of the dating of the later Vedic period, roughly covering 1000 B.C.-500 B.C. Long ago in the nineteenth century scholars working on the history of Sanskrit literature concluded that the land of the Kuruś and Pañcālas was the land of the later Vedic texts. They did not know that after 100 years their view would be supported by archaeology. They had reached this broad conclusion on the basis of internal structure, style, contents and a comparison with the other types of Indo-European texts. Now it is exactly in western Uttar Pradesh and the adjacent regions of Haryana that we have the largest number of Painted Grey Ware sites. They belong to the same area and period as are attributed
to later Vedic texts by the philologists. So we can establish some kind of linkage between the two. For an idea of developments in the later Vedic period we can make use of the PGW and related archaeology. Again, we learnt of the sixteen great territorial kingdoms called mahājanapadas from the Pali texts, but so far we had no idea about the material basis of these territories. These kingdoms are discussed in some detail in Political History of Ancient India written by H.C. Raychaudhuri. It is a classical work without doubt, but obviously when this book was written there was very little of archaeological material to give any idea about the rise of these kingdoms. Now we know of a good many Black-and-Red Ware and numerous Northern Black Polished Ware sites spread all over in the middle Gangetic plains in which most of the territorial states took their shape. The states of Kosala and Magadha became important precisely in the area which shows the NBP Ware, punchmarked coins, some structures, and, more importantly, the use of iron implements from the seventh century B.C. onwards.

But then it is not easy to interpret the archaeological data. For example, we say that iron implements played a crucial role in producing much more over and above what the people needed for their day-to-day subsistence and consequently made possible taxes, tributes, army, towns, etc. But people may legitimately ask us: where are these iron implements? How many and what types have been discovered? After all there have been excavations in this area, such sites may number nearly fifty. How many iron implements belonging to the period 500-300 B.C. have been found in excavations? Their number does not seem to be large. If it is so, the absence, despite the proximity of the rich mines of Chhota Nagpur, has to be explained. The paucity, despite convincing references in the early Pāli texts, can be explained by the soil condition. I used to say in my class room in Delhi: take the Mehrauli pillar to Purnea and see how long it lasts. Recently, an expert called Arunachalam has expressed the same view reported in the newspapers that if this pillar is removed to some rainy area, it will not last long. I mean that in contrast to the middle Ganga plains, Delhi has much less of rain. Rainfall there is a little more than half that Patna has. Last year Delhi did not have any rains worth the name. In the middle Ganga plains there is so much of humidity that many antiquities are reduced to dust. So this has to be taken into
account. What we need is the total retrieval of all the things that are dug in the course of excavations; not even the soil is to be lost. The soil is to be examined whether it contains iron rust or not. Only when adequate antiquities are available, things can be seen in a proper perspective. One should not shut eyes to something which does not support one's hypothesis. But we should also appreciate why iron artifacts are found in good numbers in Atranjikhera and why they are found in small numbers in the sites of the middle Ganga plains. You compare the climate of Atranjikhera in Etah district of Uttar Pradesh with that of the eastern Uttar Pradesh, Bihar or the alluvial zones of Bengal. This may explain the paucity/abundance of the iron tools found in excavations.

I would also like to draw your attention to the extremely uneven process of settlement in this country in historical times. The whole country was not settled at one time. Barring the major part of the alluvial plains prehistoric settlements are found scattered in various parts of the country, but they do not begin habitations on any scale. It seems that great agrarian expansion from the fourth-fifth century A.D. onwards up to the eleventh-twelfth centuries. It must have continued later, but I have no idea of subsequent developments. The number of villages appears to have greatly increased from the Gupta period onwards in both northern and peninsular India. This is something which has to be investigated. I say this on the basis of epigraphy because large numbers of villages are mentioned in the epigraphs. When the boundaries of the donated village are specified, they also mention other villages which form the boundaries. This general practice is observed in many land grants. P.C. Chakravarty, who worked at Jadavpur University, wrote a section in the History of Bengal, Vol. I, edited by R.C. Majumdar. On the basis of land grants he made the point that during Gupta and post-Gupta times great agrarian expansion took place in Bengal. And now I have looked at the situation in other parts of the country. The land charters do insist in many cases that only such areas should be granted to Brahmans and others as are uncultivated. They consider suitable for grant such areas as have not been brought under cultivation and so on, although frequently cultivated areas were also granted. Thus great agrarian expansion is indicated by epigraphic evidence in Gupta and post-Gupta times from the fifth-sixth century onwards, but is there any
archaeological material which can substantiate it? I wish to say something in support of this view archaeologically. If you start from Patna and come to Bhagalpur and consider the antiquities of Nalanda district, south Monghyr district and Bhagalpur district on both sides of the Eastern Railway track, you may notice a large number of Pāla antiquities. I saw some of these in my younger days. We can locate many places in eastern Bihar which have signs of settlement for the first time under the Pālas. It appears to me that in many areas you do not have pre-Pāla or Gupta structures. So, that is something which has to be ascertained and verified.

Last time when I came to Calcutta, I collected a number of books on Bangladesh. I read the report on Mainamati Excavation and the Bangladesh Archaeological Survey Report on Bogra district published in 1986 by Mohammad Ali and Bhattacharyya. The Bogra Report shows a large number of monastic establishments. The whole area of Rajasahi, Bogra, Dinajpur and Rangpur is littered with monastic settlements. Anyway, eastern India had a large number of monastic establishments called Vasu Vihāra, Somapura Vihāra, Sālavana Vihāra, etc. Further, there were many other important vihāras such as those of Nalanda, Vikramśila, Udantapuri, etc. The structures, including those at Antichak considered as the site for Vikramśila, are massive. But how were these establishments supported? Certainly we need some kind of agrarian hinterland for the maintenance of such huge monastic establishments. For example, Nalanda Mahāvihāra enjoyed the revenues of 200 villages. This is how it was supported, and 10,000 students, who were all monks, shaven-headed scholars, fed and lodged. If we can establish some kind of correlation between the monasteries and their hinterland, we can get an idea of agrarian expansion. Diggings and explorations might solve the problem of hinterland.

The hinterland problem of ancient towns needs investigation. How can we think of the town of Vaishali without its hinterland? It is all right to dig Vaishali, but we never care to explore the area of 25-30 kilometres around it to identify its hinterland. Since in ancient times the problem of transportation was very difficult, foodgrains had to be produced locally, and non-agriculturists concentrated in towns were not fed and maintained through long-distance supplies. Artisans, merchants, soldiers, officials and religious functionaries, who lived in
towns, depended on supplies from the hinterland. Now unless you establish by exploration, a correlation between the place which is dug and the area surrounding it you cannot solve this problem. This exercise is badly needed. Therefore, whether we dig urban sites or rural sites, excavations should go hand in hand with widespread explorations, in the adjacent areas. Although the archaeology of urban sites has made considerable progress, those who work in the archaeology of early historic or early medieval times do not seem to believe in the archaeology of rural sites. Very few rural sites of early historic times have been excavated so far.

The problems raised by settlement archaeology deserve consideration. I would like to familiarize myself with the methods by which the population of community is calculated on the basis of the size of the inhabited area including that of rooms, houses, cemeteries, etc. Even if the mounds are not excavated horizontally some idea of the number of early inhabitants can be obtained by measuring one-culture mounds such as that of the Painted Grey Ware people or the Satavahanas. Unfortunately this has not been done so far in most cases. You read *Indian Archaeology—A Review*, which mostly ignores the length and breadth of the mound or its height. The archaeologists are just concerned with the area they excavate. They follow the good Indian tradition of worshipping the god with whom they are immediately concerned. But unless you take a wider view, the total view, it does not help us. How large is the mound, what is its height, what is the connection of the mound with the neighbouring area; all such preliminaries are very important. Brahm Dutta, a scholar, has done this work with regard to the PGW mounds in Haryana. I do not know how far his findings are reliable, but it is a pioneering work on settlement archaeology in India, and I have used his work in my *Material Culture and Social Formations in Ancient India*. His exact population figures about various sites raise doubts, but the methods adopted to reach them have to be examined.

Finally, I wish to draw your attention to the problem of vertical and horizontal digging. We have been digging vertically on the lines of Wheeler, and that has been fruitful in many ways. It has been possible to establish the sequence of cultures in the main regions of the country. But if we have a compact geographical area with the same type of climate, with the same type of other conditions and so
on, and if those conditions are attested by historical texts and so on; there is no point in repeating vertical digging and multiplying the same types of results. So whenever you dig in the middle Gangetic plains in eastern Uttar Pradesh, or in Bihar, vertical excavation reveals the same sequence of culture. When I wrote something on towns, some people questioned the existence of towns because only small areas were dug in many cases. I had all kinds of arguments to give. I would swear by the name of the excavator who declared a site to be urban. I would also argue that the quality of the material life is important. The trench may be small, the area may be small, but the type of archeological assemblage that we have, even in small area, determines the nature of its culture. If we come across large number of iron tools, glass objects, ivory goods, shell beads, terracotta moulds for turning coins, moulds for making ornaments, ovens, furnaces, crucibles, die marks, and such other things, we cannot but think of the artisanal and commercial activities. Of course the extent of artisanal activity at an urban site would be much larger than at a rural site. Roman objects distinguish quite a few urban sites in peninsular India.

I could suggest a method for the use of archeological data for your consideration. This may apply to those places which show the same sequence of cultures in a viable, compact geographical area. If we have twentyfive excavated sites in that area, and the chronological sequence of different cultures, succeeding one after the other, is more or less the same, then in the case of the Kuśhāṇa or some other culture, we can collect the relevant information from all such sites, and this will enable us to take a total view of the Kuśhāṇa phase in a wide area—certain objects belonging to the Kuśhāṇa-phase at one site may not be discovered at another site. But there is no harm in bringing them together and having a fuller picture which may compensate for the lack of horizontal excavation. I do not know whether it is a correct method to follow. The real need of the hour is not to multiply the same results repeatedly by digging vertically but to husband our resources for horizontal excavations so that we could have a fuller and a better picture. I have defended vertical excavation as best as I can, but I think it is time that we take to horizontal excavation instead of having too many excavations at too many places. Excavation may be needed for giving practical training to students of
archaeology, but it should not be undertaken as a routine matter to be inserted in the departmental reports for obtaining grant for the next year.

These are the problems which do deserve serious attention. I would very much plead for priority to horizontal excavations which can give a fuller picture of the different dimensions of material life at a particular point of time. Further, I would plead for archaeology of rural settlements. I would also plead for the exploration of the rural hinterland of urban settlements and monastic establishments. There is also problem of choosing from various approaches, particularly those borrowed from anthropology, for interpreting the archaeological data. I would argue for an approach which enables us to see changes in material culture and changes in society. In the archaeological data we discover traces of war, famine or fire. Can we discover traces of internal commotion and conflicts in such data? I am thinking of the Kaivartas in Bengal. The Kaivartas in the eleventh century created a serious problem of the Pālas, with the result that the latter had to summon nearly two dozen vassals for this purpose and could put down the revolt with great difficulty. The Kaivartas, who are *chasas* or cultivators and also fishermen, were suppressed. Several structures in Bangladesh, particularly in Bogra and elsewhere, bear marks of destruction. Surely I won't be so hasty as to connect them with the Kaivartas. My general problem is that we always think of destruction of settlements on account of fire, famine, drought, and other things, but it never occurs to us that destruction could be caused by serious internal revolts and disturbances. So this possibility also has to be kept in view, but I do not know how it would articulate itself in the archaeological record. These are some of the ideas which I wish to share with you for whatever they are worth, and I would be very much looking forward to a successful conclusion of this seminar. I once more thank the organizers of this seminar, especially Professor Amita Ray, for having given me this opportunity to come here and speak to you.

R.S. SHARMA
HISTORICAL URBANIZATION IN INDO-PAK SUB-CONTINENT: A REASSESSMENT

M.C. JOSHI

In the context of Indo-Pak sub-continent, as elsewhere, urbanization, associated with the historical period, has often been styled as a revolution\(^1\) perhaps on account of the diversity of its interaction on material cultures. The whole process of the growth of urbanism, as pointed out by Ghosh,\(^2\) was rather slow and it covered, relatively, a long span of time. However, the changes brought about through it within a couple of centuries were vital and far reaching in terms of socio-political transformation although rise and growth in urbanism itself was basically an economic movement.

Most writers have stressed on the role of iron technology in ushering the historical urbanization in India, yet certainly, it was not the only factor, although its contribution was considerable. Thakur's observation deserves attention in this respect: ‘Urban development is a complex process defying any simple and isolationist explanation’.\(^3\) The position becomes clear if one assesses the role of iron following its introduction in north and southern parts of India in transforming the economy of the two regions. Iron seems to have been introduced or located in north and south India almost simultaneously; but while in the north it transformed, though slowly, rural economy into urban, at least, by the middle of the first millennium B.C., in Deccan and south India, despite better growth of technology, as exemplified by varieties of iron implements found in megaliths, only self-sufficient and prosperous rural economy could develop till the expansion of Mauryan rule in the region in third century B.C. The emergence of urbanism in southern parts of India could thus be treated as extension
of a developed urban mechanism of the north which possibly also enjoyed state patronage in some form in the initial stages.

What is significant in this regard is Chakrabarti’s triple-phase theory of historic urban growth, according to which the first phase of urbanization corresponding with sixth-fifth century B.C., began primarily along a geographical belt stretching from Champa and Rajagriha to Ujjayini through Kausambi. The next phase, in his view, covered third-second century B.C., and its basic importance perhaps was that during this period many new regions came to develop or were about to develop a clear and unmistakable urban base and these consisted of Punjab plains, Sind, lower Ganga valley, Rajasthan, Gujarat, Maharashtra and Orissa. Chakrabarti also calls the phase as ‘twilight period of early history in Mysore, Kerala, Madras and Andhra’.

The third and final phase of urban growth, as per Chakrabarti’s classification seems to have developed in early centuries of Christian era, which was characterized by a general urban prosperity throughout the sub-continent. About this period according to him one also detects indisputable evidence of urban settlements in Andhra, Karnataka, Tamil Nadu and Kerala. He further feels that about this period there is also some possibility of the growth of an urban core in the Brahmaputra Valley.

Although Chakrabarti’s theory of three phases appears to be logical, it may not be necessary to accept it in its entirety. One may differ with him in regard to the spread of the urban movement in various areas or about the time specified, especially pertaining to southern regions, at least, marginally.

Emergence of cities or townships in north India has been generally taken as the fundamental trait for the cognizance of urbanism; and various factors like surplus yield, re-emergence of Harappan urban tradition, and growth of centralized power-structure have been suggested for the rise of urbanism. A question may be raised as to why urbanization in its initial stages was confined only to certain specific areas of the sub-continent? Besides, why is it to be necessarily linked with the existence of a city or cities and, if so, what exactly was the distinct trait of a city around fifth-sixth century B.C.?

It has to be noted in this connection that the remains of so called
earliest historical cities exposed by archaeologists show traces of neither market places nor of shops and monumental buildings. Even fortifications are not available in majority of cases. Further, in the light of available archaeological data, it is not possible to verify whether the early cities in all cases had predominantly non-agricultural population especially in view of references in early Pāli literature to prosperous grīhapatis or householders who have been regarded as a land-owning nobility by Fick. Possibly on this account it may not be proper to style important early historical settlements like Vaishali, Rajagriha, Varanasi, Śrāvastī, Kausāmbi, Mathurā, Ujjayanī, Taxila (Bhir-mound), etc., in the initial stages as cities.

Pāṇini in his अष्ठध्यायः no doubt mentions cities (nagara) and villages (grāma) (cf. Sūtra: Prachāh grāma-nagrānām, 7-3-14) or Vahika-grāma (4-2-117) or Udichya-grāma (4-2-104), but it is difficult to distinguish in the historical context between the settlements called nagaras and grāmas as we find in Pāli literature use of terms like Kāśi-grāma (Varanasi) and Kuśi-nagara (Kusinārā); although the latter is stated to be a khudda i.e. inferior, settlement with wattle and daub houses and defences made of wild shrubs, it had the appellation nagara as suffix and Kāśi (Banaras) is called only a grāma. In this context we may also refer to two cities, Nikaia (on Jhelum), and Boukephala in Punjab founded by Alexander in the memory of his success over Poros and death of his horse, respectively, besides Alexandria in the same region. These cities were possibly more like permanent military camps comparable to early Achaemenid royal headquarters similar to Pasargadai and had hardly any commercial character.

The position, however, is clarified by the second century B.C. Sanskrit grammarian Patañjali who says that a city or a village may be specified on the basis of population as accepted locally and one need not create controversies over such issues (cf. Nanu cha bho ya eva grāmastannagāraṃ [1] kathāṃ jñāyate? lokataḥ. Tatratī nirbandho na labha [1] 7/3/14—Mahābhāṣya). In the north-west region of Punjab, settlements with 5,000 and even 10,000 population were designated as villages according to Greek writers, whereas in eastern region a habitation peopled by a much less number was classed as a city. Yet, the existence of well-populated settlements, styled as cities or villages, without other relevant features cannot be linked with the growth of
urbanization. In archaeological terms the only cognizable trait to identify a town may be terracotta ring-wells which seem to have mainly served the purpose of soak-pits within or even outside the houses. Ring-wells have been reported from a number of ancient sites like Taxilā (Bhir-mound), Hastināpura, Kauśāmbi, Mathurā, Rājghāt, Śrāvasti, etc., and earliest ones of these have been dated to fifth-fourth century B.C. Ring-wells of Bhir mound (Taxilā) are ascribed to fourth century B.C. Regarding the origin of ring-wells Pande’s observations are noteworthy: ‘The sudden emergence of ring-wells in India during fourth-fifth centuries B.C. cannot be explained unless we postulate their prevalence outside India. As no earlier chain of ring-wells in India is available, we are to discard the possibility of an independent indigenous development in the country. Further, a cursory look into the excavation reports on various sites from West Asia would show that the practice of constructing ring-wells, whatever may be their purpose, was a very old custom, its origin remotely connected with religious rites and practices in South Mesopotamia, going back as early as the fourth millennium B.C. . . . These “drains” occurring inside all types of various building complexes have been found from the Early Dynastic Levels to the Achaemenid period and even later’.

Pande rightly concludes that the idea of constructing ring-wells was a foreign innovation which possibly travelled to north-west India when Hiddo and Gadaro formed the twentieth satrapy of the Achaemenid empire.

The presence of ring-wells or varchakupa i.e., a refuge-well as mentioned in the early Pāli literature at a site may indicate a stage of emerging township but the process of urbanization, which was primarily an economic mechanism connected with trading pattern involving monetary exchange replacing porter, seems to have preceded it. In fact, the city with its specific traits, as conceived by scholars in the context of urbanization, developed later during Mauryan or more correctly after the Mauryan times. The idea of town with streets containing regular shops on the sides also appears to have been incorporated in Indian city at a subsequent date possibly not before first century B.C. In early stages platforms with or without thatched or cloth covering seem to have served as shops, and possibly for proper distribution and acquisition of goods system of periodical (weekly/monthly/annually) markets (penth), sometimes associated with village fairs and festivals,
was in operation. It also continues now. Therefore, a town or a city was not a pre-requisite for the origin and early growth of urbanism, though in the course of time regular trade-centres or *nigamas* also possibly came into existence.\(^{10}\)

In our view, as already stated elsewhere,\(^{11}\) the determinant factor to identify urbanization should be the existence of monetary exchange, rather than any other element, may that a fortified settlement, script, monumental building, non-agricultural population or anything else. The monetary exchange appears to have operated through a system of metallic currency, i.e., punch-marked coinage or any such material which might have been scarce, measurable, storable and standard medium like gold, silver and gems acceptable to all trading groups irrespective of political barriers. Urbanization of the early historical period thus could be defined as a movement governing economy of an area or country and operating in both villages and towns on the basis of the ratio of demand and supply through a commonly acceptable monetary medium of exchange.

Although Indian population during early historical period might have felt the need for a more appropriate medium of exchange for the replacement of barter system due to growing surplus and agro-pastoral prosperity, no concrete measure could be taken till parts of India came in contact with the western world with the extension of Achaemenian power to Punjab and Sindh. Wheeler perhaps was right when he suggested that Persian colonization of the north-western frontier regions in the second half of sixth century B.C. was instrumental in supplementing and stimulating the second urbanization of India. The view has been contradicted by Ghosh\(^{12}\) and Thakur\(^{13}\) on the ground that Iranian occupation did not make any impact on India or Indian cities.

We, however, find it difficult to agree with Ghosh and Thakur. Achaemenian occupation was certainly effective in regard to the introduction of urbanization. This is evident with the rise of guilds of mercenary soldiers (*āyuḍha-jīvins*) fighting for anyone who paid them money. Some of these soldiers even fought for the Achaemenian rulers. In the economic terminology this was a unique transformation turning simple farming communities into mercenary guilds, which continued to survive till at least first century A.D. A notable contribution of Achaemenian contact, as we have already pointed out, was
the introduction of the terracotta ring-wells, a conspicuous feature of urban settlements. The origin and growth of Kharoshtai script with Aramaic base was also an important aspect of Iranian conquest. The new script might have been invented for the adaptation and use of early Indian who might have originally belonged to tribal groups, following barter. Lastly, as the twentieth satrapy of the Persian empire, west Punjab and Sind contributed gold dust worth 360 Euboic talents to the imperial treasury of Iran which shows the position of gold as an established medium of exchange. Silver currency in the form of bent-bar coins may not exactly conform to the standard of Iranian double sigloï, but the idea to have a system of own coinage amongst Indians was certainly inspired by Achaemenian model. Traders of Indo-Pak subcontinent, who had known by this time the international importance of gold must have realized the significance of money in trade. It is not unlikely that the system to mark a piece of silver to indicate its purity was plausibly borrowed from Assyria and Syria where such a practice was already being followed from 800 B.C. onwards.14

It is indeed a fact that much evidence for items of India’s external trade in the Achaemenian context is not known to us, yet it may be speculated that trading material might have included perishable goods like skins, cotton grains, etc. Otherwise we cannot account for source of the vast quantity silver used in the manufacture of punch-marked coins as far as Magadha.

As there was already same kind of communication between Gandhāra and Madhya-deśa, the new trade mechanism also spread shortly afterwards to the east as far as Magadha where some house-holders (grihapatis) owning landed properties seem to have assumed leadership15 of the neo-economic movement by becoming sārthavāhas and śreṣṭhins. In this respect we may like to draw the attention of scholars to the origin of term karshāpana i.e. early Indian coin from verbal root krīsh (to cultivate) and pana (to exchange or bargain) which also suggests the transformation of an agriculturist into a trader. The śreṣṭhins in a short period became most important in material like of a Janapada as they were the chief organizers of trade, bankers, controllers of money, patrons of religious leaders,16 and source of prosperity to rulers. However, workers, craftsmen and artisans engaged in the production of trade goods, gradually lost their status in the society along with those of some Brahmanas who
followed professions of fighters (wrestlers), writers or scribes temple-priests, traders, singers, artists, etc. who lived in cities. These changes are reflected in classical sanskrit literature.

NOTES & REFERENCES


10. Early Pāli literature (*Majjhima Nikāya-Atthakathā*) refers to a Nigama called Āpana (in Aṅguttaraṇa Janapada also to Aṅga country) having 20,000 shops. Apana in Sanskrit is a market.


15. Some *Jatakas* (Nos. 279 and 469) preserve memories of landowner traders.

16. The early Pāli literature connected with the life of Buddha makes interesting references to some important Śrēṣṭhīns like Kulaputra Yasas father, a Śrēṣṭhin of Kāsi, Sudatta Anāthapendika and Mrigara Sresthi of Śrāvasti, Sudinna Kalanda-putta of Vijji country, Mendhaka Śrēṣṭhin of Aṅga, etc. besides anu-śrēṣṭhīns (junior-merchant princes), rich grīhapatiś and powerful Mahasala Brāhmaṇas or the land owning Brāhmaṇa nobility.
HISTORY AND ARCHAEOLOGY—THE PROBLEMS
OF CORRELATION IN PERIODIZATION

B.N. MUKHERJEE

There is perhaps 'no branch of knowledge which in course of
intellectual evolution has exhibited more varied modalities and
answered to more contradictory conceptions than history. There is
none which has had and continues to have more difficulty in discover-
ing its definitive status'.¹ However, as it is universally accepted,
history is concerned with "past", the "factual past", and that too
largely concerning man, though it may broadly have within its
purview the origin and growth of inanimate and other animate objects
in which man is interested. Thus history as an academic discipline
takes into account the facts that are considered or thought of "as
truly happened", which idea is at least etymologically suggested by
the old Indian term Itihāsa (iti-ha-āsa, "so indeed it was").²

If history is interested in man's past activities from remote times,
the term "prehistoric" does not have a valid concept to a historian.
Yet in archaeology "prehistory" is considered for a long time to be a
very major factor. It encompasses 'the life and activities of mankind
up to the beginning of recorded history' or rather 'before the inven-
tion of writing'.³ Undeciphered written documents of a zone charac-
terize their period in the territory concerned as belonging to
"protohistory".⁴ The history of a region begins, according to
archaeologists, with the availability of readable written records.⁵

In Indian context, the broad archaeological periods are (i) pre-
historic (relating to palaeolithic, mesolithic and neolithic and, in
certain contexts, also chalcolithic and iron age cultures), (ii) protohis-
toric (dealing with inter alia the chalcolithic Harappan Civilization,
which produced objects bearing a still undeciphered form of writing), and (iii) historic. The initial phase of each period chronologically varied from region to region.⁶

What is the earliest possible date for the beginning of historic archaeology? To Piggott Indian prehistory ended near the Christian era and in many regions even after its beginning. He stated in 1950 that ‘prehistoric India may in its widest sense embrace all human communities in the sub-continent from the old stone age to somewhere near the Christian Era, or in many regions well beyond this limit’.⁷ In 1959 Wheeler included within the purview of prehistory palaeolithic, neolithic and microlithic cultures, the Indus and the Ganges Civilizations and south Indian megaliths.⁸ The chalcolithic phase of protohistory appeared to H.D. Sankalia in 1962 as coming down to circa 1000 B.C.⁹ In 1968 B. Allchin and R. Allchin observed that strictly speaking the historic period ‘begins in many regions with the edicts of Aśoka in the third century B.C., but there is a body of near-historical material in, for example, the early Buddhist scriptures, for parts of north India from about the time of the Buddha (circa 500 B.C.), and the historic period may be extended back in such areas to about that time. We call all cultures which precede the Historic period prehistoric’.¹⁰ On the other hand, in the textbooks on Indian history, the historic period often begins with the age of the Rigveda, to be placed much earlier than the Buddha.¹¹ A similar idea is indicated in the widely read book, The Vedic Age, edited by the great historian R.C. Majumdar. Here the section on the prehistoric age includes the Indus Civilization, and history begins with the “advent” of the “Aryans”, the authors of the Rigveda.¹²

A balance between the opposite views may be struck if the term history is considered as applicable to inter alia an age about which the data are gathered mainly or substantially from written treatises composed within its time limits, though their surviving manuscripts belong to much later periods. In that case Indian history may begin, even with the archaeologists, with the time of the composition of the majority of the verses of the Rigveda in about the middle of the second millennium B.C. So archaeologically as well as historically, the “historic” period in the sub-continent may be taken to have commenced in circa 1500 B.C. If necessary the period from this date to the appearance of Aśoka’s edicts engraved on stone in circa third
century B.C. may be called “parahistoric subperiod” of historic archaeology.\textsuperscript{13}

The connotation of the term parahistory may be widened further to denote any pre-Aśokan age known to have produced texts known from manuscripts of later times or other material objects or both kinds of evidence. Within such limits of parahistory is a long period ranging from the earliest palaeolithic age to the time of Aśoka.

It is indeed difficult for a historian to recognize any period called prehistoric or protohistoric, though he gladly acknowledges palaeolithic, neolithic, and chalcolithic ages. It is equally difficult for archaeologist to determine the earliest limit of the “historic” period. What we suggest is to evolve a working relationship between them by including the “prehistoric”, “protohistoric” and “historic” periods within the broad discipline of history and by designating “prehistory” and “protohistory” as “parahistory”. To the historian and to the archaeologist (who supply data for reconstruction of history) the broad periods of study are “parahistoric” and “historic”.

B

The problem of nomenclature and periodization plagues not only the relationship between the historian and the archaeologist, but also the former’s concept of the chronological development of Indian history. The Indian history is generally divided into: (i) ancient, (ii) mediaeval, and (iii) modern periods. Sometimes the most recent part of the third period is captioned as “contemporary”. Scholars are, however, not unanimous about the names and time limits of these periods. To many European historians of the nineteenth and early twentieth centuries, the three great periods of Indian history appeared as Hindu, Muslim and British.\textsuperscript{14} V.A. Smith, whose \textit{Early History of India} deals with the political history up to circa A.D. 1200, branded the dynasties of the post-Harsha age (circa A.D. 647-1200) as “mediaeval”.\textsuperscript{15} These “mediaeval Hindu kingdoms” were included in “Ancient and Hindu” period in his \textit{Oxford History of India}, whereas other two main periods were called “Muslim and British”.\textsuperscript{16} Much earlier, A. Cunningham, the father of Indian archaeology as well as a historian, thought that mediaeval India had begun with the post-Gupta rulers.\textsuperscript{17} H.C. Raychaudhuri’s \textit{Political History of Ancient India} deals with the events from the accession of Parikshit to the extinction
of the Gupta dynasty (in the sixth century A.D.).\textsuperscript{18} Iswari Prasad's *History of Mediaeval India* covers the period from circa A.D. 647 to 1526.\textsuperscript{19} To some Marxist scholars, whose understanding of periodization depends mainly on economic or socio-economic factors,\textsuperscript{20} the "middle ages" in Indian history ranges from the sixth century to the eighteenth century.\textsuperscript{21} According to the savant R.C. Majumdar, ancient India ended in the thirteenth century A.D.\textsuperscript{22} To the majority of Indian scholars circa A.D. 1206 is the terminating point for ancient India (at least in north India), though many of them think of an early mediaeval phase from about A.D. 500 or the middle of the eighth century A.D. (within the broad division of ancient India).\textsuperscript{23}

All these opinions betray the lack of a cohesive approach to the problems of naming and fixing the limits of the major periods. If history records man's activities in space and time and if his actions centre on his struggle for survival and dominance in social, economic, political and cultural fields, then the great ages of Indian history should be called ancient, mediaeval, modern and contemporary.

If the thirteenth century, which saw a marked change in the nature of political domination and socio-economic set-up, indicates the end of the ancient period, how do we define the immediately preceding centuries (circa A.D. 650 or 750-1200) which were in various ways different from the classical ancient age ending with the Imperial Guptas (in the middle or third quarter of the sixth century A.D.)? These centuries constituted an epoch which was at once an age of decline, efflorescence, germination, formulation, growth and transformation in the field of culture (including language, literature, religion, fine arts and science). It witnessed the might of great regional kingdoms, which, however, could not prevent the debut of the Islamic power in the arena of politics. It was in short an epoch of contradictions.

In the domains of literary styles and scientific and philosophical ideas, this age was certainly less innovative and brilliant than the Gupta and the pre-Gupta times. But there was a noticeable increase in technological applications of fundamental ideas and in writing erudite commentaries and encyclopaedic treatises. Sanskrit almost lost its charm and lucidity in the verbiage and pedantic tendency in its literature, but several regional languages began to germinate in the
fields made fertile by Sanskrit and Prakrit. The Purāṇas, as it is clear from some of their sections, thought of the subcontinent as one single unit (geographically and also culturally); and yet there is enough evidence of contemporary formulation and growth of regional alphabets, architecture and schools of sculpture. While the canon of iconography began to be standardized, great transformation took place in Buddhism and remarkable developments occurred in Brahmanical sects. Purāṇic beliefs began to dominate the popular Brahmanical religious systems and this continued in the mediaeval Hindu India. Islam, the most important political and religious force of mediaeval India, began its lease of life in the sub-continent during the age concerned. In several of these developments classical ideas had a waning or minimal effect, but in certain cases, like the sculptural art of the Pāla kingdom, there was to an extent a revival of classical idiom. The Gupta classicism was absorbed and ramified along with other elements in temple architecture which reached great height during this age.

Against a background of a loose cultural unity, there was regionalization of political power. And yet one religious politic-religious force, Islam, a regional power in the age concerned, was destined to dominate India’s political scene at a later stage and to effect a political unity of the greater part of India when it expressed itself through the Great Mughals.

Thus, on the whole, the impact of classical India continued on a waning scale but did not vanish. On the other hand, mediaeval traits, ideas and features began to germinate and grow. The age is a watershed in the periodization of India’s history. It was post-classical and proto-mediaeval,24 but not yet clearly mediaeval. Hence it should not be called early mediaeval. A better term will be the “proto-mediaeval phase” of ancient period.25

Like the problem of fixing one single year as the last year of the ancient period, it is difficult to pinpoint one particular closing date for mediaeval India. Was it March 3, A.D. 1707, when Aurangzeb, the last great Mughal, died?26 Or was it June 23, 1757, the date of the Battle of Plassey, in the aftermath of which the British became the de facto masters of Bengal?27 Or can we consider the crucial date as August 12, 1765, which witnessed the granting of the Diwani of Bengal, and Orissa by the Mughal emperor Shah Alam to the East India
Company and thereby the accordance of legal status to a defacto position held in a part of India by the British\textsuperscript{28}. No doubt, considering the nature of the ever widening British supremacy in India’s political scene for a long period after 1757 or 1765, either of these years may serve our purpose. But in fixing the last year or phase of mediaeval India we should also take into account its social and economic conditions. The last quarter of the eighteenth century and the first half of the nineteenth century saw the beginning of modern Indian society and economic structure. Their formative stages were marked by the western influence in all spheres of life, which came in the wake of the establishment of the British supremacy (with and without the political power’s encouragement). Hence mediaeval India really ended in the last quarter of the eighteenth century or in the first half of the nineteenth century.\textsuperscript{29}

The archaeologists need not object to the fading out of ancient India in the thirteenth century A.D. and to calling its last phase as proto-mediaeval. In fact, adherence to such notions will help them in understanding and explaining the transition from the classical ancient to the mediaeval in Indian art and architecture. They will also find it convenient to trace the beginning of town-planning and architecture of British India, betraying western impact in about the above noted last phase of mediaeval India.\textsuperscript{30}

The date between the modern and contemporary periods of history is ever changing, as the initial year of the contemporary age of a country always up-dates itself. In India, where law does not recognize anything not older than a hundred years as an object of antiquity, there is no contemporary official archaeology. But the Archaeological Survey of India may be well advised to change its rules in order to take care of many important buildings built in this century, which have historical potentialities. Let us seriously think of “contemporary” archaeology.

C

In spite of everything said above, it must be admitted that history is a continuous process and that the end of a major period does not mean the change in all spheres of life. In fact, each given period, of long or short duration, is a transition from its preceding to its following age. For understanding and conveniently interpreting
the developments of the changes in different forces the historian periodizes history. This is his commitment to history, which *parse* has no commitment to anyone. In the periodization of the man’s activities in the sub-continent the archaeologist and the historian should cooperate with each other, as the former is largely the gatherer of the latter’s tools. A perfect cohesion between their approaches will ensure a better understanding of the yesterdays of man, the pivot of history and archaeology.

NOTES & REFERENCES


5. *ibid.*, pp. XIV.


23. R.D. Banerjee’s book, *Eastern Indian School of Mediaeval Sculpture* (New Delhi, 1933) deals with the Pāla or Pāla-Sena age which commenced in about the middle of the 8th century A.D. Prof. R.S. Sharma’s work *Social Changes in Early Mediaeval India* deals with the period from circa A.D. 500 to 1200. In this connection see also R.S. Sharma ‘Problem of Transition from Ancient to Mediaeval in Indian History’, *The Indian Historical Review*, New Delhi, 1974, vol. I, No. 1, pp. 1f.
29. *ibid.*, p. XI.
THE ARYAN MYTH

ARUN KUMAR BISWAS

THIS paper seeks to establish that the dubious paradigm, stating that the Rigvedic Aryans were immigrants to India or invading foreigners, is far from proven. The facts of archaeology and linguistics can be explained by the obvious alternative postulate namely, the Rigvedic Civilization was basically indigenous in the northern part of the sub-continent.

Max Müller, the famous scholar and translator of the Rigveda, noticed the similarities between the Indo-European languages, and proposed in 1859, that Rigveda was compiled around 1200 B.C. by the Aryans 'who had come to India from outside around 1500 B.C.' (Max Müller 1859). His theory was stoutly opposed by Winternitz, Bühler, Macdonnel, Muir, etc. John Muir asserted in 1872 that the Rigvedic Aryans were not aware of any land outside, and also that 'the nations whose speech is derived from Sanskrit have sprung from the gradual dispersal of the ancient Aryan race of India' (Muir 1872 : 2, 322-323). Many more Western scholars such as Whitney, Goldstücker and later Pargiter (1922) protested against the arbitrary fixation of the above dates by Max Müller.

Swami Vivekananda was the first Indian to protest (in the Paris Conference of 1900) against Max Müller's unfounded guesses:

"Where is your proof? Guess work? Then keep your fanciful guesses to yourselves! In what Veda, in what Śakta, do you find that the Aryans came into India from a foreign country?... What your European pundits say about the Aryans' swooping down from some foreign land, snatching away the lands of the aborigines and settling in India by exterminating them, is all
pure nonsense, foolish talk! Strange, that our Indian scholars, too, say amen to them” (Vivekananda 1979).

After Swami Vivekananda, many other authors such as Das (1920), Pargiter (1922), Chandra (1980), Singh (1987), Sethna (1987), and Biswas (1987) have argued that the Rigvedic Civilization must have been indigenous.

Poliakov (1974) has shown how the myth of an Indo-Aryan invading group had originated in the eighteenth century. Confronted by criticisms to his theory, Max Müller (1898) stated categorically: “By Āryas, I mean neither blood, nor hair nor skull; I mean simply those who speak an Aryan language”. Yet, the racial overtone in the theory was sustained by Friedrich Schlegel, the European scholars and archaeologists, their Indian followers and the later day Nazis.

When the Harappan Civilization was discovered, Sir John Marshall failed to find any Aryan influence in the Indus Valley, and wrote that ‘nothing has yet been found that conflicts with the orthodox theory that the Indo-Aryans entered Punjab around 1500 B.C.’ (Marshall 1931). Mortimer Wheeler, Fairservis, Allchins and many other archaeologists have done their best to perpetuate this myth. The Indian scholars succumbed without any critical thought.

Briefly stated, the so-called ‘well-accepted model’ postulates that the Aryan or Indo-European language originated in the steppes of Eurasia, in a region close to Lithuania (Ghosh 1958). The Aryan race represented by the Kurgan Culture in the Ural mountains migrated in 3000 B.C. towards different directions. The Indo-Iranian branch further subdivided itself around 2000 B.C., one sub-branch of the race entering India around 1500 B.C. The immigrant tribes were ‘barbarous’, but brought horses and the knowledge of iron-making to India (Allchins 1983). After vanquishing the highly civilized non-Aryan Harappans, the Aryans strangely settled down to agriculture, poetry and high philosophy in the plains of Rajasthan, Haryana and Punjab! We are also supposed to believe that the authors of the Rigveda did not mention about their original home in Central Asia because they had forgotten the fact!

The above paradigm, instead of solving any problem, has created quite a few. Mortimer Wheeler, an eminent archaeologist supporting the invasion hypothesis, nevertheless admitted that the skulls found in
the Harappan sites were of a mixed type resembling what we find in India today (Wheeler 1968). Recently, Kennedy has concluded that regarding the Aryan presence, ‘the skeletal record is mute’ (Kennedy 1982) B.N. Dutta (1939, 1940) observed that the human species in India and Europe do not match in terms of ‘head and nasal indices’. Dales has described the so-called massacre at Mohenjo-Daro as mythical. He questioned: “where are the burnt fortresses, the arrowheads, weapons, pieces of armour, the smashed chariots and the bodies of the invaders and defenders?” (Dales 1964).

K.M. Srivastava, an eminent Indian archaeologist has penetrated into the myth of Aryan invasion and has commented that to the former army man, that Sir Mortimer Wheeler was, the Aryan invasion of the Indus towns was as simple as the Roman invasion of Britain (Srivastava 1984). Probably Srivastava recalled similar statements written earlier by Swami Vivekananda. Since those Indian scholars who do not believe in the paradigm of the Aryan invasion have been criticised as being frankly chauvinistic’ (Chattopadhyaya 1986 : 370), we might restrict ourselves to quoting the eminent foreign archaeologists only.

The consensus on the subject held by the internationally reputed archaeologists, who had gathered in the 1976 conference at Kashmir, was beautifully summarized by Dyson:

“The invasion thesis becomes a paradigm of limited usefulness. There is a continuing lack of agreement over the criteria by which the presence of the Indo-Aryans can be demonstrated... Indo-Aryans could have been in the Indus Valley a thousand years before we traditionally think so” (Dyson 1982).

Dyson further adds that the Indian, Iranian and Central Asian scholars have accumulated evidences for continuity in culture in their regions, rather than any sharp discontinuity due to racial intrusion, and the existence of indigenous Indo-Aryan population far back into prehistory. Many archaeologists now believe in the presence of Aryans in India by 3000 B.C. (Dyson 1982).

Jim G. Shaffer has recently proven that:

“Current archaeological data do not support the existence of an
Indo-Aryan or European invasion into South Asia at any time in the pre or proto-historic periods. Instead, it is possible to document archaeologically a series of cultural changes reflecting indigenous cultural development from prehistoric to historic periods. The early Vedic literature describes not a human invasion into the area, but a fundamental restructuring of indigenous society that saw the rise of hereditary social elites.

"The linguistic similarities (between the Indo-European languages) that are cited as proof of these human invasions have alternative explanations ... What was theory became unquestioned fact. It is time to end the linguistic tyranny" (Shaffer 1984a).

Romila Thapar, the eminent historian, has rightly suggested that 'it would be more profitable to ignore the (question of) Aryans for the moment' (Thapar 1973). But what would happen to the history texts, brazenly proclaiming the theory of Aryan invasion, being compulsorily read by the school-going children in India?

THE ARCHAEOLOGIST'S DILEMMA

The late Amalananda Ghosh used to feel that it was hazardous to link archaeological data with the literatures of uncertain dates such as the Rigveda, the Mahabharata etc. The archaeologists have truly fallen into the linguist's trap and created problems for themselves by constructing paradigms on the basis of their imperfect understanding of the Vedic literatures. Allchins wondered 'at what stage Indo-Iranian languages were first introduced in India', sounded a note of exasperation: 'the task for the archaeologist is not to look for the Aryans', and then finally conceded:

"Our aim of relating linguistic and archaeological evidence remains problematic, and we must allow for several possible hypothesis, none of which at the present can be firmly established or rejected" (Allchin & Allchin 1983).

The present author personally met Prof. H.D. Sankalia, the doyen amongst the Indian archaeologists, and heard his view about
the theory of Aryan invasion. Professor Sankalia later sent his written communication to us on the subject:

"These theories (of Aryan intrusion) cannot be proven, unless definite knowledge regarding script, language etc. can be had... The old problems, first raised in 1930, have remained unsolved" (Sankalia 1986).

H.D. Sankalia et al. (1969) and D.P. Agrawal (1971) have not yet retracted their earlier statements that the Chalcolithic Banasians of Rajasthan were possibly immigrant Aryans! It is quite understandable that senior scholars would find it hard to discard their life-long conviction about an unproven hypothesis which they had earlier imagined to be a settled fact.

THE DESPERATE ARGUMENT

Having failed to prove that the Rigvedic Aryans were outsiders, or that such people ever came to India from outside, some scholars are desperately suggesting that one has to prove that the Rigvedic Civilization was autochthonous. This reminds us of an argument that since the earliest man originated in Africa, no civilization in Asia has been truly autochthonous! Consider the earliest dates in the Egyptian, Sumerian or Chinese civilizations; we do not have any date earlier than the earliest. So do we presume that these civilizations were not autochthonous but founded by immigrants?

We were once asked by a young irate archaeologist as to what is the proof that the theory of Aryan intrusion into India is wrong. Our reply was that the onus of producing satisfactory proof lies on the shoulders of the proponents of a hypothesis. The Aryans might have 'entered' into India, but let this be proven. We are simply contesting this theory. Does an atheist have to prove that God does not exist? Professor Sankalia (1986) fully accepted the merit of our argument.

We have already quoted Allchins (1983), who conceded the feasibility of other hypothesis, and Shaffer (1984) who supported the theory of the indigenous nature of the Rigvedic Civilization. Let us now give an outline of this alternative paradigm.
AN ALTERNATIVE PARADIGM

The Vedic and post-Vedic literatures clearly indicate that the Rigvedic Aryans were indigenous people. Possibly, they had migrated earlier from Kashmir (from where some of their branches might have gone to the Central Asia) down to the Sarasvati Valley (Pargiter, 1922). The Harappan people and the Rigvedic people belonged to the same racial stock though endowed with definite cultural and socio-economic differences, which led to a prolonged civil war.

In the Rigveda, the god Indra was invoked to assist in the fight against enemies 'whether belonging to the Ārya class or those of the Dāsas (Rv. 10.83.1), 'whether they be our own kith and kin or not' (Rv. 10.102.3). Even the enemies invoked the blessings of Indra and Varuṇa, the Vedic gods (Rv. 7.83.1 & 6). The Rigvedic war was essentially a civil war amongst the indigenous tribes. The Āryas (tillers) were surrounded by Dāsas (plunderers) who could not be easily recognized (Rv. 1.51.8., 10.22.8, 10.49.3), and whose names were not non-Aryan (Muir 1872 : 2,387). Indra was made to say, "I have deprived the Dasyus from the appellation of Ārya" (Rv. 10.49.3).

The disputes were connected not only with the conflicting interests regarding the seizure of commercial and political power, but also with the differences in the religious beliefs as well.

The enemy tribes did not believe in the Rigvedic god Indra (Rv. 2.12.5., 8.100.3). The fire-worshippers considered the fire-god to be too sacred to be defiled by any sacrificial flesh. The tribe of Sanaka opposed the institution of sacrifice (Rv. 1.33.4), and wanted to demolish the sacrificing yāpa. The dissenters did not like the intoxicating liquor soma or surā, and called themselves asurā or Asura.

Whereas the Rigvedic Aryans were careful in pronouncing the words of the hymns, the people of the other tribes were mṛdhraśčah (Rv. 5.32.8., 7.6.3) i.e. persons with undeveloped power of speech (Satapatha Brāhmaṇa, 3.2.1 23-24). We can easily identify these Asuras as the fleeing Zoroastrians or the worshippers of Jarat Tvaṣṭī (ancient fire-god or artisan-god) (Rv. 10.110.9). They mispronounced ārya as alavah, Asura Maghavan (Ahura Mazda), Sindhu (Hindu), sapta (hapta), soma (homa) etc. Max Müller conceded that the Zoroastrians, who believed in the Vedic rīta and atharvan, 'migrated from north India to Arachosia (Afghanistan) and Persia after a serious schism' (Science of Language, vol. 2, p. 70).
The *Panis* or *Vāniks* were the traders, very much a part of the Harappan community. They were also good carpenters, builders and navigators. The *Panis* were detested by the Ṛigvedic Aryans as ‘non-sacrificing, devoid of reverential sentiments’ (Rv. 6.20.4), ‘greedy like wolf’ (6.51.14), ‘extremely selfish, niggardly’ (6.61.1), ‘counting the days for computing interest’ (8.66.10) and so on.

The root cause for the internecine war must have been the exploitation of the rural people, having agricultural and pastoral surplus, by the highly organized urban people who were ‘extremely selfish’ traders. The Ṛigveda clearly describes that ten tribes—‘some Dasyus and some Āryas’—came from the west, north and south’ with *parasu* or big axes, and attacked the Ṛigvedic Aryans *living in the east* (Rv. 7.83.1-7). Aitariya Brāhmaṇa records (1.3.3) that Devas lost in the earlier battles and won the last battle in the north-east region, from where the *soma* came.

The description and topography are clear enough, and do not match with the notion of ‘invading Aryans entering India from the west’. As a matter of fact, the defeated *Panis* and *Asuras* went to the west, i.e., outside India. For one millennium we find the western countries adopting the Ṛigvedic gods and goddesses: 2000 B.C. Babylon-anti-Indra god Mardika (Rv. 4.18.12-13) or Marduk; 1800 B.C. Kassites Martu (Marut) and Ishtar (Uṣā); 1750 B.C. Hittites of Anatolia-Cybele or Mā or Śivanī standing on a lion and Śiva sitting on a bull; 1380 B.C. Mitannia—the gods Mitra and Varuṇa—the Bogazkoy treaty written in ‘virtually pure Sanskrit’; 1100-800 B.C. the Ashur or Assyrians-Val or Bael, Ishtar (Uṣā). Ahura Mazda or Asura Maghavan etc.

It is well-known that the Harappan Civilization had extensive trade-routes up to the central and western parts of Asia. It is quite conceivable that these routes and contacts were used for the westward diffusion of the Ṛigvedic Culture both its language as well as the religious traditions.

**Ṛigvedic Civilization on the Saraswati Valley**

It is quite clear from the accounts in the Ṛigveda that its authors were happily settled in the valleys of Ilā or Satluj, Saraswati and
Bharati (Chautang or the old course of the Yamuna joining the Saraswati). Saraswati was also the name of the big stream, produced after unison of the three rivers, and flowing across Rajasthan and Sind to meet the gulf of Kutch. The archaeological sites discovered on the banks of the Saraswati rivers correspond to all periods: pre-, mature- and post-Harappan. There is no evidence of any major intrusion in any of these sites, and usually the transition across the three stages is smooth. Thus, we cannot escape the conclusion that most, if not all, of these sites were Rigvedic. We may also propose that the Sarasvati Valley (Rigvedic) Civilization and the Indus Valley (Harappan) Civilization had distinct similarities in material terms (part of one bigger complex), and some dissimilarities in the socio-cultural terms e.g., on the issues of hierarchy and social stratification as evident from the settlements.

If the recently explored Sarasvati Valley archaeology does not correspond to the Rigvedic Civilization, which was developed on the banks of the Saraswati according to the literary sources, then where else are the physical remnants of the Rigvedic Civilization on the banks of the Saraswati? Let the Indian archaeologists answer the above question. One can easily connect the artifacts and the sacrificial fire-altar constructions found in Kalibangan, Banawali etc. with the clear description in the Rigveda. The Atharvaveda hymn (6.15.4) describes how the gods tilled on the bank of the Sarasvati and produced sweet barley; in Kalibangan I (pre-Harappan) we have seen criss-cross furrow marks of the earliest ploughed field so far excavated anywhere in the world, and also the small-seeded six-rowed variety of barley. In Kalibangan II, we have a temple complex, the Vedic sacrificial altars with animal bones, clay vertical cylinders or Śiva-liṅgas, a terracotta cake showing an animal being brought before a three-horned deity (Pāṣupati) for sacrifice etc. The same Pāṣupati is seen in a number of seals surrounded by the Vedic saptarṣis or seven sages. At Banawali, many houses, evidently belonging to the merchants dealing with gold and gems, had worshipping fire-altars. Gamesman type of ivory or bone cubes indicated that games like dice were common (the Rigveda describes the predicament of a dice player: 10.34. 1-14). Mother Goddess (described in the Rigveda) figurines were found. At Bhagwanpura, Mother Goddess as well as incised ram figurines on
wheels (connected in the *Rigveda* with the Goddess Saraswati) were also found.

The decay of the Harappan Civilization was not due to any foreign invasion but due to the civil war, as described in the *Rigveda*. However, this was not the only cause. Loss of trade across the borders and repeated flood on the Indus etc. also contributed to this decay. The *Rigvedic* Civilization shifted its arena to the east, when the Sarasvati river gradually dried up on account of drought, tectonic movements and diversion of the channels of the Sutlej and the Yamuna, formerly joining the Saraswati.

POSSIBLE OBJECTIONS TO OUR PARADIGM

The scholars who still believe that the *Rigvedic* Civilization was totally different from the Harappan, may continue with their old arguments as follows: (1) the *Rigvedic* Civilization was rural and 'antiquity' (was it?), and could not have anything common with the Harappan tradition, which was essentially urban; (2) Aryans introduced horse, PGW potteries, iron etc. to India, bringing them from outside; (3) the Harappan cults of Paśupati and Mother Goddess were non-Vedic and (4) the Harappans spoke Dravidian language whereas the invading Aryans brought the Indo-European language to India from the Central Asia. Let us meet the aforesaid possible criticisms to our paradigm one by one.

THE RURAL-URBAN QUESTION

The *Rigvedic* Civilization thrived on rural simplicity, and the ideal of plain living and high thinking; yet, it had intimate knowledge of urban dynamics and technology. Its hero was Indra or Purandara 'the destroyer of cities'. He symbolized the tillers who later took up arms against the oppression perpetrated by the urban rulers and plunders. Hundreds of cities were destroyed, but the victor Divodāsa himself became the ruler of a few such cities (Rv. 4.26.3) specially of those made of *aśma* (stone) (Rv. 4.30.20). These passages clearly show that the *Rigvedic* Aryans had no aversion for cities as such. The Aryan kings such as Devayāna, Pijavana or Divodāsa, Sudāsa (grandfather to grandson) (Rv. 7.18.22) and Chitra (Rv. 8.21.17-18), ruling on the banks of the Saraswati, had to build the necessary urban infra-structure.
After the victories, the Rigvedic Aryans definitely moved towards urban affluence, some luxury and sophistication. They knew palaces ‘with many pillars’ (Rv. 5.62.6) and ‘many doors’ (Rv. 7.88.5). They adored efficient city administrators (Rv. 1.173.19). Some of them squandered their wealth in the urban pursuit of gambling through dice-play (Rv. 10.34.6 & 11). In the semi-urban surroundings, the agriculturists, carpenters, medical men, poets, blacksmiths and rich men (traders) lived together; the blacksmiths used to approach the rich people (hiranyakavantam) and offered to make for them metallic artifacts and ornaments (Rv. 9.112.2; see also 10.53.9). In a paper published in this volume (Biswas et al. 1988) we have listed the golden and other metallic artifacts as well as the blacksmithy equipments and technology known to the Rigvedic Aryans.

Thus, the Rigvedic Aryans and the Harappans were part of the same social milieu, the former starting with an agro-rural base and ending up with military victories and imbibing some Harappan technology. The archaeo-materials obtained from Kalibangan, Banawali, Bhagwanpura etc. clearly show the Harappan material base with the ritual implements described in the Rigveda.

THE HORSE, PGW AND IRON

There are evidences about the existence and use of horses in the Harappan sites such as Surkotada in Gujarat long before 1500 B.C. Equine teeth have been found from Rana Ghundai. The Western scholars, on account of their bias on the issue, have been hesitant to accept the evidences. The Rigvedic Aryans must have collected horses to gain speed and the obvious tactical advantage during the civil war.

There are legitimate objections to the PGW (Painted Grey Ware)—invading Aryan correlation. If the Aryans brought PGW culture from outside, where are the antecedent evidences on the Iranian Plateau or anywhere along the route supposedly taken by the Āryans? (Thapar 1970). Chakrabarti (1968, 353) has given arguments for an eastern, rather than western, origin for the PGW, thereby negating the PGW-Āryan correlation.

J.P. Joshi’s excavations (1976, 1977, 1978, 1982) at Bhagwanpura, Dadheri, Nagar, and Katpalon have shown that the PGW has been
associated, in the same stratigraphic unit, with material belonging to
the indigenous proto-historic culture of this region (Siswal etc.) and
substantial mud-brick architecture units. B.B. Lal (1982, 335-338) has
emphasized that at Bhagwanpura, there has been no cultural discon-
tinuity separating the PGW (associated with the Aryan) from the
earlier Harappan and Siswal culture (nor any evidence of broken
skull, we may add!). In the Saraswati Valley region extending between
Kalibangan and Bhagwanpura, the sequence from the pre-Harappan
ploughed field to the post-Harappan PGW ‘formed the base on which
the Mature Harappan appeared like bubbles on a vast lake’ (an
expression made by B.B. Lal). Thus, we may view the ancient Indian
history not in terms of the Aryan intrusion into the Harappan scene,
but as the Harappan bubble in the indigenous Aryan lake.

The PGW has been associated with the advent of iron in India,
and this is probably justified. But we notice in Atranjikhera a con-
tinuity of occupation without any broken skull: OCP or Ochre Colour
Pottery period (up to 1500 B.C.), BRW or Black and Red Ware period
(up to 1200 B.C.) and PGW period (1200-600 B.C.) in which iron was
widely used for the first time in India. Shaffer (1984a, 1984b) has
argued for an indigenous development of iron technology within the
Indian sub-continent. According to him, ‘there is no archaeological
evidence corroborating the fact of an Indo-Aryan invasion’. The
PGW and iron-making technology were indigenously developed by a
group of people who had been in India even in the pre-Harappan era.
Some technical knowhow regarding the iron-making technology might
have diffused from the West (Hittites) to India, through the travellers
and trade-links, but not necessarily through the blitzkrieg of an
invasion.

PAŚUPATI AND MOTHER GODDESS

Gross subjective bias and imperfect understanding of the Rigveda
have prompted many scholars to postulate that Paśupati and Mother
Goddess cults, prominent in the Harappan Civilization, were non-
Aryan gods, and alien to the Vedic tradition.

The Rigveda is full of proclamations on the unity of godhead:
ekam sad vîprâ bahudhâ vadanti etc. (Rv. 1.164.46., 3.55. 1-22, 8.58.2.,
10.82.3 etc.). This literature records for the first time the continuing
Indian belief that God exists in three forms—the creator, the protector
as well as the destroyer. Agni, Rudra and Paśupati, repeatedly mentioned in the Vedas have been identified in the seals of Paśupati, the bull and the saptarśis (Ramachandran 1956, Biswas 1987). The cult of the Vedic priest shown in the Mohenjo-Daro seal started from Mundigak during the fourth millennium B.C. The Swastika seal and the Aryan Mother Goddess cult were manifest in Mehargarh as early as the fifth millennium B.C.

The Mother Goddess cult was well developed in Mehrgarh around 3500 B.C. Terracotta figurines were locally manufactured and fairly widespread in many archaeological sites all over the Zhob Valley, and there is little doubt that the cult started from this area (Banerji 1987). These figurines have special hair-styles, with hair parted in the middle with a line or red paint (sign of marriage). Some figurines have awe-inspiring goggle eyes with deep eye-holes, and yet some are remarkably charming, showing the mother with a child held in her arms.

Marshall compared the legless figurines with the earth goddess (Prithvi) and the terrifying ones with the modern Kāli (Marshall 1931: pp. 50-51). Dupree also opines that these clay figurines represent primitive Kāli or Mahādevi-consort of Śiva (note the sindūr or the red paint between the parted hairs) The necklaces worn depict snake and the round pendant a stylized skull (Dupree 1963).

The iconographers would hardly agree with Marshall and Dupree linking the Zhob figurines with modern Kāli in view of the time gap of several millennia. However, sometimes the gap may be the gap of our collective ignorance.

The Mother Goddess cult spread from the pre-Harappan (Mehrgarh and Zhob Valley sites) period to the Mature-Harappan (Mohenjo-Daro and Banawali) and Post-Harappan (Bhagwanpura) or PGW period. We have found Mother Goddess figurines of the Mehrgarh type in Banawali and Bhagwanpura, and in the latter site, many ram figurines. A potsherd in Kalibangan depicts a goat being dragged for sacrifice. The Vedic literature describes ram and goat as favourite animals to be sacrificed before Mother Goddess Sarasvati (Krishna Yajurveda, 2.1.2).

There is an erroneous impression that the Rigveda deals more with gods rather than goddesses. A recurrent theme in the Vedic literatures is the Śakti or the female consort of the God (Rigveda
10.125, Śukla Yajurveda, 16.24, Atharva Veda, 11.4.4.1-6, 11.4.5.7). Thus, all gods have been paired with their wives (Indra-Indrāṇi etc.). As a matter of fact, Aditi was considered as the mother of gods (Ṛgveda, 1.14.3., 2.27.7, 10.72.4-8, Atharva Veda 7.1.2.3).

The concept of the image of Mother Goddess (prati-mā) was first mentioned in the Atharva Veda (9.4.2). The image of the goddess Sarasvati was made by the king Ambuvici, using the clay from the bank of the river Sarasvati (Skanda Purāṇa 6.46. 16-17; see also Vāmana Purāṇa, 40.4).

Apart from the Mother Goddess figurines found from the Sarasvati Valley and other Harappan sites, we have got female figurines from Ahar and other chalcolithic sites. The Inamgaon (1500 B.C.) goddess figurine (made of unbaked clay), standing on the back of a bull, was carefully preserved and used to be worshipped.

One gets the impression from the writings of B.N. Mukherjee (1969), U.P. Shah (1987), A. Sengupta (1988) etc. that the Hindu Goddess cult Durgā standing on the lion, originated from Nanā-Ishtar-Anāhitā cults in Babylon, Iran etc. coming to India during the Kusāṇa period. Our question to these scholars would be: how did the later cults originate?

The word Nānā (mother) appears in the Ṛgveda (Rv. 9.112.3). The names Ambā, Ambikā, Umā are also Vedic. The Rigvedic Goddess Sarasvati has been described as 'pāviravit kanyā virapatni (Goddess with a spear) (Rv. 6.49.7), ghorā hiranyavartianḥ Vṛtrāghni (the terrible, the killer of enemy and riding on a golden chariot, (Rv. 6. 61.7). The Zoroastrians who emigrated from India, might have modelled the water-cum-war-goddess Surā Anahita in the light of Sarasvati, in whose name a river was named Harakhvaiti in Arachosia.

In the Krīṣṇa Yajurveda (1.2.12.4) Sarasvati has been repeatedly invoked as a lioness and requested to kill the enemies. In the subsequent literatures also, such as in the Satapatha Brāhmaṇa (3.5.1.13), the Jaimintya Brāhmaṇa (3.187) etc. Sarasvati has been equated with a lioness in terms of her terrifying might. There are many Sarasvati images (of course made during the post-Christian period) standing on the lion. Even today Sarasvati is worshipped as Bhadra Kālī. The Vedic literatures also contain references to Ambikā (Krīṣṇa and Śukla Yajurveda), Umā Haimavati (Kena Upaniṣad, 3.12), Bhadrakālī
(Sāṅkhya-yana Grihya Satra), Durgā (Taitiritya Āranyaka) etc. In several places in Mahābhārata, Durgā has been adored and saluted as Sarasvati. Thus, the precursor of Durgā is not Nanā or Anāhītā; the precursor of all these Mother Goddesses is probably the Rigvedic Sarasvati.

We agree with B.N. Mukherjee (1969) that the Kuśāṇa coins and icons represent a remarkable syncretism and foreign influence, but then, what was the origin of the aforesaid foreign influence? There were (and still are) lions in the Girnar forest in Kathiawar, and the ancient Jains living there connected the lion with Sarasvati. We have female figurines and the head of a lion at Atranjikhera. There were plenty of lions associated with Sarasvati in the Vedic literatures. Did the ‘Nana on the lion’ possibly emigrate from India during the post-Vedic period with the Zoroastrians, and then perform a sort of home-coming during the Kuśāṇa period?

We submit that both the Paśupati as well as the Mother Goddess concepts have been truly Vedic and remained Indian for the last five to seven millennia. There are several gaps of information regarding the chronological evolution of the Mother Goddess icons in India, which may be gradually filled up with additional discoveries. Even otherwise, the Vedic, post-Vedic and Purāṇic literatures would continue to illustrate an uninterrupted tradition on the subject.

THE LINGUISTIC QUESTION

Now let us come to the central question of the Indo-European languages, the primary reason why Max Müller (1859) coined the term Aryan (from Ārya) to indicate a common linguistic group across the border of India. Although he did not mean a racial connection, his blind followers jumped upon the idea of a race. The archaeologists fell into the linguists’ trap on the proposition that the exodus started from southern Russia or Lithuania and that the racial movement continued through Iran and ended up in India (B.K. Ghosh 1958).

Some scholars suggested that there was a pre-Vedic wave of Aryans, who came to Gilgit and Kashmir directly from Central Asia, and initiated the non-Sanskritic group of Dardic languages of the outer band of Indian languages such as Bengali, Oriya, Kashmiri, etc. (Hoernle 1904). The Rigvedic Aryans came to India later via Iran and Afghanistan.
Now, if we are talking about the pre-Vedic Aryans who provided the link between the Indo-European languages through some migration, then we may certainly presume that their original home was in Kashmir, India. A section amongst them might have gone to the Central Asia as early as 3000 B.C. (Pargiter 1922). Another section might have moved south towards Punjab and evolved the Vedic language.

It is well-known that in the Swat Valley Ghaligai cave showed early Harappan pottery (2970 B.C.) and that a Harappan outpost lay in Altin Depe, U.S.S.R. Indian culture *including language* must have reached Central Asia at that time.

It is quite possible that there was no mass movement accompanying trade and transmission of culture and language. The invaders or soldiers are the worst transmitters of culture. On the other hand, a handful of enlightened persons can migrate and easily transform another society of lesser intellectual attainment. This truth has been attested by the phenomenal spread of Buddhism, Sanskrit and Pāli across the furthest corners of Asia through a handful of unarmed persons. Quite appropriately, Sri Aurobindo commented:

“Community of language is no proof of community of blood or ethnological identity. It is an established fact of anthropology that many savage tongues change their vocabulary almost from generation to generation. Yet, so great is the force of attractive generalisations and widely popularised errors that all the world goes on perpetuating the blunder talking of the Indo-European races” (Aurobindo 1972).

McAlpin (1974, 1975) has submitted another proposition to explain the similarity between the Indo-European languages. He refers to the possibility of the existence of Zargosian family of language at a time earlier than the second millennium B.C., linking Elamite and Dravidian on the Iranian plateau. Such linguistic similarity may have diffused West as a result of the extensive trading networks (Shaffer 1984).

During the Vedic period, the Zoroastrians, who had lived in the Indus Valley and believed in the Vedic *rta* and *atharvan*, 'migrated from north India to Arachosia or Afghanistan and Persia after a
serious schism’. (Max Müller 1898). The vanquished emigrants were responsible for transmitting the linguistic and religious culture to the western part of Asia starting from the second millennium B.C.

It has not been proven yet that the Harappan language was Dravidian or non-Aryan. S.R. Rao has claimed that the language was proto-Aryan and the script a precursor to Brāhmi (Rao 1982). The very fact that the Rigvedic Aryans commented on the faulty accent of their adversaries (mṛdhra-vācaḥ Rv. 5.32.8, 7.6.3) shows that the warring tribes spoke the same language. This proto-Vedic language might have been spread to the Western countries by the traders and emigrants.

SUMMARY AND CONCLUSION

We have shown that the linguistic and archaeological facts can be explained in terms of the indigenous nature of the Rigvedic Civilization. We have visualized four possible categories of objections against our proposition, and we have tried to meet these objections.

Allchins (1983) graciously conceded that ‘we must allow for several possible hypothesis on the subject’. Our submission is simple enough and can be summed up in a few statements:

(1) The Rigvedic Civilization may be regarded as autochthonous unless it is proven otherwise;

(2) the dubious paradigm of the Aryan invasion or intrusion into Iran and India, any time during the pre-historic past, is far from proven, and therefore;

(3) there is no earthly reason why the young students in India should be made to swallow the theory of the so called Aryan intrusion into India, and their minds poisoned about a fictitious Aryan-Dravidian bi-racial paradigm.

POSTSCRIPT

While presenting this paper before the July 1988 National Conference held at Calcutta, the author received several interesting comments from the audience. One participant observed that the hero of the Rigvedic Civilization was ‘Purandara’, the destroyer of the cities, and hence the Civilization was basically anti-urban. Does it necessarily follow? Another participant observed that the autochthonous
nature of the Rigvedic Civilization has not been proven. Let this be disproven by those who still believe in the Aryan myth.

We are grateful to the participants who made such interesting comments because these made us recast the paper substantially. We are also grateful to the organizers for allowing a layman and a heretic to present a non-conformist view on the subject.

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ARCHAEO-MATERIAL STUDIES IN INDIA AND LITERARY EVIDENCES

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ARCHAEO-metallurgical studies in India are of relatively recent tradition. This paper briefly summarises the current trends of the subject, including the nature of the literary evidences, and highlighting a long-term project of study, sponsored by the Indian National Science Academy (INSA), New Delhi and initiated in the Indian Institute of Technology (IIT), Kanpur.

We consider that the subject of archaeo-metallurgy includes the concept of archaeo-mineralogy, although as Professor H.D. Sankalia commented to the principal author of this paper, the latter term has not been widely used. The idea is to study not only the metallic phases but also the mineral and non-metallic phases in the archaeological specimens. It is well-known that such phases were crucially important not only towards production of metals and less useful slags, but also in the making of potteries, bricks, refractories, crucibles, plasters, cements, seals, beads, gems and so on. Thus, 'archaeomaterial' would be a better title for the area of our investigations.

THE OBJECTS, TECHNIQUES AND CONCLUSIONS

It is not enough to make physical observations and undertake wet chemical or elemental analysis only of some ancient artifacts; x-ray, electron microscopic (micrographic diffraction as well as scanning micro-analysis of heavy and light elements) studies, electron

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spectroscopic chemical analysis (ESCA) and other modern techniques must be profitably employed, and all available samples studied to derive vital knowledge about the subject. The co-existence of specific phases may be suitably interpreted through our modern knowledge of thermodynamics, phase diagrams and reaction mechanisms. A modern archaeologist must possess a working knowledge of the modern science.

It is proved that many metallic and non-metallic artifacts were used in the Harappan Civilization. But the archaeologists should settle the more vital issues: how many of these artifacts were imported from outside the Indian sub-continent, how many were fabricated from the natural resources in India, and by what methods?

So far as the use of metals in the ancient sites are concerned, the existence or absence of mines in the neighbourhood areas in the modern age hardly establishes any truth. On the one hand, the currently known mines might have been unknown to the ancient people, and on the other, some small near-surface reserves might have been thoroughly exploited by the ancient mines, so that we do not know them at present. For example, Tod referred to some ancient tin mines in Rajasthan, of which we know very little at present.

The comparison of the trace element profiles in the ore deposits existing in the neighbourhood areas and in the metallic artifacts, discovered archaeologically, provides some evidence which is statistical in nature and by no means conclusive. Friedman et al. claimed (1966) that with regard to copper artifacts, the elements of silver, arsenic, bismuth, iron, antimony and lead were the most important metallic impurities in relating the metal back to the original type of ore. Following this argument, Hegde (1969) compared the artifacts from Ahar with the chalcopyrite ore from Khetri, and the similarities led him to conclude that ‘copper metal of the Ahar artifacts was probably smelted from the ore of the Aravalli region’. While the conclusion may be supported from other evidences, the hazard of the argument put forth by Friedman et al. (1966) must also be clearly indicated.

The ore-metal correlation depends upon: (a) the type of ore, oxide or sulphide or silicate, the nature of impurities, (b) the precise conditions of smelting, such as temperature, nature of fuel, flux etc., and several other factors. The ore type itself is a variable even within a
single mine. ‘The Aravalli region’ alluded to by Hegde corresponds to a vast area and ores of more than one type; the Ahar region is hundreds of kilometres away from Khetri. Friedman himself admitted the multiplicity of factors such as (a), (b) stated above, and the fact that such a correlation is only probabilistic.

Thus, a positive correlation of the trace element profile between ore and metal cannot be accepted as sufficient or conclusive evidence for indigenous manufacture. On the other hand, lack of correlation does not construe necessarily a negative evidence. As we have said, ore types vary even within a region of hundred square kilometres. Besides, certain impurities might have been eliminated through certain pre-smelting operations.

S.R. Rao (1979, 1985) considered the facts that whereas Mohenjo-daro copper and Rajasthan ore contain arsenic, the copper artifacts from Lothal were remarkably arsenic-free. From these facts divergent inferences could be drawn: Mohenjo-daro people obtained copper from Rajasthan or from some other source and resorted to deliberate arsenic-alloying. Lothal copper might have been imported from Oman, or the Lothal technicians knew roasting of copper ore to make it arsenic-free. Evidently these conclusions are neither consistent nor convergent. Rao himself reported the analysis of a copper ore from Rajasthan which contained negligible quantity of arsenic.

For conclusive evidences on indigenous technology in the areas of minerals and metals, we should rather look for; (a) mines of antiquity, (b) outfits for smelting, furnaces and crucibles, (c) heaps of slags, and (d) a reasonably large number of artifacts in different stages of manufacture and of composition and properties varying within narrow limits. Fortunately, such evidences for indigenous metallurgy in India have been obtained from Mehrgarh, Ganeshwar-Jodhpura, Chanhu-daro, Lothal, Ahar, Atranjikhera, Khetri, Zawar, Ujjain, etc.

Our studies on the literature related to the pre-, mature-, and post-Harappan sites have led us to confirm the indigenous nature of the metallurgical and material technologies in India, in many instances. We have also noticed an undue anxiety on behalf of many scholars to emphasize ‘foreign influences’, ‘Aryan contribution’ and other paradigms of dubious nature. It is well-established that trade and cultural contacts existed amongst the different parts of the
ancient world. Exchange and adoption of linguistic, religious and
other cultural trends and technological know-how could have easily
taken place through slow diffusional processes aided by trade and
cultural contacts. The paradigm of invasion and intrusion as suggested
in the Aryan theory is uncalled for and unacceptable in view of the
absence of archaeological evidences.

SPECIFIC COMMENTS ON METALS IN ANCIENT INDIA

Chalcolithic culture in India has been reviewed by many scholars
such as D.P. Agrawal (1971), S.R. Rao (1987), etc. The indigenous
nature of copper technology in India has been stressed by most
authors, and yet somewhat equivocal statements have been made by
D.P. Agrawal (1971: 239):

"The metallurgical know-how had already diffused from Iran,
hence we get (in the Harappan Culture) a fullblown technology
right from the beginning".

Such statements must now be reconsidered in the light of our
present knowledge of the pre-Harappan chalcolithic cultures in India.
Copper artifacts in the fifth millennium B.C. Mehrgarh and the thriving
chalcolithic technological activities at Ganeshwar-Jodhpura during
the early part of the third millennium B.C. have been well documented
These evidences render the theory of 'diffusion of chalcolithic technology from Iran' somewhat presumptuous. Similarly, we question
whether D.P. Agrawal's 'equation of the early Aryans with the chalcolithic Banasians' (1971: 240) is justifiable. Probably he was
much too anxious to adopt similar view earlier expressed by Sankalia,
Deo and Ansari (1969) who visualised Western Asians reaching Navdatoli south-eastern Rajasthan etc. somewhat by the sea or any
other route.

Similarly, N.R., Banerjee (1965) concludes his treatise on iron
age in India with the statement that 'the prime responsibility for
introducing iron in India and spreading it far and wide within the
sub-continent can be squarely fixed on the Aryan endeavour', without
identifying the Aryans in cranial archaeological terms, and presuming,
like many other scholars, that although the Aryans did not bring any
distinct material culture with them, yet they could somehow adapt
themselves to a diversity of local conditions. A.K. Biswas (1987a,
1988) has discussed in detail the mythical nature of the hypothesis of
Aryan intrusion into India. Whether iron technology was accidentally
discovered at Ahar or any other chalcolithic centre in India, or it was
gradually introduced through diffusion of technology from the West
through trade and cultural contacts, the presumption of large scale
racial intrusion into the sub-continent to herald PGW and iron age
culture is far-fetched and hitherto unsubstantiated. J.G. Shaffer (1982)
concluded that the PGW and iron age cultures at Atranjikhera,
Hastinapur, Mathura etc., 'represent an indigenous South Asian
cultural development rather than a foreign intrusion. . . . The concept
of an Indo-Aryan invasion is open to question'.

Controversies persist as regards few other points on the issues of
the Indian iron age. The latest view points are available in a seminar
paper presented by D.K. Chakrabarti (1985) and the stimulating
rejoinders from other reputed scholars. While D.K. Chakrabarti, M.C.
Joshi, M.D.N. Sahi, etc., argued in favour of indigenous beginning of
iron age in India since 1300 B.C., directly following from the earlier
chalcolithic age, it was justifiably pointed out by K.K. Sinha and
Vibha Tripathi that the theory of advent of iron-making at Ahar from
copper slag is difficult to endorse. R.C. Gaur was even more categori-
cal, and said that 'the evidence from the sites of Noh, Eran and Ahar
is of a dubious nature'. The earliest unambiguous evidence of large
scale manufacture of iron objects in India is from Atranjikhera:
(TF-191) 1155±110 B.C. The smelters might have used the iron shales
of Agra-Gwalior range. Some diffusion of technology from the
western Asia might have aided indigenous efforts, but no scholar, not
even N.R. Banerjee, harped on the cliche of 'Aryan intrusion'.

Next to copper and iron, and also gold, silver, lead and tin
(which were used in ancient India), we face certain interesting facts
about the early use of zinc and brass.

One copper artifact from Lothal contained high proportion of
zinc. This may of course be a solitary and stray fact which however
suggests the then mining of copper ore from the zinc-rich Ahar
(Udaipur) area. Mining archaeological work at Rajpura-Dariba silver-
lead-zinc mine near Udaipur yielded timber samples which have been C\(^{14}\) dated as 1136±160 B.C. and 216±100 B.C. Zawar Mala Zinc mine timber samples have been dated as 170±60 B.C. and 30±50 A.D. Thus, Lynn Willies et al. (1984, 1986) have established that zinc ore was mined in India as early as second century B.C. and possibly much earlier. The 1136 B.C. date of the lead-zinc mine of Rajpura-Dariba may be correlated with alloying of copper objects at Atarnjikhera of similar date; some copper objects contained 6.28-16.20\% Zn, 9\% Pb apart from some tin (Gaur 1983, 497).

The sets of ancient furnaces which produced zinc by distillation process have been C\(^{14}\) dated to sixteenth century A.D. (Craddock et al. 1985); however, other circumstantial evidences do enable us to assert the antiquity of zinc technology in India. For example, brass bangles found in the second-fifth centuries B.C. sites of Taxila assayed 13-20\% zinc. A vase excavated from the Bhir mound at Taxila dated fourth century B.C. assayed 34.34\%. Zinc (Marshall 1951 : 568); such a high percentage could not be obtained by the cementation process, and for which zinc must have been prepared separately by a distillation process (Craddock 1981).

The evidence from Taxila proves that zinc was made and used consciously in India as early as fourth century B.C. (earliest in the world). Kauṭilya’s Arthaśāstra of the pre-Christian era clearly mentions ārakūṭa or brass (2.12.23); also mentioned therein are other alloys of copper viz., kaṁsa, tāla, etc. Brass is mentioned as rīti by Caraka. Nāgārjuna, who according to Renou and Filiozat lived during the end of the first century A.D., wrote in Rasaratnākara (1.3), that rasaka (zinc ore) roasted thrice with copper converts the latter into gold (gold-like brilliance of brass). This reflected conscious use of zinc in India two millennia ago. P.C Ray refers (1956) to the first century B.C. brass coins of Dhanadeva and Āryavarmā of Ayodhya, second century A.D. cast brass casket at Mānikiyāla, sixth century A.D. brass statue of Buddha at Fatehpur and Huien-Tsang’s description of a seventh century A.D. (unfinished) brass vihāra (convent) at Nālandā.

Whereas Craddock et al. (1981, 1985) have described in detail how zinc used to be manufactured in ancient India by the vertical distillation process, Biswas et al. (1984) and Freestone et al. (1987) have
made scientific studies on the zinc slags and crucibles.

Biswa et al. (1984) analysed the glassy slag from which lead might have been recovered, and the retort residue (left after zinc recovery) by x-ray, electron diffraction, x-ray micro-analysis, DTA and other sophisticated techniques. 1.3-1.7 lakh tons of ancient residue assay 2.74-3.04% Zn, 7.6-9.5% Fe, traces of lead and sulphur. The important Zn-bearing phases in the residue or slag are zinc phosphate or Zn2P2O7, 5H2O, goslarite ZnSO4, 7H2O, sphalerite, Zns, calamine or hemimorphite Zn4 (OH)2 Si2O7 · H2O, esperite Ca2Pb (ZnSiO4)4, larsenite PbZnSiO4, hardistonite Ca2ZnSi2O7, magnesium alumino silicate Mg2Al1Si2O8, hydrozincite Zn4(CO3)2(OH)6, etc. The grain size of these phases ranged 0.5-8.0 micrometre. Some of these phases, as well as willemite Zn2SiO4 and anhydrous ZnSO4 were detected in the retort wall. These observations attest to the facts that zinc minerals in the ore were sulphidic as well as basic silicate/carbonate in nature, and the ore contained lead, phosphorus, silicon, calcium and magnesium in the siliceous/dolomitic matrix. The complex silicates formed show that temperature in the retort must have been sufficiently high. (Biswa et al. 1948). Biswas has also reviewed (1987b) how Rasaratnasamuccaya, a thirteenth A.D. text graphically describes the vertical retort process for making zinc in ancient India.

Analysing the same materials, Freestone et al. (1987) detected zinc-rich and low-iron zincian melilitite in the glassy slag from which lead and silver had been recovered, and iron-rich fayalite or clinopyroxene in the crystalline retort content from which zinc had been recovered. The retort wall was analysed by petrography, hot-stage back-scatter electron micrography and EDAX or x-ray micro-analysis. This showed that although the retort wall contained 15 wt.% fluxes (FeO, MgO, CaO, Na2O, K2O) and thus resembled house-bricks rather than modern refractories, yet it withstood temperature as high as 1200–1250°C, as revealed by its vitrification texture. The furnace wall showed a gradient in vitrification structure, and from this it could be calculated, using a heat conduction equation, that the duration of zinc smelting at Zawar was of the order of 5 hours. Thermodynamic data on Zn/ZnO system were utilized to conclude that around 1200°C, partial pressure of Oxygen must have been 10-20 atm. or less. This
could be achieved by using carbonaceous reductant such as wood or cowdung within the airtight retort. The above mentioned studies by Biswas et al. (1984) and Freestone et al. (1987) show the mighty applications of modern science in solving archaeological problems.

In 1743, William Champion of Bristol, England, introduced, for the first time in the West, the vertical distillation process for making zinc which had been practised in India earlier for many centuries. It is widely acknowledged (Craddock 1981) that the technology transfer took place from Zawar Mala, Rajasthan in India to the West through some intelligent visitors—some British traders or missionary people. If iron technology was borrowed from outside at all by India around 1300 B.C., a similar mechanism could have sufficed. For the advent of iron age in India, must we invoke the dubious hypothesis of ‘invading Aryans’, when Indian traders were known to have visited Central and Western Asia ever since the Harappan age?

SPECIFIC COMMENTS ON MINERALS IN ANCIENT INDIA

It must be understood that metallurgy is a very vast subject and is broadly divided into two sections. The first section is concerned with mines, raw materials, minerals, their diverse uses in the non-metallurgical contexts and their reduction in the context of ‘process metallurgy’. The second section involving engineering metallurgy, physical metallurgy and material science deals with casting, joining, extrusion, heat treatment etc. and demands special expertise.

Representing the first section in metallurgy, we notice that the subject of archaeo-mineralogy, a legitimate branch of archaeometallurgy is a sadly neglected field, and needs to be nurtured with some special care.

Even before the chalcolithic period, mankind was concerned with special rocks and stones for construction, making tools, armoury, etc. After agricultural practices were established, the surplus led to the use of consumer items such as precious stones and minerals which in turn led to trade and military contacts. Mehrgarh III archaeological excavation yielded ample evidence of lapis lazuli working in the pre-Harappan setting. The raw material came from the Badakhshan mine in northern Afghanistan. There were also workshops for turquoise at Mehrgarh and Shahr-i-Sokhta (Jarrige 1982).
At Mohenjo-daro we find a wealth of minerals—some imported, and quite a few obtained and processed indigenously. Lapis lazuli, turquoise, plasma, green felspar and amethyst were rare and, therefore, most probably imported items. On the other hand, agate, faience, chalcedony and steatite were typically local items used for making beads. Reserves of steatite have been identified in Baluchistan and Gujarat. This soft material used to be processed in the factories of Chanhu-daro and Lothal etc. for making beads, seals, etc. Etching of carnelian beads was a very specialized art. Some other items of local origin and processing were limestone, gypsum, alabaster, faience, vitreous paste, yellow sandstone, etc. The arsenic-containing mineral löllingite was used for alloying of copper.

Items specially used at Harappa and rarely noticed at Mohenjo-daro were: coral, mica, yellowish limestone, grey granite and basalt. The use of mica in improving the grade of potteries, made from different varieties of clay, was well understood. Haematite, red ochre and other pigments containing arsenic and antimony were widely used. Lothal excelled other Harappan sites in workshop technology, not only in terms of copper metallurgy but also in the area of steatite processing, other bead industries and the artifacts of shell and ivory. At Banawali, beautiful golden ornaments and finely cut smoky brown crystal stones showed the heights of fine gem craftsmanship.

During the post-Harappan era, the quantum and variety of special gems and minerals decreased, evidently on account of the loss of trade and contact with the outside world. During the first millennium B.C., there was a resurgence of urban life and we find the use of not only iron but also agate, carnelian, glass, marble, etc. at Atranjikhera etc. Another peak in mineral use and consumption was reached at Taxila for several centuries starting from the fifth century B.C.

Taxila abounded not only in objects of iron, lead and copper-alloys such as bronze, brass and 'packtong' (nickel alloy of the Chinese tradition) but also in precious metals and minerals. Diggings at Taxila yielded hordes of gold and silver jewelleries and items of precious stones. Some of the latter were imported; however, it is definite that pearl, corundum, steatite, etched carnelian, agate, glazed quartz, etc. were of Indian origin. Beads of the last three items were locally fabricated (Marshall 1951).
Some of the beads were etched chemically. Spectroscopic examination revealed that the glazed quartz beads contained a large quantity of soda. Evidently, the beads were heated with soda to produce pale blue colour and to imitate beryl or aquamarine. A large variety of colouring agents were used along with soda to produce glazed beads. Vermillion pigment (assaying 85% plus HgS) was found in Taxila (Marshall 1951).

Many other examples of indigenous mineral processing in India may be cited after we complete our reviews on the archaeological sites and travellers' accounts during the historical period in ancient India (fifth century B.C.—twelfth century A.D.).

LITERARY EVIDENCES RELATED TO ARCHAEO-MATERIALS IN INDIA

While archaeology, apart from epigraphy, is concerned with mute evidences, history is reconstructed upon archaeology as well as written or literary evidences, and therefore, there must be a constant dialogue between the two.

There is a special and well-known problem about the literary evidences in India, and that is about their dates. On account of this uncertainty, many of the post-Vedic conclusions which we may draw from the Vedic, epic and purānic literatures would at best be tentative. On the other hand, the aforesaid literary evidences cannot be rejected altogether, since without these, the Indian history of culture (scientific culture included) would be difficult to reconstruct. One of us has demonstrated how a judicious combination of the literary and archaeological evidences could help us in re-constructing the mineral processing state-of-art in India upto the thirteenth century A.D. (Biswas 1987b).

We may now present our observations regarding the earliest literature of the mankind, the Rigveda. In another paper published in this volume, we had questioned the paradigm of Aryan invasion (Biswas 1988). There is no proof that the warlike events described in the Rigveda correspond to ‘invading Aryans coming to India around 1500 B.C.’ There are clear evidences on the other hand that the Rigvedic civilization, which flourished on the banks of the Saraswati, had originated in the sub-continent itself during the pre-Harappan age. The Mother Goddess cult which was developed at Mehrgarh for two
millennia, 4500-2500 B.C. (Asthana 1985; Jarriage 1982) spread through the Harappan sites of Mohenjo-daro etc. and was nurtured on the banks of Saraswati, at Banawali, and even at Bhagwanpura where the Harappan as well as PGW potteries have been found to coexist. It is quite conceivable, therefore, that the Ṛigvedic war was a civil war which took place during the end of the third millennium B.C. triggering the exodus of some tribes (such as Zoroastrians) to western Asia and gradual decline of the civilization on the Indus Valley.

THE VEDIC LITERATURES

The Ṛigveda describes in part the chalcolithic culture in the foothill of the Śivalik mountains extending along the valleys of the Drisadvati, Saraswati and Śatadru (Sutlej). We have noted in the Ṛigveda the following words/items related to minerals and metals:

- Jewel, grinding or sharpening stone, metalsmith or blacksmith, bellows blowing air, melting gold or metal, sharpening metal.
- Gold, necklace, head ornament, ear-ring, gold coin, silver, anklet, ring, breast-plate, bangle.
- Leg made of metal, razor, bucket, cymbal, javelin or lance, lute, needle, scissor, sword, knife, sickle, ploughshare, shield, metal stick used for roasting meat, cooking-vessel.

The authors of the Ṛigveda were familiar with gems (ratna, mani), metals (āyasa) such as gold (hiranya, rajata), the role of fire or heat in melting of gem metals such as gold (drāva, agni=ratnadātāmam). In one passage, ayasmaya tamba (5.30.15) copper is hinted. Individual metals were distinguished later in the Yajurveda: lohitāyasa (copper), kṛṣṇāyasa or syāmāyasa (iron), trapu (tin) etc.

The references to the blacksmiths, bellows, melting of metals and many artifacts of gold, silver and āyas (probably meaning copper rather than iron) and also of the traders, river navigation, urban games like dice-playing clearly signify that the authors of the Ṛigveda were quite familiar with the urban life of the Harappan standard, notwithstanding their preferences for rural simplicity and religious fervour.

Śukla Yajurveda (18.13) mentions six metals: gold, silver, iron (śyāma), copper (loha), lead and tin (trapu). Since it mentions iron (śyāma or the black metal), its date may not be very much before
1200 B.C. In the *Atharva Veda* (11.2.1) we find *ṣūrpa* or winnow mentioned. This was used for separation of coarse from fine, or heavy from light particles. Bronze or bell-metal vessel is also mentioned as *kaṁsa* (*Atharva Veda*, 10.10.5). *Chāndogya Upaniṣad* mentions the use of salt like borax in gold metallurgy (4.17.7) and iron (*kārṣṇāyasa*) as the constituent of a nail-cutter (6.1.6). In the *Śatapatha Brāhmaṇa* (1.1.2.7 and 1.6.3.16) we find the mentioning of *bhāstrā* or the bellow, used for melting metal.

Whereas the *Rigveda* mentions the use of *hirāṇya-karna* or golden ear-ring and *manī-grīva* or necklace of gems (1.122.14), the *Yajur Veda* refers to *maṇikāra* or the artisan dealing with gems, also mentioned in the *Taittirīya Brāhmaṇa* (3.4.3.1). The *Śaṁkhāyana Āraṇyaka* (12.8 and 12.18) gives some detailed references to gems or *maṇi*. *Chāndogya Upaniṣad*’s reference to *lohamāṇi* (6.1.5) or red gem may correspond either to gold or copper bead or even ruby. Of the subjects of study mentioned in the *Chāndogya Upaniṣad* (7.1.2. & 4) we find certain scientific topics such as *rāśin*, or mathematics *bhutavi- dyām* or the science of elements and *nidhim*, the subject of mineral resources or mineralogy. The last topic was exemplified by Śaṁkaracārya through a book *Mahākātāna* which was in vogue during his time.

**EVIDENCES FROM PĀNINI**

Pāṇini’s *Aṣṭādhyāyī* is a store-house of information (Vasu 1891). Pāṇini was born near Taxila probably around fifth century B.C., which is also the earliest date of the ancient civilization in the excavated sites of Taxila. While the archaeological evidences testify what minerals and metals were used at Taxila (Marshall 1951), the famous linguist’s compilation proves the indigenous technology in India during the middle of the first millennium B.C. Pāṇini’s frequent references to *chandasa* or the earlier Vedic literatures is also very significant.

Pāṇini referred to the Vedic literature on the mines (*khan*), digging spade (*khanitra*) and the various methods of dry and wet grinding. An ore was denoted by the word *ākarika*; classification of particles could be done by winnowing (*paripāvana, nispāva*) on a winnowing basket (*ṣūrpa*). For reduction of ores to metals, dried
cowdung was not the only fuel used. Fuel stone (samid-dīrṣad) or firewood was also often used.

During Pāṇini's time the word ayas did not mean iron alone, but stood for the generic name of metal. Much later, the words sattva (essence) and dhātu came to be used to denote metals. Specific metals and alloys were known by specific names: kālāyas or black metal (iron), lohitāyas or red metal (copper), kaṁsyā (bronze, bell metal; brass also?), kupyā (base metal), stīsā (lead), trapu (tin), niṣka (coin), suvarṇa, rajata (coinage metal).

The word raupyā meant silver coin and rūpa meant silver because, as Pāṇini explains (5.2.120), the form (rūpa) of king is embossed (āhatam) on this metal. It is noteworthy that there was wide-spread use of silver for coins in Taxila, and Pāṇini mentions the gold coins (Kedāra) of the Kedara Kushans.

Pāṇini refers to the widespread use of iron in hammer (ayoghana) and sharp cutting instruments. He alludes to the Sanskrit verb lū meaning ‘to cut or sever’, and it is possible that the word lauha was derived from lū, and later used to mean iron.

The concept of blowing through an ignited furnace (dhama or dhmā), using a bellow (bhastrā) or many-bellowed device (bhūbhastrikā) was Rigvedic in antiquity, and clearly mentioned as such by Pāṇini (4.4.16, 7.3.47). Bellow-pipe and pair of bellows with nozzles have been found in the Parthian stratum in Sirkap during the excavations at Taxila.

The Pāṇinian use of the words pu (purify), pūta (purified) pūtigandha (foul selling purification furance) (5.4.135) clearly recalls the early pyrometallurgical treatment of copper, lead and zinc sulphides to produce corresponding metals and foul-smelling sulphur dioxide.

Pāṇini explained the Vedic usage of the terms drava or drāva meaning melting of metals such as gold, pāva or purification. He also explained kṣhara kṣharaja to mean distillation and the distillation products such as mercury and zinc which were known in Taxila. Vipātana meant melting, sruva-ladle from which liquid gushes out; mur and mūrti meant solidification and molten object solidified to a particular shape (3.3.77, 6.1.24).

Excavations at Taxila yielded many specimens of colouring agents and precious stones. Pāṇini recorded the use of rocanā or raucanikā, a yellow pigment and lāksā or lac dye. Kajjala or lamp-
black was used as collyrium (6.2.91). Vermillion pigment (assaying 85% plus HgS) was found in Taxila. Pāṇini mentioned about mṛtsnā or a good variety of clay used for pottery etc.

He explained that word maṇi or jewel means that which decorates (madana). Lohitaka meant the red gem which could be ruby or syinel—Al₂O₃ with Cr₂O₃ or MgO. Pāṇini’s literature provides conclusive evidence that vaidurya (cat’s eye gem or chrysoberyl, Be-Al-oxide) was indigenously mined and processed. He explains that the name of the gem was derived from the city Vidura where the raw material, obtained from the mountain Vālavāya, was finally processed (4.3.84).

The above brief discussion shows how the literary evidences constitute genuine elements of history complementing those of archaeology. Few centuries after Pāṇini, the socio-political background of the ancient India in which minerals, gems and metals were used, became clear in Kauṭilya’s writing.

KAUṬILIYA ARTHASĀSTRA

The Arthasāstra of Kauṭilya basically deals with the politico-economic aspects of the State, and yet the author beautifully outlines the theme that the mines are the source of implements of war (7.14.25) as well as the source of the treasury (2.12.37). The State prospers with the treasury and the army, ultimately depending upon the mines (ākara) and miners (ākarika).

Kauṭilya advises mining operations to be launched near old mines where crucibles (mūṣā), dross (putikīṭa), coal and ashes are found, or to look for new mines with the help of Śulvasāstra, the science of mineral or metal veins (2.12.1&2). Śulvasāstra also meant the knowledge of underground water (2.24.1) and copper technology (2.13.16&44; 2.14.30-31).

Some of the most precious gems mentioned were: pearl, coral, ruby, beryl, sapphire, quartz crystal, diamond etc. (2.11.1-42). Some gems of subsidiary importance were also described (2.11.35). Metallic ores containing copper, lead, tin, iron and vaikāntaka (not identifiable) were also described (2.12.12-16&23). Conch-shell and caustics (2.12.27) and different kinds of salt including borax known as suvārca-kava lavana or sauvarcala (2.14.23, 2.15.15) were also of great commercial importance. Sauvarcala could also mean saltpetre or sodium nitrate.
The importance of Kuruvinda or corundum as an abrasive was noted (2.14.48). Yellow orpiment (haritāla) and red arsenic (manahśila) were known as pigments (14.2.17).

Kauṭilya described the mining works (ākara karmānta), the metallurgical-workshop with special emphasis on gem metals such as gold and silver (2.12-2.15). Some of the fuels (charcoal and husk) and the equipments (yantra) utilized in mineral processing were described:

"Weighing and measuring equipments, grinding-stone (rocan-dṛṣad), mortar and pestle (ulukhala, musala), crushing (kuṭṭaka) and grinding (rocaka) equipments, winnow (śūrpa), sieve (cālani), etc." (2.15.60&62).

The Director of Metals was advised to establish factories for copper, lead, tin, vaikṛntaka (identity not clear), ārakūta (brass), vaṭṭa (steel?), kaṁsa (bronze), tāla (bell-metal or Cu/Sn/Zn alloy) etc. (2.12.23). Silver coins were minted after admixture with copper and hardening alloys (pādājivam) using cast iron (nikśṇa), tin, lead and antimony (aṅjana) (2.12.24). Two parts of silver and one part of copper was known as tripūṭaka. An alloy of equal parts of silver and iron was known as vellaka (2.14.20&22).

A special set of instructions was recorded for the superintendents of gold (suvarnādhyakṣa) in the workshop (2.13.1-61). They were supposed to know the rock genesis of gold and silver, methods of testing, purification, alloy-making for different coins and ornaments of specific colours. Bead-making, gilding, gold-plating (gold-plater = tvāṣṭṛ), setting with gem minerals and detect and stop pilferage by the artisans. For obvious reasons, they were supposed to be conversant with the treatment of iron and copper also. (2.13.58). Maṇīrāga was the art of imparting different colours to maṇi or gems (1.18.8., 2.12.1). The word jātarūpa stood for gold (2.13.3) and kāca for rock crystal or quartz or even glass (3.17.8).

A special note may be made here about the word ārakūta or brass which was mentioned for the first time by Kauṭilya (2.12.23, 2.17.14). Later, different varieties of brass were known as riti, ritika and kākatundi. Modern name of pīttala (brass) might have been derived from pīta (yellow) tōla. The original word ārakūta must have been in vogue in Taxila during fifth century B.C., when brass objects
were being made there. The word was transmuted in Greek as oreichalkos. The fourth century B.C. geographer Theopompus was quoted by Strabo as mentioning production of fake silver (zinc) from some ore in Anatolia, ‘which mixed with copper gave the metal which men call oreichalkos (brass)’ (Jones 1968).

It is quite evident that India was the first country to produce zinc and brass in the world. Philologists confirm the Indian antecedence in several fields of metals and minerals: ārakūṭa—oreichalcos, yaśada—deasta—zinc, kuruvinda—corundum, vaidūrya—beryl, mārjarakṣakam—cat’s eye—chrysoberyl (Kauṭilya 2.11.39), gomed—garnet, etc.

MINEALS AND METALS IN THE POST-CHRISTIAN ERA INDIA

Since this paper is basically restricted to the pre-Christian era, we would make only a few comments regarding the post-Christian era. India’s supremacy in the trade of gem minerals had been evident from the archaeological findings from Lothal to Taxila and also in the writings of Pāṇini and Kauṭilya.

The findings from the Indo-Roman trading site of Arikamedu, corresponding to the first century A.D., show how India used to export gem items of gold, faience, chalcedonic quartz, agate, carnelian, crystalline quartz, amethyst, diamond, pearl, ruby, sapphire, etc. against Roman coins and other items (Wheeler et al. 1946). India’s contributions in the field of gem minerals have been outlined in the foreign travellers’ accounts, Varāhamihira’s Brhat Samhitā, the various Purāṇa’s and Ratnākara’s written in Sanskrit and Prākrit.

The Rasaśāstra’s written by Nāgārjuna etc. described Indian studies on alchemy and smelting of metals. These culminated with the thirteenth century text Rasaratnaśmuccaya (Biswaś 1987b). The Rasaśāstra texts describe not only the art of making metals but also reflect the ancient concepts regarding elements, of chemical conversion, and of the scientific methodology then in vogue.

In conclusion, it may be asserted that a judicious combination of the literary evidences with the archaeological ones yields fruitful results in revealing the antiquity of science in human civilization. Our exercise on the thirteenth century A.D. text (Biswaś 1987b) has enabled us to reconstruct the bare outline of the Indian state-of-art related
to minerals and metals up to the aforesaid period. Many more details regarding archaeo-materials in India are likely to be revealed as a result of our continuing investigations on historical archaeology related to minerals and metals.

POSTSCRIPT

While this paper was being presented during the July 1988 National Seminar at Calcutta, we encountered several stimulating comments and questions from the audience. One participant wondered whether D.P. Agrawal had at all commented on the diffusion of chalcolithic technology from the outside countries to India. She commented, without defining who the Aryans were, that the theory of the immigrant Aryans introducing iron technology in India was still being debated. Another participant questioned whether zinc was 'consciously' used in India during the pre-Christian era.

We have taken note of such comments and questions and revised our paper accordingly.

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NOTES ON JANAPADANIVEŚA (SETTLEMENT OF THE COUNTRYSIDE) AND PLANNING OF THE CITY ON THE BASIS OF THE ŚĀSTRIC RECORDS

HERAMBA CHATTERJEE ŚĀSTRI

ŚĀSTRAS in Sanskrit may be stated to be very rich in the field of city-planning and it is unfortunate that few Sanskritists of our country have devoted their energy to unearth this wealth of our land Vāstuvidyā—the science of planning of residence forms a subdivision of the Śilpaśāstra:

Amartyāś caiva martyāś ca yatra yatra vasanti hi /
Tad vāstv iti mataṁ tajñais tadbhedāṁ ca vādāmy aham //

Mayamata, II,

In the text Mānasāra (vide P.K. Acharya's—'A summary of the Mānasāra') we come across the mythical genealogy of the heavenly architects—Viśvakarma, Maya, Tvaṣṭā and Manu. Identically we find in the Mayamata (chap. 1, verse, 12), as also in the Viśvakarmā-prakāśa:

Iti proktam vāstuśāstraṁ pūrvaṁ gargāya dhūmate /
Gargāt parāśaraṁ prāptaṁ tasmāt prāpte vṛhadrathaṁ //


E.B. Havell, in his History of the Aryan Rule in India, has in his long scholastic discussion recognized the highly technical and scientific development of the Indian Śāstric science of town-planning (p. 25) (vide also his Ancient and Mediaeval Architecture, p. 3). As the planning of the cities was deemed to be connected with several other
religious and quasi-religious astronomical questions, we are fortunate to have vast literature on the topic such as in the Arthaśāstra, Dhar-, maśāstra, the Purāṇas, the epics and so on. The Devipurāṇa (Viṣṇuparvā, chap. 58) records the statement of Krṣṇa regarding the planning of the town Dvārāvati:

Prākāre vinyāsed ādau vāhyasthan pūjayet tataḥ /
Parighāś ca tataḥ kṛtvātanmadhye ca tataḥ punah //
Savyāpasavyamārgeṇa mārgaṁ tasya prakalpayet /
Grhāṇi vāhyasaṁśthāni kone koṇeṣu vinyaset //
Konasthān vāhyate gehān viṣamān karayet tataḥ /
Same pradeṣe madhye tu mahāgehāni vinyaset //

We may, amongst the Purāṇas refer to the 226th chapter of the Matsyapurāṇa. The Sukranītisāra (chap. 1. verse, 212-3) has recommendation of the locality regarding the construction of a capital thus:

Nānavṛksalatākirne paśupakṣīgaṇāurte /
Suvahūdakadhāye ca tṛṇakāṣṭhasukhe sadā //
Āsindhunagamākule nātidāramahidhare /
Suramyasamahūdeṣe rājadhānin|m prakalpayet //

In the Śilparatna (chap. III. verse, 33) there is the interesting provision that the location of the town is to be discouraged towards the west of the mountains:

Präcyāṁ niśiddho hi girīḥ tacchāyāpy udaye raveḥ.

We have enough materials in the Śāstras relating to the examination of the solidity of the ground (Mayamata, first section of the Kāśyapa: 227th chapter of Matsya P) the attempt of the Sthapati (civic architect) for the purification and consecration (as described in the Mānasāra and the Mayamata) and the like. We have very detailed information regarding the boundaries and walls for the fortification of the ‘pura’, the modern Sanskrit synonym for a town:

Puraṁ durgam adhiṣṭhānaṁ Kotṭho strī rājadhany api. Jaṭādhara
Manasāra had detailed classification of the forts like Śivira, Vāhinīmukha, Sthāṇīya Droṇaka, Kolaka, Saṅwiddha, Nigama and Skandhāvāra. They are further sub-divided into different classes according to their positions, such as Giridurga, Vanadurga, Jaladurga, airīṇa-durga (desert-fort), devadurga, etc.

(There are enough informations in the Manusāṁhitā; Devīpurāṇa-
chapter 72;
Śukranītisāra, chapter IV. sec. 6; Matsyapurāṇa, chapter 217)

The details relating to the planning of the streets are available in different texts including Harivamśa, Viṣṇupurāṇa, Agnipurāṇa, the Śukranītisāra (which describes the nature of the ideal streets thus:

Kūrmapṛṣṭhā mārgabhūmiḥ kāryāḥ grāmyaḥ susetukāḥ
Kuryān mārgān pārśvakhātān nirgamārthan nirjasya ca

chapter 1. 531-2 and the Arthaśāstra.

In this context, I may draw your attention to certain rules laid down in the Dharmaśāstras which, it is presumed, have not yet invited the attention of the pioneers in the field. Brhaspati has the directive that no interference should be made to the already existing facilities enjoyed by the parties concerned:

Niveśakālād ārabhya grha-vāryāpāṇādikam
Yena yāvad yathā bhuktaṁ tasya tāṁ na vicālayet

This may be compared with the Sec. 15 of the Easement Act (Act V of 1982).

Both Brhaspati and Kātyāyana have elaborate rules relating to different types of roads. Thus the former defines Saṁsaraṇa as a road by which men and beasts pass without obstruction:

Yānty āyānti janā yena paśvas cāṇivāritāḥ
Tad ucyate saṁsaraṇaṁ na roddhavyam tu kenacit

Kātyāyana designates it as Catuspatha (verse, 755) and Brhaspati
directs that no obstruction whatsoever should be made on the streets and nuisance on the streets should be penalized:

\[\begin{align*}
\text{Yas tatra sankar}\text{m svabhram vrksaropanam eva ca} \\
\text{Kamat purtsan kuryac ca tasya dan das tu masaka}h \\
\end{align*}\]

Manu (IX. 282) also prescribes fines for such cases. Identically in the Matsyapurana (227.175-6). Specially interesting is the statement of Kaut\text{ilya in the Artha\text{stra}:}

\[\begin{align*}
Pamshunyase rathyayam astabhage dan da h. Pankodakasamnirrodhe pada h. Raja manarge dvigu na h. Punyasthanadakasthanadavagharar japari grahesu pa\text{nottara vi}shadanda h. Mute\text{sv ardha dan da h. Bhaisajyavyadhibhayanimittam adanda}h. \\
\text{Artha\text{stra, II.36. 26-29.}
\end{align*}\]

The rules laid down by K\text{atyayana are interesting:}

\[\begin{align*}
\text{Tadagodyanatirthani yo medhyena vinasayet} \\
\text{Amedhyam sodhayitva tu danaya et purvasahasam} \\
\text{Verse, 758.}
\end{align*}\]

With this background enlightening on the point that the s\text{astric}
records on city-planning in ancient India were sufficiently rich, it will be shown in this short paper that Kaut\text{ilya's approach to this problem is methodical and scientific. In the Second Adhikara}na Section one entitled Janapadanive\text{sa (settlement of the countryside)} Kaut\text{ilya presents before us a concept of planning. Though his directives are intended for the settlements of the villages (gr\text{ama), yet they may be considered in our present context as not unsuitable. The first point insisted on is mutual protection (anyonyarak}sam). Boundary line has been directed to be clearly marked preferably by rivers, mountains and forests (nadt-saila-vana\ldots). On the frontier line fortresses should be erected for the frontier chiefs as gates of the country and more interesting, Kaut\text{ilya directs that as means of protecting measure people of courageous dispositions should be settled:}

\[\begin{align*}
\text{Antesv antapaladurgani janapadadvarani antapaladghishhitani} \\
\text{sthapayet.}
\end{align*}\]

\[\begin{align*}
\text{Tesam antarani Vagurika-savara-pulinda-ca}ndula\text{ranyacarar} \\
\text{rakseyu}h. \\
\text{II.1. 5-6.}
\end{align*}\]
There is direction in the text for allotment of suitable plots to different categories of persons, prominent among them being the Brāhmaṇas versed in the Śrutiś. The list is exhaustive inasmuch as we find mention of those categories of persons whose services are deemed essential. Advance of loans in cash and kind has been directed (Dhānyapaśu-hiraṇyaś caiti an unagrhyāt. II. 1. 13).

Special attention should be given to the irrigation work in the fields and to waterworks to the cities. What is more important is that the king has been instructed to enforce disciplines specially on the slaves, the persons kept as pledges and kinsmen who do not obey their masters (Dāṣṭhitakabandhan aśryo raja vinayan grāhayet. II.1.25) Emphasis on this point exhibits minute thinking of the head of the state in planning of peace amongst the citizens, a feature which is conspicuous by its absence in modern planning.

The fourth section of the Second Adhikaraṇa is more interesting as it relates to the planning of the fortified city (Durganiveśa). The residential area has been described to be connected by royal highways on all the sides (Trayaḥ prācinā rājāmārgās traya udicinā iti vastuvibha-aśaḥ, II. 4.1). It should have twelve gates with provision for water, drains and underground passages:

Sa dvādaśadvāro yuktodakabhramacchannapathaḥ.

II.4.2

Highly interesting is the directive regarding the width and length of the roads of different varieties for being used by different categories of persons and animals. It is rather inconceivable how at such a remote age Kautilya directs the exact sites their sizes suitable for different categories of persons in the society, such as grain-dealers, factory-officers, dealers in food, courtesans, dancers etc. We may mention here that in the enclosures in the non-residential areas, quarters for guilds and foreign merchants should be placed:

Vāstucchidranusāleṣu śreṇiprapanikāyā avaseyuh.

II.4.16.

There is direction for fixing boundaries for householders in accordance with areas necessary for their workshops. In them they should make
with permission, flower-gardens and fruit-orchards, as well as stores of grains and commodities. For members of ten families there should be arrangement for a well:

Karmāntakṣetravaśena kuṭumbinām śīmānaṃ sthāpayet. Teṣu puspaphalavātān dhūnyapanyanicayānāṃ cānujñātāḥ kuryuḥ Daśakultvātāṃ kūpasthānam.
II.4. 24-6.

Kauṭilya was conscious of the fact that aliens having the potentialities of causing any harm to the city in any way should not be allowed to stay in the city and if necessary heavy penal provision in the form of taxes has been directed:

Na cā bāhirikān kuryat pure rāṣtrapaghātakān / Ksipej janapade caitān sarvān vā dāpayet karān //
II.4.32.

These are some of the points as indicator of the very high scientific knowledge about city-planning by the Śāstrakāras in ancient India.

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THE MEgalithic Economy in VIDARBHA

S.B. DEO

The contradiction in terms of the large number of megalithic burials throughout the peninsular India and elsewhere and the paucity of habitation sites has been all along emphasised by archaeologists. It has been stated that the number of habitation sites is in inverse proportion to the number of burial sites, the latter no doubt showing quite a variety of modes of burials. This contradiction has led to the postulation of a view which proposes that the megalithic people were essentially nomadic or migrating from place to place.

This view requires a careful analysis in the light of recent evidence both in terms of the find of actual grain remains, the percentage of bones of cattle recovered in the excavation, the tools useful for agricultural operations, the size of habitation sites so far discovered and the typology of the ceramic industries associated with the megaliths—especially in the region of Vidarbha where significant data has been recovered during the last few years.

Some of the sites in Vidarbha are significant as they are both habitation and burial sites. This is significant in the light of the fact that habitation sites of the megalithic people are relatively few. For instance, Takalghat habitation has an extent of 22,500 sqm; Naikund 100,000 sqm; Khirawada 107,000 sqm; and Bhagimohari 82,000 sqm. It would thus seem that the habitations, irrespective of the precise chronological bracket for each habitation, were fairly extensive. It will thus be agreed that the extensive nature of habitational deposits at these sites implies settled habitation over a reasonable period. It further implies that even though some sections within the megalithic community at these sites may have been nomadic or migratory, a larger section preferred to stay at a particular site.
This is further corroborated by the large number of burials at some of these sites. For instance, at Khairwada there are 1496 burials, all of the megalithic tradition. This is matched by the fact that this also happens to be the largest habitation site so far as the extent is concerned. Unless one assumes wrongly that the dead or their remains were brought at Khairwada for internment over the centuries, one cannot but interpret the extensive habitation and the largest number of burials as indicative of the sedentary nature of the megalithic people, at least at Khairwada. Similar is the evidence at the other Vidarbha megalithic sites. At Takalghat, there is a purely megalithic habitational deposit of nearly 2.5 m., and more than 300 burials. Similar is the case with the three other sites. This indicates that the megalithic association at these sites was not such as to indicate that the inhabitants were nomadic.

Yet another consideration can be in support of their having an agricultural economy. Even though it remains a fact that the iron artifacts recovered at these sites show an overwhelming preponderance of non-agricultural tools—to be more precise tools of offence—it has to be evaluated in the light of the fact that tools like sickles and hoes do occur. For instance, Takalghat has given 26 and Borgaon 5 adzes and a sickle each, though the percentage of these to the total number of iron artifacts is very low.

In addition to these agricultural tools, the evidence of grains at these habitation sites is important. For instance, both at Naikund and Bhagimohari, rice, wheat, barley, common pea, lentil and black gram have been reported. These were picked up in the habitational deposits and retrieved by the floatation technique. Though rice and wheat were not sufficient in quantity, the very range of grains points to a settled mode of life and an established agricultural economy. Obviously, the magnitude of agricultural production was conditioned by the artifacts used and the environment which included the nature of the land. Rice requires a good supply of water and also requires frequent attention. This presupposes settled agricultural technology. It may be stated here that the megalithic zone of Vidarbha is even now a well-known rice belt, as, for instance, Bhandara and Chandrapur.

In an agricultural or pastoral-cum-agricultural complex, the role
played by domesticated cattle is of signal importance. In this connection, it is pertinent to note that the Vidarbha megalithic sites have turned out a very high percentage of domesticated cattle bones among the animal bones. For instance, domesticated cattle bones formed 63%; at Naikund 70% and at Bhagimohari 61%. The corresponding figures for sheep and goat were 17%; 9% and 20%. It is generally believed that the pastoralists prefer sheep and goat, whereas the agriculturists have a preference to cattle. Thus the preponderance of cattle bones at the megalithic habitation sites tends to suggest that the megalithic people in Vidarbha had an agricultural economy. They do not seem to have been nomads. Generally, agriculture ties down members of a community to the place of habitation or to regions nearby agricultural locations. That is generally not the case with nomads.

Yet one more aspect of the megalithic habitation sites in Vidarbha may be fruitfully mentioned. The material equipment associated with these people calls for a comment. This equipment, it may be pointed out, is varied in quantity, quality and the materials used. For instance, the burials and the habitations of the Vidarbha megalithians attest to the existence of varied ceramic industries like the black-and-red, the micaceous red, the slipped and coarse and the burnished black. These again have a wide range of shapes, for everyday use, for storage and for ritualistic purpose. The last is attested by the lids or covers with flared base and tapering top, the latter embellished by figures of goats, ram, cock, etc., in the round and mounted on the top of the lid. In copper, they used beads, bracelets, bangles and ornaments for the face of the horse. They also used copper dishes with lids having motifs of birds and buds at the apex. Iron was used in the manufacture of a variety of objects: objects of domestic use like frying pans, cauldrons; objects of toilet like the nail-parers; objects of offence like swords, daggers, knives, arrowheads, spikes and tridents as also horse bits; carpentry artifacts like axes, chisels, nails, scrapers and adzes; and agricultural equipment like hoes and sickles. The most noteworthy artifacts were the daggers with iron blade and copper hilt. They also used beads of semi-precious stones, some of which were etched. This varied equipment presupposes a strong agricultural base with a possible surplus to maintain non-agricultural artisans. The
agricultural core seems to have been well established and sound.

The location of Vidarbha megalithic burial sites as well as habitation-cum-burial sites is significant, which indirectly explains their agricultural economy. Whereas the burial sites like Junapani, Mahurzari, Borgaon, etc. are not situated near a perennial supply of water, the habitation site like Khairwada, Bhagimohari, Takalghat and Naikund are situated on the banks of rivers which have a perennial supply of water. It would, therefore, appear that the Vidarbha megalithians preferred for their habitations, sites close to the river as also land suitable for agriculture. This selection presents a settled agricultural-cum-pastoral community with large herds of domesticated cattle and subsisting on vegetarian as well as non-vegetarian diet.

This factor as well as the varied material equipment evidenced in the excavations presents a picture of a megalithic community not merely of nomads or warriors but a well-organized community comprising of agriculturists, metallurgists, potters, smiths, bead-makers etc., as also warriors, and possibly a section somewhat migratory. There is no doubt that there was a remarkable diversification of arts and crafts within the megalithic communities in Vidarbha.

The C¹⁴ dates so far available for the Vidarbha megalithic sites range between seventh century B.C. and fifth century B.C. These dates hold good practically for all the excavated sites in that region. This suggests that around the seventh century, if not earlier, the Vidarbha region was habitated by the iron-using megalithic people who practised agriculture and buried the dead mostly in Stone Circles. It may be recalled here that around 700 B.C. the Chalcolithic Jorwe Culture with an agricultural base comes to an end.

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CHALCOLITHIC CULTURE IN WEST BENGAL—A STUDY ON SETTLEMENT AND TRANSITION

ASOK DATT

THE genesis of the historical process in India lies on the early agriculturists, who effectively settled in different ecological zones all over India immediately after the decline of Harappan Civilization in round about 1750 B.C. with different regional character and identity. These early agriculturists are broadly covered under a generalized term ‘chalcolithic’ (Agrawal 1982). But in the light of fresh discoveries of iron from different stratified chalcolithic levels, the concept and connotation of the term chalcolithic needs to be changed. But since no appropriate nomenclature is readily available, I shall use the term chalcolithic for the present moment. The present discussion will focus on three major aspects viz., how the chalcolithic settlement pattern in West Bengal was affected by the contemporary environmental factors; secondly, we will review the process of transition from chalcolithic to early historic period, and finally, the factors underlying this process.

The chalcolithic settlement in West Bengal lies between latitude 86°23'—88°22' and longitude 24°15'—23°58' respectively (Datta 1981) with major concentration in the Ajoy/Damodar systems bordering the districts of Burdwan and Birbhum. The distribution of chalcoithic sites in West Bengal shows that the chalcolithic people broadly occupied three distinct ecological zones. Sites belonging to old alluvium is called here as zone A while sites found in new alluvium is called here as zone B and the sites found in the lateritic belt is called here as zone C (Fig. 1). Zone A comprises the districts of Burdwan and Birbhum. The first agricultural folk of Bengal seem to have largely
DISTRIBUTION OF CHALCOLITHIC SITES IN WEST-BENGAL.

- DISTRIBUTION ZONE
- CHALCOLITHIC SITE
- NUCLEUS ZONE

FIG. 1.
settled over the Vindhyan alluvium brought down by rivers originating in the Chhota Nagpur plateau. The mean annual rainfall of this region is 200 cm. An experiment carried out by Dryland Research Station in West Bengal (references in Ghosh 84) reveals that the yield per acre in the rain-fed Birbhum before the introduction of shallow pump, manure, high yielding seeds etc. was nearly 2.5 quintal. The soil of this region is hard, compact and yellow silty clay which is very favourable for rice cultivation and does not require much manuring. Still now this region is considered as the high yielding zone in West Bengal. Naturally, the fertility of the soil as well as abundant supply of raw materials might have prompted the chalcolithic people to largely concentrate over this area. This is also evident from the fact that out of a total eightytwo chalcolithic sites in West Bengal, sixtythree are located in this region. But in sharp contrast, zone C which comprises the districts of Bankura, Purulia and north-western Midnapur has yielded only twelve chalcolithic sites. The area is mainly lateritic and this lateritic red soil is not suitable for rice cultivation. Moreover, the mean annual rainfall of this region which is 140 cm is less than that of zone A and B. Hence the settlement in this zone is sporadic and does not show any uniform pattern of development. Recent explorations in this region have yielded large quantities of bone tools and micro-liths suggesting the possible lingering of earlier hunting/gathering economy which persisted in the chalcolithic life of this region. The potteries are coarse, gritty and devoid of any sophistication. The chalcolithic distribution in zone B which comprises the south-eastern part of Midnapur district forms one single cluster of sites along the lower courses of Rupnarayan Valley. The soil of this region is equally rich for rice cultivation as the mean annual rainfall of the area is 200 cm. But despite this, the chalcolithic sites in this region are very few, only seven in number. One of the major reasons for this relative isolation may be due to the presence of swamp forest, mangrove and sundari forests which were much extensive during chalcolithic period. The chalcolithic people perhaps could not bring them effectively under control for habitation before the historical period. It is only during the historical period that the swamp forests were cleared for habitation with the help of heavy iron tools like axe, chisel, etc.
The question of transition or evolution from chalcolithic to early historic period in West Bengal is really very complicated problem since it involves a number of other issues like the change in social structure and subsequent urbanization. But without going through the question of urbanization and social change, we will confine ourselves to the history of transition as it has been recorded from the excavated sites. But for the present purpose, we will take up only two important and key excavated sites viz. Mangalkot and Pandu Rajar Dhibi as a case study. Both the sites are situated in zone A which we consider as nucleus zone of chalcolithic culture in West Bengal. The former site was excavated by the Department of Archaeology, University of Calcutta for the last three seasons, while the latter was excavated by the State Directorate of Archaeology, Government of West Bengal.

MANGALKOT

Mangalkot is situated at the confluence of the Ajoy and the Kunoor in Burdwan district. It is 30 km south-east of Pandu Rajar Dhibi. The cultural sequence of Mangalkot can broadly be divided into six periods without any break.

Period I of Mangalkot is chalcolithic and is characterized by an elaborate pottery system with paintings mostly done by either white or black pigments, bead industry, terracotta figurines, microliths, bone tools, copper and iron objects and three successive mud plastered floors along with the series of hearth simply testify the existence of a full bloom chalcolithic culture at Mangalkot. Two meter thick habitational deposit of this period suggests a continued occupation of the site by the chalcolithic people. This was followed by Period II which we consider as transitional period between chalcolithic and early historic periods. Apart from the continued occurrence of typical chalcolithic potteries specially black and red ware, this period is further marked by the occurrence of a new ceramic mainly consisting of grey, black slipped and mat red ware indicating the intrusion of a new cultural element in the chalcolithic life at Mangalkot. Although iron has been reported from the basal level of Period I but it is strictly confined to iron slags and few objects. But in sharp contrast, Period
II has yielded a variety of iron tools like spearhead, arrowhead, chisel, sickle, nail, etc. suggesting more and more dependencies on iron metallurgy as bone tools and microliths have sharply decreased during this period. It is needless to emphasize that the iron tools found from Period II are more attached to agricultural activities than in Period I. Now, it is an obvious and reasonable question as to whether the technology which produced the iron tools of Period II had been developed by the chalcolithic people or it was brought by the people who introduced the new cultural element in the chalcolithic life of Mangalkot? It is indeed a complicated problem which deserves close examination of iron slags from both the periods. However, as stated earlier, the knowledge of metal technology, specially iron, was already known to them. But the few iron tools and heavy iron slags found from Period I do not suggest any major change in respect of economic life of the contemporary people. Because the heavy iron slag of this period does not confirm any better smelting system and the little amount of iron used by the people of this period might have been the product of open air furnace technique. Naturally, the iron slags are heavy in comparison with the slags found from Period II whereas the tools as well as the slags found from Period II do suggest a better smelting technology which could have only been possible by a closed air furnace technique. The tools are varied and some of them were definitely associated with agricultural purpose. On the whole, the production of huge iron implements and the introduction of new cultural elements in the chalcolithic life of Mangalkot brought about a new lease of life which had actually initiated a process of interaction between economic and social systems and the result is the emergence of historical period. Naturally, Mangalkot happened to emerge as an important urban centre during the Kuśāṇ period and onwards.

PANDU RAJAR DHIBI

Pandu Rajar Dhibi, situated on the Ajay in Burdwan district, is the most extensively excavated chalcolithic site in West Bengal. It was earlier excavated by P.C. Dasgupta (1965) who divided the whole culture sequence into four occupational periods. The first two periods are chalcolithic with all usual diagnostic traits of chalcolithic culture along with a distinct burial system. The material culture of Period III
somehow remained same as that of Period II except the occurrence of few Neolithic celts and iron objects. After period III, there was an occupational break while Period IV is marked by early historic potteries along with N.B.P. sherds. But since the excavation report of Pandu Rajar Dhibi suffered from many contradictions, a second probe of the site was undertaken by Dr. S.C. Mukherji and Sri Sudhin De of the same Directorate during 1985 who divided the whole culture sequence into five periods (I.A.R. 1985-86). Black and red ware continued to occur up to Period IV along with other cultural materials while Period V is marked by N.B.P., grey ware, red ware along with other historic antiquities. Dasgupta failed to identify iron from chalcolithic level in earlier occasion while the second probe has firmly established iron occurring from Period II in the chalcolithic life. Nevertheless, Mukherji and De have largely failed to explain the basis on which the divisions between Periods II, III and IV have been made. However, the analysis of report shows that the transitional phase showing the transformation from chalcolithic to early historic period, which is very much clear at Mangalkot, is totally absent. The new ceramics like grey ware, black slipped ware and mat red ware which are supposed to be the new trends of transition are totally absent at Pandu Rajar Dhibi. According to the excavator, the site was abandoned for some time before the arrival of N.B.P. culture.

In fact, there is no link up material between chalcolithic and early historic periods in most of the chalcolithic sites in West Bengal. How they merge into historical period, either through a gradual process of transformation or there is a clear cut cultural break between chalcolithic and early historic culture, is not altogether clear from excavation reports. In some sites, there is a distinct cultural break while in some other sites, the chalcolithic occupation ceased to exist immediately before the historic period. But there is yet another site which shows a clear transition from chalcolithic to early historic period without any break.

Another important site which deserves our close attention is Tamluk or Tamralipta situated on the lower course of the Rupnarayan in the lower Gangetic basin. At Tamluk, the antecedent stage showing the early development of agriculture is very much evident from the discovery of celts, large number of bone tools (along with black and
red ware) from the lowest cultural level, although no regular habitation deposit has been encountered. But, nevertheless, the reported occurrence of large number of bone tools including one beautiful harpoon and ill fired grey pottery from exploration has strongly demonstrated the existence of an incipient agricultural group whose economy was a mixed one, which finally led to the development of chalcolithic culture of this region. But what seems to be the most conspicuous is the absence of a clear transitional stage showing gradual emergence of historical period. At least the excavation has failed to reveal such a picture. Same is the picture at Pandu Rajar Dhibi, Mahisdal, Bharatpur, Baneswardanga, Dihar and many others. However, a careful analysis of all the excavated materials of different chalcolithic sites reveals the existence of a new ceramic consisting of mainly grey and buff ware along with profuse iron tools occurring at the upper level of chalcolithic occupation. The grey and buff wares are having shapes like bowls and dishes of different sizes which recall the similar shapes found at N.B.P. and P.G. levels (Ghosh 84). This clearly suggests the emergence of a new cultural trend in the chalcolithic life of West Bengal. But this stage which is very important for understanding the historical process has not been properly recorded and fresh excavation is needed to clarify the exact position. In fact the whole garb of chalcolithic materials needs to be verified afresh in the light of recent discovery of Mangalkot, before we come to any firm conclusion.

The next issue which involves in the present discussion is the underlying forces for the historical development. Mangalkot is an important site having all its cultural milieu found in different successive stages. The emergence of Mangalkot as an important historical site suggests that it gradually evolved from its chalcolithic background. This is clearly demonstrated from recent excavation. But what seems to be the most striking is that why this sort of transformation from early village settlement to full-fledged urban centres did not happen to emerge in all the chalcolithic sites in West Bengal. The reason seems to be obviously deep-rooted in the soil, It is again a question of ecology or environment which played the most decisive role
for bringing about change in any human communities. As stated earlier, the whole distribution system of chalcolithic culture can be clustered into three distinct ecological zones. The sites found in Zone C do not show any change in the material culture and continued to linger through time before finally ceased to exist. None of the sites found in this Zone crossed the threshold of history except Dihar but that too may be due to its close proximity with Zone A. One of the major reasons seems to be its geographical location in the lateritic belt which perhaps did not at all had any large scale agricultural activity. Moreover, the little amount of alluvium strips that were available along the river valleys were also not sufficient to carry forward the growth of development in the field of agricultural economy. The chalcolithic sites found in Zone A which may be considered as nucleous zone have played the most significant and crucial role for initiating the process of historical development in West Bengal. Concentration of large number of sites in this region suggests a congenial environment for the growth and development of early village farming communities. The chalcolithic culture with its all essential elements are found to be present here. Even more, the possiblity of an antecedent stage of local growth cannot also be ruled out preferably in the context of the materials found from the basal levels of Pandu Rajar Dhibi and Bharatpur which suggest a gradual process of development from rudimentary agricultural practice to a more settled village farming communities. Both iron and copper have been found from an early level of chalcolithic occupation (Mangalkot and Pandu Rajar Dhibi) in this region suggesting knowledge in metal technology. Copper and iron were extracted, forged and employed in the manufacture of different items. Copper objects include celts, bangles, fish-hooks, points, arrowheads etc. while iron objects include arrowheads, spearheads, chisels, sickles, nails, etc. (Period II). A careful analysis of metal objects shows that copper objects which were numerous at the earliest level sharply decrease in the upper level. But so far as iron is concerned, it is confined to few slags and objects at the lower level, but it became numerous at the upper level (Period II) suggesting more and more exploitation of iron for the manufacture of both household and agricultural tools for carrying forward the torch of progress. Although none of the excavated sites has yielded any typical plough-
share or axe from the upper level (Period II) but it is needless to emphasize that the huge amount of iron tools and among which some were definitely connected with agricultural purpose, strongly suggest the gradual process of economic transformation that was taking place in Period II while the social transformation has received further acceleration with the arrival of new cultural trend during this period. Finally, the interactions between environment and contemporary socio-economic viability led to the emergence of a new era in the material culture of the people in this region during historic period.

(4)

Still the questions centering round the problem of transition and its subsequent historical growth have largely remained unanswered. In West Bengal, three basic categories of sites have been encountered. In some areas, the habitation ceased to exist before the emergence of historical period while in some other areas, the occupation continued to exist through chalcolithic period after which the sites were abandoned and reoccupied during historic period. The third group shows a continuation of occupation without any cultural break. The development of urban and semi-urban centres as the products of historical growth is directly connected with a number of other issues like urbanization, trade and commerce, surplus production, marketing system, division of labour and so on and so forth. But among them trade and commerce is one of the major factors for such growth of urban centres. As a result, majority of the sites could not cross the threshold of history. In fact, the surplus production of the area could not find easy access to the new market. Moreover, except few, none of the sites in this area (Zone A) is directly connected with the trade route following the course of the Ganga/Bhagirathi which were the main thoroughfares of trade and commerce in ancient days. As a result, there was a large scale dispersal of people towards southeastern direction immediately before the early Christian era. But Mangalkot situated at the confluence of the Ajoy and the Kunoor, which were navigable, became quickly famous as an important centre of trade and commerce during early Kuṣhāṇa period and onwards. That Mangalkot was a flourishing trading centre during medieval
period has also been mentioned by Bharatchandra in his *Manasha-
mangal Kabya*. There are some other centres like Katasur on
Mayurakshi, Karnasuvarna on Bhagirathi, Pokarna on the Damodar
etc. which show continuous growth through historical period due to its
geographical location on important river vallys. The site, found in
Zone B of the lower Gangetic delta show a uniform pattern of
development. But unfortunately except Tamluk, our data and infor-
mation in respect of other sites are not complete. The soil of this region
is equally rich for rice cultivation having plentiful rainfall. Naturally,
the growth for historical process is very much evident in this
region. Furthermore, the ecological backdrop of this region serves as
a favourable ground for such process. River Hooghli, which finally
discharges its water in the Bay of Bengal, provides a unique navigable
passage to carry forward the maritime trade and commerce with
outside world, and this in turn further accelerated the growth of many
urban centres in this region. This was exactly what happened in this
region during the early Christian era. Tamluk on the Rupnarayan and
Chandraketugarh on the Bidhyadhari became two major important
post cities of this area. In fact the area under review which was
mainly covered by mangrove, swamp and sundari forests during
chalcolithic period were effectively cleared for habitation with the
help of better iron technology which they acquired from their
chalcolithic predecessors. As a result, many new settlements with
urban characters have been developed in this area. Sites like
Harinarayanpur, Boral, Nimta, Atghora, Deulpota, Tilda, Saptagram,
Panna, Konkondhigi, etc., amply testify the above hypothesis. This
area which was comparatively an area of relative isolation during
chalcolithic period has turned into an area of major attraction during
early historic period (Fig. 2).

(5)

Certain facts emerge from the above analysis and discussion
which has a close bearing for understanding the problem of historical
growth in West Bengal.

1. The chalcolithic culture in West Bengal was preceded by
an antecedent stage which have been well documented
DISTRIBUTION OF EARLY HISTORIC SITES.

AREA OF RELATIVE ISOLATION

AREA OF COMPLETE ISOLATION

ORISSA

BANGLADESH

FIG. 2
from the basal level of Pandu Rajar Dhibi, Bharatpur, Tamluk, etc.

2. The genesis of this historical process in West Bengal lies on the early agriculturists who were marginal farmers and primarily raised paddy as one crop. The yield per acre was roughly 2.5 quintal of rice. The cattle were domesticated while rice (or ‘za sataiva) fish, pig, Nilgai and deer formed the major dietary system of the chalcolithic people.

3. The distribution pattern shows the existence of three distinct ecological zones with maximum concentration in Zone A which may be considered as nucleus zone having key sites like Mangalkot, Pandu Rajar Dhibi, Bharatpur, Mahisdal, etc.

4. The discovery of an elaborate pottery system with or without paintings, bead, bone and stone industries and series of hearth on successive mud floors strongly suggest the emergence of settled and well organized village farming communities in West Bengal as early as the middle of second millennium B.C.

5. Although the knowledge of copper and iron technology was known to the chalcolithic people from an early date, but it is only during the transitional stage that the full application of iron metallurgy has brought about a change to the people who quickly passed into historical period.

6. It is also clear from the excavation at Mangalkot that there was a distinct transitional stage between chalcolithic and early historic period. This stage is marked by the occurrence of new ceramics of grey, black slipped and mat red ware along with profuse iron objects and earlier potteries. In case of other excavated chalcolithic sites, the report shows the occurrence of grey and buff ware from the upper level which may reveal the same culture sequence if properly excavated.

7. It is also evident that iron was extracted from local source. Because the iron slags found from chalcolithic occupation at Pandu Rajar Dhibi and which have been identified as hemaetite and limonite (personal communication by Sri Pranab K. Chattopadhyay who examined the iron objects
found from chalcolithic level at Pandu Rajar Dhibi) are also locally available in the area of our study.

8. That the chalcolithic people of West Bengal acquired the knowledge of iron technology independently long before the Painted Grey Ware people of the Gangetic doab is also evident with the discovery of iron from the basal level of chalcolithic culture which can safely be placed at 1500 B.C.

9. The above finding goes to suggest that the knowledge of iron technology was not acquired from the north as it has been suggested by many others including Ghosh (1984).

10. With the emergence of historic period, there was a large scale dispersal towards south-eastern direction where early historic settlements developed and crystalized.

11. Finally, in the process, Zone A or the nucleus zone of chalcolithic growth has turned into an area of relative isolation while Zone C, which is lateritic zone, has retreated to complete isolation during early historic period. But in case of Zone B, which was comparatively an area of relative isolation during the entire protohistoric period, has now turned into a major area of attraction.

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HISTORY AND ARCHAEOLOGY: A PERSPECTIVE OF WESTERN INDIA

R.N. MEHTA

(1)

Atitārtham Tripādāṁ ca Pañcabala Samanvītam/
Pancakarma Samārodyam Ithāsamupāsmahe//

HISTORY is essentially an inquiry into the past. The tools for this inquiry are basically two. One of them is the verbal message preserved orally or in written documents that could be classified in a variety of ways. The other is the interpretation of material relics left by natural and human agencies. It is highly significant that these basic tools, the oral, written and material relics—are worked by different groups, each thinking to work in a specialized field. Often they work in isolation with good results in their own spheres. But the past is as varied as the present, and has many areas where multidisciplinary approach throws welcome light on what might have happened. In this essay an effort is made to point out briefly some of the spheres where cooperative effort leads to a better understanding of the events of the past.

(2)

In our enthusiasm to rely on written authorities only, a well-marked tendency of neglecting both the oral and material relics is observed. This tendency of relying on the written records only uses the method of Śesāvat Anumāna of Indian logic, under the name of critical examination of the source for its results. This is a sound method of Aitihya. It could be effectively utilized for oral sources
also, but this aspect is neglected. It is briefly examined here.

It was observed in the analysis of several oral traditions that were preserved at Vadodara, Ahmedabad, Junagadh, Champaner and other centres that stories of migration of goddesses, the weaker animals attacking a stronger one, the descent of a goddess for building a town etc., are highly interesting records in mythical garb that preserves the history of building of temple, a military settlement, information of a temple and its narrow passage and construction of new temple etc. On the face of it, with the supernatural elements of these stories, they are considered to be non-historical figment of imagination though accepted as history in the locality. However, a detailed unbiased examination of the elements preserved in such tradition reveals their historical basis and indicates that the faith of the local gentry is well founded. On the other hand, the stories connected with Malav Talav at Dholka, that was considered as a historical fact proved on the literary and archaeological examination to be a figment of imagination meant for glorification of a queen who did not seem to take any part in the actual work at the site.

Thus the oral tradition that is an important source of understanding of what might have happened has its strength and weakness. If rejected out-right as unreliable, as is being often done, one does not get to know history. These oral traditions have to be examined from the available literary and archaeological sources for verifying them and then accepting or rejecting them as the case may be. This process of examination is a difficult one, but is amply rewarding, as it gives one an insight into the historical phenomenon behind it.

(3)

The line of differentiation of an oral tradition and the written tradition is a thin one. Writing is, in the last analysis, a process of externalisation of memory by means of symbols. It performs the same role as a dialogue. The written materials do not change their form, however, the message that they convey could be and is being interpreted by the receiver from his own view point. This phenomenon leads to an ever-changing pattern of interpretations and forms the basis of an interesting discipline of historiography.

The written record is basically also a message that is communi-
icated by a human being to another human being of the present or the future. Under this basic frame of reference objectivity of a communication is of doubtful validity resulting from the aim of the communicator, the capacity of the communicatee and the ambiguity involved in the message.

Those who deal exclusively with this heritage of the past, have enough experience to indicate that the original message gets changed during transmission. The older material gets distorted in its life time, and hence the whole subject of manuscriptology and textual criticism has come into existence. The fundamental problem of reliability of documents have cropped up and for its solution written record often proves insufficient and partial and falls in the same category as the oral one. The lacuna in this record requires to be filled up. This is usually done by inference on the basis of the study of different authors as is done by many scholars. Internal and external criticism helps to a certain extent but leaves many questions unanswered, specially while dealing with our towns cities, on which attention is centred in this essay.

It is often experienced that the literary studies of our habits had remained partial and sometimes imaginary. To cite as a case study, the city of Ahmedabad. It is believed that it was established by Ahmedshah in the second decade of the fifteenth century. Its date of 1411 has many contenders, and satisfactory solution awaits further search of documents. But the questions of the origin of habitation of the area and its growth pattern could not be properly answered, though its slow development from the fifteenth century nucleus could be understood both as a process of expansion and conurbation.

For understanding these processes when literature proved to be inadequate, only recourse to the material relics was open. It helped in tracing the antiquity of the habitation to the prehistoric period, and indicated the role of topography in the growth pattern, as well as specified the habitations of different parts of the city. By salvage archaeology, its growth was not only ascertained but unsolved problems of the construction of many elements of the townscape were resolved. However, much remains to be done.

The solution of these problems cleared other aspects of written sources that were looking like mysterious folk tales or those that defy
rational explanation. The nucleus established by Ahmedshah could now be better explained. The records of the time of Baburi Akbar could be understood in relationship with the townscape, and the differential time factors of the growth of the city could be interpreted on the basis of topography, as well as toponyms of the areas.

One of the interesting written document of this area was the *Sabhramati Māhātya* as recorded in the *Uttara Khaṇḍa of Padmapurāṇa*. It had noted several *tīrthas* on the Sabarmati and its religious merits were described from the Paurāṇic viewpoint. Some of these stories could be identified as fantastic imagination, and could be rejected as fiction, purely on the basis of literary study and the logical viewpoint of *Sambhava*, i.e. could such an event really take place.\(^1\) This problem was examined by listing the area and comparing the stories with the monuments. The results were highly interesting.

It was discovered that the *tīrthas* noted by this *māhātya* were existing or non-existing as described in the *Purāṇa*. Appropriate older myths or new stories were developed as explanations of the phenomena. The chronology of the *Purāṇa* was different and therefore, it was to be reconstructed in line with our present thinking.

For present thinking is based on the *vaiśeṣika* concept of *Paralva* and *Aparatva liṅga* of *Kāla*. It considers succession of events in a linear pattern. This construction requires assistance of other, specially archaeological sources. With its assistance the materials on which the stories are based could be arranged in successive order. It helps in bringing chronological order to this literature.

Following this system it was observed that the places referred by the *Purāṇa* had antiquities reaching to a period of about eleventh, twelfth centuries, but the conditions noted in the *Purāṇa* would not have developed prior to the fourteenth century. Thus a clear picture of these *tīrthas* was obtained and its historicity was confirmed. Prior to the application of this method, it was tried at Vadnagar, Srimala, Khambhat, Junagadh and its effectiveness was tested. When used with caution it indicates that the Paurāṇic literature like the secular one contains good historical information about the monuments, socio-religious practices, and helps one to understand the locality in historical perspective of our notions.

While pursuing this line of investigation, it was observed that
folk-drama, called Bhavai also contained good description of Ahmedabad. The description was analysed for its historical contents. It revealed, besides the regular functional aspects of the town, some historical notes on controversial points about the erection of the outer fortifications of Ahmedabad.

According to the theories developed by pursuit of literary sources with historical authority, it was believed that the outer fortification of Ahmedabad was the work of either Sultan Ahmed or Mehmud Bega. But the folk drama had a clear statement that the fort was built after the “King had mounted an attack”. This statement when viewed from available historical documents suggested that this attack could only be correlated to the one that was launched by the last Gujarat Sultan in 1582. He was successful for the time being, but was defeated by the armies of Akbar. This event of 1582 has been recorded in the folk drama as the time after which outer fortification of Ahmedabad was constructed. While examining this problem from archaeological and toponymical angles, it became clear that both these lines of investigations supported the statement of the folk-drama. It, therefore, led to the obvious conclusions that history does not mean the knowledge of old documents. It is neither the material relics nor the folk tradition. But these are the tools of investigation, and the result is the inference of what might have happened in the past. The validity of the inference ultimately depends on the understanding and evaluation of the source from some definite point of view.

(4)

When this attitude is taken, one has to remember that one of the functions of time is change as explained by Śankarācārya. This change alters the situation of everything, and in this process one gets only the fragments of information and materials from the past. Under these conditions, the job of the historian is to collect and understand all the relics of the past. When such efforts are made, the results are highly satisfactory as could be experienced while working at dead towns like Champaner or Chandravati.

These towns had scanty literary records. They indicated the existence of good cities, but beyond this thought very little information about their size, planning, land use, stratigraphy etc. was
available. Without this data at Champaner, it was not possible to interpret the information available in written narratives. Therefore, the basic question of the reliability of the written records and their correlation with the actual city cropped up. It could only be answered by archaeological methods.

The use of this method helped in understanding the city of Champaner in greater details. Its plan—road patterns, structures and their disposition—became clear. It revealed the original plan of the city and its subsequent modifications, growth as well as destruction, and altered land use.

It also indicated the human activities of the area. Different types of residential houses, religious structures, stables, water management and aquatic architecture, military constructions and weapons were understood by applying archaeological method. Besides, it also helped one to clearly visualize the movements of Humayan during the attack, and it shed considerable light on the earlier engagements in the fifteenth century.

The other parameters that became clear were the divisions of property, and some of the social practices. The imports and use of raw materials gave interesting data of the overseas contacts, with eastern Asia and western Asia and local regional contacts also were known.

These studies not only enriched the information about the city from about thirteenth century to about sixteenth century, but helped to throw floodlight on the older cultures of this area. The data obtained indicated the existence of Stone Age cultures reaching to the palaeolithic and historic cultures reaching at least to sixth, seventh centuries. This data changed the historic vision of this area and added much significant information about many aspects of the history of this area. This enrichment of historical information springs up from the paucity of literary references and trying to understand and interpret them on the basis of archaeological activities. Thus one enriches the other.

(This is not an example in isolation, but it is repeating at several centres like Vadodara, Valabhi and Chandravati. From the earliest recorded evidence of Vadodara reaching to the eighth century, its archaeological study lead to the beginning of the establishment of this suburb of Arikoṭṭaka, to about fourth/fifth century and the history of
the habitation in the area like that of Ahmedabad could be traced to the prehistoric campsite of the late Stone Age groups.)

Similarly, the capital of Maitrakas on the east coast of Saurashtra, supported the literary traditions about its antiquity. The archaeological studies of the site not only proved the correctness of this tradition but gave several aspects of insight about the town.

It was noted as a port; the archaeological evidence indicated that between the wharf and the habitation about ten kilometers of land intervened, so from the ship to the city the goods were transported by land. This observation helped in interpreting the statements of the Arabs who could land at the port, but could not immediately attack the city. Some of their record indicated retreat. The reason seems to be the naturally available drinking water. This water is highly laxative to the outsiders and upsets them as per medical opinion and with enough experience on the field. It might probably have adversely affected the invading army and made it nervous for land travel. The idea of powerful opposition under such physical debility would have been responsible for the retreat of the army. Besides explaining some such events as recorded in literature, the archaeological field work helped to extend the time-frame both backward and forward. From Valabhi, evidence of the cattle breeders of the Chalcolithic Period at least in second millennium B.C., extended the antiquity of this settlement. On the other side, the evidences on the pedestal of images, the memorial stones etc., suggested that the end of Valabhi as a capital had decimated it, but the settlement was not completely abandoned.

The traditions of Valas Rajputs and the Valam Brahmins, Badhekas and others indicate the continuity of their habitation in this region, and hence complete break with the past did not take place. From the eighteenth century it began recovering its past glory, but it has not reached the high watermark of its heydays in the early centuries of our era. Similar experience at Vadnagar, Visnagar Chandravati, Navsari, Surat, Cambay and other centres of western India leads one to the reconstruction of methodological perspective and theoretical understanding of archaeology and history that could be briefly summarised as under:
1. The most important aspect of human life along with many animals is the correct memory of their past experience. In human beings it takes several forms, one of which is the historical studies.

2. In historical studies, the basic activity centres round the collecting, reading and examining the messages from the past with a view to interpret them for the present and guiding for the future. It may be pointed out that differences of opinion exist in this sphere. The positivists at one end will engage in data collection, verification and presentation, but will refrain from interpretation. On the other hand “committed historians” try to bring the parts of available data to bear upon the interpretations that they desire. Between these two extremes various shades of opinion exist and they generate the whole world of thinking about history and historiography.

3. The past experience is always utilized in our behaviour and it forms a tradition which is usually supported in a given society as rules, protocols, systems, beliefs etc. Under normal conditions they are accepted without much disbelief, or arguments, under these conditions various activities to perpetuate the tradition and even history takes place, and sometimes distorts the experience for the sake of tradition.

4. Under the condition of conflicting experience doubt in the tradition develops. For their resolution research method comes to be utilized. If it is used holistically, the results are satisfactory.

5. When research is undertaken, all sources, oral, original documents, interpretative documents, and other written and non-written materials in their natural setting requires to be undertaken.

6. Such study helps in arriving at the interpretations that would support, or alter in various ways the current thinking. It is an excellent training for forming independent judgment that is essential to life.
7. For such studies, cooperative effort of those who study written documents, oral traditions and material relics is absolutely necessary. As pointed out by Bhartṛhari in Vākyapadiya that

Prajñāvivekaṁ labhate Bhinnairāgam Darśanaih /
Kiyadvā Śakyamunnetum Svatarkamnudhāvatā //
VISNAGAR
R.N. MEHTA

PRELUDE

VISNAGAR (23°-72'N & 71°-34'E) is an important town in the Mehsana district of the Gujarat State. It is approached by train from Mehsana Junction, and is connected with important towns of Gujarat by the State Transport Bus Service.

The coppersmiths and one of the sub-divisions of the Nagar Brahmin community has popularised this urban centre. It is a Taluka headquarter of the present day Gujarat State. This position of being a headquarters of Taluka is historically established by Aurangzeb in the later part of the seventeenth century, when he created it as Rasulnagar.

LITERARY REFERENCES

This is an interesting centre which finds its mention in the annals of the fifteenth century Gujarat. It was attacked by Ahmedshah I, the Muzaffarid Sultan, and was repeatedly noted by scholars. H.G. Shastri noted most of the these references in a booklet published at the time of the Visnagar Jnansatra of the Gujarat Itihas Parishad in 1985. With these references, this town was not closely examined from its historical aspects. In this note an attempt is made to analyse this habitat on the basis of topography, toponomy, archaeology and literary traditions, with a view to understand its development.

FIELD EXPLORATION

This effort was undertaken with the help of an excellent work Visnagar and Vadodara Rajyani Hakikat describing the town by Shri
Mahasukhbhai of Visnagar. However its place-names were supplied
by Dr. Ushakant Shastri. With these data, the town was physically
explored for its topography and archaeology by the author in 1985
and 1986 during the session of Gujarat Itihasa Parisad and afterwards.
During these efforts of field-work, Dr. Ushakant Shastri and Shri
Desai rendered very valuable assistance.

TOPOGRAPHY

Topographically, Visnagar is a part of north Gujarat plain. Here the land is gently sloping from the north-east to the south-west
direction. The area around Visnagar is dissected by local monsoon
streams that pass by it and lend their hand in local erosion. This local
erosion is not heavy, but plays an important role in the selection of
habitat. The present day old habitation had at least two local stream-
lets that met in the north and moved past the town on the west.
Similarly on the east also streamlets moved from north to south.

The water courses developed by these streams could be observed
today, if one pursues the artificial tanks and their waste weirs and
their low lying beds. This aspect of the townscape presents an interesting picture of the need of preservation of water.

This part of Gujarat along with the rest of the state is in the
monsoon belt with the average rainfall of about 75 cm during the
months of June, July, August and September. The remaining months
are dry, and hence if the rain water is not properly managed, the life
becomes miserable.

This natural constraint has led to the selection of habitations on
the bank of the rivers, near the sand-dunes with natural lakes at
their base or at suitable sites where artificial tanks could be built.

These tanks are built by throwing check-dams across the mon-
soon streams. Often they are seen in a series on these streams. At
Visnagar the Deliā and Háthikhād; the Pidarivā and Depal are
developed on this method. These tanks and the wells, step-wells
supplied the basic need of the population.

DELIĀ TANK

The Delia is an important tank. It forms the northern side of
Visnagar. Archaeologically the earth-work of Deliā, and the materials
around it are useful in studying the antiquity of this habitation. Deliā tank has its entry on the north. It has three circular stone entry channels, over which balcony with stone pillars taken from older constructions are used to support domed structures. The water of two streams Pāladi no Voh and Bilādio Voh intermingle. A silting chamber is constructed to the north of this entry point.

Thus this construction of Deliā is similar to the Sahasralinga of Patan, Sarmistha of Vadnagar, Malav of Dholka etc. This is a fairly popular method. This construction is obviously a later repair possibly after the fifteenth century A.D. This fact becomes clear when the materials of this construction are examined, as well as by a memorial stone fixed near this entry. This square memorial stone has the battle scenes of an elephant and foot soldiers, two equestrian fighters, two foot soldiers and worship of Śiva. This sand-stone memorial stone might be ascribed to the thirteenth/fourteenth century. Its present position seems to indicate that it has been shifted from other place.

MAHĀKĀLEŚVARA TEMPLE

If this side indicates later repairs, the Mankal or Mahākāleśvara temple on the western embankment of Deliā preserves in its compound, a Śaiva figure with retouched face. Stylistically this figure could be ascribed to ninth/tenth century A.D. There are kichaka and other figures also in this compound. They suggest that this centre was active in the Chālukya period also. Moreover, on the Dhaliā ovārā of Visnagar old architectural material is used. Besides it, in the Bhitmnāth temple on the eastern side of Deliā, a panel of musicians and dancers, donors and such sculptures of pre-Chālukyan and Chālukyan period points to the situation similar to that of Mankāl.

These stray finds suggest that on the southern fringe of Deliā, the religious structures existed at least from circa ninth/tenth centuries A.D. The evidence of Mankāl also indicates that the Deliā tank also is an old one and could be either contemporary or a little earlier than the ninth/tenth centuries A.D.

Thus, the Deliā tank indicates that this water reservoir as well as some religious centres were already existing from at least the ninth/tenth centuries A.D. It also indicates the presence of some settlement in this area. Its relics would require future research,
specially on the southern side of Deliā, where the present Visnagar had developed.

**PIDARIA TANK**

The other important tank in Visnagar is the *Pidariā* on the east. Its entry also had three circular passages out of which one is standing. Here also, the remains of earlier centuries exist, but their antiquity does not seem stylistically to go to a period earlier than the eleventh/twelfth century A.D. On its east are the *samadhis* built of *lakhorī* bricks and do not pre-date seventeenth century. Here remains of habitation are not traced. It seems to have been a tank at a little distance from the main centre of Visnagar. It was also used as a cremation ground, and was centre of the *Vaiṣṇavas*.

**JALEŚVAR**

In the south there is a Śaiva centre known as Jaleśvara. Here there is a small *kunda*. There are two old sculptures, one of Śiva *Pārvatī* and the other of an *apsarā*. If these were from this area only, the antiquity of this site would reach the *Chālukya* or *Solankī* period.

**JORAVARKHAN MOSQUE**

Besides these early relics, the other interesting structure is also on the Deliā. It is a mosque near the mausoleum of Joravarkhān. Part of this mosque is of sand-stone and architecturally it is earlier than the mausoleum. The *mehrab* of the mosque and its decoration of lotus and chain motif as well as other features indicate that it was the period of Gujarat Sultans. This mosque along with the toponym of this area in *Lāl Darwāja* is highly significant to suggest that is was occupied by royal representatives if not by the rulers.

Thus the archaeological relics at Visnagar indicate that, the active centre of human activities was the southern side of the Deliā tank. But possibly in the seventeenth century when it became the taluka centre, the area around *darbar gadh* turned into an active centre, to the extent that the earlier centre became the part out-side the main town. Here the mausoleum of Joravarkhan also was built in the eighteenth century. In spite of these changes the water front of
Deliā was useful and active so one finds that Gangāghāt, Jamnāghāt, Mathurāghāt, Sunkraghat etc. were constructed in the first quarter of the present century. The water works, swimming pool, library and such important constructions reflect the continuity of the long tradition of this site.

NEED OF SALVAGE ARCHAEOLOGY

Salvage archaeology of this area is essential when such an opportunity develops to study it for its antiquity and traditions, and compare it with the known traditions of its history. A preliminary examination of this tradition is undertaken.

TRADITION

Traditionally, the term Visnagar has been explained as the town built by Visaldeva. However, there is a controversy about his exact identification. The credit of building the town is given to Visaldeva, the Chauhan ruler or to Visaldeva, the Vaghela ruler. However, archaeologically, materials predating these rulers are found from this site, indicating that the settlement was already there. If Visnagar be the traditional name of the site, the logical conclusion is that this name either reflects the original nomenclature or it was adopted at a later date. Unless further data become available it is difficult to resolve this problem. The political conditions of this area are against the identification of Chauhana ruler, and chronology does not favour the Vaghela ruler. Therefore, the logical conclusion that these are rather later thoughts to explain the toponym on personal factor becomes strong.

In absence of reliable data one has to use inference to explain this name. Visnagar or Visalnagar indicates that it was an urban settlement. Its population of Nagar Brahmins, the coppersmiths and the tradition that the former were settled here by the ruler Visaldeva, indicates at least that there was a large number of Nagar Brahmins in the local population. They are a branch of Nagars whose place of origin is Vadnagar, a large settlement about 15 km to the north of Visnagar.

Thus, the tradition indicates that the Nagars here migrated from the neighbouring town of high antiquity to a comparatively new settlement near the Deliā tank. If they be responsible for this construction
also, Visalnagar would be their creation. The tradition asserts that the royal support existed for their habitation. However, much further research is needed to clear this interesting problem of the origin of this name.

GROWTH PATTERN

The archaeological remains indicated that the area around Deliā was probably inhabited in the beginning. This tradition continued for a fairly long time and is preserved in the name Lāl Darwāja. This name is found to be associated with royal complex at Ahmedabad, Khambhat and hence with the support of the archaeological relics in this area, one could ascertain that here the old political nucleus was existing. From this area, further development could be traced towards the south.

In the south of Lāl Darwāja, the local market spreads in a straight line. Here the Jami mosque is situated. This combination indicates the religio-commercial centre of Visnagar at least from the later part of the fifteenth century A.D. when it came under the control of Gujarat Sultans. In this area, the Kaziwad indicates the administrative area of Kazi. Besides it, the industrial and commercial communities like Kansaras, Vohras and others are concentrated here.

Outside this concentration was Kumbharwad, Golwad and others, suggesting those who preferred to live on the periphery of the settlement, and hence they march the outskirt of Visnagar.

IMPORTANCE OF DARBARGADH

The other area of importance, the Darbargadh to its south adds to other historico-political situation. The central administrative area of Visnagar is found in this area, where archaeological relics of a period of about seventeenth century exists.

These evidences suggest that it was developed as an administrative centre in the seventeenth century by Aurangzeb, when Rasulnagar Taluka was created.

This change of nucleus altered the administrative activities. The military and transport activities of the time led to the development of the toponyms like Darbargadh that is already noted as well as Diparu (Bābipurā) suggest this growth. The centre of Rasulnagar was also
fortified and that fort line marks archaeologically the limit of the seventeenth century Visnagar. It is interesting to note that this shift in the nucleus, changed the concept of the city and the area on the Deliā came to be known as Bālyu Chautri or the market outside the city.

DEVELOPMENT AFTER 1878

Further growth of Visnagar was its development after 1878 A.D. when the railway station was built to its west. In this direction hospitals, railway lines, educational institutes, industries was well as societies are developing in the present growth-oriented period.

CONCLUSION

In conclusion it could be observed that Visnagar has developed after its water-problem was solved and it continued to grow in concentric semicircle for a few centuries around Deliā, and with the shift of its nucleus to Darbargadh, the southern side became more important. However, from the nineteenth century, with the change of the road pattern to its west, this area is showing great potential for growth.

This biographical sketch of Visnagar suggests that in the growth pattern of any habitat several natural, socio-political and other human factors play their own significant role that has to be analysed. In this analysis it is found that the micro-changes of the functions of different areas have profound effect on these habitats.
HISTORICAL ARCHAEOLOGY OF ANCIENT ANDHRA
IN THE LIGHT OF RECENT EXCAVATIONS
AT AMARAVATI, NAGARJUNAKONDA,
AND PEDDAVEGI

I.K. SARMA

DURING the early decades of this century the lure of discovery and collection of art objects brought to light many Buddhist sites in Andhra. Sporadic excavations at some important historical sites like Guntupalle, Jaggayapeta, Ghantasala, Alluru, Bhattiprolu and a dozen other in coastal Andhra resulted in mass collection of sculptures, inscribed slabs, coins, relic caskets and the like, without any serious attempt at recording their stratified contexts. In recent years, due to excavations at Nagarjunakonda, Yelleswaram, Kesarapalli, Amaravati, Dharanikota, Salihundam, Dhulikatta, Kotilingala and Chandavaram we are in a position to assess, partially at least, the components of the early historical cultures of this ancient geographical tract.

Five main phases have been made. The dynastic appellation had become inevitable due to the limitations imposed by the nature of the available archaeological data.

Phase-I: BEGINNING OF SIXTH TO END OF FOURTH CENTURY B.C.
(PRE AND EARLY MAURYAN)

It may sound queer that no comprehensive attempt has been made, in the past, to study the political history of Andhra desa prior to the coming of the Mauryan and early Satavahana rule. In 1959 Mortimer Wheeler corrected by saying that “the three copies of Asoka’s Minor Rock Edicts at Brahmagiri were appropriately addressed to the southernmost colonists of his father’s empire, and not, as I
had previously conjectured, to their bucolic precursors”. In recent years, some relevant work has been done by scholars which led to a thorough reappraisal of earlier views expressed by Haimendorf and Vincent Smith. We now see that in peninsular India, i.e., south of Narmada right up to the lower regions of Penna, the iron age technology has steadily but slowly transformed the earlier village communities of the ‘Neolithic-Chalcolithic’ assemblages into iron age semi-urban communities. Not only the advent of iron, but also the subsequent advancement of great religious faiths such as Jainism and Buddhism accelerated this growth towards organised life. The discovery of quite a large number of Northern Black Polished (NBP) ware sherds from the pre and contemporary layers coeval to the foundation of the Amaravati Stūpa, opened up a new chapter in the early historical archaeology of peninsular India. Except in the famous Mahājanapada sites, nowhere such profuse quantities of NBP Ware were found in clear stratified contexts. From the recent digs at Dharanikota fortifications and Amaravati Mahā Stūpa, besides NBP Ware and iron, burnt brick structures and Black-and-Red Ware were recorded from the lowest levels of period IA datable to circa fourth century B.C. and fortunately the former site has also been dated by carbon-14 method which has shown a date range of 405 ± 100 B.C. to 145 ± 100 B.C. (205 ± 100).

In the light of these explicit evidences, we cannot fully subscribe to the latest view of A. Ghosh,3 (which obviously emerges out of Wheeler’s hypothesis), that ‘In 3rd century B.C., there were important people in the south, not included in his empire. Whether they had shed their tribal character and had established full-fledged kingdom is not certain. But it is noteworthy that while Aśoka recounts his contemporary Greek rulers in the west by their names, he only mentions the peoples who were his southern neighbours”. The south had a later start in the urban development than the north. How much later is vital here and the evidences prove almost a simultaneous growth, and admirable receptivity to the new technological changes and patterns of life. D.P. Agrawal4 sees a ‘distinct possibility of the iron age in the south antedating that of the north’ and Hallur and Payampalli C-14 dates for iron age levels amply confirm this viewpoint.

It is, therefore, difficult to agree with A. Ghosh’s view that sites
close to the Aśokan records such as Maski, Brahmagiri do not show remains of prosperous towns. The reported excavations cited by Ghosh were too meagre exercises and do not qualify to form any finality on this aspect. My recent explorations at the rock-edicitsites of Jonnagiri and Rajulamandagiri in Kurnool district revealed a very extensive and rich habitational mounds and in the light of the new discoveries such as inscribed Aśokan Pillar fragment, NBP ware and existence of Buddhism of a Pre-Aśokan date at Dharanikota we have got to be open minded with regard to the early developments of town and cities in the south.5

As pointed out by S.P. Gupta a subtle distinction is called for between the ‘civilised life’ from ‘city’ or ‘urbanized life’ particularly in a tradition-bound country like India. More specifically in peninsular India, the early historical period, of say a few decades preceding the advent of Jaina and Buddhist faiths, the Hindu ideals of social structure, personal religion and ethics were already crystallized as the enormous literary evidences supported by a few scraps of archaeological site facts indicate. The abundant inscriptions from the early historical sites like Amaravati, Bhattiprolu, prove the existence of organized guild (goshthis), co-operatives (nigamas) in second-third century B.C. and as M.C. Joshi pointed6 out this in itself, is ‘a determinant trait of Urbanism’. Indeed we learn from Megasthenes, the Greek ambassador, of the 30 fortified towns and elaborate military organisation during the third century B.C. in the south. M.G.S. Narayanan pre-supposes a Nanda-Maurya struggle for empire in south confirming the much later Tibetan writings of Tāranātha about the conquests of Bindusāra in Deccan. The early numismatic data available from the Deccan (lower Godavari and Krishna districts) assumes great importance.7 Writing on the Singavaram hoard (Krishna district), the largest single hoard of punch marked coins discovered so far, which contained peculiar repousse coins, Professor Alteker opined that ‘it is likely that these coins may be a pre-Mauryan issue’. The hoards from Raichur, Gulbarga, Karimnagar, Warangal, Medak, Mahboobnagar occasionally contained long bent-bars exclusively known from pre-Alexandrian levels of Taxila. P.L. Gupta who studied them, particularly those of the Raichur hoard is of the view ‘it has the largest number of pre-Mauryan coins and was buried during the period of Mauryan
expedition to the South, which in all probability took place during the time of Chandragupta or his son Bindusara, thus confirming the above proposition of a Nanda-Mauryan conflict over the Āndhradēśa during pre-Āśokan period. That such a political and military conflict was possible is again confirmed by the expansion of two great religious faiths that were associated with the Nandas and Mauryas, while Nandas patronized Jainism, and took it to far south through the central Deccan route (Sārthavāha), Mauryans spread Buddhism to Deccan and south-east coast.

Phase-2: BEGINNING OF THIRD TO THE END OF FIRST CENTURY B.C. (MAURYAN AND POST-MAURYAN)

As elsewhere in the country, the earliest reliable historical relics belong to the Mauryan times by which period the megalithic culture was perhaps in a decadent stage, if not already devolved. Recent excavations at Dharanikota and Amaravati Stūpa provided substantially new evidence. On the basis of datable finds such as inscribed granite uprights, the earliest NBP horizons admittedly below the stūpa levels were assigned to circa fourth century B.C. The horizons of NBP in a pre-stūpa level also presuppose an early advent of Buddhist missionaries from the north to Dhanvakataka. But from the times of Āśoka, as a result of his proselytizing activities, more direct and indisputable evidences are available. The fragmentary pillar edict, certain early inscribed architectural members of the granite railing stand witness to the great importance attached during Āśoka’s period towards this Buddhist centre. The entire region of southern Deccan, barring perhaps the Kalinga tract, formed part of his dominion. Buddhism rose to the level of a state religion and many strongholds developed with Amaravati as the main centre.

Falling in a straight line and southward to the famous Hinayāna Buddhist site of Pauni, (in district Bhandara), two important sites, were recently excavated. The first one is Dhulikatta in district Karimnagar. Here, apart from a later-Sātavāhana fortified township, a unique Buddhist site (Vatakapur) revealed a massive brick stūpa of 36 m in diameter. The earliest phase dated to circa third century B.C. and in second century B.C. its avaka platforms and drum were embellished with sculptured veneer slabs. In the same district an extensive
historical site was located recently in a village called Kotilingala on the right bank of the Godavari. The surface collections themselves are tremendously rich and include coins of Śungas, Kaśvás—early Sātavāhan rulers, besides inscriptions of second century B.C. on stone pillars. The recent excavations at Dhulikatta and Kotilingala by the Department of Archaeology and Museums Government of Andhra Pradesh provide us some important materials—fresh numismatic data and fortified, planned cities of a pre-Sātavāhana Period.

Most extensive and of far reaching importance is the site of Kotilingala in district Karimnagar. It is like any of the mahajanapada sites like Kauśāmbi, Ujjain and Magadha, in its archaeological richness, a township very expensive and largely preserved. Kotilingala excavations revealed two phases of activity of pre-Sātavāhana times. Coins of pre-Sātavāhana kings, fortified town with historic Black and Red Ware characterise Phase-I. The subsequent Phase-II is early Sātavāhana, with rich numismatic data, but the Andhra Russet coated ware is conspicuous by its absence. Rouletted Ware is accounted to a limited extent. Brick buildings are prolific—a rich variety indeed. Remains of a stūpa with encasement of crescentic stone slabs opens up new problems of contact. The carved slabs are of mottled brown sandstone exactly recalling the Bharhut style with labelled inscription. Dhulikatta stūpa slabs have some unmistakable Bharhut art trends but of Palnad limestones. The Kotilingala reveals that even the stone medium is alike. No other early historic site is so extensive and preserved as Kotilingala. I have no hesitation to say that many problems and gaps of historical archaeology of Andhra-dēśa and south would get cleared, if not totally solved, if only we undertake extensive excavations and intensive study and publication of the data.

Another important historical site recently excavated is Chandavaram in district Prakasam. This is the earliest and well-documented southern-most Buddhist site lying south of the river Krishna. Here also no thematic sculpture of Buddhist purport (Buddham Śaranāṁ gachchāṁ; Saṅgham Śaranāṁ gachchāṁ; Dhammam Śaranāṁ gachchāṁ) a sort of Bhakti cult, were seen. The dome slabs in vertical panels reveal the Buddha, Dharma and Saṅgha symbolised.
The central and southern Deccan sites stand in contrast to the south-east coastal Buddhist establishments which depicted overwhelmingly the social and religious themes among the sculptural decor highly ornamenting the various parts of the stupa due to the dominating influence of the Chaityakas, a Mahāsaṅghika sect.

Phase-3: BEGINNING OF FIRST TO THIRD CENTURY A.D (LATE SATAVAHANA)

During the early centuries of Christian era, a spurt of structural activity, packed by prosperous trade and political stability, was witnessed under the Sātavāhana rule. The city of Dhanyakataka rose to be the eastern capital from the time of Vasisthiputra Pulumavi (88-116 A.D.). Excavatory evidence from Dharanikota reveal that the township expanded and the fortifications and wharf were strengthened. It was a flourishing Indo-Roman trade centre humming with Buddhist monks as well as the merchandize. The profuse occurrence of Rouletted, Amphorae and Arretine wares. Roman glass and gold coins from Amaravati, Dharanikota and various other partly excavated sites in coastal Andhra—right from Mukhalingam to Ghantasala (Ptolemy’s Kantakossyla) speak of the extensive trade and religious contacts. The long south-east coast line was dotted with several convenient anchorages right from Tamralipti, Calingapatnam, Pitundra, Maisoles (Mahisha mandala), Krishnapatnam (Nellore), Mailai (Mylapur), Kaveripumpattinam, Nagapattinam, Korkai and perhaps several others. The Mahā Saṅghikas with their epicentres at Śrīparvata—Vijayapuri and Dhamnakada spread over to Tondaimandalam and Karnataka. We find as a result of their impact, not only brick stūpas and monasteries of the Nagarjunakonda type but also virtual transportation of cult objects (Buddhapādas and images of Palnad lime stone to Kanchi—Kaveripumpattinam, Korkai in Tamilnadu but also to remote areas like Sannati, Banavasi and Hampi in Karnataka. The expansion is backed by trade, both inland and foreign (Roman).

Phase-4: BEGINNING OF THE THIRD TO THE END OF FOURTH CENTURY A.D. (IKSHVAKU)

Nagarjunakonda excavations laid bare, in greater detail, the cultural assemblage of the Ikshvāku period. The dynasty rose to prominence in the early decades of the third century A.D. after the decline
of Sātavāhana power. The founder king mentioned in inscriptions and coins was Śri Chantamula (I). The main activity, both political and religious, was now shifted to Nagarjunakonda almost eclipsing the erstwhile city of Dhanyakataka. An all out prosperity and political stability is seen during the Ikshvāku rule for about a century and half. Their capital city was Śri Parvata Vijayapuri in the now submerged area of Nagarjunakonda Valley. Its extensive ruins and art objects were systematically excavated and safeguarded in a museum built on the hill of the same name in the centre of the Valley. The structures inside the citadel comprised of residential buildings, palaces, an Aśvamedha complex, temples of Mahasena besides, barracks, stables, cisterns etc. Outside the citadel were certain widely spread residential houses, well planned, amidst a variety of religious edifices. The layout of roads and the royal paths were distinguished by the set-up of memorials for the dead heroes and royal personnel. Architectural ventures of a grand scale conception are the amphitheatre, a royal bathing ghat, burning ghat, a multi-storeyed temple (Sarvadevādhi-vasam) and large temples for Kartikeya, the presiding deity of the Ikshvāku family. Sculptural depictions, backed by material evidences prove the existence of numerous games and amusements, not hitherto authentically known, such as dicing, dancing, rare scenes of animal and human fights, sometimes mixed (elephants, horse and cocks, cock-and-man, ram-and-man fight etc.) and wrestling of all types.

The religion of the kings was Śaivism and many temples dedicated to Lord Śiva (Mahādeva, Pushpabhadra, Nedagīśvāra) and Mahasēna (Kārtikeya), Devasena, Mitrikas and Kubera were built. The patronage to Buddhism was phenomenal. At Nagarjunakonda itself, no less than 30 major monastic establishments were found, the nucleus however, was the Mahāchaitya which contained the tooth relic of the Buddha. Separate establishments for the foreign missionaries also existed at this place (i.e. Simbala Vihāra).

Phase 5: EARLY FIFTH TO SIXTH CENTURY A.D. (POST-IKSHVĀKU)

The cultural assemblages found at the excavated sites of Yellesvaram, Dharanikota and Nagarjunakonda show a general decline with the fall of the Ikshvāku dynasty. Several minor rulers came to power. Early Pallava kings of Guntur-Nellore region held control
over the Dhanyakataka towards the close of the fourth century. But archaeologically, the availability of a large number of copper plates, coins, structures etc. of Vishnukundin kings at Yelleswaram, Nagarjunakonda and Amaravati and earlier digs at Sankaram, Ramanathirtham (Vizag district) etc., suggest that the dynasty held control over the entire eastern Deccan till the beginning of seventh century A.D. Their coins and inscriptions were found further north in various sites in Vidarbha region.

Rock cut ventures in the Eastern Ghats, as exemplified at Ramthirtham, Sankaram, Guntupalli (later phase) Undavalli and Vijayawada appear to be Vishnukundin, like their western Indian counterparts. Buddhists continued their activity at Dharanikota and other places too. Bronze images of Buddha were found and side-by-side Śāiva vestiges were also patronized. A later inscription described the great Amaravati Stūpa thus:

Aṣṭi Śrī Dhānyakatakām Purām Surapurātpuraṁ
Yatraṁareśvaraḥ Śaṁbhuramarēśvaram Pujaṁ
Buddhodevasya Śaṁnīdhyāṁ Yatra dharīpa Pujaṁ
Chātya matyunnatam Yatraṅāna Chitra Suchitṛiṭatam

(Inscription of Mahāmandalēśvara Katarāja dated 1182 A.D.).

In recent years the Archaeological Survey of India, Excavations Branch (I), Nagpur has brought to light certain new evidence from the excavations at Peddavegi—a historical city of Āndhradeśa, 12 km north of Illeru in West Godavari. We conclude this paper with a short appraisal on the archaeological finds being unearthed here. Two phases (IA, IB) of cultural assemblage were brought to light. Phase IA Salankayana dated to circa fourth-fifth century A.D. and Phase IB Vishnukundin fifth to early seventh century A.D. The latter revealed Brahmanical temples and cult objects while the former characterized the continuing Buddhist traditions. The city and citadels came up from times of the Śālankāyanas. Vijaya Vēṅgipurā was beyond doubt of post-Iksuvaku origin as the stratified deposits have not yielded so far any relics datable to pre-Śālankāyan. Such diagnostic potteries like Black-and-Red, Rouletted, Āndhra Ware are conspicuously absent. The earliest datable pottery is the Red Polished Ware only.
STūPA AT VENGĪHURĀ: NEW EVIDENCE

After the Ikshvāku, the Śālankāyana made Vēṅgipurā their capital and seem to have continued to patronize Buddhism too. The pillar epigraph from Guntupalle (Infra VII-D), points out that Nandivaraman-II (400-430 A.D.), had caused some donations to the Buddhist Vihāras in spite of the fact that he was a Paramabhāgavata and devoted to Citrarathasvāmi, i.e. Sūryanārayaṇa. Recent excavations undertaken under my direction at the site called Dhanamdbbhā, literally ‘mound of wealth’, north of the village of Peddavegi resulted in the discovery of a Buddhist stūpa at the spot earlier visited by Robert Sewell in the year 1888. The structure consists of a stūpa at the centre over a square platform measuring 12.90 m and of 1.75 m high. Noted for its solid brick layout laid in parallel courses, the base of the dome (aṇḍa), is cubical on plan measuring 10.70 m while the total height of the stūpa works out to be approximately 13 m. On its earliest phase a circumambulatory of .45 m wide existed around the dome. This walk-way was once paved with cut-stone slabs and the dome faces appears to have been originally covered with carved lime-stone slabs which, according to Robert Sewell were removed by the locals. The broad outer pradakshina round the medhi (drum) was spacious (2.20 m wide), and paved with bricks all around. Subsequently it appears the height of the stūpa, as also the outer prakāra, was raised covering the lowest brick floor. At the four corners of the prakāra rectangular chambers or platforms 2.60 × 2.25 m were caused. These chambers appear to take the place of ayakas a characteristic feature of the Andhra stūpas. Further the stūpa complex has an elaborate entrance porch at the east measuring 8.70 × 4.5 m with stepped sopana and moonstone descent marking the threshold. In its central layout the Peddevegi stupa resembles the mahastupa of Ghantasala, district Krishna, dug by Alexander Rea. A four line inscription in Brahmi characters of fourth century A.D. on an octagonal mandapa pillar in fact refers to some person from Ghantasala, who caused the mandapa affiliated to the aparasaila sect. The lotus medallion on the pillar sections and the characters of the record clearly suggest a post-Ikshvaku date to the monastic order of Peddavegi. In fitness of things the stupa here, like the one at Ghantasala, belongs to Aparamaha Vinaseliyas, a dominating sect based at Sriparvata
(Nagarjunakonda). But this is not the only Brahmī inscription from the site, another limestone pillar trimmed and reused as pranāla in a later phase of the brick temple contained two inscriptions in Brahmī characters of first-second century A.D. on its lateral sections.10 Both are incomplete and damaged too. The first one of the time of a king named Kakichika “Rajño Kākichikāya maha” (rajasa) and cites certain monks and nuns connected to mahānāgā parvata i.e. nearby Guntupalle. Could this Kākichika be a ruler from Kiching or from ancient Kambuja? The second one also refers to the above king and a Sangha? We find in Silappadikaram a reference to the city called Kākandi Nagarā, i.e. Kaveripumpattinam or Pumpuhar. As Professor K.V. Raman suggested, this king Kakichi might be a ruler of this Kakandinagara, and being a Buddhist might have come to Peddavegi.

NOTES AND REFERENCES

2. I.K. Sarma, Religion in Art and Historical Archaeology of South India, Contacts and Correlations (Madras University, 1977), ch. I.
3. A. Ghosh, The City in Early Historical India (IIAS, Simla, 1973), pp. 12-13. It is surprising that this learned author avoids even a passing reference to the early historical cities and towns, pp. 65-67 like Pratisthāna (Patthan), Iśilappattana (Brahmagiri), Dantapura (Kalingasora), Dhanyakataka (Amaravati) Pavdanya (Bodban) while comparatively late sites like Sishupalgarh, Chandraketugarh find special mention.
GROWTH OF EARLY HISTORICAL SETTLEMENTS IN AN AREA OF RELATIVE ISOLATION: A CASE STUDY

N.C. GHOSH

By geography and history Gangetic plains formed a 'chosen land', where early historical settlements ushered in the second urban revolution in India. Antiquity of some of the sites is traced in the epic literature. Archaeological evidences suggest that their base was laid on the early farming communities and gradually a few of them reached the status of towns and cities. The mechanization of dispersal of material culture in the wake of urbanization from the epi-centre to the adjoining and less attractive regions is an important area of investigation. One of such areas of isolation lies immediately to the north of the upper reaches of the Gangetic plains. The most dominant geographical feature of the area is, of course, the Himalayas. The mountain is divided into five longitudinal zones. The outer zone is formed of the Siwaliks that extend from the east of the river Jhelum where the Potwar plateau narrows in Siwalik Hills and goes as far as the east of the Kosi river (81° E.) and less continuously beyond that. The hills rise rarely above 1,000 meter. Behind the Siwaliks there is a series of longitudinal vales—the dunes viz. Kangra, Kidra, Jaswan and Dehradun. The scope of the present paper is restricted to the early historical settlements in the Dehradun Valley which lies between the upper Gangetic plains and the Himalayas.

The Valley (77°35' E. to 70°19'30" N latitude), is flanked by the river Yamuna on the west and the river Ganga in the east. The northern and southern boundaries are marked respectively by the slopes of the outer Himalaya range and the Siwalik. The early historical settlements in the Valley bear an unmistakable relationship with the
pattern of soil in the Valley. An assessment of soil of the Doon Valley using aerial photograph and landsat imagery to check the problem of soil erosion was carried out by Singh, Manchanda and others of Soil Survey Division, Indian Photo-Interpretation Institute, Dehradun. (B.N. Singh and M.L. Manchanda, 'An Assessment of Soil erosion problem of Doon Valley using aerial photographs and Landsat Imagery', Proceedings of the Symposium on the resource survey for land use planning and environment conservation (Dehradun). On a detailed map of the Valley, correlation of the physiographic conditions and soils have been shown with precise accuracy. The concept has been extended to other studies and here an attempt has been made to correlate the soil with the archaeological sites. The map delineates mountain, pediment, Siwalik, and terraces along with the soil taxonomy.

The mountaineous areas have very steep slope above 50%. On high mountains some temperate vegetation is found specially in the northern pockets. Cultivation is usually on bench terraces which have longitudinal grades. From the mountain zone ancient remains have been recovered from two places: Chakrata and Lakhamandal. Chakrata is situated at a distance of 92 km from Dehradun. The existing cantonment town at an altitude of 6,950 feet (2,135 meters) above sea level was established in the year 1866. Nearly fiftytwo years ago a hoard of Yaudheya copper coins was discovered at the village of Panjya in Chakrata tehsil. The report on the hoard by Prayag Dayal was published in 1936 (Prayag Dayal, 'A new hoard of Yaudheya coins from Dehra Dun District', Journal of Numismatic Society of India, Vol. II, p. 109). Here, it would be suffice to say that subsequent explorations in the area carried out by the author and his colleagues did not yield any remains which may be assigned to the same horizon.

Lakhamandal lies at a distance of 75 km on Mussoorie-Yamnotri road. Legend has it that here the Kauravas made a shellac house and conspired to burn the Pândavas alive. The present village partly covers an ancient ruins. The antiquities, mainly sculptures, recovered from the site have been adequately noticed by Vats, Agarwala. (M.S. Vats and V.S. Agarwala, 'A note on sculptures at Lakhamandal' Journal of U.P. Historical Society, XVII, Pt. I, p. 88; K.P. Nautiyal Archaeology of Kumaon (Varanasi, 1969). The sculptures
range from fifth century A.D. to eighth-ninth century A.D. The present temple belongs to the closing years of the thirteenth century A.D. The remains of the earlier temple excavated in a conservation is datable to tenth-eleventh century A.D. The pottery types recovered from the surface also suggest beginning of this settlement to fourth-fifth century A.D. Two epigraphical records from Lakhamandal attest to the same time range (Bühler, G., ‘The Prasasti of the temple of Lakhā Mandal’, *Epigraphica Indica*, vol. I (1892), p. 10; B. Ch. Chhabra, ‘Lākhamandal fragmentary Stone Inscription of the Gupta period’, *Journal of the U.P. Historical Society* (1949), vol. XVII, pt. I, pp. 80 and *Facets of Aryan Culture*, (New Delhi, 1988). pp. 143-148). The ancient site, three to four hundred square meters in area, remained almost isolated in the mountain fastness. It is now a convenient nodal point from where the products of the surrounding areas are sent to the plains. The favourable situation of Lākhamandal might have played the key role to the selection of the site in early historical period.

Pediment zone in the valley has been divided into two units: (a) upper reaches of pediment, (b) lower reaches of pediment. The nuclei are usually associations of skeletal and non-skeletal-type Eutrichests. These areas have 3-8% slope. Dominant land use is forest. Dehradun town is itself in the pediment zone and its expansion since the British occupation in 1817 is at the cost of forest cover. In the medieval period around Guru Ram Rai Haveli, (nearly 2 km on the north of Dehradun Railway Station), there was a small settlement. A couple of centuries earlier to that a small settlement had grown up at four km-post from Dehradun G.P.O. on the Dehradun-Mussoorie Road in the President Bodyguards’ line. From this area a number of stone sculptures have been recovered by the author. The better preserved one stylistically belong to eighth-ninth century A.D. and are comparable to the sculptures from Lākhamandal and elsewhere. A few red ware bowls, vases and brick-bats from the surface also indicate the antiquity of the site. The present Śiva temple was, however, constructed hardly sixty-seventy years earlier. Another comparable site is at Bidauli nearly 12 km from Dehradun (*Indian Arch.—A Review, 1983-84*, p. 171). Though local tradition connects Bidauli with Lord Buddha, but nothing of that sort was found even during recent exploration in the area carried out a couple of months earlier.
DOON VALLEY
(Archaeological Remains)
Scale 1:250,000

Fig-1
by the author along with a few of his former colleagues in the Archaeological Survey of India. The remains are partly destroyed by road cutting. The area is strewn with pot-scherds, brick-bats and fragments of sculptures roughly over an area at 700-800 sqm. These settlements of late phase of early historical period, however, did not survive for long and Dehradun town came-up in nineeteenth century A.D. only.

The Siwaliks are not suitable for cultivation except in patches around the stream banks. The forest cover was excellent. This, however, is being cleared which in its turn is aggravating the ecological imbalance and erosion of land. It is noteworthy that so far no early sites have been reported from Siwalik.

The Doon Valley has been subjected to upliftment in various parts. As a result we find large number of river terraces. The upper terraces have deep soils of fine loamy textures. The soils are highly productive. The maximum land is used for cultivation. It is significant that all known historical sites viz. Kalsi, Jagatgram, Jiwangarh, Bharat Mandir and Sivananda Ashram, Rishikesh, Virbhadra are located on the upper terrace.

The Valley was brought to archaeological map of the country as early as 1860 with the discovery of the inscription at Kalsi. It is situated near the confluence of the rivers Tons and Yamuna. The catchment areas of both the rivers are rich in forest wealth, particularly of good quality timber. In 1972-73 an ancient mound approximately having 2 m thick deposit was noticed near the inscription. From the surface of the mound incurved dishes, bowls in plain grey ware of thick fabric, carinated handi, medium-size vases in red ware were collected. An iron sickle from the site is a noteworthy find (Indian Arch. 1972-73—A Review, p. 33). The collection strongly suggests existence of a small settlement near the rock edict of the Mauryan Period. The site, however, did not yield any Northern Black Polished Ware. The exact nature of this small settlement cannot be determined unless the site is excavated. The Saturghai and Manda during Harappan Period were forward stations of the Harappan culture for controlling procurement of raw-material viz. copper and lapis lazuli at the former and timber at the latter. The site near the rock-edict could
serve almost the same purpose during the Mauryan Period. Soon after the site was abandoned.

Immediately after the description of the settlement near Kalsi another habitation had grown up in the eastern part of the Valley on the banks of the Ganga in Rishikesh. In 1982-83 a small scale excavation in the compound at Bharat Mandir, Rishikesh was carried out by Nautiyal (Indian Arch. 1982-83—A Review, p. 96). The excavator dated the beginning of the habitation around second century B.C. The site remained in occupation in the subsequent centuries also. Structural remains recovered from the limited area of cutting reveal elaborate house plan, with drains and soakage jars etc. The small finds made of copper and semi-precious stones, besides iron implements indicate a long distance trade. In seventies two life-size images in Mathura sandstone were recovered in the course of digging foundation for a rest-house adjoining Bharat Mandir. Stylistically these images are assignable to the early centuries of Christian era. It was probably the time when the Kushāṇas ruled the Valley. To this time also belongs a hoard of fortytwo gold Kushāṇa coins which was discovered at Sivananda Ashram, Muni-ki-Reti, Rishikesh in 1972 about 2 km upsteram. (Indian Arch. 1972-73—A Review, p. 151). The hoard consisted of the coins of Huvishka with his profile bust on the obverse and deity on the reverse and those of Vāsudeva, Śiva and bull type. The hoard also contained two-tops, one chain, one twisted wire and two ear-rings. The hoard was found in an earthen pot—only a few fragments of the same could be seen when the author visited the site soon after the discovery. Examination of the dug-up spot suggested that the treasure was recovered in situ. The internal evidence of the hoard also suggests that it was buried not much later than Vasudeva’s time (A.D. 145-176). The coins are in mint conditions and much time might not have been lapsed between the burial of coin and their minting. In 1973-74 from the lowest level of the excavation at Virbhadra, Rishikesh a Kushāṇa copper coin was recovered (Indian Arch. 1973-74—A Review, p. 29). On the basis of other cultural remains from the strata it is possible to suggest that the horizon is datable to the Kushāṇa Period. These recent finds throw welcome light on the political condition of the Valley in the first few centuries of the Christian era. The transformation of the sites from the modest trading
stations primarily for procurement of raw-material to 'prettymart', i.e. contact points of hill and plain in the area, is a noteworthy development.

At Jagatgram almost opposite to Kalsi Rock edict, on the left bank of the river Yamuna, T.N. Ramachandran unearthed three sacrificial altars of horse sacrifice performed by the king Śilavarman in the third century A.D. (*Indian Arch. 1953-54—A Review, p. 10* and T.N. Ramachandran, 'Asvamedha site near Kalsi', *Journal of Oriental Research. XXI*, (1953), pts. I-IV, p. 1 ff.). One of the inscribed bricks from the site read as follows: 'This is the altar of fourth sacrifice performed by king Śilavarman, who was of Virshagaṇa-gotra and sixth in descent from Pona or of Pona (*Vamsa?*). Out of the four altars, two have been excavated. One is yet to be opened and another remained elusive for over two decades. In 1972-73 in the course of an exploratory digging at Jiwangar, nearly 10 km north-west of Jagatgram, a few fragmentary bricks bearing inscriptions in Brahmi characters of third century A.D. were discovered (*Indian Arch. 1972-73—A Review, p. 46*). Satisfactory reading of the inscriptions from the fragmentary bricks was not possible. The size of bricks and the palaeography of the Brahmi letters on them recall Jagatgram inscribed bricks. These might be from the altar which was missing for long.

The bricks exposed at Jagatgram suggest that these were laid in the form of Syena, hawk or eagle with spread wings. The Chiti altar of the inscription was undoubtedly was Syena or eagle in shape. This is a rare instance of corroboration of the epigraphical record and the architectural representation. It is, however, significant that neither T.N. Ramachandran's nor our village to village survey for the antiquarian remains in the area could bring out any habitation site of comparable age. The inscription refers to king Śilavarman, the performer of the sacrifice as the ruler Yugaśila, probably the name of his capital. Beside Jagatgram, Syena-Chiti is reported from Kosambi and an alleged Aśvamedha altar from Nagarjunakonda. These altars are well within the fortified and prosperous settlements. Material milieu of such elaborate rituals is easily understandable. The factors which ushered in a rich material life in the Valley around the opening centuries of the Christian era bereft of large sized urban centre is really intriguing.
The excavations carried out by the author at Virabhadra yielded significant evidences which have thrown light on several aspects, hitherto unknown, of the life of the people of this Valley (N.C. Ghosh and R.P. Sharma, ‘Virbhadra Excavation, Tradition and Archaeology’, *Puratttava*, no. 9, p. 85 ff.). The excavated site is on the confluence of the rivers Ganga and Rambha which is about 3 km east of the antibiotic factory on the Rishikesh-Hardwar Road. There is fairly good account of historical geography of this region in Kedarhanka. (*Śri Śkaṅda Maha Purāṇa*, *Kedarhanka*, cf. chapter 101, vs 10 & 30-31; 115 vs 50; 109, 39). Kubjamara was one of the important sub-kshetra of Kedarhanka which lies between Lakshmansthan near the present Lakshmanjholia, in the north to Saptasamudrika i.e. Saptarishi, north of Gangadvāra or Hardwar in the South. It is within this area Rambha joins Ganga and at the confluence of the two rivers lies the temple of Rambheśvara Mahāśiva. A notable settlement of this sub-kshetra was Mayapuri which lies on the river Rambha.

Exploration along the course of the Rambha has not brought forth any evidence of an early historical settlement along its course except at Virbhadra. Geologically speaking, the river Rambha is much younger than the Ganga. The former joined the Ganga after the formation of the terrace on which the ancient site of Virbhadra is located and there is no evidence of cutting of the terrace subsequent to that event. This indicates that there was no change of the course of the Rambha from the early centuries of the Christian era. It is also significant that an eighth-ninth century A.D. image of three-faced Śiva in a small shrine in the midst of a nearby field is still being worshipped as Rambheśvara Śiva. The image is carved on the black stone (*mukha-linga*). The central face is flat and lifted upwards and adorned with garland of snake whereas the lateral faces are elongated and wear beaded necklace. *Ardhachandra*, third-eye on the forehead and matted locks are the other distinguishing features of this sculpture. It seems that it was the presiding deity of the settlement. The image was installed in the present shrine after the destruction of the original temple. Archaeological, geological and traditional evidences strongly suggest that the excavated site Virabhadra may be identified with Mayapuri of the *Śkaṅda Purāṇa*.

The area lying between the antibiotic factory and the Virabhadra
temple on the confluence of the Rambha and the Ganga was first explored by M.N. Deshpande in early sixties (Indian Arch. 1963-64—A Review, p. 45). He reported the remains of a monastery, probably a stūpa or a chaitya hall of Kushāṇa period in the township of antibiotic factory and ruins of a massive brick fortification near the confluence of the rivers. Almost after a decade the author carried out further exploration in the same area. Ancient remains represented by red ware bowls, sprinkler and bricks were found over an area of about several hundred square meter. The brick structures noticed earlier by Deshpande near the township came under its expansion since then. The brick fortification turned out as an accumulation of debris of an ancient structure on the edge of the terrace. The main concentration of pottery and brick-bats were, however, mainly around this area.

Excavations carried out at two selected plots at the site, designated as VBA-I and VBA-II revealed that the occupation here began around circa eighth century A.D. and ended in circa eighth century A.D. The occupational deposit ranging between 3.70 to 3.90 m in thickness is distinguished into three broad phases, viz., Early, Middle and Late. From the Early phase (circa first century A.D. to third century A.D.), besides the typical red polished sprinklers, bowls and painted pottery, a Kushāṇa copper coin and baked brick structures were recovered. The sherds bearing jack fruit motif and ornamented bricks from the intermediatory level are comparable with the ones recovered from excavations at Ahichchhatra and Kashipur from the Gupta and post-Gupta levels. At least three brick temples were built in this phase. All of them are rectangular in plan and internally paved with brick-bats. The biggest ones measure $16 \times 3.50$ m and oriented in east-west direction. The earliest temple in the series enshrined a Śiva-linga resting on bhadra-piṭha. A house with six rooms along a corridor was built near the temple in the late phase (circa seventh to eighth century A.D.). To this phase another elaborate temple-complex was added. The sequence obtained from the trench VBA-II is identical to the VBA -I, they, however, differ in structural remains. In the early phase mud-bricks were exclusively used for the construction. It is also interesting to note that a number of unique hand-made vases with pinched bottom and burnt patches
were found in the mud-brick houses. A bone-tool shaped out from a shaft piece having secondary retouch and tempered tips and sides was also recovered from this level along with the animal bones. It is noteworthy that the building materials in the upper two phases were undressed boulders and pebbles. The improvised, jerry-built structures of unbaked bricks and river borne boulders and pebbles are in sharp contrast to the well-laid buildings of baked-bricks from another area of this site. The variation is all the more significant when their consistency throughout the occupation of the site, from circa first century A.D. to eighth century A.D. is considered. The spatial distance between the two plots is about a thousand meter. Does this disparity in the settlement pattern indicate any social or economic stratification? If so, their perpetuity is no less striking. It is likely that the finds from such apparently contrasting surroundings may also betray analogous character in quality, if not in quantity. The hypothesis, enunciated above, however, could not be verified fully from the limited areas of operation at Virabhadra. Nevertheless, unique handmade vases with pinched bottom found exclusively from lowly-built-up dwellings, bone tool and marked difference in number and variety of animal bones consumed in the better-off quarter at the site are noteworthy evidences which substantiate the proposition. Ajit Sinha while excavating at Jara Dihi, district Bodhgaya, Bihar, has encountered an identical situation of unequal remains at two different plots at the site (personal discussion at Patna in the month of April, 1988). In one cutting well-laid brick-built houses were found from the earliest to the latest phase of occupation in contrast to improvised, jerry-built remains of structures in another cutting of the site. It is significant that two sites separated by thousands of kilometers revealed that a section of inhabitants remained in the same state of economic deprivation compared to another section in the same site through the centuries being almost oblivious of so-called ‘Golden Age’.

Evidence regarding dietary habits of the people, as revealed by animal bones recovered from the excavation at Virabhadra deserves special mention. Nearly eighty percent of the animal bones came from VBA-I while the remaining from VBA-II. It was seen while only cattle bones have been recovered from the latter, the former yielded bones of both cattle and goat. The collection consist of fragments of long
bones, ribs and vertebrates and some molars. Most of the long bones bear cut marks and found in charred and splited conditions (Field Report on the excavated animal bones by A.K. Sharma (ASI). It was observed that the animal bones were confined to the early phase only and later deposits were from animal remains. This change is linked with the establishment of the temples in the fourth-fifth century A.D. Probably the present emphasis on vegetarianism in Rishikesh-Hardwar could be traced back to that time onwards.

Archaeological evidence reveals that the proto-historic cultures namely the late Harappan, the OCP and the Painted Grey Ware could reach only up to the eastern and southern fringes of the Valley. In the early phase of PGW a feeble attempt was made for entering the northern frontiers by circumventing the Valley. It went as far as Thapli, in Tehri Garhwal and Purola in Uttar Kasi. But, neither these settlements flourished nor they survived, both of them ‘revealed single phase of culture of PGW’ (K.P. Nautiyal et. al., ‘Painted Grey Ware Culture in Garhwal Himalaya: New evidence and interpretation’, Puratatvta, no. 17, 1986-87). It was only during the Mauryan Period the Valley was colonized. A small settlement had grown up in the eastern part of the Valley for a specific purpose in the third century B.C. The major thrust, however, shifted soon to the eastern side and in the early centuries of Christian era several small-sized settlements emerged in that area. The present study of colonization in the early historical period in an ‘area of isolation’ at micro-level would assume importance if it is related to the process of urbanization which is being traced at macro-level or in the core area.
THE archaeological site of Mangalkot in the Katwa sub-division of Burdwan district, situated at the confluence of the Ajay and the Kunur is 30 km south-east of Pandu Rajar Dhibi, the famous chalcolithic site of Bengal. Comprising several mouzas and roughly 2 sq. km. area the place lies, within a longitude east 89°54' and latitude 23°32'. The present village is sharply divided into two compartments by a metal road connecting the present police station with the main road leading to Katwa and Burdwan, and across the river Ajay to Bolepur-Rajpur-Bhagalpur. Apart from this, the Ajay in ancient times was a navigable river, and being connected with the Bhagirathi, had played a significant role in the overseas communication. At least one evidence is available in mediaeval literature which narrates the story of Chandsadagar, who sailed via Ujaninagar, located near Mangalkot towards south-east Asia.

The soil of this region, a mixture of older and Gangetic alluvium, is a hospitable stretch of loamy, black-brown clay with extensive drainage system. The annual rainfall is abundant, yielding a good harvest. The region is proverbially fertile for rice cultivation. The representation of fauna (elephant, buffalo, deer, forest-fox) as available in its basal level (Period I) suggests cumulatively a better rainfall. Excavated materials do not suggest any drastic change in climate at any time of history.

The ancient ruins of Mangalkot have been reported from time to time for a long period by different scholars and amateur archaeologists; but the significance of such antiquities have largely remained unattended to until 1975 when the Department of Archaeology,
Calcutta University, under the supervision of the author, undertook a systematic exploration in this region. The exploration yielded valuable materials including Black and Red Ware, Northern Black Polished Ware, punch marked and cast coins, copper objects, stone sculptures and terracotta figurines belonging to Maurya, Śuṅga, Kushāṇa, Gupta and post-Gupta periods, which together have emphasized the importance of the site. The materials such collected from explorations further indicated the continuity of occupation of the site starting from the chalcolithic to the historical time. The materials together with the location of the site have prompted the Department of Archaeology, Calcutta University, to undertake large systematic excavation which unfortunately was not possible till the year 1986. A systematic excavation of this site was continued from this period onwards.

The general sequence thus revealed in course of excavations of the last three seasons can broadly be divided into six periods without any break (photo 1).

The cultural deposits of Period I (Approximately 1100-600 B.C.* ) constituted by 2 to 2.50 m thick hard, sticky earth of dark black colour lying directly over the hard yellowish natural soil. The period is characterized by black and red wares, black slipped wares, red slipped wares, cream slipped wares, chocolate, dark-red, and various other unslipped brown and red wares. Many of these sherds at the bottom level at some trenches, mostly in MGKT-1 series are leached due to lying buried in a sort of wet soil for long time. No complete pottery could be encountered, but the fragments of jars, vessels, handis, bowls, vases, basins, channels, spouts and dish-on-stand have been found abundantly. Painted potteries are also frequent. The designs are geometric, either by white on black or black on red. The painting in red is also found on buff ware. The ceramic assemblage shows also a few designed potteries by grooving and incised decorations. Perforated potteries are quite common, which are found in vessels and in basins. A few hand-made, ill burnt coarse wares have also been recovered from this period.

The most important find of our excavation is the evidence of the

*Radio carbon date is awaited.
occurrence of iron slags, ingots and iron tools like arrowhead, point, spearhead from the lowest strata. This, no doubt, indicates that the chalcolithic people in this region had used iron from the very beginning as a form of technology. In fact, some evidence of iron smelting has been traced almost at the bottom-level-habitation. The chalcolithic assemblage reveals already a fully grown cultural format from its bottom-most layer. The associated potteries and finished tools found at this stage, clearly manifest this. Copper slags have also been found throughout in regular sequence, but we have very little indication of the productive use of copper except the evidence of one fishhook. A number of copper objects in the forms of rings, bangles, beads, were however obtained from Period I.

Other noteworthy finds recovered from the excavations from this phase are a large number of tools made of splintered bones. Many of these show clear-cut-marks for preparing edges. The cut-mark on one piece of antler is so smooth and well defined that it gives an impression of using even metal implements for such cutting. Only one piece of stone tool revealing flaking was found in the assemblage in trench no. A'1, MGKT-2.

An important discovery from this cultural level is a highly generalized terracotta image of a human form decorated with applique design (photo 2). The period yielded terracotta toys, net sinkers, spindle wheels and beads of terracotta, semi-precious stones like carnelian and agate including a few pieces of faience.

The structural phase of this period is indicated by more than one floors, as for example, in MGKT-1 series, trenches no. IX3, A’1, B’8, B’7, several mud floors have been traced in 2 m thick deposition, superimposing one above the other. Evidence of wattle and daub construction was noticed near the floor of these trenches, including post holes. The houses seem to have had well rammed floors, showing plastering with sticky black clay, cowdung and small pieces, of pot-sherds. Another interesting discovery in trench A’1 is a number of hearths, at times three together, with charred bones, stone saddle quern nearby (photo 3). A broken portion of a huge pot (rim and neck parts) along with heaps of broken sherds of Black-and-Red Ware have been found on the floor, near the hearths (photo 4).

Excavation has revealed a large number of animal bones, mostly
of bovine species, besides jungle fox, pig, deer including birds, tortoise, fish. These undoubtedly show the dietary habits of the people living during the chalcolithic phase. Rice husk has been noticed in the core of the pottery.

Period II of Mangalkot is a transitional phase between chalcolithic and early historical period. This period is marked quite distinctly in MGKT-I series, trench IX3 (Period II). This phase is characterized by the occurrence of some new ceramic types like grey, black slipped and fine textured red pottery along with chalcolithic black and red wares, red slipped wares and dark-maroon coloured wares. The miniature sized incurved bowls of thin fabric of red colour happens to be a new ceramic type during this phase. It is interesting to note that the frequency of black and red wares at this level is found decreasing in remarkable number. But some of the types and shapes of the earlier chalcolithic phase seem to have been a constant pottery at Mangalkot for quite a long time. Iron is found to have been used more elaborately at this level. Of all the antiquities collected from Period II, a terracotta image of a highly generated type (photo 2), varieties of iron tools, such as arrowhead, chisel and one sickle type tool are noteworthy. There is no doubt that the people became more and more dependent on iron technology. Bone tools of the earlier period are found continuing. Among the animal remains are detected the bones of ox, pig, deer besides fish, tortoise and bird.

Period III of Mangalkot traced in all the trenches is characterized on the one hand by the absence of Black and Red Ware and on the other by the occurrence of coarser and thin varieties of red wares, grey wares, black slipped wares including a few pieces of NBP sherds. While the coarser varieties of red ware show storage jars and high necked globular vases, the finer variety is found in the shapes which are generally common in NBP wares. Many of the shapes in grey ware and black slipped ware reveal NBP type dishes and bowls. A complete black slipped bowl with slightly convex sides has been found in this level (trench no. C'6, MGKT-I) (photo 5). The period is marked by the total absence of black and red wares. The thickness of the occupational deposit of this level varies from 1.05 to 1.23 m. A number of floors made of beaten earth, sand, small kankar and pot-sherds have been traced. Minor antiquities found from this level include one silver
punch marked coin, a number of copper cast coins of square and circular varieties, copper locket, bangles of copper, amulet, besides plentiful variety of beads of terracotta and semi precious stones and few beautifully designed flesh rubbers. The period has revealed a few diagnostic terracotta figurines, of these one Maurya terracotta, one wrikshaka image in red colour, and the other a buff coloured pañchachāda yakshint besides a mould of the typical Śuṅga stylistic form, from the stratified layer IX3 (layer 5) are important (photo 6 anb 7).

The cultural deposits of Period IV comprising hard brown earth range in thickness from 1 to 2 m. The maximum thickness was noticed in MGKT-3, A’l (m 2). The period is represented by a unique structural complex, all made in brick. As compared to the simplicity and fragility of the structural activities of the previous period, one is impressed at this level with profuse use of well burnt bricks in association with brick floors, pottery-ring wells attached to house plan (photo 8) (MGKT-1, B’8 and 7). The bricks used during this period belonged to following sizes, 26×24×6 cm, 38×28×5 cm and 40×27×7 cm. An important discovery from this period is that of a massive well constructed bricks of 38×28×5 cm. size, having an outer dimension of 1.45 m recovered in MGKT-3, trench no. A’l. Here, two structural phases were noticed in successive stages. The well was found in association with structure number 1 (5A) (photo 9). The brick well has been excavated to a depth of eight courses without reaching the bottom. The noteworthy feature of the brick well was that the top of this well was sealed by a floor made of brick ramming like mud and potsherds. This floor seemed to have been built up by the Kushāṇas at a later date (5). The structure belonging to this phase was built of broken bricks and bricks of irregular sizes, the size of an intact brick associated with this phase, appears to have been of 26×24×6 cm. Some interesting objects belonging to this period, such as a number of complete typical footed bowls and broken pieces of sprinklers were found placed upside down inside the well along with some copper objects, such as a finger ring and a snake shaped bangle. The discovery of such bangles from other trenches in a large number, no doubt, indicates that this was a fashion during the Kushāṇa Time.

The occupational deposit of this period is distinguished by the disappearance of the earlier grey ware and the occurrence of the
typical Kushāṇa pottery made of well levigated clay. The period is represented by well fired red wares with slip and wash, occasionally with stamped and punched design. The types are varied which include among the usual disc based bowls, varieties of other pottery of the time. In the north-eastern quadrant of trench A'1, MGKT-3, in layer (5A) a large number of almost intact pots of the known Kushāṇa types, such as pans with handles marked with punch design, footed bowls of various sizes, plates decorated with wavy rim, sprinklers with affixed short cylindrical spout, the long-necked surahi, the spouted jars, cooking vessels, the lids, have been found in a heap (photo 10). The most significant discovery of the Period is 8 cm thick deposition of charred rice spreading over an area of 2.50 × 3 m, shown in thick deposition in the northern section of an excavated trench (IX3 (4)).

Among other household objects found from this level, the iron objects seem to have been most profuse. Copper was abundantly used both as jewellery and household objects. The cast coins are numerous. The beads made of semi precious stonss and terracotta, the latter being shaped as nut type were numerous. A number of terracotta figurines, moulded as well as hand-made (photo 11) were recovered from this place along with varied kinds of terracotta objects like skin rubbers, game objects, decorated wheels, spindle whorls, dabbers and two seals, on one a woman is standing, holding a lamp by her right hand. One terracotta-head of hollow nature with a chubby round face, open eyes, parted lips lit up with a demonic smile has been found from this level from trench no. C'6. The period reveals also a number of highly finished pestle stones made in stone. The most noteworthy discovery was a copper needle recovered from this level (MGKT-2, A'1, layer (5A)). There is no doubt that Mangalkot during the Kushāṇa Period became a thriving centre of life.

Period V is distinguished by the occurrence of red wares with slip and wash, typical of the Gupta time, ranging from medium to fine fabric. The specimens of beautiful potteries, decorated with moulded designs of varied types—of globular, bulbous, convex sided, carinated, straight edged, high flaring in various shapes such as handi, bowls, high necked lota type vessels, jars (photo 12) including potter's stamp made of tortoise shell were recovered from this period. A
number of seals and sealings have been found from this level of which some are inscribed bearing names of some persons. The most popular symbols are pūrṇa kumbha, a tree with a kumbha, a woman standing in akimbo and bull. A few cast coins and two terracotta figurines were found in this level as well. We are not sure whether these coins were used as regular currency during this phase. The houses were built of bricks differing in sizes between $28 \times 24 \times 8$ cm and $35 \times 25 \times 5$ and $34 \times 26 \times 6$ cm. The bricks were laid with the help of clay as mortar over a foundation made of broken bricks. The top of the floor has been found finished with rammed mud, broken pot-sherds and lime (IX (3)) (photo 13). The discovery of huge sized iron nails found in this level clearly indicates their use for constructional purpose. The period is rich in beads of various kinds. The evidence of several unfinished beads of semi precious stones as carnelian, agate, sapphire, amethyst, crystal in unperforated condition points out local manufacture. The fragments of glass bangles of green and blue colour have been found in large number.

The overlying deposits of Period VI were very much disturbed ranging in date from the eighth to the eighteenth century, revealing accumulated materials comprising varying types of potteries including Chinese porcelains, enamel, glazed, red burnished, buff and black wares of the Muslim Period, two Muslim coins and two coins of East India Company.

Apart from providing a continuous sequence of history from chalcolithic to the post-Muslim occupation, the archaeology of Mangalkot throws interesting light on the following points:

1. The location of Mangalkot within latitude $87^\circ 23'-88^\circ 22'$ and longitude $24^\circ 15'$ by $23^\circ 58'$ shows very clearly that the site is located in the major concentration zone of chalcolithic culture in West Bengal.

2. The Black-and-Red Ware vis-a-vis chalcolithic habitation at this place is found in a full-fledged form right on the natural soil, providing no evidence of its antecedent stage. As a matter of fact the site and the adjacent area lying in the south of the Ajay yields little indication of the neolithic substratum. But the evidence found in two meter thick
deposit suggests a habitation of chalcolithic culture in the region continuously for few hundred years.

3. Technically three important points are to be noticed. First, the paucity of microlithic industry is observed. Secondly, the Period is characterized by a wide range of bone implements. Thirdly, it is certain that iron occurred in this cultural phase from its beginning. The amount of iron slags and some undifferentiated tools found throughout strongly suggest that iron was used as a form of technology. The discovery of this technology along with bone and a very limited use of microliths (only one core with flaking marks has been found) arises the necessity of re-examining the validity of the nomenclature prevailing so far for chalcolithic cultural phase.

4. That the domestication of animals was well in practice in the chalcolithic period in this region, is known by the evidence of bones of bovine animals and pig (the result has been obtained from the Zoological Survey of India). The occurrence of the bones of jungle fox and deer during this phase, not only indicates that the people used to hunt these animals for their food, but it also gives evidence of wooded landscape around this region. The remains of other bones found in this strata clearly reveal that people living during this period seem to have consumed sufficiently fish, crab and tortoise, which were available in the nearby rivers and marshes. Rice seems to have been also a stable food. That the practice of cultivation of rice was well prevalent during the chalcolithic level is known from the rice husk found in the core of the pottery.

5. From the chalcolithic period onwards, Mangalkot and the adjacent area seems to have been in direct communication with northern and central India. The evidences of such contact is clearly manifested during the historical period. Indeed, the clear transitional phase which is noticed at this site in the post chalcolithic level, reveals the archaeological materials which find reflection in similar transitional phases elsewhere in the middle Ganga Valley. In respect of techno-
logy several chalcolithic parallel exists, but the occurrence of increasing use of iron is noteworthy. The Period is characterized by a new ceramic industry in addition to the old ones. The black slipped ware, a kind of grey ware, and a kind of thin slipped red ware mostly found in miniature pot, are the special traits.

6. In the historical period the region is found to have witnessed all the cultural phases which were contemporaneously present in the mid and eastern India, and thus the historical phases that have been revealed at Mangalkot can be labelled as Maurya-Śunga-Kushāna-Gupta and post-Gupta in chronocultural stages.

7. The evidence of ruins of brick built structures scattered all over the village including the stray remains of antiquities and pot-sherds found all over, strongly suggests a most flourishing stage of history in this region from the Kushāna period onwards. Excavations have revealed massive structure all made in bricks, belonging both to the Kushāna and the Guptas. Indeed, the remains of Gupta structures are revealed in many areas after removing only the surface layer. Both the periods are marked by the rich antiquities, including a number of seals and sealings.

8. The ceramic materials recovered from excavation at the mounds of Mangalkot (altogether 12 trenches of 6×6 m. were dug) deserve special consideration as Mangalkot happens to be the only site in West Bengal which provides important information for reconstructing history of the development of the pottery craft of Bengal. Interestingly, the potters of Mangalkot besides showing specimens of local types, suggested close affinity with the diagnostic type of pottery of different periods found elsewhere in northern and central India.

9. Broadly coinciding with all the known historical periods of northern India, Mangalkot reveals the diagnostic terracotta art either on plaques or in round, revealing the contemporary aesthetic traditions. A broken piece of a face revealing Gupta stylistic character is worth noting in this context
(photo 14). A large number of cast coins found in the stratified levels at Mangalkot, including stray finds of punch marked, a few Puri Kushāna coins and one copper coin of Kujula Kadphises, (photo 15) indicate inflow of fortune seekers and well to do urban folk among the city population of Mangalkot.

10. There is no doubt that the emergence of site as an important centre from the so called Maurya period onwards, was caused by the growing urban factors in the mid and eastern India. The city had a lease of life for a long time, its peak days of glory being from the first century B.C. to the sixth century A.D., if not still later.
KURUKSHETRA is adequately known and it is, therefore, needless to recount details relating to the area wherein is located the Thanesar town and the Harsh-kā-Ṭilā which was subjected to excavation by the Archaeological Survey of India between December 1987 and March 1988. The site has thrown up interesting material and results which, it is hoped, would provide useful evidence about the lifeways of the historical period at Thanesar, covering a span of almost about two thousand years from about the first century A.D. onwards. At the same time, as the present evidence from the area and the rather limited evidence from the site itself has indicated, the antiquity of the site may go back to still earlier times. Though it is rather premature at this stage to say so, yet it is hoped that the excavations at Thanesar will give important information particularly of the period between the sixth-seventh century and the Late Mughal times. The excavations at the Harsh-kā-Ṭilā site, therefore, may be of interest to the archaeologist and the historian.

Thanesar is an ancient town and is fairly well-known. For students of history, it is important because of its association with Harshavardhana (606-647) of the Vardhana or the Pushyabhūti (Pushapabhūti) dynasty. Association of Harsha with Thanesar has been described in detail by Bāṇabhaṭṭa in his Harshacharita. While giving a graphic account of Sthāṇviśvara, Bāṇa mentions the defence wall and the moat, the palace area with a two-storied dhavala-griha, literally the 'white house', which was the palace proper. Sthāṇviśvara is categorized by Bāṇa as jana-pada-viśeṣa in the Srikaṇṭha janapada.
Sthānviśvara was an important centre of the Pāśupata cult, a fact which is also corroborated by descriptions in the Vāmana Purāṇa.

Hsuan-Tsang, the Chinese pilgrim, in his brief description of Sa-t‘a-ni-ssū-fa-lo or Sthānviśvara mentions it to be more than 7000 li ‘in circuit’ with the capital to be 20 li or so which was surrounded for 200 li by a district called Dharmakshetra. Hsuan Tsang, during his visit to Sthānviśvara, in a.d. 634, found three Buddhist monasteries and some hundred Brahmanical temples; he also mentions about a brick stūpa, about 300 feet high, of Aśoka 4 or 5 li to the north-west of the city.

The presence of several mounds in Thanesar also attests to the hoary antiquity of the place. This, coupled with the fact that the area under habitation was fairly extensive, and the name Harsh-kā-Tīlā given to one of the mounds by the local people clearly supports and suggests the veracity of the tradition.

It was this mound—the Harsh-kā-Tīlā—which was taken up for excavation by us. Before we summarize the results of our excavation, it may perhaps be appropriate to give brief idea of Thanesar and its milieu.

The Thanesar town is located on an ancient mound which is quite large both in terms of its height and area. The houses that are built on it, covering almost the entire portions from its top to the slopes, represent an admixture of the new with the old. While the new houses, built over the earlier ones, are mainly of brick and cement concrete, fairly large number of houses is quite old retaining some of the original features which suggests that some of them may be over one hundred years old or more. In some of the houses one can also see juxtaposed ancient bricks with lakhauri ones, the former being, evidently handiwork of brick-robbing. The narrow winding lanes of Thanesar town are also the vestiges of the past treaded over the years by the inhabitants of the town, itinerant traders and pilgrims visiting the Brahma Sarovara, the Sannihita Sarovara, the Sthānviśvara-Mahādeva and stopping here en route to Prithūdaka or Pehowa, etc.

Thanesar must have been visited by many because of its location on the Grand Trunk Road. It seems evident to us that the Grand Trunk Road has been reoriented at several places; in the time of Sher Shāh Sūr (1540-1545) or the Mughals, the Grand Trunk Road must
have went past the Thanesar town. This we are suggesting because of the existence of an old bridge and sarāi (adjacent to Shaikh Chaheli’s tomb) which are in all likelihood of the time of Sher Shāh Sūr or slightly later. As is well-known, well-planned sarāis, kos-minārs and, where required, bridges were built on or all along the Grand Trunk Road in the time of Sher Shāh Sūr and the Mughal emperors. In fact, the close contiguity of the sarāi and the bridge (not far from the Sthāṇviśvara-Mahādeva temple) to the Harsh-kā-Ṭilā mound suggest that the road went past the mound in Mughal times, if not even earlier. The Grand Trunk Road (now renamed Sher Shah Suri Marg) is about 8 km away from Thanesar town and the river Saraswati on the banks of which the town grew and flourished is now extinct.

The Harsh-kā-Ṭilā is not an isolated mound. It is to the west of and adjacent to the ancient mound over which the town of Thanesar is located. To its west, separated by a gulley, is another mound known as Bāhari. Evidently, the name Bāhari was given to the mound because it was bāhar or outside the main town and the name may be a carry over, if we may suggest, from earlier times. In contrast to the Thanesar and Bāhari mounds, the Harsh-kā-Ṭilā mound is now deserted except for a few kachchā houses on its middle-eastern part adjoining Shaikh Chaheli’s tomb; this mound is also not given any appellation or rather sobriquet like the Bāhari mound. Does it, therefore, indicate that the mound comprising the Thanesar town and the Harsh-kā-Ṭilā grew and prospered together till later times and were integrated units? Of course, we are not suggesting that the Bāhari mound had no connexions or relationship with the Thanesar town. In fact it seems that apart from the three mounds comprising—from east to west—the Thanesar mound, the Harsh-kā-Ṭilā and the Bāhari mound, there existed originally other mounds, following almost the same orientation and alignment, which have been levelled in recent times. One such mound which we saw in the course of our probings in the area was the Madrasā mound to the north-west which is now completely levelled. The remains of a partly-extant burnt brick wall, the impressions left on the surface by brick robbing of a platform and heaps of Kushāna and earlier bricks, in our opinion, more or less support the statement of Hsüan-Tsang about the existence
of an Ašokan stūpa at Sthānviśvara. In fact, this now destroyed mound also contained material which can easily be called the Late Harappan or Bara. Another important mound in the vicinity and to the south-west of Thanesar is the Rāja-Karan-kā-Kilā from where cultural material ranging in date from early historical to late medieval times is reported.

On the basis of the excavated archaeological material from several other sites in the area e.g., Balu, Mirzapur, Bhagwanpura, Mitathal, Siswal, etc., it is clear that the earliest settlers of the region were the so-called Late Harappans.

The Harsh-kā-Ṭilā mound is to the west and north-west of Thanesar (76° 49' 40" east; 29° 58' 30" north) town and is separated from it by a road. It is an extensive mound and is approximately one kilometer in length, about 750 meters in width. It is between about 15 and 18 meters in height, the highest point being about 26 meters from the surrounding plains. The longer axis of the mound is north-south. On the north-eastern edge of the mound below it is the sarāi (popularly called as stables and now converted into a municipal park) and towering above is the beautiful tomb of Shaikh Chaheli (or Shaikh Chilli) and madrasā ascribed to Dārā Shikoh. Close to the western entrance gate leading to the madrasā and Shaikh Chaheli’s tomb is the small Pathar Masjid which is decidedly earlier. Under the shadow of this tomb and the mosque is the small basti already mentioned earlier. The mound has been cut to a large extent on the eastern as well as southern sides where kachchā houses have been built below along the road; the northern and the southern portions are relatively intact except for scouring by deep rain gulleys. In the exposed sections of the rain gulleys and portions which have been cut on the eastern and southern sides one can see several courses of brick-built structures of sufficiently large dimensions which are decidedly of pre-Islamic times.

Apart from the almost oblong shape of the mound which seems to be divided into three parts on the basis of surface features, the western edges and the north-western corner of the mound which are much higher than the rest of the mound suggested to us the existence of some kind of fortification. Equally striking is the gap on the western periphery of the mound towards the Bāhari village which we
surmise represents entrance gateway. The portion of the mound facing this gap is lower than the surrounding area of the mound. This could perhaps mean that there existed a road leading to and connected with the entrance gateway of the settlement. This surmise will be checked in the coming years when more areas of the mound are excavated. Likewise, our surmise about the raised portions as representing fortification or about the bastion was substantiated in the course of our excavations. On the northern side of the mound are to be seen fallen portions of brick structures on the edge which represent remains of fortifications and also small hammâms which could perhaps be of the same time or slightly later than the Shaikh Chaheli’s tomb. A brick-built platform close to these remains on the surface with lime-plastered surface also is a clear evidence that it is a seventeenth or early eighteenth century structure.

Apart from the profuse quantity of pottery, bricks and brickbats strewn all over the mound which may belong the periods ranging from the early historical times to the late Mughal and even modern—the Harsh-kâ-Ţîlā mound and Thanesar have also yielded Brahmanical as well as Jaina sculptures and architectural fragments ranging in date between the sixth and the twelfth centuries A.D. A few terracotta figures are also reported from Thanesar which can be placed between fourth-fifth century and eighth to twelfth century A.D. In recent years bricks of the Śuṅga Period, Kushâna pottery, Gupta terracotta plaques have also been found. Cunningham had also reported the discovery of a Gupta terracotta plaque and a mud-brick platform near Thanesar. In his Report based on his visit in 1863-64 Cunningham mentions ‘an old ruined fort, about 1200 feet square at top, with the modern town on a mound to the east and a suburb called Bâhari, on another mound to the west. Altogether the three old mounds occupy a space nearly one mile in length from east to west, and about 2,000 feet in average breadth. But before the inroads of the Muhammadans, it is certain from the number of brick ruins still existing, as well as from the statements of the people themselves, that the whole of the intervening space between the present town and the lake, which is now called Darrâ, must have formed part of the old city’. 

As already stated above, the surface features of the Harsh-kâ-Ţîlā indicate as if it had three almost clearly demarcated divisions.
For the purposes of our excavations too, we treated these three divisions as separate though connected areas and the site was accordingly divided into three sectors called TSR-1, TSK-2 and TSR-3 from north to south with a common base line dividing the site into almost equal eastern and western halves.\textsuperscript{25}

In the northern sector or TSR-1, apart from the trenches measuring $80 \times 20$ m in the flat area, some trenches were opened on the slopes and the north-western corner as well. In TSR-2 or middle portion of the mound, small trenches were opened only on the western periphery. The trenches opened in TSR-3 also covered an area of $80 \times 20$ m A small trench was also opened up in the southern slopes of the mound in TSR-3.

The present settlement on a small portion of the mound and abutting it could be termed as the latest phase of occupation at Harsh-ka-Ṭilā. Between this phase and the last phase of occupation which was excavated by us, there is a distinct gap. At the moment we are not concerned about this settlement and houses which are as if suspended in time and can help us in understanding remains of the last phase of occupation excavated by us.\textsuperscript{26}

The last phase of occupation at the Harsh-ka-Ṭilā as excavated in our first season’s dig is represented by structures and other material which could be termed as belonging to the Mughal Period. Though it has not been possible for us to clearly separate the two, there seem to be two sub-phases—Mughal and Late Mughal. Among the structures unearthed are house-complexes, a hall-like building, entrance staircase leading from a paved street to (an as yet unexposed) building, brick-built entrance with beautiful offset projections, covered and open drains some of which are lime-plastered, bricks-on-edge floors, etc. In one of the excavated trenches, close to the hall-like structures was found a series of shallow pottery basins in a row on a bricks-on-edge floor. Use of lime rammed with earth, flat bricks, or plain rammed mud was also noticed in floors of houses. Use of lakhauri bricks of different sizes ($21 \times 11 \times 3$ cm, $18 \times 10 \times 4$ cm, $18 \times 9 \times 3$ cm, $17 \times 11.5 \times 3$ cm, $17 \times 11 \times 3.5$ cm) and reused bigger-size bricks ($25 \times 15 \times 5$ cm, $24 \times 14 \times 4$ cm) and brickbats laid in mud mortar (in a few cases lime mortar) is a feature of the structures of this phase. Use of lime plaster was noticed in some drains and portions connected
with the hall-like structure. This structure, measuring 10.15 × 8.50 m, the roof of which was resting on brick-built square-based pillars, had inside it fair quantity of slag, ash, loose greyish earth, tandoor-like oven, kuthla or storage jars which lead us to surmise that this building may have been used as some kind of smithy or workshop and not as a dwelling unit. We have also unearthed houses with kitchens having earthenware utensils, pestles and grinders, chūlḥās and other refuse material.

The houses were built along streets with lanes and bylanes evidence of which was clearly seen both in TSR-1 and TSR-3. One of the houses in TSR-1 opened into a 2.40 m wide street which was paved with bricks and brickbats.

Apart from structural evidence, ceramic evidence also indicates this phase being Mughal as was attested by the presence of fine Mughal wares, both plain and decorated, stone ware and sherds of Chinese porcelain some of which contain inscription in Chinese characters, fragments of green carafe, besides copper coin of Shah ʿĀlam II (1759-1806) issued from the Delhi mint, a signet ring with an inscription reading “Faqtr Moḥammad Fāzīl”, a terracotta seal with an inscription on both faces, etc. The inscription on one face of this seal reads “Khādīm-i-Sharʿ ibn Muḥammad Qādiyan Qādi Muḥammad Fadil” meaning “The servant of the Religious Code (Shariʿ) ʿĀmīr Muḥammad Fadil son of Muḥammad Qādiyan” and on other “Nūr Muḥammad Aḥmād Shaikh ibn” which means “Shaikh Aḥmād son of Nur Muḥammad”.

Incidentally, it may be mentioned that a few East India Company and even modern coins were also found from some pits.

Immediately preceding the Mughal Period and without any perceptible break were found remains of structures and other antiquities which we have placed in the Indo-Islamic period. The pottery of this period is marked by the presence of glazed wares which are comparable with the ones found in several other excavated sites in northern India. Among the structural remains of this period a large-sized house, with at least five rooms, is worth mentioning. Evidence of some kind of conflagration towards the end of this period was noticed in the southern sector (TSR-3) of the mound by way of depots
of ash. However, this needs to be more carefully examined and understood.29

The remains of the pre-Islamic period comprise the Rajput, post-Gupta and the Gupta and finally the Kushāṇa. Though we did find a few sherds of the Painted Grey Ware and associated wares, we have not been able to excavate in detail clear areas.

The evidence of the Rajput Period is comprised of three structural phases of building activity. Evidence of structural remains and architectural fragments of about the tenth-eleventh century (though found from the surface and rain gullies) confirm the evidence from the dig. The more distinct ware of this period are the red ware pots having stamped decoration in the form of concentric circles, floral designs, etc., knife-edged bowl and micaceous red wares. It was noticed that knife-edge bowl was predominant in the upper levels of this phase.

The phase preceding this is what we have termed as Post-Gupta. Apart from the different types of structural remains significant discovery of the period was the remains of a massive brick building. We were able to trace portions of this building to a length of about ten meters and of one of the walls we had exposed 99 courses without reaching the bottommost course. It is apparent that this massive structure was not an ordinary dwelling and was perhaps a public building, representing the remains of—if we may hazard a guess—portion of a palace! It is, of course, premature at this stage to dwell upon this and it is only in the coming years when we excavate it further that we shall be able to understand it more clearly.

The pottery of this period is typically Post-Gupta ware having chocolate brown slip, impressed decorative motifs, with corrugated profile, etc. A very fragmentary stone inscription in seventh century characters,30 a beautiful torso of Kubera substantiate our contention ascribing the structure to about seventh century. Incidentally, the bricks used in the construction of this structure are of different sizes varying between $39 \times 24 \times 7.3$ cm and $32 \times 21 \times 5$ cm.

The distinguishing features of the Gupta period are red polished ware with typical shapes and forms and moulded wares, a fragmentary Viṣṇu image and other Brahmanical deities, terracotta plaque, a small mould for human head, etc. Since it was not possible for us to
excavate clear areas, we are not in a position to say anything about structures at present.

The Kushāna Period at the site is represented by typical terracotta beads, human and animal figurines and a terracotta plaque. In one of the areas we found more than thirty terracotta tablets having in most cases three oblique, vertical or curved lines which are similar to the ones reported from Rangmahal, Sanghol, Srinagarapura, etc. Finally, we may mention discovery of a sealing with the figure of a humped bull with an inscription below having three letters. The inscription has been tentatively read as ‘Śrī Rudrah’ written in first-second century A.D. characters. Some copper coins and fragment of terracotta votive tank, and copper antimony rods are also worth mentioning.31

As already mentioned earlier, sherds of Painted Grey Ware and associated wares have also been found from one of the excavated trenches. On present showing, this represents the earliest phase of occupation at Thanesar. At the moment we are not in a position to say much about this phase.

Before we conclude, we would like to mention about the discovery of the defence wall on the western periphery of the mound and corner bastion on the north-western corner and another smaller bastion on the north side as anticipated by us. This brick-built defence wall is on an average about 4 meters in width. Apparently, there are several phases of its building beginning with the Mughal period or slightly earlier. The defence wall exposed in a small area on the southern slopes however may date back to an earlier period, perhaps to about seventh-eighth century A.D., if not even earlier.

We believe that the results of our excavations at the Harsh-kā-Tīlā have unfolded interesting clues, evidence and information about the material culture covering a span of nearly two thousand years or more. To us, the discovery of remains of the period following the Gupta Period seem significant and it would also be of interest to the historians and archaeologists. We would, however, reiterate that several of our conclusions, including our classification of periods or phases, are at the moment rather tentative.
NOTES AND REFERENCES

1. It is intriguing to note that in none of the early writings on Thanesar, from Alexander Cunningham onwards, the mound is called the Harsh-kā-Ṭilā. Alexander Cunningham had visited Thanesar (Sthaneswara) in 1863-64. In his report he does not mention about Harsh-kā-Ṭilā and calls it Thanesar, or Sthaneswara even though he does allude to the Bāhāri mound and another mound to the west besides the modern town to the east.

With his penchant for recording all available information including even the legends and traditions about sites and places visited by him, it is rather odd that Cunningham did not mention the name Harsh-kā-Ṭilā. In the map also of Thanesar accompanying the text, he does not give the name Harsh-kā-Ṭilā to the mound while he has referred to names of other ancient mounds and places in and around Thanesar, including the mound known as Rājā Karna-kā-Ṭilā. See, Alexander Cunningham, Archaeological Survey of India, Four Reports Made during 1862-63-64-65, vol. II, Government Central Press, Simla, pp. 212-223, plate LXX. For description of the Thanesar mounds and buildings, pp. 220-223.

In his book on ancient geography also Cunningham does not mention the name Harsh-kā-Ṭilā. See Alexander Cunningham, The Ancient Geography of India, I, the Buddhist Period, reprinted, Varanasi, 1963, pp. 276-283.

Daya Ram Sahni, who had carried out excavations at the mound known as Rājā Karna-Ka-Ṭilā, while briefly describing Kurukshetra, also does not mention Harsh-kā-Ṭilā; see, Annual Report of the Archaeological Survey of India for the year 1921-22, Government of India Press, Simla, 1924, pp. 46-49. In his brief report on Thanesar published in the following year, Daya Ram Sahni mentioned ‘an old ruined fort about 1200 feet square at top, with a suburb locally known as the Bāhāri Fort, i.e., the outer fortification and the modern town, which is also situated on an ancient mound’. He also referred to the tradition, which assigns the construction of the Thanesar Fort to Raja Dilipa, a descendant of Kuru. He further added that the existing remains ‘cannot be anterior to about the 7th century A.D.’ and ‘felt inclined to judge that the fort was most probably founded by Harshavardhana, who ruled over the whole of Northern India from 606 to 648 A.D.’ The chief reason for this inference, apart from other considerations, is the fact that all visible structures in the fort are composed of bricks. See Annual Report of the Archaeological Survey of India, 1922-23, p. 90. Sahni also does not mention the name Harsh-kā-Ṭilā for the mound.

That the mound is ‘popularly known as Harshavardhana-Ka-Qila’ is stated by V.N. Datta and H.A. Phadke in their History of Kurukshetra, Vishal Publications, Kurukshetra, 1985, pp. 79-80.

My colleague Shri R.P. Sharma, a member of our excavation team, informs me that the name Harsh-kā-Ṭilā is given in the revenue records. This
however needs to be verified. The local people who were almost thronging our excavations also used to call the site variously as Harsh-kā-Ṭilā and Harsh-kā-Qilā. An eminent scholar, Dr. i.O.P. Bhardwaj, Director, Institute of Sanskrit and Indological Studies, Kurukshetra University, who visited our excavations mentioned the site as Harsh-kā-Ṭilā.

2. Cunningham, *ibid.* Vasudeva Sharan Agrawala, *Bhārat Sāvītṛ Mahābhārata kā eka navin aur sāragarbhīta adhyayana, Khanda 2, Udyoga-Parva se Strī-Parva tak* (in Hindi), Sasta Sahitya Mandal Prakashan, 1985, pp. 276-277. Agrawal also mentions that during that time of Prabhākaravardhana, Thanesar became a very big centre of Pāṣupata Śaivas who were the followers of Lakulīśa. Also see, Amar Singh, *‘Sanskrit Sāhitya men Kurukshetra’*, in *Kurukshetra*, published by Director, Public Relations, Haryana, 1987, pp. 1-8, and S.P. Shukla, *‘Sthāniśvara’*, in *ibid.*, pp. 9-12; H.A. Phadke, *‘Kurukshetra—a historical reconstruction’*, *ibid.*, pp. 29-34; Udai Vir Singh, *‘Ancient relics from the Kurukshetra region’*, *ibid.*, pp. 35-40.


6. *ibid.*, pp. 77-78; Devahuti, *op. cit.*, p. 56 and note 2; Cowell and Thomas, *op. cit.*, pp. 79-81. The discovery of terracotta sealings bearing the legend ‘Sthāṇeśvarasya’ in Brāhmī characters of fourth-fifth century A.D. from Daulatpur, a site about 15 kilometers from Thanesar, is important. The site has been excavated by Department of Ancient Indian History and Archaeology, Kurukshetra University. See Shukla, *op. cit.*, p. 10, Udai Vir Singh, *op. cit.*, pp. 38-39.


it is mentioned as "The land of religious merit" (or "happiness").


10. See above, note 1.

11. These are as yet not protected by the Archaeological Survey of India. We propose to recommend these for protection as Centrally-protected Monuments of National Importance.

12. Cunningham, 1873, *op. cit.*

13. Cunningham (*ibid.*, p. 220), Daya Ram Sahni and others have made a specific mention of this mound. See above, note 1.

14. Cunningham also mentions about 'two ruined mounds, of which the larger is known as the Madrasa, or "College", and the smaller is covered with Muhammadan tombs'. *ibid.*, p. 221.

15. Of the two aforesaid mounds, according to Cunningham, 'it is probable that this smaller mound may be the remains of the stupa from which all the larger pieces of brick have been carried away, and the larger mound may be the ruins of an extensive monastery; *ibid.*, p. 221.

16. This is what my colleagues Ashok Patel, D.N. Dimri, G.S. Gaur, Jag Mohan Thapar and K.C. Nauriyal, who were in our team, also felt.


18. Udai Vir Singh, *ibid.*

19. According to Cunningham, 1873, *op. cit.*, p. 222, 'The Patharia or "stone masjid" ... is a small building, being only 37 feet long by 11½ feet broad inside, but it is remarkable for its minars which are attached to the ends of the back wall instead of the front wall, as is usual. These minars are fluted below alternately round angular flutes like the Qutb Minâr, and as they have a great slope, I think that the building may be assigned with some probability to the time of Firuz Tughlak, or towards the end of the 14th century'.

Dr. Z.A. Desai, formerly Director, Epigraphy, in the Archaeological Survey of India, who kindly saw the few photographs of the mosque available with us, feels that the mosque has certain features like trabeate construction, ornamental ceiling, Khalji type of ashlar masonry, etc., which are ascribable to pre-Tughlaq period. The lower fluted portion of the rear corner circular towers is also reminiscent of the Adhâi-Din-kâ-Jhompâr at Ajmer.

20. Daya Ram Sahni, *op. cit.*, p. 90, also (see above, footnote 1) ascribed the fort to Harshavardhana. This be inferred from 'the fact that all visible structures in the fort are composed of bricks measuring 14" × 8½" × 2½". The fort is said to have had 52 towers or bastions, some of which are still extant. The number of gates is not ascertainable, on account of late renewals of the fort during the Muhammadan and Sikh periods. I have, however, definitely located one of the original gates on the west side of the fort. It consists of a broad passage flanked by solidly built brick bastions which presumably gave access to one of the main streets of the fort, as remains of buildings are
clearly seen for a considerable distance along it. In the gate the passage is paved in brick laid on edge. The right-hand bastion, which was partly excavated, appears to consist of a small chamber with a narrow entrance. The rampart at this point is just eleven feet thick, and this would appear to have been the thickness of the wall on all sides...’

21. Daya Ram Sahni also refers to his having ‘definitely located one of the original gates on the west side of the fort’. See above, note 20.


25. This has been done keeping in view the fact that excavations are to continue for several seasons.

26. We intend to document and study these settlements.

27. These are in beautiful Nastaliq characters. The seal was read by Dr. Z.A. Desai, former Director, Epigraphy, Archaeological Survey of India.

28. Study of the material and its comparison with other sites is already under way.

29. Though we are not suggesting that this coflagration is connected with Māḥmūd’s invasion, it is important to remember that ‘Sulṭān Māḥmūd of Ghazna had invaded Thanesar in October 1014 and took away from there the idol of Chakrāsvāmin to Ghazna where it was cast into the public square’, See, Muhammad Nazim, *The Life and Times of Sulṭān Māḥmūd of Ghazna*, Cambridge, 1939 (reprinted, Munshiram Manoharlal, New Delhi, 1971), pp. 103-104. Also see, Phadke and Datta, *op. cit.*, pp. 79-82, with references to Al-Biruni, Utbi, Isāmi and Firishta. Al-Biruni had accompanied Māḥmūd during his Indian expedition and has made interesting observations about Kurukshetra and Thanesar in his *Kitāb ul Hind*.

30. The few surviving letters are reminiscent of the characters in the Madhuban inscription of Harsha.

31. Most of our metal objects, including coins, have not been chemically cleaned so far. Likewise, other scientific studies including metallographic examination, analysis of grains recovered by us using flotation method, soil analysis, etc., are yet to be taken up.
WEST Bengal is the name given to one of the eastern states of India. It stretches from the Himalayas in the north to the Bay of Bengal in the south, laying roughly between 90° and 85° north latitude and 90° and 20° east longitude. The state has four main physical divisions, viz., (i) sub-mountain terai (Darjeeling, Coochbehar and Jalpaiguri districts); (ii) the northern para-delta (West Dinajpur and Malda districts); (iii) the western margins comprising largely the laterite piedmont plain between the Hooghly and Peninsular Block and contai Central plain (Burdwan, Birbhum, Bankura, Purulia and Midnapur districts) and the Ganga delta (Murshidabad, Nadia, North and South 24-Parganas and Hooghly).

The third physiographic division corresponding to what is known as Rarh, is a shelf of old alluvium flanked by endless fans of rivers like Ajay, Damodar, Rupnarayan and Kasai. These rivers fall into the dead delta zone below the higher land along the Hooghli banks. It is in this region that the extension of prehistoric Black-and-Red Ware culture of western and central India has been traced. No positive evidence has yet been discovered to suggest that the people belonging to this culture in West Bengal entered into the early historic phase through a process of natural evolution. Excavations at Pandu Rajar Dhibi, Bharatpur, Mahishadal, Dihar and Tamluk have shown an intervening gap between the protohistoric and early historic settlement. In this context, it is noticed that the excavation at Mangalkot in the Burdwan district has indicated an unbroken continuity from protohistoric to early historic phase; this may be taken into account after the publication of detailed report. Indeed the presence of early historic
settlements at protohistoric sites of West Bengal appear to be more a result of expansion of early historic culture from the Ganga delta than a consequence of transition from pre-Iron to Iron Age.

One of the most important early historic cities in West Bengal is the port-town of Tamralipta. It is now represented by Tamluk, a sub-divisonal town in the Midnapur district. As a result of excavation and exploration a large number of antiquities of Mauryan epoch have been discovered from this town. A few wooden fragments recovered from the Bargabhima temple site are believed to be remains of Roman palisade. From a high mound were unearthed 300 cast coins of the second century B.C. Among the terracottas found at Tamluk some are of Hellenistic affiliation, However, the majority of these terracottas belong to the Śuṅga-Kushāna art-idiom. Several pottery vases from this site are said to have Egyptian or Minoan parallels. Pottery fragments of rouletted ware are also reported from this place. Many of the finds from Tamluk being datable to post-Kushāna epoch suggest that this port town continued to thrive some time after the early historic period.

Some other early historic sites are located in the Birbhum. One of them is Birnagar (Murarai P.S.). An extensive mound at this place is said to have yielded brick-bats and other materials. Remains of early historic period were discovered in excavation at Nanur, Kotasur, Hattikra, Mahisadal and Asurdanga is another significant site in this area which possibly contains the relics of the period under review.

Pandu Rajar Dhibi, an excavated site in Burdwan district, shows traces of pre-historic and early historic settlements. Recent excavation work at this site laid bare five-fold sequence of culture of which the last three belong to early historical period yielded Black-and-Red Ware, Black Polished Ware, Northern Black Polished Ware, iron, bone implements, beads of semi-precious stones and others. In view of the result obtained by this excavation, notices of an earlier excavation, giving a confusing picture of culture sequence and mentioning the microlith at the same level at Pandu Rajar Dhibi, should be ignored. Mangalkot is another important site in the Burdwan district. The site excavated in recent years is reported to have six cultural phases. According to the excavator, the third phase represents the Maurya-Śuṅga and the fourth the Kushāna,
the fifth the Gupta and the sixth the post-Gupta. Thus there are two phases, viz. third and fourth of Mangalkot which belong to the early historic period. The significant findings of this period are the N.B.P. and associated wares, copper cast coins, terracotta figurines of the Śuṅga-Kushāṇa periods, beads, varieties of objects made in copper, iron nails, etc. Brick built structures appeared in the Kushāṇa Period. Thus, prolonged cultural sequence and the rich cultural heritage at Mangalkot may add a new dimension to Indian Archaeology.

At Dihar\textsuperscript{10} in the Bankura district, were unearthed traces of Chalcolithic and early historic settlements. Early historic phase II of Dihar is marked by the introduction of iron. This phase is characterized by cast copper coins, ceramics typical of Śuṅga and Kushāṇa period, semi precious beads and terracotta objects.

Northern para-delta is essentially a vast plain watered by innumerable old river courses. Its physiographical nature favoured the growth of early urban sites. Among such sites known to us only Bangarh\textsuperscript{11} (West Dinajpur district), lies in West Bengal. It has been identified with ancient Kotivarsa, a metropolis of the Pundravardhana bhukti. Excavation carried out at this site shows three phases in its cultural history. Phase I corresponding to the Maurya-early-Śuṅga age belongs to the early historic period. From Phase II have been discovered brick structures of the Gupta Period. Phase III belongs to the post-Gupta epoch. Unfortunately, no correlation between the excavated materials and their respective phases is made in the published report of Bangarh Excavation.

In West Bengal, the most important region during the early historic period was the Ganga delta. It was so because the region felt the direct impact of process of second urbanisation of the Ganga basin. Of the urban centres, which grew up as a result of this impact, Chandraketu Garh\textsuperscript{12} in the north 24-Parganas district, happens to be the largest in dimensions. Also known as Berachampa, this site emerged as a fortified town during the sixth/fifth century B.C. Its mud built rampart wall encircles an area of five square miles. Excavations were conducted at Khanamihirer Dhibi and Ikholar Danga, both lying within fortified area. At Khanamihirer Dhibi six successive periods of occupation were noticed. Period I, assignable to the fourth and third century B.C., NBP and punch marked coins were found. Period II
is distinguished by usual ceramics of the early Christian-era, terracottas of the Śuṅga-Kushāṇa age; numerous copper coins, beads of semi precious stone, terracotta sealings and other minor antiquities. Period II yielded rouletted ware spouted cups, terracotta figurines, etc.

Excavations at Itkholar Danga revealed a sequence from sixth century B.C. In period I punch marked coins, NBP and other objects were noticed. Period II produced terracotta plaques, cast copper coins and other antiquities. The significant finds from Period III are rouletted ware and other objects assignable to the first century A.D. A cutting across the rampart near Itkholar Danga area shows that the rampart had two structural phases. Raised on the foundation of brick bats, surkhi and not sherds. The earlier phase of the rampart falls in the first century B.C. Its later phase is placed in the first century A.D. Remains of a wooden structure were found in the rampart foundation.

Beside Chandraketu Garh the other early historic sites in the Ganga delta include Boral, Harinarayanpur, Haripur Deulpota and Atghara. All these sites which have only been explored, are in the South 24-Parganas district. The antiquities reported from these sites, include terracotta figurine, pottery, beads of semi-precious stone and other objects. From Harinaryanpur was reported a sherd inscribed with the character of the second century B.C. the inscription reads Mitradharma. The same site has yielded NBP punch marked coins, Śuṅga-Kushāṇa terracotta and other objects. Adi Saptagram in Hooghly district is also noteowrthy, as typical rouletted ware of Roman origin have been reported from the site.

It may appear from what the archaeological excavation have laid bare that not before the flowing of the second course of urbanization into Bengal urban centres developed in this region. Even when urban culture entered Bengal, its growth and expansion were not uniform.

Materials found at such sites like Chandraketu Garh, Tamluk, etc. give a picture of the general character of the urban culture in the Gangetic plain of West Bengal. It is evident from the finds that there was free availability of iron and copper in this region. These two metals may have played a significant role in the urbanization of the lower Gangetic plain. Another characteristic feature is the association
of these sites with NBP During the early historic period, these centres witnessed a phenomenal growth in trade and commerce. Abundance of coins, terracotta objects, precious and semi precious stones, pottery of a very fine fabric, brick built structures etc. points to an effluent society thriving on a lucrative trade both internal and international—which was favoured by the nearness of the Gangas and the sea.

It seems that the early historic tradition of the Ganga delta, while travelling to the laterite region of West Bengal, brought with it the chalcolithic Black-and-Red Ware. Indeed there is no corroborative evidence for suggesting that the presence of this Ware in the laterite region was the result of a natural transition from prehistory to early history.

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A NOTE ON ‘THE URBANIZATION IN BIHAR’

SITA RAM ROY

RECENT archaeological researches have supplied sufficient data which clearly indicate how and when towns and cities grew in this part of the sub-continent. In the beginning of the cultural development of man, one finds that people began their settled life in place of nomadic life at and near such places as had ample water-resources nearby. Naturally, the towns and cities saw the light of the day on the banks of some rivers or near the sea-coast. Bihar had potentiality in making towns and cities in the beginning of the historical period. The Gaṅgā, Gaṇḍaka, Kosi, Kamalā, Balāna, Lakṣmaṇā (Lakhandayi), Baghamati etc. along with their tributaries numbering about one hundred,¹ are the important rivers of the region concerned,² the banks and the neighbouring areas of which in course of archaeological excavations have revealed a story of the beginning and successive development of towns and cities in Bihar to a large extent.

Vaiśāli being near the Gaṇḍaka (Nārāyanī) and not far from the Gaṅgā, Balirājgarhi falling in the region of the Kamalā and Balāna, Katrā on the bank of the Lakṣmaṇā and near the confluence of the Lakṣmaṇa and Baghamati and Chirānda on the bank of the Gaṅgā and near the confluence of the Ghaghara and the Gaṅgā were early towns or cities of north Bihar whereas Rajagriha and Pataliputra on the bank of the Soṇa,³ Mudgagiri and Champā by the side of the Gaṅgā and Sonpur or Sonitpur on the bank of the Jamuni river developed as urban centres in south Bihar during the early historical period.

It would not be out of place to mention that even other towns and cities of later origin developed on the river-banks. Of more than
fifty big or small towns and cities of modern Bihar, situated on the banks of different rivers, only a few of later origin grew beyond riverbanks but definitely not very far from them.

In this connection it has to be emphasized that introduction of iron helped the urbanization to a greater extent, but at the same time it cannot be denied that the absence of iron could not be able to check the birth of urbanization. The ample water-resources for irrigation and navigation must have come forward in bringing about the surplus of food-grains from nearby cultivable areas and adding to the trade, commerce and the then different urban industries. Iron technology, no doubt, contributed a lot to the easy removal of jungles and tilling of lands, but at the same time the discovery of neolithic celts from the early historical levels at different sites does not minimize the importance of those stone implements even after the introduction of iron and it also reflects that the birth of urbanization might not have waited for the arrival of iron-technology. In Bihar almost all the hitherto excavated sites have supplied such data as would come for the rescue of the proposed hypothesis.

In this context one of the above-mentioned sites, viz., Vaisāli, has been selected for detailed examination. It may be mentioned that ancient Vaisāli imbibed in it most of the urban characteristics, such as dense population, non-food-producing specialist classes dependent on the earnings from their specialized works or professions, monumental buildings, existence of ruling class, writing, trade and commerce and spirit of community among urban dwellers. Both the literary and archaeological evidences bear witness to the fact that urbanized Vaisāli with a large area was densely populated, and its population included among others the non-food-producing classes like traders, banks, potters, stone-bead-makers, coin-mint-masters and different metal-smiths. The reference to its monumental buildings, pleasure-gardens and lotus ponds is, to a large extent, corroborated by archaeological evidences. The discovery of the terracotta seals and sealings having early evidences of writing combined with the early literary reference to the concordant character of the Lichchhavis, the urban ruling class and settlers of Vaisāli constitute sufficient data for writing the urban story of the concerned site of the days of yore.

Vaisāli is also one of those Indian sites which were, in the days
of yore, towns or cities and have, in course of times, ceased to possess an urban character. On the basis of the available evidences, whether literary or archaeological, efforts have been made, in this treatise, to trace how and when the place in question was urbanized.

Although the earliest reference to the Vaisāli-Videha region is traceable in the Śatapatha Brāhmaṇa (1.4.1.10-19) in the story of Videgha Māthava in connection with the spread of the Vedic culture in the land, but Vaisāli by name does not appear in any form here or in any other Vedic text. Vaisāli figures as a city in the Epic-Purāṇic literature. The Rāmāyaṇa of Vālmīki mentions that the city Vaisāli was founded by king Viśāla, a son of Ikṣvāku and the heavenly nymph Alambuṣā, after whose name the city was called as Viśāla. The Viṣṇu Purāṇa records that Trīṇavindu, a descendant from Ikṣvāku, had by Alambuṣā a son named Viśāla who founded the city of Vaisāli. According to the Rāmāyaṇa, Rāma, Lakṣmaṇa and Viśvāmitra had a view of the city of Vaisāli from the northern shore of the Gaṅgā. Since the Epic does not clarify that the city of Vaisāli was exactly on the bank of the Gaṅgā and since it clearly records that while seated on the northern shore of river, the above-mentioned travellers viewed the city, it may be inferred that towers or the pinnacles of towers, if any, of the city were probably seen by them when they had cast their glance towards north. The travellers, referred to above, had been to the city as royal guests. This city has been described in the Epic as excellent, charming and heavenly.

The Jataka I refers to the three ramparts, at a regular distance of a gavuta (or a quarter yojona) from one another, surrounding the city of Vesāli (Vaisāli) which had gates with watch-towers and buildings at those three places. The Vinaya texts acquaint us with the fact that this celebrated city possessed numerous storeyed buildings, pinnacled houses, pleasure-gardens and lotus-ponds. The later Buddhist texts also bear witness to the existence of high buildings and towers of Vaisāli. The Lalitavistāra mentions that the city of Vaisāli was “adorned with buildings of every description, storeyed mansions, buildlings with towers and palaces, noble gateways and charming with beds of flowers in her numerous gardens and groves”. In accordance with Buddhaghoṣa, the Mahāvana of Vaisāli had a Kūṭāgāraśāla, a storeyed building (pāsāda), built on pillars and putting
a pinnacle above, resembling a chariot of gods (devavimāna).\textsuperscript{14}

As early as the fifth century A.D. Fahien, a Chinese Buddhist traveller in India, also saw the Kūṭāgaraśalā (a double-galleried vihāra) along with many other buildings including the monastery built by Āmrapāli and a few topes.\textsuperscript{15} The records of Yuan Chwang, a seventh century Chinese traveller in India, refer to the double-storeyed ‘Preaching Hall’ in connection with a wonder-working tope which was built on its old foundations. Besides, the Chinese pilgrim presents a dilapidated picture of the city as he came across dilapidated vihāras and the topes built on the corporeal relics of the Buddha and Ānanda.\textsuperscript{16} We find in the Tibetan Dulva (111, f. 80) that the city of Vaiśālī was divided into three districts; the first district had seven thousand houses with golden towers, the second possessed fourteen thousand houses with silver towers and in the third district there were twenty-one thousand houses with copper towers.\textsuperscript{17} The Tibetan works have described the city of Vaiśālī as earthly paradise with its handsome buildings, parks etc.

The archaeological evidences, as revealed by the scientific excavations, showed that Vaiśālī was once a great city but there was no brick structure in the region of Vaiśālī before the time of the Mauryas. In the pre-Mauryan strata only mud structures were met with. Even Lichchhavis had no brick-buildings; the original stūpa, erected on the corporeal relics of the Buddha by the Lichchhavis, was made of earth.\textsuperscript{18} It may be mentioned in this context that after the mahāparinirvāṇa of the Buddha, all the eight claimants\textsuperscript{19} including the Lichchhavis belonged to such settlements as certainly bore urban characters. The earliest rampart around the Rājā Viśāla Kā Garḥ was also constructed of earth.\textsuperscript{20} It may be noted that no rural ramparts in India have been reported as yet.

Vaiśālī, like many other early towns and cities of north India, traces its urban origin from the beginning of the Northern Black Polished Ware, if not earlier. From the fineness, unparallel polish, superb glaze in different colours and excellent durable character of the N.B.P. Ware, one can easily distinguish its specimens from those of contemporary associated common wares and classify them in such a deluxe group of antiquities as were the representative of the rich,
residing in the then towns or cities. The examples from Vaiśāli were, undoubtedly, very fine; they were made of well-leveled clay, and were fired in a very high temperature under reducing condition, possibly in a saggar, as is evidenced by the uniform firing of the Ware. The discovered examples possessed brilliantly burnished slip of the quality of glaze in varied colours such as golden, silvery, jet-black, metallic steel-blue and sometimes with reddish brown patches. It may not be out of place to mention that the hitherto discovered find-spots of the deluxe N.B.P. Ware in India represented only urban settlements. The examples of the Painted Grey Ware, discovered from Vaiśāli in association with the early specimens of the N.B.P. Ware and unassociated with burnt bricks, added much to the urban status of Vaiśāli of those days.

During the period of the N.B.P. Ware, i.e., between the sixth and the second century B.C., Vaiśāli seems to have built up its urban personality; during that period it not only constructed its defences, but it also made other architectural edifices, whether religious or secular. The early religious structures, made of earth, included mostly stupas and vihāras, and the secular ones which were both Mauryan and post-Mauryan, were represented by residential and other administrative buildings. The stūpas, built of bricks during the Mauryan and later periods, were also encountered in course of archaeological excavations. The ceramics, associated with these structural remains, also included the sherds of the N.B.P. Ware, which not only reflected a deluxe character but also clearly represented an urban life of the region concerned. Needless to say that the Painted Grey Ware, discovered from the pre-N.B.P. levels at many sites in north India, mostly in Uttar Pradesh, Haryana and Punjab, is the representative pottery of the iron-using early urban settlers, but the examples of the P.G. Ware, unearthed from Vaiśāli, were very few and found in association with the N.B.P. Ware. The ceramic specimens, picked up from the pre-N.B.P. level of Vaiśāli, represented by a few sherds of the black-and-red, grey and red wares, were negligible showing simply the evidences of human settlements on the site.

The other associated antiquities from the N.B.P. Ware level of Vaiśāli, undoubtedly, added a lot to the early urban character of the site. The discovery of terracotta seals and sealings with inscriptions in
early Brāhmi character, numerous beads of different semi-precious stones, such as, jasper, carnelian, crystal, agate, amethyst, coral etc., in various shapes and contemporary punch-marked coins, both in silver and copper and cast coins in copper, bore witness to the fact that the site, in question, was completely urbanized during the N.B.P. Ware period. The terracotta seals and sealings from Vaiśāli, a few of which belonging to traders, bankers and guilds or corporations, discovered from one single spot, viz., Rājā Viśāla Kā Garha, in as many numbers as seven hundred and twenty in 1903-4, and further in dozens in the succeeding operations of 1950, in an encouraging quantity in 1913-14 and 1958-59 well reflected the commercial character of Vaiśāli continuously for centuries together from the beginning of the Mauryan period, if not earlier. Similarly beads of semi-precious stones, traceable in numbers from the site under review with the appearance of N.B.P. Ware not only certified the contemporary wealthy urban status of the Vaiśālians, but also clarified the existence of bead-making industry along with beadmaker class. Hitherto no sites in India have singly yielded as many of these objects as have been unearthed from Vaiśāli. The excavations of 1958-62 alone have yielded as many as one thousand and four hundred and twelve specimens. The numerous quantities of cast and punch-marked coins; found in association with the N.B.P. Ware from the site in question undoubtedly bear witness to the fact that Vaiśāli was well urbanized by the beginning of the N.B.P. Ware. As many as sixty-eight copper-cast coins and fifteen punch-marked specimens were picked up as a result of archaeological excation in 1958-62 and a hoard of more than fifty-two silver punch-marked coins was found in course of digging a foundation trench of a wall of a building by a local individual. Numismatists think that different symbols on these coins represented the marks of different trade-guilds or corporations. It is worth-noting that no rural sites have yet been reported to have yielded such antiquities in numbers. The discovery of terracotta figurines and other objects, used as toys or for decorative purposes in urban houses, from the N.B.P. Ware level, showed clearly an urban way of life of the Vaiśālian society. The archaeological examination of the Kharauna tank, identified as ancient Abhiśeka puṣkariṇī where every Rājā of Vaiśāli had to take bath at the time of his coronation ceremony, which is one of the earliest tanks of the locality,
revealed that such tanks were dug by the sixth century B.C. Lastly it is also worth noting that the discovered iron objects included only swords, daggers, nails etc. and not a single specimen of plough-share or any agricultural implement. The absence of any agricultural tools suggests that the site had already been urbanized before the introduction of iron, for such antiquities are essentially expected from the rural settlements of agricultural communities and not from any urban habitation.

Now let us cast a glance over the fact that how and when many of such urban settlements declined. Most of the early urban settlements were done away with due to devastations caused by heavy floods or as a result of the change in the beds of the concerned rivers. In the support of the hypothesis, the example of the ancient city of Pātaliputra may be cited; the city once situated on the bank of the Soṇa river, kissed the ground for good due to the change in river beds. The present city of Pātaliputra, i.e., Patna, is on the bank of the Gaṅgā. It seems that most cities lost their urban character due to the removal of administrative machinery from the concerned sites by the imperial powers as it happened in the case of Vaiśāli. After the Lichchhavis ceased to have ruling sway, the city of Vaiśāli seemed to have started declining as supported by the evidences revealed by archaeological excavations. It is argued that after the Lichchhavis had lost their sway over Vaiśāli, the succeeding rulers most probably removed the administrative machinery from the place as a result of which the urban character of the place began declining and declining till in course of time it was not completely lost. The archaeological operations of the site also bear witness to this fact. With the advent of the Guptan rule the city of Vaiśāli showed its dilapidating condition and by the end of the Pālas its urban character was wholly lost.

From the above study may be concluded that the ancient towns and cities in Bihar grew with the beginning of the N.B.P. Ware with iron technology but without the introduction of burnt bricks. In due course of time burnt bricks were used by the urban settlers. The ancient city of Vaiśāli which possessed most urban characteristics, may be cited as a good example in the present context. The site started losing its urban character, the moment it ceased to be an administrative centre possibly owing to the removal of the administrative machinery from the site by the ruling imperial powers.
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2. The rivers of the Chhota Nagpur region are not important in this respect, for they being hilly, had insufficient water either for irrigation or for navigation.
4. Vaiśālī, modern village of Basāḍh and its neighbourings in the districts of Vaishali and Muzaffarpur of Bihar.
19. Besides the Lichchhavis of Vaiśālī, Ajātaśatru of Magadhas (Rājagṛiha), Śākyas of Kapilavastu, Mallas of Kuśinagara, Mallas of Pāvā, Koliyas of Rāmagrāma, Moriyas of Pippalivana and Bulis of Alakappa were the other seven claimants.
23. *ASI (1903-4)*.
24. *ASI (1913-14)*.
27. *ibid*.
28. *ibid*.
ACCORDING to the local traditions, Champā was established by Champā, the grandson of Lomapada. Mālīni was another name of Champā. According to the Mahāparinibbāna Sutta, Ānanda, the favourite disciple of the lord Buddha, expressed his anxiety over Master’s decision to attain Mahāparinibbāna at Kuśinārā, leaving aside the important cities of Champā, Rājgrhā, Sāket, Kauśāmbī and Banāras. It shows the prominence of Champā at the time of the death of Gautama Buddha.

Let us now examine the factors responsible for the process of the urbanization of the site during the early phase of the N.B.P. Ware period. The important causative factors which influence urban growth are as follows:


The above mentioned factors were present at the site during the N.B.P. Ware period. The vast portion of alluvial land with the irrigation facilities (from river or through wells) were available in those days. Iron might have played a vital role in the development of the city because the agriculturists started producing a surplus food for feeding the non-productive residents of the city. We learn from the Buddhist sources that Champā was a flourishing city renowned for its traders, merchants and craftsmen. This fact is further corroborated by the discovery of excellent antiquities from the site during the period under review. The geographical situation of the site might have played an
important role in the development of trade because the cheap mode of communication as river Gangā and Chandana were available to the merchants and traders. The city was also important as a religious centre. The followers of the Jain religion regard the city as a holy place because Jain Tirthankara Vāsupūjya was born at Champā. Lord Mahāvira had also spent three rainy reasons at the city. The Mahāgovinda Sutta mentions about the fortification of the city. The remains of the ramparts have been found at the site during the period under discussion. Thus almost all causative factors, which are supposed to influence urban growth, were present at Champā during the N.B.P. Ware period.

The site of Champā or Champanagarā (lat. 25° 15 ‘O” N, long. 86° 58’ E) is situated about 5 km west of Bhagalpur town, the district headquarters of Bhagalpur district in the state of Bihar. The mound of Champā is locally known as Karṇagarh. Probably the site derives its name from Karṇa, the famous hero of Mahābhārata who had ruled from here. The total area of the citadel is roughly 1 sq. km. The habitational area on the north of the citadel to the dried bed of Gaṅgā is about 1 km and from Chandana nāla in the west to the Society house in the east is about 2 km.

According to B.P. Sinha "below N.B.P. Ware strata, there was a chalcolithic Black-and-Red Ware culture. Some of the specimens in Black-and Red Ware are quite akin to the chalcolithic Sonapur Ware". Thus it is proved beyond doubt that the settlement was started at the site during the chalcolithic period. The pre-N.B.P. settlement at Champā was rural.

The process of urbanization began at the site during the early phases of the N.B.P. Ware level. The remains of the earthen rampart has been found on the remains of the earlier period. In the middle phase of the N.B.P. Ware period the mud rampart was rivetted with burnt bricks. The remains of the brick built watch-tower have also been exposed. The other important structures of the period are rammed brick floors, terracotta ring-wells, well made of burnt bricks, drains of burnt brick with plaster, steps made of burnt bricks possibly for climbing over the burnt brick rampart.

The associated finds of stone are ten moulds, twentyfive beads, three bangles, two weights, balls and a pestle. Among the antiquities of
bone, the notable objects are points, beads, a toy cart etc. The important objects of ivory are a figurine of mother goddess, one antimony rod and beads. The noteworthy objects of copper are a bowl, one ear ornament (jhumka), wires and slags. The important objects of iron were nails, beads, a dagger and some unidentifiable objects besides the iron slags. Among notable antiquities of gold, mention may be made of two gold beads and a few unidentifiable pieces. Two beads of glass have also been discovered. A good number of terracotta objects such as thirtyfive figurine of nāgin, two skin-rubbers, thirteen animal figurines, five beads and a figurine of bird rattle have also been unearthed.

During the late phase of the N.B.P. Ware level, the remains of burnt brick structures, floors made of rammed brick bats, storage room, the remains of a big hall (5.42×3.10 m) made of burnt bricks, the plan of the block consisting of two, three and four rooms have also been exposed besides brick wells and terracotta ring-wells.

The associated finds of this phase are stylus and points of bone; a bead and discs of ivory; a mould, beads, ball and bangles of stone; cast and punch-marked coins of copper; antimony rods, a simple rod, a silver plated hair clip, bangles and slags of copper; nails, unidentifiable pieces and slags of iron, etc. The notable objects of terracotta are a female figurine, a plaque representing a male deity, another plaque depicting the figurine of Śakti with āyudhas, figurine of nāgini, animal figurines of horse, lion, beads, simple and spoked wheels, a reel, amulets etc.

The site remained occupied and flourished during the Kuśāṇa Period. This fact is supported by the discovery of a good number of brick structures from the contemporary level. The important antiquities of the period are stone beads, terracotta beads, a terracotta stamp etc.

The city started declining from the Gupta Period as is evident from the discovery of the shoddy structural remains made of brick bats, structures of mud and poor number of antiquities at the site from the Period under review. The site was virtually deserted during the post-Gupta period. This fact is further supported by the travel account of Huen Tsang who noticed several saṅghārāmas at Champa
but they were mostly in ruins. So both archaeology and literature agree that the site was abandoned during the post-Gupta period.

The archaeological evidences prove beyond doubt that the site was occupied during the chalcolithic period. The settlement was rural during the period under review. The N.B.P. Ware period first witnessed process of urbanization at the site. It is evident from the remains of mud ramparts over the remains of the preceding period. Again during the middle phase of the N.B.P. Ware level the rampart was rivetted with burnt bricks and watch tower of bricks was constructed. The remains of terracotta ring-wells, ordinary brick wells, drains made of bricks, the remains of a hall, storage-room and other structural remains will illustrate the further advancement in the process of urbanization of the site. Due to the limited area of excavations the complete plan of houses, streets, drains, lanes could not be traced out but the structural remains and antiquities discovered clearly illustrate that Champā became full-fledged city during the middle phase of the N.B.P. Ware level and flourished upto the Kuśāṇa period. The antiquities of the N.B.P. Ware period and the Kuśāṇa Period amply illustrate the prospering condition of several crafts and occupations. On the basis of the objects we may categorize the industries of those days under the following heads—metal-working, stone-working glass-working, bone and ivory-working, clay-working and pot-working. The stone moulds, for making ornaments, beads of gold, silver plated hair pin of copper illustrate the prospering conditions of goldsmiths and coppersmiths. The presence of gold beads, copper objects and beads of semiprecious stones indicate that the raw materials for making objects were imported from outside.

As said earlier, the city started declining from the Gupta Period and it was virtually deserted during the post-Gupta period.

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URBAN CENTRES IN ANCIENT ORISSA
(third century B.C. to seventh century A.D.)

H.C. DAS

Introduction

THE origin of town and city (Puram or Nagaram in Sanskrit) which either evolved naturally (without any conscious planning) or grew with deliberate planning from the beginning, can be traced to a house, a royal palace, a temple, a big self-contained village, a market or a camp and to natural advantages of the locality such as a river-bank, a confluence of rivers, a sea-coast, a crossing of highways, a mountain valley and so on.¹ This contention is applicable to all the urban centres developed over the ages. In India majority of the towns and cities with their origin from villages located in vulnerable points, rose to eminence in course of time with developed planning under the patronage of the royal monarchs. Once a town is developed consciously or unconsciously in a locality, it is provided with necessary urban amenities like regular streets, public drains, markets, fortification, temples, monasteries etc. The archaeological excavations have brought to light ancient cities showing their development and decline along with their cultural sequence. The famous cities of Mohenjo-daro or Harappa, Taxila, Nalanda, Pataliputra and Tosali (in Orissa) may be cited for instance.

The towns in ancient India of any variety were basically forts circumscribed by defence walls along with moats around. Almost all the towns of ancient India so far unearthed bear this characteristic feature combined with other factors common to all or peculiar to a particular locality. “Commerce had to be centralized in the royal capital under the protective aegis and patronage of the royal army
and the wealth of the country flowed into this secure haven. These circumstances combined to account for the brilliant splendour and great magnitude of a metropolis in India as compared with what may be called the country town. Indeed it can be safely asserted that in India every town of note was once a capital of some kingdom or other. The myriads of towns that study the map of Rajputana were at one time headquarters of various chiefs and scions of the royal families continue to reign in most of them even down to this day.”

It is thus clear that most of the towns in the past developed around royal palaces and in the camps of the kings and patriarchs. The circumstances operated to cause wealth and commerce, arts and literature, religion and culture; developing the royal citadel into a magnificent metropolis.

The ancient and mediaeval history of Orissa, as also of other parts of the country, are replete with interesting examples of townships developed by the royal monarchs on the crossings of the highways (like the forts of Tosali, Raibania, Amarda, Vamsada, Ramuna, Amaravati, Jajpur, Choudwar, Viratagada, Varanasi, Cuttack etc.) on the sea shore (towns like Chelitala, Palur, Kalinganagar, Tamralipti etc.), the mountain valley (Junagada, Belesoragada in Sundaragada district), Bualigada, Udayagiri, Maraguda, Podasingidigada, etc.), on the river valley (Viratagada, Haripurgada in the district of Mayurbhanj) in the religious sanctuaries like Puri, Bhubaneswar, Jajpur, Khiching etc.

That all the metropolis of the past grew consciously or naturally followed in course of time systematic town planning, is evident from the archaeological excavations. The town planning in ancient India was based on the traditions as well as on the treatises like Rāmāyaṇa and Mahābhārata, Kauṭṭilya’s Arthaśāstra, Kamandaka’s Nitiśāstra, Somadeva Suri’s Nītivākyāmṛita, Agnipurāṇa, Matsyapurāṇa, Mānasollāsa and various other śīla śāstras, which provide a miscellany of information along with various aspects of Indian culture. It is a well-known fact that of all the ancient works of that kind which have come down to us, the earliest and yet the most comprehensive is the Arthaśāstra of Kauṭṭilya dealing with government, law, war etc. based on the realities of civil and military administration. The ideas, customs and ways and means of the past age were embodied in this
famous work. Thus the *Arthaśāstra* of the Mauryan period was unequivocally accepted as the basis for civil and military administration including town planning and other things. The principles laid down therein were followed for centuries.

With this at the background, I now concentrate on the discussion of urban centres in ancient Orissa. The paper is based on the earlier reports and my survey of the sites. I have attempted to deal with few urban centres of ancient Orissa which flourished between third century B.C. and seventh century A.D.

**TOSĀLI**

The history of urbanization in Orissa may be traced to third century B.C. that is from the time of Aśoka's invasion of Kālīṅga and its incorporation in the Mauryan empire. The Kālīṅga war (261 B.C.), a war of aggression against the Kālīṅgans, was a memorable event in the history of India, as it could change the mind of the great emperor Aśoka who henceforward became an ardent follower of Buddhism. Through his missionary zeal he turned Buddhism to a state religion preaching the gospel of the Enlightened-One in India and abroad. However, soon after he won the war, Kālīṅga was made the fifth province of his empire with its headquarters at Tosāli. The city of Tosāli is identified with Śiśupālagada (located about one and half miles to the south-east of Bhubaneswar town) and its environs.4 This is corroborated by the excavated materials from Śiśupālagada and by the existence of the Rock Edict of Aśoka and the Buddhistic, Jaina and Brahmanical remains on the Dhauli Hill situated very near to Śiśupālagada on the bank of the river Daya and in old Bhubaneswar. It is no doubt a fact that when Śiśupālagada was the administrative centre, Dhauli and the adjoining areas were the religious and cultural centres.

The scholars on Orissan history and culture are of the view that Tosāli was the principal city and capital of Kālīṅga long before the invasion of Aśoka. The *Avaśyaka sūţa*,5 the earliest Jaina literary work, records the visit of Mahāvīra, the twenty fourth Tīrthaṅkara of the Jaina pantheon to Kālīṅga for preaching Jainism. In referring to this work, the eminent Jaina author Haribhadra mentions in his commentary on *Avaśyaka Sūţa* that Mahāvīra came to Kālīṅga to
preach Jainism on the invitation of the king of the kingdom as he was a friend of the latter. The special Kaliṅga Edict of Aśoka at Dhauli throws light on the existence of the city of Tosāli where he posted the officials for administration of the newly conquered kingdom. As regards the location of Tosāli, the description of McCrindle is of great importance, "Tosali, called Metropolis, has become of great importance since recent Archaeological discoveries have led to the finding of the name in the Aśoka inscriptions on the Dhauli rock. The inscription begins thus: By the orders of Devānāṃpriya (Beloved of the Gods) it is enjoined to the public officers charged with the administration of the city of Tosali". Vestiges of a larger city have been discovered not far from the site of this monument and there can be no doubt that the Tosali of the inscription was the capital in Aśoka's time of province of Orissa and continued to be so till at least the time of Ptolemy. The city was situated on the margin of a pool called Kośala Gaṅgā, which was an object of great religious veneration throughout all the country.  

The existence of a metropolis at Tosāli before the Kaliṅga invasion of Aśoka is further attested by the discovery of a hoard of punch-marked coins of the pre-Mauryan period from the summit of the main ridge of Dhauli Hill in 1972. Various other pre-Mauryan antiquities which have been lost to oblivion must have thrown further light in support of the township at Tosāli. The analysis of the Rock Edict XIII, may glimpse on the city of Tosāli. The Rock Edict records that in the Kaliṅga war fought on the vast rocky plain to the west of the city known as Bhima Taṅgi, as many as one hundred thousand soldiers were killed in action and one hundred and fifty thousand soldiers were taken as captives, and many times that number perished due to sufferings of the war. The magnitude of the war can be well-imagined from the account. Several lakhs of well-trained Kaliṅgan soldiers garrisoned in the fort must have confronted the Magadhan army. It is, therefore, well nigh a fact that Kaliṅga was then a very very powerful country with a fortified and well-planned state capital. This capital is no other than the famous metropolis of Tosāli.

Another thing of consideration in this regard is the routes connecting Tosāli. It is recorded in the first special Kaliṅga Edicts that
Aśoka deputed Mahāmaṭṭas of Pātaliputra to Tosāli in every quinquennial. The Prince-Viceroys of Ujjain used to send envoys every year to observe the functioning of administrative officials stationed in the capital of the vanquished country. In the similar manner the officers from Tosāli were deputed to Pātaliputra, Taxilā and other places. It is quite evident that the city of Tosāli was well-connected by rāja-pathas with Pātaliputra, Ujjain, Taxilā and with other important places of the country. These rāja-pathas were in later period used for military expeditions, and for trade and commerce.

The excavation at Śiśupālagarh (Tosāli) by the Archaeological Survey of India in 1948 throws a flood of light on the metropolis. The gaḍa (fort), was square on plan, each of its sides measuring about 3 quarters of a mile long, provided with corner towers and eight large gateways, two on each side and a series of smaller-openings. The town was well-planned with fortification walls and streets inside running east-west and south-north directions connecting the main gates. The availability of large number of potsherds in this excavated area as well as outside the fortification as far as Brahmeswar temple and Bhuṇaṇi temple in the north, suggests the traces of ancient habitations outside the fortified area. It is clear that the fort itself accommodated royal palaces and the attached residences leaving the considerable section of the populace to dwell outside. This was perhaps necessary for the purpose of the defence of the fort and for avoidance of congestion inside. The ground level inside the fort is sixteen feet higher than that on the outside, due to accumulation of soil deposits during centuries of constant occupation. The fort is surrounded by a natural moat (forming a part of the Ganga river). The natural course of the streamlet was diverted to make a moat all around which served the purposes of defence and water supply.

The Dhauli hill where Aśoka inscribed his Rock Edicts lies at a distance of about three miles to the south-west, and the Udayagiri Khaṇḍagiri Hills (famous for Rock-cut caves) about six miles to the west. To the north of the Śiśupāl fort lies the town of Bhubaneswar which contains the relics of Aśokan, post-Aśokan and mediaeval periods. The traces of ancient habitation are also noticed in stretch of land around the Dhauli hill, which awaits archaeological excavation. Considerable damage has been caused to the antiquarian remains
of Dhauli hill due to shifting of stones for temple construction.

The excavated finds of Śiśupāḷgarh and the antiquarian remains extending from Kausalyagaṅgā in the south to the Śikharchaṇḍi in the north, from the Kuākhāi river in the east to Udayagiri Khanḍagiri hills in the west may clearly suggest the extent of the vast township of Tosāli. Tosāli is also identified with Kaliṅganagar of Khāravela’s Hāṭigumpha inscription. The trial excavations of Śiśupāḷgarh brought to light the gateways, the fort walls, the streets and the habitation area along with potteries, terracotta, iron implements, beads of precious stones and many other refined articles which suggest the continuance of an integral culture for centuries. The defence walls were erected in two phases. The first phase consists of a clay rampart of twenty-five feet high and one hundred and ten feet wide at the bottom. In the second phase the top of the clay rampart was added with laterite blocks of four-six feet thick. In the next phase the rampart was added with two brick walls on both sides on the top the laterite gravel and the space in between was covered with mortars. The first phase is assignable to Aśokan period and the second one to the Chedi rule in Kaliṅga. The Hāṭigumpha inscription indicates that Khāravela repaired the gateway and the fortification wall damaged by a storm. Thus the township was greatly developed under Mahāmegha-vāhana Khāravela, the Emperor of Kaliṅga.

The excavated western gateway was made of well-dressed laterite stone blocks. It is broad with two gates, one on the outer entrance and the other at the back. The distance between the two is about one hundred feet. The outer gate was provided with a guard room. The inner gate provided with an ancillary passage (5'3" wide) with a stone floor and approach steps. From the gateways run the streets made of hard mud or laterite blocks or baked bricks. The cart-tracks were also marked in the streets. “During their life time, the structures at the gateway were repaired on several occasions. At one place on the outer side of the southern flank was observed a subsidiary wall built just to support the falling arm . . . . The most notable fall, however, was that of the western face of the shorter arm on the south . . . . The destruction over here seems to have been a sudden and a violent one. The entire face had collapsed and to hold the rest of the structure up, an emergency aid was rushed to the spot. Brickbats were piled up
against it in all sorts of ways, and it was only at a later stage that regular stone facing was provided. That these parts of India are subject to occasional cyclones is well-known and it is not unlikely that such an occurrence may have been responsible for this large-scale destruction.\(^{10}\)

The habitation area, besides the fort, so unearthed shows careful planning indicating successive stages of development of construction and decline. The defences as noted earlier mark development in successive stages and in principle were based on the Arthaśāstra of Kautilya.\(^{11}\) The first phase of the construction is attributed to 200 B.C., the second and third to first century A.D. although the fort continued to flourish till the middle of fourth century A.D.\(^{12}\)

The earliest period exhibits the plain potteries devoid of decorations and the plain structures made of perishable materials. This phase is marked for absence of any defence walls. The next stage of cultural level represents bright, red polished potteries, Black-and-Red Ware of the megalithic fabric, terracotta ear-ornaments, iron implements of war and peace and beads of valuable stones, a pottery ring-well of 1½ diameter covered with a stone slab. The buildings of this period were made of well-dressed laterite blocks and bricks. Significant development in culture is noticed in the next level with bewildering variety of potteries adorned with decorative motifs in red-yellowish colour. Houses built of chiselled laterite blocks and baked bricks with verandah exhibit marked evolution in house pattern which continued till the period of decadance. The discovery of fragmentary terracotta coin moulds suggests the method of coin casting in ancient Kalinga. The coins recovered from the site are a copper coin of Huvishka (second century A.D.), a series of Puri Kushaṇa coins. The other important finds in addition to the above include 180 beads of onyx, agate, chalcedony, glass, ivory, lead, copper and terracotta assignable to the middle period of fluorescence. The central part of the fort is marked for sixteen monolithic pillars of laterite stone with an average height of 15' above the ground. These pillars in style can be compared to those founded at Bharhut, Sanchi and in Udayagiri Hills. The pillars were meant for a structure which was perhaps used as central prayer hall.

The Śiśupālgarh Excavation Report suggests the occupation of
the fort between third century B.C. and fourth century A.D. although the flourishing cultural and political importance of Tosālī of the period anterior to this has been discussed earlier. It can only be indicated that city of Tosālī which witnessed the carnage of myriads of human beings and horror of the war gradually experienced the influence of Buddhism. The Dhauli hill ranges stretching from Delāṅg to Narāj were honeycombed with dugout caves for the recluses. The Panḍava caves to the south of Aśvathāmā rock (Dhauli), the Panḍava Panḍava guمخā near the Bhaskareswar temple, the Lumbini pillar inscription from Kapileswar village¹³ (now in the Asutosh Museum), the unusually big Bhaskareswar Śivalingam (9 ft. high with 12' 2" circumference at the bottom) rightly taken as a portion of a monolithic Aśokan pillar¹⁴, the Aśokan Bell capital (with a height of 5' and 15' .5" circumference) now preserved in the Orissa State Museum, Bhubaneswar, the crowning element of the Aśokan pillar), crude Yakṣa images from the environ of Bhubaneswar (now in the Orissa State Museum), colossal Nāga and Nāgi figures worshipped in the village Sundarpada, four beautiful Buddhist railing pillars from the vicinity of Bhaskareswar temple (now in the Orissa State Museum), two huge stūpas on the terrace of Dhauli hilll (seen by M. Kittoe, A. Cunningham and J.D. Beglar)¹⁵ are some of the numerous Buddhistic remains of the Aśokan period at Bhubaneswar indicating the cultural significance of ancient Tosālī.

Prakṛta inscription¹⁶ of Nāgārjunakoṇḍa of Śri Vra-Purusadaṭṭa records that Tosālī, Pālur and Puspagiri of Orissa were the great centres of Mahāsaṅghikas in the third century A.D. and Upāsika Bodhiṣri erected monuments and a maṇḍapa at Puspagiri. The Mahayanists established their cultural centre at Tosālī which became famous for teaching of Yoga philosophy. The famous treatise Gandavyuha was composed here in the third century A.D. It is further stated that Mahayana teacher Āchārya Sarvagāmi lived in a Vihāra in the city of Tosālī or Amita Tosala. The recluse Suddana was sent to Tosālī to receive training in Yoga philosophy from Āchārya Sarvagāmi. "After a long journey for many days Sudhana entered the city of Tosala which being a metropolis was divided into many small units by main roads, lanes and by-lanes all meeting at one junction. After a long search Sudhana was able to reach the residence of
Āchārya Sarvagami before the night-fall, where he spent the night peacefully. At the break of day Sudhana was charmed to see the beautiful parks and the gardens of medicinal herbs on the Surbha hill glittering in the bright rays of the rising sun".\textsuperscript{17} The Gaṇḍavyuha manuscript was sent to China in 796 A.D. by Subhakar Deva of the Bhauma dynasty through Tripiṭakāchārya Prajñā. The above records clearly indicate the flourishing condition of the city of Tosāli in third/fourth century A.D. with the rise of Tosāli there developed Buddhist cultural centres near Delāṅga, Barunei hill and Ārāgaḍ hill near Khudra and Narājā hill and Bhorāśaila on the bank of the Daya river (established by Āchārya Dignāga) which continued to be the resorts of the Buddhist scholars till the reign of Gaṅgā king Madana Mahādeva.\textsuperscript{18} The caves in Barunei hill contain fourteen small epigraphs, four of which are the inscriptions of the Gupta character. All these centres were connected with Tosāli by highways and the Daya and Bhargavi rivers.

Tosāli was so important a city that the entire coastal region of Orissa from the Mahendra mountain in the south to the river Kaṅsāi (Kapisā) in the north and up to Baud in the west came to be known as Tosāli or Tosala or Dakṣiṇa Tosali and Uttar Tosāli or Ubhaya Tosāli from the Gupta period. The earliest reference to Ubhaya Tosāli is seen in the Nataraja stone inscription of Satrubhanja (fourth century A.D.).\textsuperscript{19} According to this copper plate grants Mahārajā Sambhuyaśa was ruling over Dakṣiṇa Tosāli,\textsuperscript{20} and Uttara Tosāli. The Kaṅsā copper plate of Mahāsāmanta Lokavigraha records that he was the overlord of eighteen forest kingdoms along with Tosāli (Tosatayamaśṭādaśātavi rājyam) and granted land in Dakṣiṇa Tosāli.\textsuperscript{21} The Ganjam C.P. Grant of Mādhavarāja of the Šailodbhava dynasty (620 A.D.)\textsuperscript{22} alludes that Kangoda Maṇḍala (lying between Bhārgavi-Kuśabhadra in the north and Riśikulyā river in the south) was included in the south Tosāli. According to the Baud B.P. Grant of Tribhuvan Mahādevi,\textsuperscript{23} Daṅḍabhukti maṇḍala (the present Midnapore district of West Bengal) formed a part of Uttar Tosāli. The political significance of Tosāli was dwindled during the rule of the Braukamaras, who established their capital at Jaipur, though its religious importance continued for centuries.

The revival of Brahmanism in the sixth century A.D. under the
patronage of powerful kings Sambhuyaśa, Śivarāja, Lokavigraha, Mādhava Rāja and others, was mainly responsible for decline of Tosāli. As a mark of the revival of Brahmanism a series of Śaivite temples Lakṣmaneśvar, Śatrughneśvar, Svarajaleśvar, Mārkandēśvar, Pariṣurāmeśvar etc. were erected at Ekāmra Kṣetra under the patronage of the Śailoddhavas superimposing the Buddhist culture of Tosāli. Hieun Tsang who visited Orissa in 643 A.D. did not make a reference to Tosāli though he furnished an account of Puṣpagiri and other places of Buddhist importance. Although Buddhism lost its significance at Tosāli, Brahmanical religion rose to eminence further heightening the cultural glory of Bhubaneswar.

Jaugaḍa

Jaugaḍa on the bank of the Risikulyā river was a flourishing town under the Mauryan Emperor Aśoka, who inscribed a set of his Rock Edict XIV. The excavation undertaken by the Archaeological Survey of India brought to light a well-planned and fortified township. The presence of neolithic celts above the natural soil associated with Black-and-Red Ware potteries suggests that neolithic culture flourished long before the historic culture. The culture of the area other than that of pre-historic one may broadly be divided into two periods.24 The first period represents a full-fledged iron-using culture. In the first phase the plain potteries devoid of paintings are noticed, but the next phase is marked for Black-and-Red Ware, well burnt with polished surface mostly in the shape of dish and bowl. The remarkable pieces of beads made of shell, bone, carnelian, agate, crystal, quartz were unearthed from excavation. The flooring of the area was made of solid or burnt earth.

The second period is marked for brick and stone structures. The finds include decorated potteries, fine specimens of beads of stones, shell and terracotta and iron objects of peace and war, a punch marked coin and eleven Puri Kusāna coins.

The fortification wall around the town was built of earthen rampart consisting of laterite gravel, stone chips and hard earth surviving to an average height of 25' and breadth of 70'. The town was square on plan, each side measuring approximately half a mile in length.
“The next important phase of the rampart, separated from the initial one by an intermediate phase, during which the existing top was covered by thick deposit of earth after some occupational layers had accumulated on the inner face, saw the construction of a 2' high wall of rubble and stone chips with a cap of large boulders all laid in thick laterite-gravel and clay-against the inner side. Both the sides of the major part of its top were covered up with varied deposits, leaving only one side of the top boulders exposed. One of such deposits yielded a Puri Kushāṇa coin, the only indication of the date of the phases”.25 The subsequent heightenings of the fort walls suggest its occupation to later date. The occurrence of Puri Kushāṇa coins is an indication of the prosperous condition of the township. Here it may be pointed out that ‘Palur’ the mouth of the rive Riṣikulyā was a harbour in ancient times. Hence the possibility of Somapā or Jaugaḍa being a trade and commerce centre cannot be ruled out.

Soon after conquest of Kālīṅga, Aśoka made Tosaḷi the capital of the Province and Jaugaḍa the subsidiary headquarters, as it was expedient for him to administer the vanquished country properly. For instructions to his officials stationed at the place he inscribed the Rock Edict. Thus the date of occupation of the fort may be assignable to the period between third century B.C. and second century A.D. The history and culture of the fort beyond this period are difficult to account for.

ASURGARH

Asurgarh (literally means the fort of the demons), a very ancient for town of Orissa, is situated about one mile from the Rupra Road Railway station and about one-and-half miles from Narla village in the district of Kalahandi. The fort, square on plan, each side measuring about a mile in length, is provided with four gates, one in each side. The fort is circumscribed by a moat which is fed by the vast tank when ran short of water. The river Sāndul flows by the side of the fort providing a natural boundary of the town. Goddess ‘Dokāri’ enshrined centrally was the presiding deity of the fort. The four shrines at the four main gates are Gaṅgā Devi (eastern gate), Kalā Pāhāda (western gate) Vaishnavi (northern gate) and Buddhā Rājā (southern gate) who are propitiated only on the ceremonial occasions.26
A hoard of 539 silver coins collected under the noble rule of Śri P.K. Deo, the Maharaja of Kalahandi, furnishes considerable cultural data. The coins have been finally acquired by the Orissa State Museum. On the basis of identification these have been grouped chronologically (69 to the earlier phase, 272 to the middle period and 198 to the later period). The period of the coins may range between third century B.C. and fifth century A.D.\(^{27}\) The first group of coins are assignable to the pre-Mauryan period, the second group to the Mauryan rule and the last group to the post-Mauryan epoch up to the Guptas'. On the basis of numismatic remains and excavated materials the period of occupation of the fort is attributed from third century B.C. to the fifth century A.D.

The partial excavation of the fort was undertaken by the Post-Graduate Department of History, Sambalpur University in 1973. Trenches were dug out in the eastern and western parts of the fort. The excavation yielded paved house floor, iron objects of war and peace, beads of valuable stones like agate, chalcedony, coral, punch-marked silver and copper coins, black-and-red ware, terracotta figures and ornaments, glass-bangles, beads, amulets of magical practice etc. One of the Kushāṇa coins contains the figure of Kaniska (first century A.D.). A trial trench in the middle of the area brought to light a circular brick structure of 40' in diameter. Dr. N.K. Sahu,\(^{28}\) who conducted the excavation, assigns the structure to the presiding goddess of the fort (fifth century A.D.).

The copper plate finds of Mahārāja Tuṣṭikara (fifth and sixth century A.D.) records that he was the worshipper of the Goddess Stambheśwari. The structure was most probably erected by this king. From the trial excavation detailed chronological sequence of the fort cannot be ascertained. However, the partial excavation provides a glimpse of cultural fluorescence of the fort which was under occupation till the fifth century A.D. Its antiquarian remains are more or less contemporary to those recovered from Śiṣūpalgarh bearing similar fortification and planning. The fort can be taken as an important ancient urban centre of western Orissa. For its vulnerable location on the crossing of high road it was both a political and commercial centre. Dr. Sahu is of the view that the fort was under occupation till the time of Vyāghrarāja of Mahākāntāra.
KHALIGARH

The fort of Khaligarh of ancient date is situated in Tentulikhunti block of Bolangir district, on the confluence of the Tel and the Rahul rivers. It has already been discussed in the foregoing paragraphs that of the sites, where consciously or unconsciously township developed the confluence of the river was considered most sacred and favourable for trade and commerce. The cultural history of the past is full of such illustrations.

The Khaligarh fort is almost square on plan circumscribed in the north, east and south by the rivers acting as the natural defence and in the west by an excavated moat connecting both rivers. The rampart consists of burnt bricks (14” × 8”) existing to an average height of 15’ from the ground level. Sri A. Das, the then Secretary of Tribal and Rural Welfare Department collected from the fort area black-and-red pottery pieces, beads of various stones, iron objects of war and peace, neolithic tools, metallic bangles and copper Kushāṇa coins etc. in 1967. From the fort and from the adjoining area stretching to the west to the village Bhuanpara of the tribal tract of land beads, terracotta ear-rings, iron-implements, stone-tools are found out in large numbers, particularly after rainy season. During survey of the fort, I collected such chance finds. The adjoining area also shows the traces of structure of smaller dimension built of stone and in some places of burnt bricks. This was perhaps a habitation area.

Inside the fort are seen several mounds covered with shrubs and trees. Central part of the fort contains a shrine on a ruined structure, probably the presiding goddess of the fort. The northern rampart has been greatly denuded by the Tel river showing in terrace the basement of river-worn stone gravels topped by brick wall of about 15’ wide. The structure shows gradual tapering. The systematic excavation, if ever taken up, will no doubt retrieve the cultural glory of the fort town.

I do not find any definite way of assigning its date. On the ground of finds particularly the Kushāṇa coins and the structural remains I am inclined to conclude that the fort-town was probably under occupation from second century B.C. to about fourth century A.D.

Since the downfall of Chedi dynasty till the rise of the Śailod-
bhavas in the sixth century A.D. several small dynasties like the Mātharas, Vasiṣṭhas, Mānas, Muḍgalas, Vigrahās ruled over different principalities of Orissa, quarreling against each other for supremacy. There was no unified power to control them. The chequered history of this period furnishes scanty data on the urbanization. However, the copper plate grants of these ruling dynasties refer to the names of their capital towns like Mahakantara, Pistapuram, Kottura, Erandapalli, Devarastra, etc. which await proper identification.

PĀLUR AND BANKADAGARH

Palur, an ancient sea port of Orissa, identified with the place on the mouth of the river Risikulyā, figures prominently in the ancient and medieval history and literature and is associated with sea-borne trade and commerce of Orissa. It has been established by the scholars that the Kalingans were pioneers of Indian colonization in the Indian Archipelago. They braved the seas from the ports of Tāmralipti Pālur, Chelitāla and Kaliṅganagar and maintained commercial intercourse with Malaysian countries. "Of all these ports Palur was the most famous and active so far as voyage to Malaysia was concerned. Since the days of Ptolemy, Palur had been a prosperous port till the advent of Portugese in the Indian ocean in the fifteenth century. The importance of the port Palur can be understood from these lines, "even in Ptolemy days there was no direct voyage from Coromandal coast... a direct voyage to the east was made from Palur near modern Chicaco". According to Hieun-Tsang's report the port Pālur has been identified by some scholars as the capital of Kangoda. Some other scholars identify Bankāḍa on the bank of river Sālimā (which falls in Chilika lake) as the capital of the Šailodbhavas of Kaṅgoda. This explanation appears to be more plausible on the basis of ancient remains at Baṅkāḍa lying at a distance of about 10 miles. from Chilika as the crow flies. The site lies in the reserve forest exhibiting recently a large number of sculptural, architectural and inscriptive evidences. Recent excavation of a portion of the sacred complex by the State Archaeology retrieved the structures of temples in a compound (40m × 30 m) containing temples of Śiva, Pārvati, Viṣṇu, Sūrya, Gaṇeśa and Kārtikeya. One of the inscriptions records the name of Raṇabhita, one of the rulers of the Šailodbhava dynasty and
probably the builder of the temples. The temples were circumscribed by a brick wall having the main gate to the west. The sculptural art of the temples bears the features of classical art. The area around the temples extending up to the bank of Śālimā river are full of structural remains built of ancient bricks. The structural relics on the other side of the river suggests the extension of the town. The hill ranges and the river formed the natural boundaries of the town. The details of the township will be retrieved after complete excavation of the site.

The point of interest here is the connection of Bankāḍa with the sea port Pālur. I am of the view that Bankāḍa was the capital of the Śailodbhavas and Pālur was their commercial sea port.

The history of Orissa ushered in a flourishing epoch with the rise of the Śailodbhavas in Kaṅgodmaṇḍala (comprising the area from Risikulyā to Mahānadi) in the sixth century A.D. The kingdom was divided into Maṇḍala, Bhukti, Viṣaya, Pātaka and Grāma for systematic and efficient administration. Their copper plate inscriptions refer to a series of officials in charge of administration with the king at the apex of the administrative machinery. It is no doubt a fact that the headquarters of territorial units must have been towns of importance according to their location.

The Śailodbhava period witnessed a renaissance in art, architecture and religion. The earliest extant temple like Śatrughneśwar, Laxmaneswar, Bharateśvar, Parasurāmeśwar and Swarnajaleśwar at Bhubaneswar and a Śaivite temple at Badagaon near Belguntha of Ganjam district are attributed to this period.

RATNAGIRI

In addition to above mention may be made of religious towns like Ratnagiri and Svetabalika (identified with Jayrampur village of Balasore district) which rose to prominence as a religious sanctuaries attracting scholars from other religious institutions of India. The excavation of Ratnagiri hillock located on the bank of the river Keluo in the district of Cuttack exposed the remains of the gigantic Buddhist establishment reclaiming Ratnagiri Mahavihara (sealings bearing the inscription Śri Ratnagiri-Mahavihariya-aryabhikshu sanghasya) dating the nucleus from fifth century A.D. to twelfth century A.D. This was a
religious and cultural academy to the magnitude of Nalanda disseminating Buddhist culture and religion far and wide. The complex represents three units, one huge stupa made of bricks, the object of worship, the second one forming two monasteries for abode of recluses and the other a series of Buddhist temple of later date. The excavation reveals that the stupa of the earlier period tri-ratha on plan belonged to the Gupta period, which underwent restoration in the later phase. It now stands to the height of 32'9''. Numerous miniature stupas of varying dimensions circular, square, octagonal etc.—are seen lying in the precinct of the main structure. The finds of the site, in addition to these, consist of bones, Ganga fanam coins, inscribed sealings a large number of sculptures of Mahayana-Vajrayana pantheon, and terracotta plaques bearing Buddhist creed.

The site to the north of the stupa has yielded a huge monastic establishment. The first monastery belonging to the seventh/eighth century A.D. is 180'×181'6'' in size with stone paved courtyard, pillared verandah surrounded by twentyfoura partments. “Notwithstanding its normal monastic plan it is a singular structural monument not only for its impressive size and symmetrical planning but for the rich, yet balanced, surface treatment of the front porch and facade of the shrine. With its architectural grandeur, effective composition and splendid array of sculptures and delicate and admirably finished-decorative patterns, it empresses one as a great monument. “The monastery had an upper storey as is marked by a grand staircase. The excavation reveals that the earlier shrine, cells and courtyards were in use at the time of its renovation in the second phase. The second monastery adjacent to the first one (95 feet square externally) had the arrangement of courtyard cells, verandah etc. in the similar pattern. The period of construction of this establishment was somewhat later than the first phase of the monastery I, and was built on the ruins of earlier structure. The date of this phase of construction is assignable to the seventh century A.D. The peculiarity of this monastery lies in its underground chamber with stone paved floor, connected by a staircase from the top. This secret chamber yielded a few bronze objects including two images.

The Buddhistic establishment of Ratnagiri was no doubt a religious township surrounded by habitation area. The other Buddhist
establishments of the contemporary period in the neighbourhood are the Udayagiri and the Lalitagiri. All these three Buddhist cultural centres formed a sacred complex for dissemination of the culture far and wide.

JAIRAMPUR

Jairampur located in Bhograi Police Station of Balasore district yielded a copper plate grant of Mahasamanta Achyuta, a subordinate chief under Maharajadhiraja Śri Gopachandra (sixth-seventh century A.D.) The copper plate was recovered in 1962 by the villagers while removing bricks and stone blocks from the old structure covering an area of about two acres—locally known as Ahūti Kuṇḍa. In course of denudation of bricks from the site a four-armed ‘Tara’ image of chlorite cist and a miniature bronze image of Buddha in bhūmisparsamudrā were discovered.

The copper plate was brought to the Orissa State Museum by me in 1963 and was deciphered by Dr. S.N. Rajaguru, the then Epigraphist of Orissa State Museum. The plate was donated in favour of the Buddhist monks and Śri Avaloketeśvara of Śveta-Balika Mahavihara. The then establishment of Śveta-Balika was bounded by sea on the south, the river in the west. The Mahavihara was in Dandabhukti. The deity Bhagavata Ārya Avaloketeśvara was installed and worshipped by the Ārya Saṅgha of the Buddhist group which is referred to in the Sanchi inscriptions (413 A.D.) and Gunaighar plate of the time of Vainya Gupta (507 A.D.).

It is of great interest in this connection that Jairampur, one of the biggest villages of the district, has the credit of possessing enormous running of several brick structures here and there. The locally known Ahūti Kuṇḍa was a part of this Śveta Balika Mahavihara. At the southern outskirt of the village there are two big ponds known as ‘Sunadei’ and ‘Rupadei’ from where was recovered a bronze image of Tara. At a stone’s throw from the pond are seen the ruins of a structure built of sandstone gravels at the base and burnt bricks at the top. The stray finds in the entire village as well as in its neighbourhood suggest that a religious township developed in the area from the sixth century A.D. The excavation of the site may reveal the details of the township.
Conclusion

The paper is a glimpse of urbanisation in ancient Orissa (from third century B.C. to seventh century A.D.). The history of urbanization during this period, though chequered one, furnishes chronologically the evolutionary phases of urbanization, which, I think, un-equivocally similitude to other parts of India. The towns discussed in this paper are more or less of the same pattern based on the principles laid down in the Arthaśāstra of Kauṭilya and in other Śilpaśāstrās. On the basis of early foundation, the mediaeval township developed in Orissa with accentuation of magnitude, planning etc. ushering in a new era of development in town and city planning along with other facets of culture.

NOTES AND REFERENCES

1. B.B. Dutt, Town Planning in Ancient India, p. 20.
2. ibid., p. 40.
5. N.K. Sahu, Buddhism in Orissa, p. 6.
7. The punch-marked coin hoard is in the Orissa State Museum.
11. ibid., p. 74.
12. ibid., p. 72.
23. *ibid.*
27. *ibid.*
28. N.K. Sahu, 'Archaeological findings in Asurgarh', *New Dimension of Tourism*.

   and

32. *ibid.*, p. 79.
IMPACT OF METAL TECHNOLOGY ON ECONOMIC DEVELOPMENT

VIBHA TRIPATHI

The interrelationship between technological development and the socio-economic milieu in the first millennium B.C. is the theme of the present paper. That there is a correlation between the two has already been envisaged, hence this discussion. What perhaps is debatable is the nature, type and the extent of impact technology wielded on economy. Technology is a general term referred to here in the historical context of "man's effort to satisfy his material wants by working of physical objects" (Susskind 1973). The list of such 'physical objects' can be very exhaustive. Present discussion is concerned chiefly with the pyrotechnology like ceramics, glass and metallurgy, all of which grew manifold during the first millennium B.C. Metallurgy receives special priority in this discussion, as it is not only the highest and the most complete of the pyrotechnologies requiring a high level of technological skill, but also because it was in a position to supply tools and implements which can directly influence the productivity.

Iron was a product of man's technological innovation. The technique was gradually but persistently perfected over centuries through experimentation. It is the new technology rather than the political system, though it may have its share of contribution, which provides the necessary tool for cultivation of crops, trade and commerce, arts and crafts, mining and metallurgy etc. A parallel may be drawn here with the European Dark Age that followed the disintegration of the Roman Empire, observed by Susskind (1973, p. 6). During that political turmoil in absence of a strong system of government "in
most of Europe technology (and with it the common man’s lot) continued to advance during that period, . . .”. These observations on European Dark Age are also relevant in the Indian context. Thanks to the sustained archaeological activity, the term Dark Age is no longer used for the first millennium B.C. However, very little is known about the political situation in the first half of this millennium. The archaeological evidence strongly suggests beginning of a spurt in technological activity consolidated over the centuries which must have paved the way for the second urbanization.

To be in a position to state whether metallurgy which was an important component of technological activity had a positive impact on economy, we have to address ourselves to certain questions here. Does the introduction of iron which appears to be one of the most striking features of technological development exert any influence on the economic growth? When does the iron technology itself attain a level of perfection to be in a position to leave a mark on the existing socio-economic set up? What is the degree and the level of impact of technology and which are the areas where the new influence is visible most and at which particular point of time? These questions should be answered in course of the discussion in the context of the cultures of the first millennium B.C.

Three cultural stages are clearly identifiable in this period, viz. Stage I—Black and Red Ware/Black-Slipped Ware and Painted Grey Ware, when iron had just been introduced; Stage II—NBP Ware with comparatively wider use of iron; Stage III—Śūṅga-Kuśāṇa period which goes beyond the first millennium B.C. (see map). The technological advancement at the above nodal points has to be defined and the traits of material culture identified at each of the above three stages. A comparison of the specific cultural components at the successive stages would clearly indicate the inter-relationship between the technological development on the one hand and the corresponding material culture on the other.

I. THE TECHNOLOGICAL DATA

1.1 THE TOOL TYPOLOGY

A techno-typological analysis of iron objects has to be undertaken for an understanding of development of technology as well as
MAP SHOWING DISTRIBUTION OF P.G.W., B.R.W., N.B.P.W.

INDEX

- P.G.Ware
- P.G.W & N.B.P. Overlap
- Black & Red Ware
- N.B.P. Ware
to assess the typological position of tools and implements during successive stages of growth in the first millennium B.C.

Tools of Hunting and War Weapons

At the earliest stage, iron appears for the first time with PGW sites (except for more westerly sites like Bhagwanpura and Rupar) on the eastern sites like Mangalkot, Hatigra, Pandu Rajar Dhibi etc. and also Kauśambi have yielded iron with BKW/BSW though in a very small number. Arrow-heads, spear-heads and points are the main objects of manufacture. Towards the end of this phase socketed tangs and blades (Hastinapur) have been reported from a few PGW yielding sites (Lal, later excavation).

In the NBP period in addition to simple hunting fishing tools arrow-heads with single and double tang (Kausambi, Sharma 1960) javelins, spears, lances, dagger-blades, elephant-goads etc.—come to be used especially in the later part of this period.

At stage three, swords, daggers, javelins etc. are found. At Taxila armour, helmet, shield bases and horse bits have been found to be in use (Marshall 1951).

Agricultural Tools

In the first stage iron had hardly been used for the agricultural purposes except for axe (Atranjikhera, Noh) and sickle from some of the sites.

In Stage II axe, adzes, sickle, ploughshare, hoe etc. came to be used in cultivating the land.

In Stage III, the reported types in agricultural implements are ploughshare, hoe, spade, sickle, axe adze, showels and weeding fork, (the last named object from Taxila).

Household Objects

Only a few knives of iron were used at Stage I. A few discs and rings are added to the list at the next stage. Rarely iron, is used as utensils even in the NBP phase except for a cauldron at Takalghat and Khapa but that is in southern part of India and NBP has not been reported from that region.

In third stage Taxila (Marshall 1951) has yielded a variety of
domestic objects like knives, spoons, leades, sieve, saucepan, cauldron, dishes and a tripod stand. A pan with a lug handle and a bell was found at Hastinapur (Lal 1954-55).

Building Material

Nails, clamps, pins and rods were found in the PGW level (Stage I). At stage II pipes, sockets, plumbob, hooks and chain for doors came to be used in house construction. Chisels were found even at Stage I (Atranjikhera, Gaur 1983) which are of significance as they must have been used by smiths/carpenters (Gaur 1983).

At stage II the number of objects used in construction multiplies manifold with door handles, chains, spikes, clamps staples etc. Anvils, hammers, saw etc. have been found at Taxila indicating the smiths’ implements.

1.2 State of Iron Metallurgy

To be in a position to answer the question as to when does the iron technology itself attain a level of perfection to exert its influence on economy, the state of technology has to be assessed at the three stages above.

Though the list of samples analysed to reveal the exact nature of metal being used at the three stages is not very exhaustive, yet we have enough data to give us fair idea.

Four samples belonging to the mid-phase of the Painted Grey Ware from Atranjikhera have been analysed (Gaur 1983, p. 489). Sample 1 shows that it was wrought iron, samples 2 and 3 show pearlite, thereby indicating steeling. Sample 4 has pearlite only on the surface. These analysis suggest carburization. The chemical examination reveals low carbon content. But lack of uniformity of result even in four samples would indicate a lack of control of furnace technology. From BRW/BSW phase dated to circa 800 B.C. (C14) iron objects have been found. On analysis the objects from Barudih near Jamshedpur datable to 800±55 B.C. (Ghosh and Chattopadhyay 1982, p. 63-64) and Hatigra, district Birbhum (Chattopadhyay, personal communication) both are found to be of mild steel.

At stage II iron samples belonging to Rajghat and Prakash both pertaining to the Northern Black Polished Ware phase have been analysed. Two samples from Prakash (Thapar 1965) show different
compositions. Sample No. 29 has a low metalloid content indicating a solid state reduction. Sample No. 30 shows presence of equiaxed ferrite grains with small amount of pearlite at the grain boundaries and the presence of streaks of iron oxide and slag. The chemical analysis also suggests steeling. Thus though they hint at a lack of control of method and firing but positively speak of production of steely iron at the site.

The samples studied from Rajghat numbered six. They also belong to the 600-400 B.C. bracket (Bhardwaj 1973). These are all wrought iron with slag inclusion, some have evidence of forgewelding. Carburization is indicated by them. Another sample shows 1.4% carbon, showing steeling. It cannot be ascertained whether these techniques were deliberately and commonly practised but their knowledge is beyond doubt.

At Stage III, though samples analysed from Period III at Khairadhi are stated to be of wrought iron (Maddin, personal communication) because the surface is heavily corroded and the core of the iron objects is bound to be pure iron. It is because in India the basic technique of first preparing pure iron and then carburizing it remains the same throughout the antiquity, on corrosion traces of carburization become hard to trace in the core. However, a few other samples from this site reveal pearlite (personal examination in collaboration with Indian Institute of Technology, Banaras Hindu University). However, Taxila, where the iron objects are far better and available in great number, has yielded valuable evidence. Hadfield (Marshall, reprint 1951) worked on several samples and found the carbon content in some of them to be as high as 1.3 to 1.23 and commented, "Evidently the Indians in this locality (Taxila) and at this period quite deliberately made high carbon steel". (p. 537).

Thus even the meagre work done so far is enough to demonstrate that the technique of manufacturing iron objects was perfected gradually resulting into effective tools and implements, right from the NBP levels—(600-400 B.C.). The availability of ore was not a problem to the smiths of sixth century B.C. More production meant better and longer exposure for the smiths giving them better feel of iron and more expertise. The natural sequence of events led to a diversification in tool typology and consolidation of technique still further. Thus
during fifth-fourth century B.C. onwards iron technology had reached a takeoff stage and was in a position to contribute to the economic growth of society. Let it be admitted that this assumption suffers from a lacunae, i.e. a comparative scarcity of actual iron objects from the excavated levels. Small scale excavations, highly humid climate, constant exposure to floods, highly corrosive nature of iron especially under the conditions prevailing in Bihar, Bengal and to great extent in adjoining eastern Uttar Pradesh makes it difficult for iron to remain in a satisfactory state of preservation (Sharma 1983, p. 94). Nevertheless, representative typology has been retrieved despite adverse ecological conditions even though in small number.

The growing metallurgical skill was two pronged—while on the one hand it meant production of good quality steely iron towards which the smith must have persistently strived, producing better tools and implements the social demand for better designed and more effective tool typology seem to have increased. Copper was confined basically to toilettry or sparingly for pots and pans. Weapons or hunting tools which were fashioned both in copper and iron at Stage I became scarce in copper at Stage II with added types in weaponry. Agricultural tools which were almost absent earlier, start appearing at subsequent stages, the wooden ploughshare giving way to a more effective iron counterpart. Axes were available for removing stumps of woods from the freshly colonized lands by burning the forests and sickles for reaping the crops. Once its effectiveness was recognized, there does not seem to be any looking back. In every walk of life the artisans were equipped with sharper and better designed iron implement.

II. THE ARCHAEOLOGICAL DATA

Having examined the technological evidences, let us now turn to the archaeological data. Whether iron had an impact on productivity may be assessed by a close look at the cultural material as revealed through excavations. The relative position of the same cultural components at the above mentioned three stages should bring out the facts clearly. The questions about the degree and the area as well as the particular period of the impact of iron technology may be answered only through a careful examination of the archaeological remains at the three stages.
STAGE I: SETTLEMENT PATTERN

At most of the pre-NBP deposits we come across rural habitations confined to a small area of the mound. Total plans of the houses are rarely available except for a few postholes of remnants of wattle and daub structures; rarely mud brick walls have been exposed. Towards the later phase of this cultural period at some sites like Jakhera (Sahi) or Narhan (Singh) traces of roads or floors and walls of mud bricks appear (Kausambi, Hastinapur).

At some of the sites mud bunds (Atranjikhera) or moat (Kauśambī) have been reported for protection of the habitation.

Agricultural remains are available in form of rice husk at many sites like Hastinapur, Rajghat (Singh 1985), Atranjikhera, Sonpur (Varma and Sinha 1977) and several others. At Sonpur IB in the Black-and-Red Ware phase 5 kg of charred rice was collected. At some better preserved habitations like Atranjikhera wheat and barley are also found. But at most of the sites in northern India, agricultural implements are generally lacking though axes and sickles have been reported from some of the sites. There appears to be a heavy reliance on animal husbandry. Large scale bones, many with cut marks have been found at most of the sites at this stage. Amongst the domesticated animals cow, buffalo, goat, sheep, pig and dog (Atranjikhera) are known.

Amongst the objects of art and craft figurines of terracotta are of significance. No human figurines except for an archaic mother goddess were fashioned though animal figurines of bull (HST and ATJ) are reported. Seals, sealings or coins are not in practice. Beads of terracotta and semi-precious stones are known to have been in vogue. Glass-bead and bangles have also been manufactured. Copper antimony rods are commonly in use, arrow-heads (Hastinapur) spearheads and sparingly utensils like a dish (Atranjikhera) and lid (single) (Rajghat) are fashioned.

Some objects especially arrow-heads, pins and stylus etc. were in use to substantiate the scarce use of metal. Allahapur has a strikingly large number of bone objects (Dikshit 1973). A total of 135 objects of iron were found at Atranjikhera and 13 at Rajghat.

STAGE II

The new ceramic industry viz., the NBP Ware makes its appear-
ance after PGW and BRW/BSW in western and eastern parts of north India respectively, barring a few exceptions like Hastinapur at most of the sites there is hardly any break in culture. New cultural traits appear along with the introduction of NBP Ware. The iron objects double not only in number but crucially important new types like ploughshares are introduced.

Settlement Pattern

A considerable expansion in the area of occupation is reported from practically every site. At Rajghat (Singh 1985) while the earlier settlement was confined close to the river bank significantly at Stage II it extends further to areas further away. Kausambi (Sharma 1960) shows not only an expansion in size but intensification in building activity. At the earlier stage of the NBP culture mud brick structures are commonly located, occasional use of baked bricks have been attested to (Atranjikhera). At Rajghat structures with mud plastered reeds and clay floors are commonly noticed though sun-dried bricks have been used along with it. At Kausambi a floor measuring 28' x 15' and stairs with sixteen steps and a wall traced upto 28' at Hastinapur are noteworthy features of structural activity. Drains, both lined (KSB) and unlined (RGT) and ring wells were quite common. Bunds or clay embankments protect the settlement against floods. At Atranjikhera and Kausambi the earlier embankments have been raised further.

Agricultural Remains

Black gram appears for the first time in NBP period at Atranjikhera. Wheat, barley and rice of the earlier period are now found commonly from practically every site. Storage jars and granary (Atranjikhera) speak of the surplus production. Rajghat has yielded evidence of animal husbandry, both draft animals and milch animals are domesticated. In addition to the axe and sickle of the previous period new agricultural implements appear. Several sites have yielded ploughshare, spud and hoe (Jakhra, Atranjikhera). Other finds of the period indicate improvisation on previous period. Human figurines of terracotta appear for the first time. Animal figurines demonstrate variety with introduction of horse (Atranjikhera) and elephants
(Atranjikhera and Rajghat) in large number—37 at Atranjikhera as compared to 2 figurines at Stage I.

Beads of terracotta continue to be used as before but semi-precious stone beads appear in much larger quantity (compared to 12 at stage 1 to 43 at Atranjikhera) and in several new stones like topaz and crystal along with agate and carnelian. Beads of ivory and its dice have been found at Rajghat. A hoard of bone points containing 719 points is also a noteworthy find from here.

Copper objects include utensils, though not in very large number, antimony rods and other objects of toilet and ornaments like bangles, rings and ear-lobes (Sonpur). A single arrow-head at Sonpur is mentioned as ‘noteworthy’ find. The number of copper objects increases against 22 and 5 to 34 and 26 during this period at Atranjikhera and Rajghat respectively.

Coins start showing up at most of the sites. Both punch-marked and uninscribed cast coins begin to be used. Silver and copper coins are reported from late phase of the period at Kausambi and both gold and silver at Sonpur. Sealings also appear for the first time. Glass objects like bangles, beads etc. appear more commonly now.

Presence of a fairly good number of chisels of iron indicate spurt in carpentry and masonry.

STAGE III

This Stage needs defining as late phase of NBP culture prospers simultaneously at several sites viz. at Atranjikhera of western U.P. While at other places we come across Śungrā-Kusāna cultural level. For the present discussion we shall incorporate very late phase of NBP going up 50 A.D. at Atranjikhera also in this very bracket of Stage III.

Settlement Pattern

There is a further expansion in size at most of the sites with ‘considerable building activity’ (Kausambi) turning many centres into ‘full-fledged town’ (Atranjikhera). There is a prolific use of baked bricks, several walls have been traced at Kausambi, the size of one of them is reported to be 18 feet. House complexes also include draw
wells (Rajghat) and masonry drains. Fortification or high embankments are reported from most of the sites.

Agricultural finds of this period are more or less the same as that of the previous period. Only new feature is the presence of big storage jars in the houses.

Potter’s art during this period becomes more stereotyped but sophisticated in shape and decoration. Terracotta figurines—both human (male and female) and animal appear in beautiful designs and variety. Use of mould is a new feature giving freedom to the artisan.

Luxury goods like beads of semi-precious stones are there. Rajghat appears to be a big centre of bead manufacturing as unfinished beads have been found in large numbers. Glass objects in different colours numbering 56 are recovered from there too. Gold objects are found at Atranjikhera. Beautiful objects of ivory have been fashioned.

Coins of new variety which are of a heavier quality are noted at Sonpur at other sites like Kausambi, Hastinapur etc. Inscribed coin also appear in a good number.

Copper is used as in the previous stage for household objects like utensils, toiletries and ornaments like bangles, rings etc. (54 objects are reported from Atranjikhera against 34 of the previous stage). A very special find from Kair Radih is a spoked wheel toy cart of copper and a miniature axe of ritualistic significance.

For some reason, at Atranjikhera this level of Late NBP phase shows a decline in number of iron tools—(from 226 to 120), glass objects (from 10 to 4), beads of semiprecious stones (from 43 to 17). The number of finer objects is reduced in proportion to the iron objects.

CONCLUSION

It is clear from the aforesaid that the material prosperity as revealed from excavations is directly proportional to the stage of technological skill. The close scrutiny of iron technology, which is the main object of investigation here, reveals a diversification in tool typology as well as an expertise in technique of its manufacture at the successive stages defined above. The same situation is repeated in the material culture. The settlement pattern shows expansion in size,
better structures, growing facilities in house complex, and better planned towns (at Stage III). The agricultural produce increases new crops are cultivated. The reliance on hunting is reduced as a surplus production is indicated by granaries and storage jars inside the houses. Other arts and crafts follow the general pattern of growth.

It is for anybody to decide whether there is any correlation between the two facts enumerated above or the two are independent of each other. If we concentrate on Stage I and II, i.e. roughly the period up to fifth/fourth century B.C., we know that the socio-political structure of the society had hardly changed from the beginning of the first millennium B.C. Amongst the technological features the pyrotechnology has shown improvement. Copper and ceramics were well known before 1000 B.C. yet better quality pottery with a higher level of sophistication appears in the form of Painted Grey Ware, and Black Slipped Ware, even the Black-and-Red Ware shows improvement. Glass appears for the first time, bead manufacturing was more evolved. The only new and prominent trait of the technology of first millennium B.C. is the introduction of iron. As the technique got perfected, there was a diversification of tool typology and a marked increase in number of objects. Technological viability of iron not only ensured its large-scale application in various areas but its growing demands must have exerted pressure on smiths for manufacturing better and more efficient tools and implements. It was bound to influence the productive forces of the respective periods.

The qualitative improvement in iron objects appears by sixth-fifth century B.C. Though a perfect control is not indicated (evidence from Prakash and Rajghat, see above), yet some of the products pertaining to fifth/fourth century B.C. come under the purview of mild steel, and subsequently attaining a full status of steel making (as revealed at Taxila). These tools and implements had the capacity to make a positive impact on the economy. Good quality tools enabled the production of still better tools and implements which must have been in demand. Thus a process of development was set in motion—better input leading to still better output in every walk of life. With easy accessibility to ores of high quality in Bihar region, a land which also required sturdier agricultural implements for the rice cultivation, good quality iron had to be produced. I would like to make it clear that
the excavations in that region do not yield rich iron repertoire especially agricultural implements. However, Sharma (1983, p. 94-96) has taken up this issue in detail, pointing to a frequent reference to such objects in literary texts, suggesting otherwise.

It may not be right to overemphasize the single factor i.e. technological skill for overall economic prosperity visible in the second half of the first millennium B.C. There must have been other social, cultural or political factors. However, it may safely be argued that technology, particularly metal working played a key role in bringing about economic prosperity.

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ARCHAEOLOGISTS working in early historical sites have always used the numismatic evidence to determine the age of antiquities dug up in excavations along with a coin. This is possible because coins of various known series, inscribed or uninscribed, have been assigned to various approximately fixed dates. Thus, archaeologists have been regularly receiving immense help from the numismatists in the matter of assigning dates to the objects they discover in excavations. They also fix the dates of various strata of an excavated site often with the evidence of coins that may lie there. But unfortunately very few archaeologists are conscious of the debt they owe to numismatists. They take it as a matter of course, and rarely feel like offering the helping hand to the numismatists. The archaeologists should discharge some reciprocal duties in relation to numismatic finds in excavations. If they do so, the act will be beneficial not only to the numismatists but also to themselves.

We shall now see how coins have been systematically and scientifically studied by generations of numismatists for tracing their respective chronological sequence and fixing their approximate dates.

A scientific and comparative study of various technical and epigraphical aspects of coins may often help a numismatist not only to fix their approximate dates but even to come to a conclusion about the sequence of events they reflect. In fact, the evidence of coins immensely helps us in reconstructing an authentic history of kings and their chronological positions. This is, for instance, amply demonstrated by the study of coins of the Greek kings of Bactria (northern
Afghanistan) as well as of undivided India.

Classical writers mention the names of only five kings of Bactria, viz. (1) Diodotus I and his son, (2) Diodotus II, (3) Euthydemus and his son, (4) Demetrius, and (5) Eucratides, the earstwhile enemy of Demetrius. We also get from the fragmentary classical accounts some information about certain isolated events of the careers of these five Graeco-Bactrian kings. But it is from the discovery of coins and the reading of the names they bear that we know of the existence and rule of not only those five kings but also of five others, Antimachus, Pantaleon, Agathocles, Plato and Heliocles. Then, from a comparative study of portraits of the coins bearing the names of Euthydemus, Demetrius and Eucratides we come to know that there were duplicate kings in each case. This way we are sure of the existence and rule of at least thirteen Greek kings of Bactria. And it is now well-known how the Graeco-Bactrian coins helped us to reconstruct the history of these Greek sovereigns of northern Afghanistan and fix their approximate dates and even come to a conclusion about their respective sequence and duration of rule. The same is also, to a great extent, true of the history of over thirty Greek kings and one queen, named Agathocleia, who had their sway over an extensive territory in the north-western parts of undivided India. Of them, only two princes, viz. Menander and Apollodotus, are known from the Periplus of the Erythrean Sea, while the same Menander and also an Antialcidas are referred to in the Bajaur Relic Casket inscription and the Besnagar Garuda Pillar epigraph of Heliodorus respectively. Thus, it is by the discovery of coins and the evidence they furnish that scholars like George Macdonald, E.J. Rapson, W.W. Tarn and A.K. Narain have creditably reconstructed the history of some forty otherwise unknown and pitifully obscure Greek sovereigns of Bactria and India.

Then, as is well-known, it is mainly from the numismatic evidence that not only the history of the Greek kings of Bactria and India, but also that of their foreign successors, viz. the Scythians, the Parthians and the Kushānas (to some extent) has been reconstructed. Again, the otherwise little known and forgotten history of nearly thirty Scythian satraps of western India has been thoroughly written from their coins, which, remarkably enough, bear dates of issue
and the names of the issuers' fathers.

This way, coins provide us with almost the sole evidence of the existence and rule of nearly hundred foreign rulers, who had their sway over extensive regions of Afghanistan and north-western and western parts of India from the middle of the third century B.C. to the end of the third century A.D.

Similarly, it is by a critical and comparative study of coins alone that the entire history of the so-called 'Dark Period' of northern India circa 200 B.C. to 320 A.D. has been clearly traced by Bela Lahiri in her comprehensive work, *Indigenous States of Northern India*. This history relates to innumerable princes of a large number of localities like Ayodhyā, Mathurā, Pañchāla, on the one hand, and a great many chiefs of the tribes once inhabiting the Punjab and Rajastāhan on the other.

Archaeologists who excavate early historical sites in northern India immensely benefit from the evidence of coins that the numismatists furnish by their patient and prolonged studies. They are often able to fix the dates of objects they find in association with a dated or datable coin in a scientifically stratified context. A dated Western satrap coin, for instance, easily helps the archaeologist to fix the date, at least approximately, of the antiquities that are found along with it. Nay, even an excavated coin of a Greek king may render similar help with regard to the art objects that are dug up in association with it.

The above discussed matters are true of inscribed coins. But even uninscribed silver punch-marked coins may also render immense help to an archaeologist in the matter of fixing dates of objects dug up in excavations. For it is by prolonged and patient studies of these uninscribed archaic issues that generations of numismatists have been able to classify them in various precise categories from the number, combination and pattern of symbols they bear. Thus, a seasoned and experienced numismatist knows which category of the archaic coins belongs to, which approximate period and to which precise locality. In fact, when chronologically arranged, punch-marked coins fall into two broad categories, viz. 'Early Local' and 'Later Universal'. The former early coins were manufactured in various localities or rather Janapadas, like Gandhāra, Kāśi, Kośala, etc. They were of various higher and lowers denominations of the 32-*rāti*
Kārshāpana system. Of the coins of the higher denominations, there are Dvi-kārshāpanas, Sārdhakārshāpanas, and Sapādakārshāpanas, respectively of sixtyfour, fortyeight and forty ratis. The coins of the lower denominations are Tripāda-, Ardha- and Pāda-kārshāpanas, having the weights of twentyfour, sixteen and eight ratis respectively. These kārshāpanas of higher and lower denominations, coming from distinct localities were issued before the introduction of regular 32-rati 5-symbol Pūrṇa or ‘full’ kārshāpanas by Magadhan authorities, which gradually but steadily became the standard ‘Universal’ currency for pan-Indian circulation. Thus established chronological sequence of the uninscribed silver punch-marked coins may well be used to determine the period of the antiquities that are found along with them in an archaeological context.

On the contrary, a numismatist may also know the exact sequence of the kings of a particular dynasty or family from the stratigraphical recording of an excavated site, when carefully maintained. Thus, it is from the evidence of the stratigraphical notings of the Taxila excavations that the problem regarding the sequence of the two groups of Kushāna kings, viz. the Kadphises and the Kanishka groups was satisfactorily solved. Scholars like J.F. Fleet and others believed that the princes of the Kanishka group ruled earlier than the Kadphises kings—against the contrary belief of renowned numismatists of the time. In the Taxila excavations the coins of the Kadphises see kings almost always came from levels lower than those yielding coins of Kanishka and his successors, which fact precisely means that the members of Kadphises rulers ruled before the princes of the Kanishka group.

All these show that the benefit is mutual and reciprocal. The archaeologists often get necessary help from the numismatists and the numismatists sometimes also benefit from the findings of archaeologist in numismatic context.

Under the circumstances, spontaneous co-operation and mutual help between the archaeologists and the numismatists are desired for the sake of historical research. But, as is well-known, the amount of help that numismatists receive in India from the archaeologists is very little in comparison to what the latter gets from the former.

In most cases the numismatist furnishes the result of his researches in fuller details for the benefit of all concerned, including the
archaeologist. On the contrary, the archaeologist very rarely provides necessary details of the coins he digs up. Thus, the notices of coins in *Indian Archaeology—A Review*, which is somewhat regularly published by the Archaeological Survey of India, are often disappointingly inadequate to the numismatists. For, in very few cases necessary scientific details of coins unearthed from excavations of important sites, so vital for numismatic and historical studies, are found recorded in that only regularly published archaeological review. This is because of the fact that numismatics, which is but ‘Applied History’ is not given that importance which it so eminently deserves. The archaeologist forgets that it is by helping a numismatist that he may often help himself: he may get welcome light about some king or event from the proper study of the coins he unearths.

No excavating team in India has a trained numismatist among its members, so much so that coins of an unknown or little known series when dug up remains unstudied and their evidence, even though vital for historical reconstruction, is denied to all concerned. As an instance, I may cite the case of the Raigh excavations, which yielded few thousand coins; but they have never been systematically studied by numismatists. Only a few so-called important coins were made available to some numismatists who have noticed them in some details while the great majority of the coins lies unstudied and uncared for in a big trunk. The excavator who is now dead showed me the trunk some years ago and asked me to study the coins. I could do nothing about them, because the eternal and mighty ‘Red Tape’ played its tricks and my attempt to study the coins was never successful. However, the Nagarjunakonda excavations, which also yielded many thousand coins, helped numismatists in a different way, even though almost all the coins unearthed at Nagarjunakonda remain unstudied. Dr. R. Subrahmaniyam, the Superintendent-Director of the Nagarjunakonda Project, realized the importance of the coins he unearthed there; and as early as 1956 he sent to the Office of the Government Epigraphist for India at Ootacamund some selected fifty coins with fragmentary legends. The coins were given to me by the late Dr. D.C. Sircar, and to my great satisfaction I could read the initial parts of the Ikshvaku kings, viz. Siri-Vira. for Sri Virapurushadatta; Siri Chāta for Sri Chantamula; Siri Ehu. for Sri Ehuvula Chāntamula;
and Siri Ruda. for Sri Rudrapurushadatta. Incidentally, the last coin proved beyond doubt that the reading of the legend of a similar lead coin in the British Museum made by E.J. Rapson was no doubt correct, but the coin concerned was not that of the Sātavāhana king Rudrasātakarni, but that of the Ikshvāku king Rudrapurushadatta.

Any way, in spite of the limitations the archaeologists may serve the cause of numismatics and history by rendering some not-so-difficult help. He may do the following with regard to the coins he digs up in excavations:

1. Numbering the coins serially, and getting them scientifically cleaned;
2. Getting the coins properly photographed against a clear scale;
3. Carefully recording the details of the exact find-spot of each coin, noting:
   (a) the Site and its Location;
   (b) the Sector Number;
   (c) the Trench Number;
   (d) the Stratum Number (with the Period ascribed to it); and
   (e) the Date of the Find.
4. Recording the technical details of the coins on their respective envelopes:
   (a) Metal;
   (b) Shape;
   (c) Side, and if possible
   (d) Description of the obverse and reverse devices and the texts of the legends.

But in the case of the discovery of a hoard of coins in course of excavation, the archaeologist has to be far more thorough in his reporting; and with this end in view he may even take the help of a knowledgeable numismatist. As is well-known, realizing the importance of the two remarkable hoards of punch-marked coins unearthed in the Taxila excavations Sir John Marshall duly handed them over to the great numismatist E.H.C. Walsh, whose thorough technical studies of the
individual coins of the two great hoards were duly published in the
Archaeological Survey Memoir No. 59. When preparing the final
report and publishing it in three comprehensive volumes, Sir John
Marshall elaborately furnished the details of each coin discovered in
the Taxila excavations. This due attention to the importance of
coins is praiseworthy and deserves emulation by all archaeologists in
India.

Since the excavation reports take a very long time to be prepared
and suitably published, it is desirable that the above necessary
information about the discovery of each coin dug up in course of
excavations is published as soon as possible in a research journal of
repute, which comes out in regular intervals.

The archaeologists may also arrange to supply good same size
photographs and plaster-of-Paris casts to numismatists at moderate
cost, so that they are studied by different persons and their results
come out soon.
GLASS—AN ARCHAEOLOGICAL SPECIMEN OF SOME SITES OF SOUTHERN INDIA (circa 2560 B.C.-1600 A.D.)

MAMATA CHAUDHURI

The origin of glass in India is still shrouded in mystery. By the second millennium B.C., the prehistoric peoples of Mohenjo-daro and Harappa were moulding and fusing articles of faience, and were glazing beads, pottery and steatite objects with a frit akin to glass. Excavations at Maski in southern Deccan have brought to light glass bangles of the chalcolithic period datable to the first millennium B.C. Specimens of glass bangles have been recovered by excavations at Hastinapur and Rupar at a stratum dated ninth to eighth century B.C. Here the glass specimens of five prominent sites of southern India e.g. Ahmednagar, Arikamedu, Brahmagiri and Chandravalli, Brahmapuri and Maski have been discussed.

AHMEDNAGAR

A recent discovery (in June 1965) of eight glass flasks in association with thirteen Chinese porcelain bowls at Ahmednagar city,1 in Maharashtra state, ushers in a new chapter in the history of glass. It is for the first time that such large and well-dated flasks have been found in this country. From the descriptive label and inscriptions attached to these Chinese bowls, it could be asserted that these were of Chinese origin and of the Ming dynasty, and as these eight flasks are associated with them, they may also be attributed to the same period. It might be noted in this connection that during this time there was a good trade connection with China, which is clearly proved from literary evidence. The description of these eight-flasks is: they are flattened on the sides with a semi-circular or round body and tall cylindrical neck; their height ranges between 27 to 34 cm; they have an
omphalos or depressed kick in the base and a beaded rim at the top; the bases vary from 12 to 14 cm in their width and the longest tapering neck in one instance is about 24 cm. They are of green and greenish blue colour.

ARIKAMEDU

Arikamedu, an ancient Indo-Roman trading station, situated near Pondicherry on the tropical Coromandel coast,2 is a site where excavation was conducted by the Archaeological Survey of India during the months of April to June in 1945. Its stratigraphical evidence may be divided into two sectors—northern and southern; the northern sector is again sub-divided into: (i) Pre-Arretine, (ii) Arretine and (iii) Post-Arretine, extending from the end of the first century B.C. to the mid or late first century A.D. The southern sector is also subdivided into: (i) Pre-structural, (ii) Early phase, (iii) Main Drain period, (iv) Late Drain period and (v) Latest phase extending from before the middle of the first century A.D. to the second country A.D. or later. The datings of the layers are mainly based on the processes of evolution and devolution of potteries (i.e. their colour, shape and their fabric) of these northern and southern sectors and almost all these layers contain the glass specimens.3 More than two hundred beads of various materials were found in the excavations. Of these, the majority of beads are made of glass.4 Their range of colour is limited; shades of blue and green are the most popular colours throughout followed by copper-red; less common colours are white, black, yellow, violet and brown; grey is rarely found. The materials are generally opaque but sometimes translucent and transparent glass are also found.

The range of the shapes of the beads is rather limited. The main shapes are spherical, spheroid, pear-shaped, cylindrical, barrel, truncated bicone, oblate and collared. Some of them may be divided into sub-types, such as circular, square, hexagonal etc. according to their cross-sections. A few very tiny glass beads spherical or spheroid in shape have been found throughout all periods. The three smallest ones are .05, .06, and .08 inch respectively. Some beads, mis-shaped in manufacture, have also been recovered from the later strata in the southern sector. The existence of these along with a number of
unfinished ones of various materials and some fragments of semi-precious stones seems to suggest that beads were manufactured on a large scale at Arikamedu. A frog-bead of light green glass has been mentioned in the Pondicherry Bibliothèque, which was also found at Kausambi and Taxila.

Besides beads, other specimens of the site are fragments of pillar-moulded bowls of whitish iridescent glass, bowls of blue glass, a bangle and a large number of glass rods. Fragments of four or five pillar-moulded bowls of whitish iridescent glass were found at Arikamedu by the French excavators. These types of bowls originated first in Italy and spread throughout the Roman world from the end of the first century B.C. to the end of first century A.D. They were also found to occur at Haltern (11 B.C.-16 A.D.) and Hofheim (40-51 A.D.) in Germany.

In the northern sector of the pre-Arretine layer of the site was found a fragment of a bowl of blue glass of Mediterranean origin with horizontally ribbed sides.

Bangle: A fragment of a bangle of amber-coloured glass with lozenge-shaped impression alternately filled with dots and an oblique line forms the only glass bangle specimen found during the year of excavation in 1945. It was recovered from the northern sector of the post-Arretine layer. There are fragments of two other glass bangles discovered by earlier excavators, as has been recorded in the Pondicherry Bibliothèque.

Glass-rods: Several rods of glass-like material (circa first-second century A.D.), unearthed at Arikamedu, were sent to Dr. B.B. Lal by the Government of Madras for analysis of the composition of the raw material, because these rods looked very much like fossil-wood. But after physical, chemical and microscopical examination it has been concluded by Dr. Lal that they are composed of glass, and various metallic oxides have been used for producing different colours.

These rods are of various colours olive-green, bottle-green, cobalt-blue, greenish blue, brick and liver-red. Most of them are opaque and a few are transparent. A whitish film on the surface of some of the specimens is due to their prolonged burial in the soil.

Most of these rods range from 2 to 2.4 cm in length and a few specimens are of larger dimensions; the longest is 4.6 cm. The
fine threading holes in some of them suggest that they were perhaps used for a preparation of perforated beads, while others are solid without any holes. A core of sand is found in several rods.

BRAHMAVIRI AND CHANDRAVALLI

These two sites in the Chitaldrug district of northern Mysore show distinctive elements of the Arikamedu culture. A clear succession of three main cultures has been determined here: I. Brahmagiri Stone Axe Culture (first millennium B.C. to the beginning of second century B.C.); II. Megalithic culture (second century B.C. to the middle of the first century A.D.); III. Andhra Culture (middle of the first century to the third century A.D.). The excavation was carried (in March, April and May 1947) by the Archaeological Survey of India in collaboration with the Archaeological Department of Mysore state. In the Andhra level abundance of glass is noticeable and the glass objects are mainly bangles and beads.

The colours of the glass bangles are black, stratified glass (a strip of yellow and grey), sky-blue, light green, etc. and they are plano-convex and triangular in section.

Glass beads are five in number and all have been discovered from the Andhra level. Their shapes are short barrel-circular, short oblate-circular, spheroid and long-barrel-groove. Colours are deep and light green translucent, green opaque, sky-blue (opaque) deep green (opaque).

BRAHMAPURU (KOLHAPUR)

It is an elevated place on the western outskirts of the city of Kolhapur (N. latitude 16°41', E. longitude 74°71'). It lies on the right bank of the Panchganga river. Four different layers have been studied on the basis of the pottery. These are: (i) Brahmani, (ii) Late Satavahana, (iii) Satavahana and (iv) Pre-Satavahana. Glass objects occurred uniformly in all the layers of the site. They are mostly beads, bangles, rings, etc.

Beads, varieties of colours like blue, different shades of green, yellow copper-red, black, etc. were used. A very wide range of shapes is to be noticed in them—spheroid, cylindrical, barrel, oblate hexagonal biconal, disc, fluted, biconical, etc. In most cases they were made by
wire-wind, moulded and cane processes.\textsuperscript{11}

\textit{Bangles}. One hundred pieces of glass bangles\textsuperscript{12} (monochrome and polychrome) were recovered from the third and the fourth layers and are classified into different types according to their colour, shape, technique and design.

Thin monochrome types are usually round on the circumference and the black, yellow, green, brown, dark green, dark or navy blue coloured with various shades.

Thick monochrome types are of various shapes such as (i) round (light or greenish blue) and semi-round, (ii) flat (thick monochrome) with brown colour, (iii) round or flat with a raised central ridge, (iv) broad with concentric rings and beaded circumference and (v) thick with grooves on the circumference.

—Thin or very thin monochrome body with applique design.
—Monochrome body incised on the face with cross and vertical strokes.
—Round monochrome body with close oblique grooves.
—Facetted monochrome body.

Thick types of bangles have (a) thick, rounded, convex, body with fused bands in two colours with alternating twists, (b) thick convex body with raised top and side grooves in oblique twists.

Another type has semi-thick rounded body with elongated yellow and white ovates on black body. One bangle of transparent glass of fine light blue colour\textsuperscript{13} (circa 100 B.C.-200 A.D.) has been analysed by Dr. B.B. Lal. This was moulded with a diamond-shaped design and its colouring agent was copper.

Besides these monochrome types there are also polychrome types with green or brown, yellow-brown, yellow and green, bluish green with green and yellow patches. There are a number of ordinary soda-lime glasses with different colours. The various coloured glasses were superimposed one over the other and the line of demarcation was clearly seen in the enlarged cross-section.

\textit{Rings}. Like the bangles, finger-rings\textsuperscript{14} are also of various types, according to the colour and designs of manufacture: (i) simple monochrome, (ii) simple monochrome but with corrugated circumference, (iii) polychrome and (iv) lustrous. Their colours are black, yellow, pale brown, bluish green, light green. In this connection it is interesting to note that the glass obtained at Kolhapur is of very good
quality and is generally very well preserved. The presence of much glass slag and the number of unfinished beads at various stages of manufacture show that there was a flourishing bead-making industry at Kolhapur. Besides, a huge quantity of glass bangles, complete, incomplete and fragmentary types, also suggest the presence of a glass bangle industry, perhaps on the mound where the excavation was conducted. In addition, a good quantity of glass wares, glass slag, ashes mixed with lime and parts of a kiln were found in different parts of the excavated areas.

MASKI

Maski (15° 57′ 30″ N. Lat. and 76° 39′ 15″ E. Long.) lies in Lingusugur Taluk of Raichur district, formerly in Hyderabad state and now included in Karnataka. To the north of the village flows the Maski nullah, a tributary of the Tungabhadra. The four stratigraphical phases of the site cover a period extending from chalcolithic or early Bronze Age to the Muslim period, and the chronology of the strata and structures may be determined by the evidence of microlithic and megalithic culture, coins and inscriptions. Phase I covers the period of the first millennium (chalcolithic) to the fourth century B.C.; Phase II extends over a period from the second century B.C. to first century A.D.; Phase III relates to the period covering first to third century A.D. The medieval period extends from 1000 to 1600 A.D. 16

Glass objects excavated from Maski are beads and bangles.

The range of colour of the beads is very limited. Shades of blue and green are the most common colours throughout the whole occupation including the mediaeval period. Other colours represented are black, yellow, white amber and shellac red. The material is either translucent or opaque. The commonest shapes are the standard cylinder (or sometimes barrel) and circular; other forms comprise bicone truncated circular, spherical, long cylinder, grooved circular, long convex square and long cylinder circular. 16

Most of the specimens of glass bangles are incomplete. Their colours are seagreen, turquoise green, amber, red, blue and yellow. Most of the bangles are opaque. Instances of stratified glass also occur. In some cases a strip of opaque yellow is seen on translucent amber, relieved on the top with small brownish dots, while in other
yellow wire-like strips form the binding edges for a channelled surface of sea-green.\textsuperscript{17}

The fragmentary polychrome glass bangles with variegated designs from Maski, ascribable to fourteenth to fifteenth century A.D., have been studied by Dr. B.B. Lal.\textsuperscript{18}

The fragment of a bangle on the right clearly shows four colours. The rim is green in colour. The adjoining band is a combination of pale-yellow and reddish glass arranged as a twisted pattern. The third band is liver-red and the innermost band, which is broadest, is composed of pale yellow glass covered with a thick lemon-yellow glaze. The sample shows a remarkable workmanship in the execution of designs. The glass used in the preparation of this polychrome bangle is opaque to translucent and the colours of the various bands have been found to be due to presence of copper and iron. The colour of the green glass has been produced by the combined effect of oxides of iron and copper. The yellowish colour is attributable to iron oxide. The liver-red colour has been found to be due to oxide of copper. The lemon-yellow colour has been produced by the oxide of iron. A cross-section of the bangle showing the variously coloured glass bands in juxtaposition was examined under the microscope in reflected light. This photomicro shows four distinct parts representing the four bands. The part at the left-end of the photomicro is green glass of the rim, and the part at the right-end is pale yellow glass having a layer of lemon-yellow glaze. The lemon-yellow glaze stands out as a distinct layer on the three edges of the band.

The other specimen examined is composed of pale yellow opaque glass covered with a thin layer of lemon-yellow glaze. The yellow colour is due to the presence of oxide of iron. The cross-section of the specimen is also shown in reflected light. The lemon-yellow glaze is seen lighter in shade as a layer round the edge of the specimen. The glazed surface of the specimen was further examined by the ultrapak for the study of the surface features of the glaze. The spherulitics of the surface caused by incipient fusion of the glaze are also shown. The characteristic crackle of crazing, which is a feature of most glazed surfaces, is also visible in the lower part (light) of the photomicro.

The central specimen shows two colours, bottle-green and yellow. The bottle-green colour is due to the combined effect of iron
and copper, the yellow colour is attributable to the oxide of iron. The body of the bangle is made of bottle-green opaque glass and the designs have been produced by fusing to this body plain strips of yellow glass as well as strips showing twisted patterns in yellow and green glass. A polished cross-section of this piece was examined under reflected light. In this photomicro, the white circular parts to the left and the upper part of the central portion of green glass of the body represent yellow glass. The dark part seen in the centre of the latter represents green glass which has been twisted with the yellow glass to produce the design seen very clearly in the central specimen. The glass used is opaque. The designs have obviously been executed by stitching to the body of the bangle carefully prepared bands of glass of different colours.

Thus glass specimens of various shapes, both finished and unfinished and of different stages of their manufacture along with the presence of oven indicate the very fact that there were flourishing glass-making industries at different sites like Arikamedu, Kolhapur etc. and that at the same time there was also flourishing trade connections with far off countries like China, Rome etc.

NOTES AND REFERENCES

3. ibid. p. 50.
4. ibid. p. 98, n 5.
5. ibid. p. 102.
6. ibid. p. 108.
7. B.B. Lal, (Dr.), ‘Examination of Rods of Glass-like Material from Arikamedu’, Ancient India, 14, 1958, p. 139.
11. ibid. p. 98.
ETHNOARCHAEOLOGICAL STUDY IN NORTHERN INDIA—TERRACOTTAS: A CASE STUDY

VIDULA JAYASWAL

ANCIENT Indian terracotta art has been chiefly studied from the point of view of identification and stylistic classification including evolutionary processes involved therein. Comparatively, little attention has been paid on issues like manufacturing process, mechanics of dispersal and origin and spread of new styles. It is here that one can make use of available ethnological material to study and interpret a mass of archaeological material. Utility of ethnographic analogues for drawing meaningful conclusions is particularly pronounced on issues relating like elaboration and interpretation of socio-religious connotations, nature of production centres, dispersal of finished products etc. of the ancient crafts. This is well demonstrated in our study of terracotta figurines of the Gangetic Plains (eastern Uttar Pradesh and Bihar). It was realized that a study of morphological parallels between the ancient clay figurines and the ethnographic forms might also enable us to make deductions concerning comprehension and skill for the execution of figurative forms. Additionally, it may also be possible to understand the motivations involved in the modification of styles from time to time. In the present paper some such select important aspects of ancient terracotta craft of the Gangetic Plains have been discussed with the help of ethnographic analogues. Limited use of ancient literary accounts in this study was intended to provide clarification and further support to the ethnographic based interpretations of the ancient practices.

The ethnographic observations used in this study are based on our survey of 150 pottery/terracotta producing centres of eastern Uttar
Pradesh and Bihar. Located in Gorakhpur, Deoria and Varanasi districts of Uttar Pradesh, and, Bhojpur, Muzzafarpur, Sitamarhi, Darbhanga, Bhagalpur, Purnia, Patna, Gaya, Hazaribagh, Ranchi and Palamau districts of Bihar, these centres were studied in the years 1980-81 and 1983-84. Such details as on the manufacturing processes, mechanics of dispersal, utility of articles on the one hand and, socio-economic conditions of the makers on the other, were acquired during this survey. The informations collected were based on the interview of 846 potters (Jayaswal & Krishna 1986).

The archaeological data under scrutiny was acquired by personal handling of the specimens from four select sites viz., Ahichchhatra, Hastinapur, Sravasti and Rajghat. It may be put to record that the archaeological evidence used in this study may not appear as exhaustive as the ethnographic data. The reason being, the lack of full published detailed reports on many of the Proto-historic and historic sites of the Gangetic Plains, particularly, with elaborate section on terracottas, and the non-availabilty of the archaeological material from many of the sites for first hand study. Nevertheless, the four select sites together represent, more or less, all the major archaeological horizons of the area under study, and provide reliable base for the proposed study.

Ancient terracotta collections, from the point of view of technique and style, are divisible into three categories:

1. Terracottas that are directly stamped from moulds,
2. Primitive hand-modelled clay figurines; and,
3. Pottery figures.

The proposed set is partial modification and elaboration of the "proforma" for division of ancient terracottas into 'time variations' and 'ageless' types, as was suggested by Kramrisch (1939) and followed by others (Saraswati 1957). The 'time variation' types of Kramrisch corresponds more or less with our moulded specimens. But evaluation of her 'ageless' category extends to two distinct groups—the pottery figures and the primitive hand-models. Much has been said by others on the 'time variation' category. Only a few aspects, which emerge from the ethnographic analogues of moulded specimens, have been discussed in brief in this paper. As the 'ageless' types of
terracottas have not received attention so far, these have been described in certain detail. The inferences from our ethnographic study apply to pottery figures in particular, while clay figures of primitive nature have been examined on the basis of ethnographic observations, experimentation and ancient literary accounts.

**TERRACOTTAS IMPRESSED FROM MOULDS**

Moulded terracottas, as they are made and used throughout Bihar and eastern Uttar Pradesh, involve two separate groups of artisans. One who actually ‘sculpt’ the core model, from which the mould is prepared, and, the other who impresses the clay, bake and paint the resultant specimens. The second group of artists invariably belong to the ‘potters’ community. That a similar system was in vogue during ancient times is indicated by both circumstantial and direct archaeological evidence.

The close correspondence in style and composition between stone and the moulded clay models of the Śuṅga, Kushāṇa, Gupta and Post-Gupta times, is the suggestive evidence, while finds of model sculptures, moulds or matrix from the ancient deposits are positive indications for the existence of such a practice. Evidence from Sonkh suggests preparation of moulds directly from a part of Kushāṇa panel (Hartel 1976: Figs. 44 & 45). Besides, actual moulds have been reported from sites like Bulandibagh (page, 1930: Pl. XXXI, g) and Rajghat (Narain & Agrawal 1981: Pl. XXIII, 10). P.L. Gupta has rightly observed that the soap-stone models in the collections of Bharat Kala Bhavan and the one obtained from Kausambi, were perhaps used for preparing moulds (Gupta 1972:10). Ancient and early mediaeval texts provide additional support for the prevalence of the proposed practice. The words bimbat, uddhratau and bimbau occurring in Bālakāṇḍa IV in Rāmāyaṇ, for instance have been interpreted as, the ‘original model from which the mould is prepared’, ‘cast/press out’ and ‘cast/replica’, respectively (Agrawal 1977 : 134).

The dispersal of finished products of the group under discussion, as per the present day practice, is through modern marketing system i.e., transactions of goods from the maker to the consumer through the middle man or payakar. Such archaeological examples, as two identical moulded female plaques, one from Maurya-Śuṅga levels at
Rajghat (Narain & Agrawal 1978: Pl. XXVIII, 2) and the other from Period IV of Narhan (Singh & Lal 1985: Pl. XV, XVII, B) which appear to be casts from a single mould, may indicate long distance transportation of one from either of the two sites to the other. Such a long distance transportation like this would, obviously, involve transaction of the finished product through middle man.

Ethnographic instances in our study also show a close relationship between the urban settlement and the prevalence of moulded terracotta technique. The quantitative demand on particular occasion by a large section of society is an urban character. To meet this demand in comparatively shorter duration, mass production of clay figurines is required. Use of mould is the only logical solution for this situation. This technique is also applied for the production of specimens required in smaller quantities. These can be seen in the form of certain innovations in the figurative style favoured by the city dwellers as an attempt to duplicate ‘masterpieces’ from permanent and expensive material such as stone, metal or ivory to inexpensive ones. Clay is more obviously low cost. It is a material of universal accessibility.

That, moulding is an urban variation of clay modelling, and the application of the ethnological informaion as a tool to explore ancient practice in this direction, needs elaborate comparison between the terracotta specimens from the urban and non-urban settlements. This ideal test is not possible to make at present, as there is a dearth of archaeological evidence from village settlements of the historical period, from the region under study. However, circumstantial evidence does suggest the correlation of urbanizing tendencies and the mass-production of terracotta (Desai 1976). It may be argued, for instance, that the emergence of cities that accompanies the introduction of moulds in the third century B.C., may not be a mere coincidence. Particularly, when there seems to be a close correspondence between settlements of politico-economic importance and the abundance of good quality clay casts.

PRIMITIVE HAND MODELS

Some of the household rituals of Bihar and Uttar Pradesh require women devotees to prepare simple wheat-dough or unfired clay
figures for domestic worship. The forms modelled on these occasions are extremely simple with minimal features. Technically speaking, the noteworthy feature in this case is their unbaked conditions.

The author while examining the collections from Hastinapur and Rajghat noticed bull and horse figurines which had morphological similarities with the ethnographic examples. Their crude modelling, small size and the fact that they are either unfired or extremely low fired make them as a separate group among the other terracottas of the period, the latter being well baked (Jayaswal 1983). The ill-fired and carbonized surfaces, as per our experimentations, indicate their contact with open uncontrolled fire and soot.

We have shown elsewhere that the literary evidence from the historical period testifies to the practice of the use of clay figures for certain ritual performances (Jayaswal, 1983). For instance, there are frequent references to the possible use of effigies instead of live animal sacrifices in the ancient texts. Existence of such a practice can be presumed by the word paśurupa occurring in the Śatapath Brāhmaṇa and pishtapaśu of the Manusmṛiti (V : 37), which have been interpreted as . . . “any thing representing the sacrificial animal” and . . . “an effigy of a sacrificial animal made with flour or dough respectively” (Monier-Williams 1981 : 612, 628). Later, in the Garuḍa Purāṇa, we have description for the use of dough and clay bulls in case of inavailability of the live ones while performing śrādha ceremonies (Kane 1973 : 541). Taken together, these evidence, thus, suggest that, the primitive clay figurines of the group under discussion appear to be objects of some type of household rituals.

POTTERY FIGURES

The term ‘pottery-figure’ has been used by Mackay to describe some of the Mohen-jodaro terracottas (Mackay 1976 : 283). This striking feature of the terracottas of the period is said to be the production similarities of the figurines with the contemporary pottery. The production of folk-ritual terracottas of today is surviving as a parallel to strictly utilitarian pot-tile making. Not only the raw material and the tools used are identical to both, but also, the entire process of manufacture, from the preparation of clay, the modelling of the basic form on the wheel, duration of drying, application of slip/wash and the
closed kiln firing, are similar to the two. Likewise, in the remains of early historical period, many animal figurines exhibit unmistakable evidence regarding fabric, surface treatment and controlled baking which correspond to the contemporary ceramic types. The term used by Mackay, therefore, seems most logical for the category under discussion.

A large majority of the terracotta animal figurines from various historical sites are greatly stylized, and it appears that the craftsmen made hardly any attempt to bring them nearer the natural forms. The ritualistic terracottas of eastern Uttar Pradesh and Bihar are also characterized by this particular feature. Elephants with or without riders, and some times crowned by earthen pots and other accessories, as well as horse with or without riders, are the main forms of terracotta figurines offered as ritualistic objects at different places of worship on various occasions. Besides these two animals, bull and sheep are the other popular forms of the early historic times, which appear to have lost ritualistic value in the present day.

The pottery-figures of the present day eastern Uttar Pradesh and Bihar have universal manufacturing technique throughout the region. That is, main parts of the figurines are made on potter's wheel and then they are joined together by hand. A few smaller parts like tusk and tail among the elephant figures, however, remain hand modelled. The specimens are decorated variously by applique designs, moulded palletes, painting and slip. The paintings are executed in post-firing stage while the slip invariably precedes baking.

Close examination of animal terracottas in archaeological collections of the early historical period reveals that some of the animal figures are hollow and bear very distinct wheel marks on the undecorated interior surface. This feature, incidentally, is associated with elephant figures of the late Northern Black Polished Ware phase and horse figures of the Gupta and post-Gupta times and not with any other animal form, as is the case with the present day ritualistic clay figures. However, there is one difference between the present day and the ancient modelling processes. That is, while the wheel is used for almost the entire production of ritual animal forms today, the human forms of the riders are invariably hand-modelled. A large majority of ancient figures are hand-modelled, and the use of the wheel is, however, restricted.
The exterior of the animal figures from the historical levels appears to have received both pre-firing and post-firing treatment which corresponds well with the contemporary ceramic traditions. For instance, the grey fabricated terracottas with black or lustrous black slips from the Northern Black Polished Ware levels at Rajghat, Period IB & IC; Hastinapur Period III; and, Ahichchhatra Stratum VIII, demonstrates closeness with contemporary black slipped and Northern Black Polished Wares. Besides, kiln baking and pre-firing slip similar to the red ceramics are apparent from the red terracotta figures from various horizons i.e., dating between the early sixth century B.C. and the fifteenth century A.D., at Hastinapur, Sravasti, Rajghat and Ahichchhatra. Moreover, post-firing pigmentation in the form of simple geometric designs over lustrous black ground of the figurines from Period IB & IC at Rajghat and Prahladpur, is identical to the painted Northern Black Polished Ware pots of the time.

The above mentioned close parallelism in terracotta figurines and contemporary ceramic traditions of the ancient times, does suggest the prevalence of the present day practice that the potter community provides the entire need of the earthen articles to the local society. This ranges through jars, containers, vessels, pots and tiles to votive and ritual figurines required by seasonal ritual cycle and life cycle. An additional support to this presumption is the classical description of Jayashri’s marriage during the reign of king Harsha. Bana in the Harsha Charitra describes, ... “Multitudes of clay-modellers were modelling clay figurines of fishes, tortoises, crocodiles, coconut-plantains and areca-nut trees” (Agarwal 1969 : 96).

Acceptance of the hypothesis that the potter-figures were the products of ordinary potters, leads us to the nature of terracotta/pottery production centres. As per ethnographic studies, these production centres are invariably located within kumhar tolis, the residential area of the potter community. These tolis are mostly situated at the outskirts of the larger settlements and occasionally within the settlements. In townships, not all potters make figurines but only a few select individuals with special artistic aptitudes indulge in figurative craftsmanship. Contrary to this, in rural settlements where the number of craftsmen engaged in the production of earthen articles are limited, almost all prepare these figures. Lack of artistic amplitude and restricted
demand in such cases, as can be seen archaic appearance and limited creations, are the reasons for the undergrowth of the terracotta production centres in small settlements. In the case of choice, as in townships, select individuals who live in different kumhar tolis take up figure making, while their fellow craftsmen may buy or acquire them on exchange basis, in order to supply to their customer, the yajmanas. Such working relationship between individual artisan and his community may at times help in the formation and development of actual production centres of figure making. Godavari and Pamarganj tolis in Gaya are illustrative examples of this situation. In another instance the formation and growth of production centres are found to be directly dependent on the popularity of the auspicious places for votive offering of elephant and horses in the neighbouring areas. The flowering of Tiwain and Tarkulwa as prominent devi-thana has stimulated growth of high production capacities of their respective kumhar tolis.

An archaeological precedent for this ethnographic situation is absent. To the best of our knowledge, a single centre/or workshop area of pottery production converging in a residential area of potters, has not been recognized, so far, in any of the ancient habitations of the Gangetic Plains.

The modelling of pottery-figures from various historical sites is characterized by the reduction of anatomical details of the animals to the most simple forms. The most striking features of the subject are always shown stylized. These stylized, archaic looking animal figure co-exist with the more refined modelling, at least from the second century B.C. onwards. It appears, therefore, that the simple animal forms were being produced to fulfil the needs of a specific cult, and these were required for some socio-religious practices of the contemporary society.

Present day terracotta figures used for specific or local indigenous rituals in the area of our study are likewise characterized by a non-representative stylization. Elephants with or without riders are offered at the devi-thana or devi-chaura, a place of the local deity situated outside the village under a distinguishing tree, for the fulfilment of certain desires. The customs is prevalent in the region lying north of the Gaṅgā, particularly the district of Gorakhpur and Ballia.
of Uttar Pradesh. Horse with or without a rider has a rather limited distribution, and it is being generally used in a class of rituals related to exorcism. It is apparent from our account of devi-chaura and baba thanas, for instance, where most of the animal figures are offered, that these stand primarily for magico-religious cult worship which existed side by side with brahminical theology. To the devotees who now belong to practically all castes and strata of the society their names are not of much significance. It is the sanctity and local reputation of the auspicious places which draws devotees to a particular devi-thana or baba-thana.

Closer to our field for instance, Pratibha Prakash has mentioned the recovery of clusters of sheep figures from Gupta Period levels at Rajghat (Prakash 1985 : 132), which seems to indicate votive offering at a thana or auspicious place very similar to those we find throughout the area today.

It is interesting to observe that a single animal form can be used in more than one type of ritual which may have no relationship with one another. Elephant with sāj (accessories), for instance, are installed in the courtyard of houses, more particularly in south Bihar, on occasions of sacred-thread and marriage ceremonies. Besides, the ritual connected with the kosi-bharana, performed twice a year on the sixth day (chhattha), the first in the chaitya, and then in the karttika, requires earthen elephant. Confined primarily to Bihar, this custom involves installation of elephants in specially made mandapa along with a large number of crowning members, for worshipping the god Sun. Meanwhile, identical animal forms are used as votive offering to a devi-thana. These instance suggest that even one type of animals may be attached to differing cultural values on various occasions in one particular culture set-up. The bull and elephant figures of this category which are numerous at early historical sites, likewise, may have been used for more than one ritual practice.

A study of decorative terracottas today reveals that patronage of craftsmen by a socio-economically strong section of society may result in the partial rejuvenation or metamorphosis of an art tradition. As illustrative example is the origin and the spread of the Nauranaga style. The two most popular subjects i.e., the elephant and the horse in this case have elaborately decorated bodies and lustrous ochre
coloured surfaces. The careful modelling and ornamental surface decoration of an originally folk form, has found favour among a clientele that is more concerned about its aesthetic quality than that of its ritual implications.

The elephant figures of grey fabric with a black slip, and red clay bull as we see them in the historical period, are likewise elaborately decorated by applique bands and stamped designs. Other than this, they share the characteristics and simple forms of pottery-figures in general. Whether these more decorative figures were prepared in response to the patronage by a special class of society, though it is difficult to ascertain with any degree of precision, its possibility cannot be ruled out.

BIBLIOGRAPHY

The text on the page is not clearly visible due to the quality of the image. It appears to be a page from a document, possibly a report or a book, but the content is not legible.
THIS paper is mainly based on the field works that I undertook at first at the request of the Jalpaiguri District Centenary Committee in 1970 and carried on subsequently at different points of time. The district, a comparatively late creation by the British (in 1969—previously it was a subdivision under the Rangpur district, now in Bangladesh) for administrative convenience, lay between 26°.16' and 27°.00 North Latitude and 89°.04'—89°.53' East Longitude.

The total area is 6,245 sq km. It is bounded by the Darjeeling district and Bhutan in the north, Assam in the east, Cooch Behar district and Bangladesh in the south and again Darjeeling district and Bangladesh in the west. The main rivers of the district are the Teesta, Torsa, Kaljani, Samkosh and Jaladhaka. Large areas are still covered by forests. The tribal or semi-tribal background of the region, the unhealthy climatic condition and the jungles full of wild animals—was the overall picture of the region.

The population of the district contains a wide variety of scheduled tribes and castes. There are twenty scheduled tribes in this district. The Bengali speaking population is mainly middle class “bhadralok” who had migrated to this area from eastern Bengal as the investment in tea gardens had increased in the early part of the twentieth century. The demographic pattern of the district further changed when after the partition of the country in 1947 a large number of Hindu crossed over and settled in this region.

The scholars in the thirties of this century had felt the urge to prepare a comprehensive history of Bengal on the basis of the then available materials. The result was the “History of Bengal” in two volumes published by the University of Dacca in 1943 and in 1948.
But the region now called Jalpaiguri was hardly taken into account at any point of time. Even in later times the scholars did not feel it necessary to collate the regional history into a comprehensive one. As a sequel to the earlier studies several scholarly treatise were composed with emphasis on both political as well as social history. But the time has come to recognize academically the multi-faceted politico-cultural element of Bengal in its regional varieties, and my investigation is a modest start in that direction.

In course of my field work I surprisingly recognized three distinct zones of early settlements in the Jalpaiguri district:

(1) About 12 km south west of Jalpaiguri Town, the Jahiri-Talma area;
(2) the Mainaguri area in between the rivers Dharala and Jaldhaka; and
(3) the Nalrajgarh in the Chilapata reserved forest area.

A large number of images have been found in the Jahira-Talma area. Here, a part of a ruined fortification may be seen; the rest lay beyond the international border i.e. in the Bangladesh. This fortification has been called the “Prithurājārgarh”, and Rājā Prithu has been described as a King of Kāmarūp in the Statistical Account of Bengal (1876) and Gruning’s Eastern Bengal and Assam Gazettēer (1911). Hunter gives a detail of the “garh” while Gruning gives a plan. There were several stray artifacts found from the adjoining area. The most interesting is a group of images mostly of bronze or octo-alloy. This groups, according to the present owner (photo 16), in a metal container, was found while ploughing the field. The images are an extraordinary collection of Pāla-Sena workmanship. It includes the images of Gaṇeśa, Śiva, Pārvati, Avalokiteśvara, Sūrya, female deities with unidentified objects in the hand etc. Not only this hoard there were other stone (black basalt) images found from the same locality. One very interesting image, probably of a slightly later origin, was carved almost in the round (photo 17). A number of bronze images have also been discovered from the Jalpaiguri town itself (photo 18). These are mostly preserved in the Akshaya Kumar Maitreyā Museum of the University of North Bengal.

The second area is rich in temples, one being the famous temple of Jalpesh. Here is held the “principical religious trading gathering” on
the day of the Śiva-rātri in February. The temple was modelled after the wishes of the Cooch-Behar kings and show affinity towards Muslim architecture. In the compound of the temple there is a shrine having a Vāsudeva image of about eleventh/twelfth century A.D. Nearby in a paddy field lay two totally mutilated but gigantic figures with folds visible in the partially intact drapery.

The most important temple however lay nearly a mile away on the roadside to the Jalpesh temple. It is called Bateśvar or Jateśvar by the local people. Actually the temple is in total ruins but the ground plan is clear. Probably the temple had three constructional phases. The earliest may be dated to the Gupta Period. A door jam lay nearby. The decoration on the door jam includes a Kirtimukha probably belonging to the Gupta Period. The temple was probably renovated for the second time in the Sena Period. The latest phase stylistically belongs to the Koch style of Kamatapur with distinct tribal affinity.

The next temple lay about 11 km north to the Jalpesh temple. The temple at Purva Dahar is a living temple with one anadilingam in the garbhagṛha. The śikhara was newly built, what remains is a stone Bada of probably a Rekha Deul. There are decorative figures in the outer niches. A gigantic Dvārapāla stands at a corner of the complex. There is a large pond to the east of the temple from where a number of Viṣṇupaṭṭas have been fished out by the local people (photo 19).

Besides these temples there are traces of other temples built of stones and bricks within a radius of 12/13 km. A number of Chāmuṇḍā images, locally called Peṭkaṭīmao, have been unearthed.

In the third zone, the State Archaeological Department had conducted excavation and the then Director had concluded that the ruins belonged to the Gupta Period. According to the local tradition, the fort was called ‘Nar-rajar garh’ i.e. the fort of King Nar who has been identified with the Koch king Naranārāyaṇa. The evidence so far discovered does not show an antiquity as old as that of the Gupta Period. This does not, however, minimize its importance in history. Detailed excavation may bring about some solution to the problem.

Besides these three important zones, stray artifacts have been discovered from many other places which include a number of the
sun images. Excepting the metal images the workmanship in the stones show a very low artistic quality. They lack any creative sense (photo 20).

Yuan Chwang in the seventh century had crossed the river 'Ko-la-tu' and gone to the country of Kāmarūpa, the kingdom of Bhāskaravarman. 'Ko-la-tu' or Karatoya had formed the eastern boundary of 'Varendra' or the 'Puṇḍravardhanabhukti' which was the 'Janakabhu' of the Pāla kings. According to Lāmā Tārānath, Gopāla had hailed from the forest region of the Puṇḍra country. Karatoya had lost its former glory and at present is a tiny stream flowing in a diminishing form through the western part of the district. The pressure of tribal migration into the area probably started in some remote past. The records of the neighbouring Ahom kings i.e. the Buranjī texts show much familiarity with the Koch Kingdom. Especially, the temple at Jalpesh plays a very important role in the religious life of Assam. The history of the Koch Kingdom shows their migration into the present region in about the thirteenth century. This migration had ultimately changed the entire demographic character of the population. R.D. Banerji had connected the Kamboja migration with the Koch people and very recently D.C. Sircar had also lent his support to the same theory. D.C. Sircar, while editing the Paschimbhag Plate of Śricandra, wrote “the name Kamboja is probably the Sanskritised form of the name of the Koch people of North Bengal”.

In the perspective of the available data it will not be a wild conjecture to suggest that Jalpaiguri region probably lay at the periphery of the Pāla-Sena cultural zone at a certain point of time. The settlement zones that in course of investigation emerged must have had some economic utility. The forest products like timber, honey, lacquer could be obtained from here. A very careful investigation might probably in some day trace an old trade route to Assam and Gangetic Bengal and Bihar through this area. The annual gathering at Jalpesh probably has a long history. It is quite likely that here was held one of the trade fairs where the people from the hills would come and exchange their commodities with the plains people. This tradition is surely a survival of very old times.

As the Pāla-Sena power declined, the political scene was shifted
to Gaur-Laknauti region. The Sena kings preserved their mere existence in the Samatata for some time. There were obvious migrations at that time into lower Bengal from Varendra. As the royal patronage was withdrawn from Varendra, the settlements that probably thrived on trade and commerce in the region under study lost their means of survival and slowly but surely declined. Some centres, however, maintained a precarious existence due to their religious significance. The others were lost into oblivion. The Koch Kingdom in the neighbourhood established itself with a new vigour. The tribal migrations were encouraged and slowly the memory of a Brahmanical cultural penetration disappeared.

NOTES AND REFERENCES

2. The total area under forest is 1824 sq km i.e. 29.26% of the total area—*ibid.*
3. "The principal endemic diseases of the District are the following: Malarious fevers, both remittent and intermittent, with all their complications and sequelae." Hunter: *Statistical Account of Jalpaiguri*, 1876, p. 321.
   See also: "A Century of Public Health Service in the land of Kala-Azar and Blackwater fever"—Sri M.N. Nandy, *District Centenary Volume*, p. 393.
5. Mention may be made here to some of the significant works of recent years;
   (a) B.M. Morrison, *Political Centers and Cultural Regions in early Bengal*, 1974;
8. A photograph of the same temple occurs in *'Archaeology of the Brahmaputra Valley of Assam'*—R.D. Choudhury, Fig. 46.
9. For an idea of this school the ruins at Gosanimari in Cooch Behar district may be seen.
   Also see *'Koch Biharer Itihas'* (in Bengali), Amantullah Khan, 1936.
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The archaeological ruins of Tamralipta, the ancient port of Bengal, which flourished during the millennium of 300 B.C. to 700 A.D., were exhumed from the right bank of Rupnarayan river, which is tributary to the Hugli river (Ray 1979). But the Rupnarayan river, during those early days was of insignificant magnitude in comparison with its present size, as the Damodar instead of finding its principal outlet to the sea through the Rupnarayan estuary, discharged its waters independently into the Hugli river (Sen 1968). Then, how an international port like Tamralipta, which had year-round trade link with the different parts of the world, could develop on a rain-fed tributary like the Rupnarayan? Moreover, the archaeological identification of the site of Tamralipta was not corroborated by the classical literatures of India and the accounts of foreign travellers, where the port was described as situated on the Gaṅgā itself. The present essay will endeavour to solve this locational controversy over the port of Tamralipta with reference to changing courses of the lower Bhagirathi distributaries.

Status of Tamralipta as a Port

The hinterland of Tamralipta covered a vast area of present Rarh Bengal, Bihar, Orissa and parts of Uttar Pradesh. The port was well connected by roads with ancient towns like Bodhgaya, Ayodhya, Pataliputra. The chacopryte of Ghatsila (Bihar) was presumably one of the major exports, hence the name Tamralipta was derived. Some archaeological evidences of early chalcolithic culture have been collected by the explorers of Tamralipta Museum at different parts of
the Rupnarayan Valley (Dasgupta 1975). Tamralipta was not only a centre for trade and commerce but also an important seat of religion and culture. The three Chinese pilgrims namely Fa-hien (300 A.D.), Yuan Chwang (639 A.D.) and Itsing (700 A.D.) described the glory of Tamralipta as a port which had trade link with the different parts of the world, especially with the south-east Asia and Mediterranean countries (Ray 1979). The Gaṅgā during those early days was discharging through five estuaries, which Ptolemy (150 A.D.) described with reference to their respective latitudes and longitudes. He further described ‘Tamalities’ or Tamralipta being located on the bank of ‘Kambyon estuary’ which has been identified as present Hugli estuary (Rudra 1981). Such location of Tamralipta was also corroborated by the Hindu religious texts Matsya and Vāyu Purāṇas (Ray 1980).

ARCHAEOLOGY OF TAMRALIPTA

The archaeological Survey of India plunged twice into the subsurface Tamralipta, one in 1954-55 another in 1972-73. A brief account of the archaeology of Tamralipta is furnished in the following table:

<table>
<thead>
<tr>
<th>Objects</th>
<th>Period</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neolithic celt, ill-fired pottery, microlethic tools, bone awls, copper objects.</td>
<td>— —300 B.C.</td>
<td>Not yet developed as a Port.</td>
</tr>
<tr>
<td>Northern Black Polish Ware (NBP), Beads of semi-precious stones, punch-marked and cast copper coins, brick-built tank, terracotta ring-wells, terracotta seals.</td>
<td>300 B.C.—100 B.C.</td>
<td>Developing Port.</td>
</tr>
<tr>
<td>Ceramics of varied shapes, sizes and forms. Numerous terracotta figurines, terracotta seals,</td>
<td>100 B.C.—300 A.D.</td>
<td>Richest period in the History of Tamralipta as a Port. Greek and</td>
</tr>
<tr>
<td>Objects</td>
<td>Period From</td>
<td>Period To</td>
</tr>
<tr>
<td>---------------------------------</td>
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</tr>
<tr>
<td>punch-marked and cast copper coins, beads, Roman pottery etc.</td>
<td>300 B.C.—700 A.D.</td>
<td></td>
</tr>
<tr>
<td>No important archaeological objects unearthed.</td>
<td>300 B.C.—700 A.D.</td>
<td></td>
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PORT OF GANGE

There was another contemporary port namely Gaṅge which was described by the anonymous author of the book entitled the *Periplus of the Erythraean Sea* (75 A.D.) and also by the eminent Greek geographer Ptolemy (150 A.D.). Some eminent scholars like W.H. Schooff (1912), R.K. Mukherjee (1938), D.C. Sircar (1971) and N.R. Ray (1979) participated in a debate on the issue of identifying the possible site of Gaṅge and mentioned several places like Satgaon, Gangasagar, Chandraketugarh. But no hypothesis seems to be acceptable. The cartographic clue found in Ptolemy’s geographical account of lower Gaṅgā Valley evidently indicates the location of Gaṅge to the south-east of Tamralipta. The archaeological treasures unearthed from Harinarayanpur, which lies to the south-east of Tamralipta, identified this village of the district of South 24-Parganas as the possible site of Gaṅge (Rudra & Bandyopadhyay 1986). It is necessary to mention here that while Tamralipta was related with the trade and commerce of vast tract lying to the west of the present Bhagirathi-
Hugli river, Gaṅge was the entrepot of the eastern plain of the lower Brahmaputra, Padma and Meghna valley and also the capital city of ancient deltaic civilization.

TAMRALIPTA AND THE CHANNEL OF THE GANGLA

An archaeologist would be surprised observing this anomaly between archaeologically identified site and literary description of the ancient port of Bengal. The interpretation to this apparent anomaly over the location of Tamralipta lies in the history of changing courses of the lower Bhagirathi distributaries. It is now an established theory that the Bhagirathi-Hugli river, constituted the oldest outlet of the Gaṅgā water towards the sea and the easterly flight of the Gaṅgā water along the Padmā river is a phenomenon of last few centuries (Rudra 1987). The diminishing headwater supply into the Bhagirathi caused decay of many rivers like the Saraswati, Bidyadhari, the Yamuna and the Adigāṅgā etc. When the principal feshet of the Gaṅgā had been passing through the Bhagirathi, these moribund channels were active and had important impact on the economy of Bengal. The Saraswati takes off from the Hugli river at Triveni and runs southward along the west of its feeder and finally rejoins the parent river at Sankrail of Haora district. The moribund Saraswati has frequently been referred by the historians in connection with the port of Satgaon and was thought as an old outlet of the Gaṅgā water (Mukherjee 1938). But the Saraswati flows far away from the marked site of Tamralipta and cannot help us in solving our problem. J. Rennell (1988) was credited with the thankful task of first systematic survey of Bengal during second half of the eighteenth century. He found a moribund distributary of the Saraswati which flowed through Chanditala, Amta and joined the Rupnarayan at Kolaghat. Rennell opined that the ancient outlet of the Gaṅgā was by the way of this palaeo channel. He was neither an archaeologist nor a historian, hence he failed to understand the relation of this channel with the ancient port of Tamralipta. This moribund channel seems to be the oldest course of the Bhagirathi, which remained juvenile till 700 A.D. and afforded the port of Tamralipta. The study of the landsat mosaic of the lower Bhagirathi valley also confirms this opinion. Subsequently, the Bhagirathi experienced an eastward migration and
Palaeo Channels Of The Bhagirathi
withdrew its alliance with the Rupnarayan at Kolaghat, causing the decline of Tamralipta as a port. Then the Bhagirathi started to flow along Sankrail, Baj and Geonkhal, where it was again joined with the Rupnarayan. It is very interesting to note that the years after the diversion of the Bhagirathi, the Rupnarayan estuary below Kolaghat remained as the 'Gaṅgā' in the memory of local people. Hence the early European cartographers like Jao des Barros (1550 A.D.), Gastaldi (1561 A.D.) and Blaeu (1650 A.D.) described the Rupnarayan estuary as the Gaṅgā on their maps. Even Rennell (1788) was also embarrassed with this misnomer and noted that 'the Rupnarayan estuary is falsely called the Gaṅgā'.

BIDYADHARI

Since the seventh century A.D., Saraswati, along with its port Tamralipta, started to decline. The period, commencing from the eighth century A.D. up to the influx of European traders in the early sixteenth century, may be called the period of obscurity, as there is lack of description by foreign travellers. Hence the source materials for the study of historico-geography are only contemporary literatures which are often erroneous on account of usual exaggeration. However, Bidyadhari was supposed to be a very old outlet of the Gaṅgā water. This river had a common offtake with Yamuna at Konchrapara and flowed south-east via Habra, Guma, Berachampa, Beliaghata, Chaita and finally found its way to the sea through Raimanghal-Haribhangā estuary. Another branch of Bidyadhari found outlet along Matla estuary. The materials unearthed during archaeological excavations at Chandraketugarh of Berachampa, which stands on the bank of Bidyadhari, identified it as an inland port town which flourished during the period from 300 B.C. to 500 A.D. (Ray 1979). During the second century A.D. Bidyadhari was one of the five important outlets of the Gaṅgā water and carried considerable discharge towards the sea. Hence Ptolemy named its estuary as Mega or great. Even the large ships from the Mediterranean countries used to visit this port through the then juvenile Bidyadhari. Though the archaeology of Chandraketugarh seems to be contemporaneous with that of Tamralipta, yet it would not be justified to think after Prof. Ray that Bidyadhari was an 'equally active' channel with the westernmost outlet.
of the Bhagirathi flowing along Tamralipta. This statement is based on the fact that a series of ancient travellers described the prominence of Tamralipta in ancient sea-bound trade of Bengal, while there was hardly any such description regarding Chandraketugarh. However, during those early days the principal freshet of the Gangā flowed along the Bhagirathi, which had two important distributaries, namely Saraswati and Bidyadharī. The former was a more important river which flowed along Tamralipta and Gangā Sagar to the sea, while the latter was the second important outlet of the Bhagirathi waters and sponsored the ancient economy of Chandraketugarh.

YAMUNA

Triveni, which literally means three braids of hair in local dialect, is presently a small town of Hugli district. The origin of the name of this place was obviously related to ancient river system of Bengal. The Bhagirathi had three distributaries namely Saraswati, Bidyadharī and Yamuna, all of which had their offtakes near Triveni-Kanchrapara. We have already discussed that Saraswati and Bidyadharī had immense importance in riverine economy of ancient Bengal. Yamuna river was not contemporary to Saraswati or Bidyadharī, rather, we believe that this river was opened at expense of Bidyadharī. The opening of Yamuna was caused by the tidal propagation in lower Bhagirathi distributaries. The two branches of the tide propagating through Saraswati and Bidyadharī, collided at Triveni causing enormous sedimentation and formation of a big shoal on the Bhagirathi or Hugli river. The shoal still exists at Triveni and is now flanked by branches of the Hugli river on all sides. A careful observation reveals the superimposition of alluvial sediments over estuarine sediments in this shoal (Chakraborty 1970). However, the formation of this shoal at Triveni sealed the fate of Saraswati and Bidyadharī, while Yamuna was opened to offer the Bhagirathi water an outlet towards the Bay of Bengal. The Yamuna took a course towards south-east and met with Ichamati river at Charghat, whence the combined discharge flowed south towards the sea. This process of opening was presumably very slow, as we have seen in case of other distributaries. We have some literary evidences which described juvenile-state of Yamuna river. The thirtyfourth verse of Pavanadutam, written by Dhoyee, the poet laureate
of King Lakshmansena (1175 A.D.) described Yamuna as a sinuous river carrying considerable discharge (Cakraborty 1924). Bipradas Piplai (1495 A.D.), in his poetic work *Manasmaṅgal*, described Yamuna as a mighty river in connection with the voyage of merchant Chand (Ray 1980). These literary evidence prove that during the period from 1100 A.D. to 1500 A.D., Yamuna was an active river of southern Bengal. But when Bennell carried on the first surveying of Bengal during the second half of the eighteenth century, both Bidyadhari and Yamuna were found moribund. The old courses of these two rivers can be reconstructed by joining the continuous line of swamps. It is important to note that Yamuna had not been the principal flow of the Bhagirathi, rather it was simply a cross channel which was opened for a short span of four or five hundred years only. Even after formulation of the big shoal at Triveni, the principal flow of the Bhagirathi turned round this formidable obstruction and flowed south along the present Hugli-Adiganga river.

ADIGANGA—A MEDIAEVAL OUTLET OF THE GANJĀ WATER

The very adjective *Adi* or old has led to a common misconception that Adigaṅgā is the oldest outlet of the Bhagirathi waters. Such an idea seems to be wrong as the antiquity of Saraswati and Bidyadhari has already been discussed referring to the archaeology of Tamralipta and Chandraketugarh. During the second century A.D., this Adigaṅgā was so insignificant that Ptolemy did not mention it as one of the five most important deltaic outlets of the Gaṅgā waters (Rudra 1981). Adigaṅgā presumably started to take prominence with the decline of other distributaries like Saraswati, Bidyadhari and Yamuna and, during the mediaeval period, Adigaṅgā was the most frequented sea-going river. The navigability of the Adigaṅgā had frequently been described in the mediaeval Bengali literatures.

It is necessary to mention here that none of these literary works called this river as Adigaṅgā which now seems to be a misnomer and this name was given subsequently when the river became moribund. In 1923, a copper plate was unearthed from the Gobindpur village of 24-Parganas. The copper plate is actually a deed of land grant of King Laksmansena (1175 A.D.), who bestowed a village named 'Biddar Sasan' to a priest called Basdev Sharma. The copper plate clearly
describes the location of village Biddar Sasan whose eastern limit was marked by a river called Jhannavi. The village Biddar Sasan is now known as Sasen (South 24-Parganas) and its eastern boundary is marked by the moribund course of Adigāṅgā (Dutta 1941). Thus it is evidently proved that Adigāṅgā was known as Jhannavi during the twelfth century A.D. and the adjective ādi, or old, was subsequently assigned to this mediaeval outlet of the Bhagirathi river.

THE HUGLI RIVER

The lower portion of the Bhagirathi river below Bansberia is now known as the Hugli. The river is being known as such since Portuguese influx during early sixteenth century when their salt cargoes anchored at Satgaon, which developed as an important seat of commerce due to the whimsical decision of Mohammad bin Tughlaq (1329 A.D.) for removing the headquarters of the Government of southern Bengal from Triveni to Satgaon, only because the Muslim king did not like the Hinduistic culture of Triveni. Muhammad bin Tughlaq failed to realize that the feasibility of Triveni as a port was superior to that of Satgaon, as the former was located on the main flow of the river. However, the decline of Satgaon gave rise to another port town at Hugli (Ray 1901). Being located a few kilometers down stream on the main flow, the Hugli port was easier to approach from the south.

During the eighteenth century the navigability in the lower Bhagirathi distributaries was threatened by enormous siltation. The Saraswati course below Triveni and the Ādi-gāṅgā course below Khiderpur were entirely choked up. The problem was realized by Alivardi Khan (1750 A.D.), the then ruler of Bengal, who engaged some Dutch engineers to reclaim the creek which connected Adigāṅgā and Saraswati (Ray 1980). Thus the waters of the Hugli found a more favourable outlet through the Saraswati-Rupnarayan estuary. Since then the present Hugli river from Khiderpur to Sankrail is being called “Kata-gaṅgā” or excavated canal. The traditional sanctity of the Gaṅgā has not been assigned to this portion of the river (Upjohn 1852). However, this artificial diversion of the Hugli waters ensured the desiccation of Adigāṅgā. In the map of Van den Broucke (1660), the Adigāṅgā was found to carry substantial discharge of the Bhagirathi waters, but when Rennell surveyed Bengal during 1764-77, the Hugli waters were flowing through the Saraswati-Rupnarayan estuary. Since then the
Hugli river has been flowing along this course keeping aside its palaeo channels in moribund condition.

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THE term śilpa designates any or all kinds of arts in Indian tradition, and its antiquity is Vedic. It is a pervasive term and includes within the ambit of its meaning anything creative, imitative, ideational or skilful which in one sense or the other involves dexterity of hand or mind or both. Śilpa also implies a technique, ceremonial act, an artifact—indeed anything which either leads to or is a tangible product of some craft—kratu or māyā ‘guile’ included. It qualifies an experience or exercise whose product is endowed with chhandas ‘rhythm’, and yet on occasions, it is beyond explanation and, therefore, a subject of wonder specially where it creates the cosmic elements, or even an illusion of reality without being it. Śilpa also qualifies vṛttis ‘occupations’ in which are seen the function of a servile class in ancient Indian society—a class which occupied the lowest rung in the varṇa hierarchy. And to a great extent, in early Indian social history, śilpas are symptomatic of change that mark the progressive transition of Indian society from egalitarian values to those of differentiations in the social status. In this respect śilpas also indicate the changes that mark the transition of an agrarian system into the moulds of urbanization.

In art, śilpa as a cognate of citra, legitimates the identity of an object by its anukṛti by inducing into it the lakṣana, sādṛṣya or pramāṇa of the original. In this manner it differentiates rūpa or nāma-rūpa. Thus in every way, both in connotations and in contents the term has a history which is varied even as it is interesting.

The etymology of the term śilpa had remained obscure. Yāska (2.1) includes it among the different names of karma ‘function’, and
Devarāja Yajvan relates it, in his commentary, to śila upadhāraṇe, śila samādhaun and siṃ nisane. The Amarakosa (2.10.35) explains it as śila samādhau and śala gatau. Both these etymological derivations of the term śilpa are unsatisfactory. Professer V.S. Pathak śilpa derives from root piś, and its derivatives like peṣa RV. 2.3.6; 7.42.1) supeṣa (RV. 1.88.6; 7.32.13; 10.27.2), piṃṣa (10.184.1), peṣaḷa (Vājasneyī Sam. 9.8) and āpiṃṣat (RV. 10.110.9) etc. which have meanings which eventually were encompassed by the term śilpa. Thus, the derivatives of Vedic piś signifying ‘decoration’ and ‘adornment’ eminently correspond to su-śilpa of Rigveda (9.5.6; 10.70.6). Professor Pathak has also indicated the Indo-Iranian and Indo-European connection of the root piś and its derivatives as found in the languages of those stock, e.g. paes (Avesta), pingo and peik (Latin), peig (German) and feh (Gothic). Everywhere, the derivatives mean ‘embroidering’, ‘colouring’, ‘sketching’, and ‘adornment’ which sense is conveyed by śilpa inasmuch as it qualifies ‘beautiful’.

The inheritance of śilpa from piś calls for some remarks to underscore the quality of this inheritance. Everywhere in its occurrence piś qualifies ‘beautiful’ or what lends grace to a form, or what is tender, adorned, painted and coloured. All these connotations are found imbibed in the term citra of which śilpa in the sense of a work of art in wood, stone, metal, clay, painting etc. is an essential part in the later textual sources. Yāska (8.11) interprets peṣa as rūpa; peṣa iti rūpanāma piṃsateḥ. This juxtaposition of peṣa and rūpa is of singular importance in the Rigveda (10.184.1) where Tvaṣṭṛ, the divine artificer, ‘adorns’ the ‘form’ which Viṣṇu prepares in the womb. Here Tvaṣṭṛ is endowed with the power to create or ‘fashion’ the rūpa “form”, a notion that occurs with certain alterations in the later Vedic texts which regard the world as differentiation of rūpa or nāma-rūpa. Inherent in fashioning the form is the suggestion of some technique or perhaps mere will by which the “form” is created. And its occurrence with the root sic—āśiḥcanto prajāpatir dhāta garbhaṇi dadhātu te—reinforces the notion of creation by the divine artificer Tvaṣṭṛ. There are many other roots in the Rigveda suggesting the process or technique of creative work (Pathak and Misra 1986: 280 ff.), and piś is only one of them. Deriving from it, Śilpa assumed the qualities that were implicit in its source. No wonder, the Aitareya Brāhmaṇa (6.27)
regards śiḷpa as the imitation of deva-śiḷpa. The extent to which piś-śiḷpa duo is supposed to capture or create rūpa is limitless for the “form” itself is limitless and exists both manifestly and un-manifestly (Misra 1986; 1-12; in press). Creative process is one and the same: only the terms describing it alternate from passage. In these alternatives the roots taks, tvaks, mi, sic, rup, etc. are consistently used in place of piś or śiḷpa, which all seem to stand as cognates. Thus, in the Rīgveda (1.5.10) Uṣana fashions power with power: takasad yad tā sahasā sahaḥ; or Rīgveda (10.119.5) where a poet composes a song as a carpenter makes a chariot: ahaṁ taṣṭeva vandhuraṁ paryakāma hṛdā matim; or the Rīgveda (5.3.38) where a song is brightened the way a carpenter makes a piece of wood shine by scraping it. When Indra creates, he does so by māyā (from the root mi). Thus he achieves the puru rūpa by māyā: Indro māyābhīḥ puru rūpa iyate. Compare this with the passage in the Rāmāyaṇa (6.12.14) where Sītā is like a golden image created by māyā: hema bimba nibha saumyā māyeva māyā nirmitā. In the Rīgveda (9.83.3) the place where the world was formed is supposed to be measured by māyā. Sometimes, rūpa is created of its own, by itself as in the Rīgveda (6.47.18): rupaṁ rupaṁ pratiṛūpo babhuva. . . All this creativity is divine and is attributed to divine personage like Uṣas who like a barber fashions beauty by pruning the hair: adhipeśaṁsi vapate ntruriva (Rīgveda, 1.92.4); or to Brhaspati Angiras who casts thunderbolt: vaṇaraṁ yaṁ siṅcate (Pathak 1981:4) or to Tvaṣṭṛ who fashions (taks) Indra’s bolt (Rīgveda, 10.53.9) or sharpens the axe of Brahmaṇaṅnapati (ibid.). Manual skill is indicated when reference is made to suhasta: amrtasya pantaṁ gaṇaṁ devaṇaṁ Ṛbhaveḥ suhastāḥ. (RV. 4.35.3). The use of tools too is indicated when the limbs of body are supposed to be made by pointed implements: māṁsamekāḥ piṁṣati sunayabhṛtaṁ (RV. 1.161.10). Thus there is little doubt about the Rīgveda being a source of significant information both about arts and its practitioners, and of the ideas of creative work consciously felt and expressed.

Deriving thus from piś, the similar exalted nature of śiḷpa continues in the Saṁhitās and Brāhmaṇas. The number of various śiḷpas grew further and included crafts requiring the skills of a poet, a potter, a weaver, a takṣaka (carpenter) and a goldsmith. The Kauṭitaki Br. (29.5) adds three more śiḷpas viz. gīta (song), nṛtya (dance) and vādita (instrumental music) to this list. The mystical and sanctifying qualities
of šilpa are underscored in the Aitareya Br. (6.5.27). Šilpa is indeed
the deva šilpa here, endowed with the quality of chhandas (rhythm),
one is divine and the other, its counterpart, 'cultures the self' even as it
creates. Whatever is thus a reconstitution of heavenly form: a hymn,
an elephant, a goblet, a garment, a gold object and a mule chariot,
stands signified as the imitation (anukṛti of the deva-šilpa; and let there
be no doubt about the validity of this reciprocity for, it is said that,
the sheer knowledge of šilpa as deva-šilpa and that of the reconstituted
šilpa as its anukṛti transform such a knower into one who is accom-
plished in šilpa. Thus in the Aitareya Br. šilpa is supposed to be born
in the knowledge of it in the one who has the knowledge of it: šilpam
hasminadhigamyate ya evam veda yadeva šilpāni.

Despite a progressive devaluation of the exalted status of šilpa in
the post-Vedic literature the notion regarding its hallowed status
persisted, and is seen particularly in its pairing with vidya, kalā, sikṣā,
nāṭya and nṛtya; and also in the glory which is sometimes associated
with it in the later texts. First about the latter.

Sippam, in a Buddhist text, constitutes all learning that exists in
this world; the only exception to this rule being the learning in the
three Vedas! All the rest is indeed śilpa:ave sesāni sippam nāmānti
(Milinda Panho: Trenckner: 10). In the Manorathapūranī (1.332)
sippas comprise sāra (essence) which only a few can comprehend. The
Buddha learns them easily (Dīgha Nikāya Carpenter, 3.158), and satis-
fies Daṇḍapāṇi of his skills in the šilpa. When requested to give his
daughter to the prince Siddhārtha in marriage, Daṇḍapāṇi was scepti-
cal of the learning of the prince, and says he: Kumāraśca na silpajña...
tat kathāṃ aśilpajñohah duhitaram dāsyaṃī (Lalitavistara, Leffman:
143). So, the prince dispels Daṇḍapāṇi’s doubts by proving his mettle
in the different skills and wins Yaśodharā.

Sippa is like a distilled knowledge which indeed liberates, though
in it may lie mingled both pain and pleasure, anguish and bliss. The
bliss of sippa is equal to the bliss of nibbāna; so much is said in the
Miliṇda Pañho (Trenckner: 315). In the text a question is asked
whether there is sukhā (bliss) in the sippas which are practised by the
ācāryas! When the answer is given in affirmative, it is followed by
another : Is not this bliss in a craft mixed with anguish! (sippa sukhah
dukkhen missam), to which the answer is in the negative. So again, there
is yet another question asked: ‘why these ācāryas mortify their bodies by going through all kinds of suffering in learning a sippa! The list of suffering is formidable for it involves a complete surrender to someone else: sakacittam nikhipitvā parichittānuvattanena, besides having to rise in respectful salutation to the ācārya, fetch water, provide toothsticks and water for rinsing the mouth, accepting the left-over food, attend messaging and bathing of ācārya, take hard bed for sleeping etc. So, a question is asked: ‘eta...sippasukhaṁ nāma’. Is this how craft is bliss? To this it is said that all this pain is the pubba bhāga (prlimINARY stage) of the sippa pariyesaṁ ‘quest of a craft’. We are further told that bliss of a craft follows only after this anguish: ‘dukkena...ācārya sippaṁ pariyeyetvā sippa sukhaṁ anubhavanti’. Thus it is said that ‘bliss in a craft is un-mixed with anguish: ‘sippasukhaṁ dukkhen amissaṁ’, and that this bliss in a craft is one thing, anguish another: annamtaṁ sippa sukhaṁ annaṁ dukkhaṁ ti. And then the Milinda Pañho delivers the final statement impregnated with the deepest meaning in which, by suggestion, nibbāna is brought into comparison with sippa inasmuch as in nibbāna so also in sippa bliss is not mixed with anguish: annaṁ dukkhaṁ annaṁ nibbāna ti’.

No wonder, in the Buddhist texts an skilled śīlī is metaphorically represented as possessed of an in-exhaustible jar: the more you empty it the more it does not empty (Manorathapūranti 4.180f). So is said in the context of a Bodhisattva who went to Takṣaśila to learn the crafts (sippam uggahanathām) from the ācāryas there. He became an expert in sippa (sippa puganām) after training for sixteen years (solasa vassehi gahetabbaṁ sippaṁ), and then as an ācārya trained 84,000 princes in sippa. Later on, he was invited to Varanasi and was established there as the purohit of the prince: Bārānastī rājakumāraṁ pariyoṣita sippaṁ rajje abhisīcinsu Bodhisattassu purohit sthānam adensu.

The exalted status of sippas in the Buddhist texts is supported also by instances of the high-borns who practised them. The Buddha is adept in them so is the Bodhisattva Velama. The Dīgha Nikāya (Rhys Davids and Carpenter, 1.51) mentions the ‘high military officials of royal birth’ among the other practitioners of śīlpa. The Majjhima Nikāya (Trenckner 1.85) refers to a kulaputta (clansman) who earned his living by craft. It (1.94) also refers to elephant-riding and weilding the goad as śīlpa in which a prince was very proficient. It is said that
crafts were easy to learn, and that any one desiring to learn them could do so provided he did not suffer from the disabilities of body and mind.

It appears from the Buddhist texts that śilpas were respected even though some of them were ‘high’ and some ‘low’. In their most exalted status sippas are qualified as jñana (Manorathapūrāṇi 1.373). They are equated with sikkam (learning) too (Milinda Pañho, Trenckner 315) Sometimes, gaṇanā, muddā and lekhā (or saṅkha) (calculation, counting and writing (or computation) are taken as ‘high’ in contradistinction to other puthu (ordinary) and hina (low) crafts. Sometimes even those crafts are described as ‘ordinary’ (see below). Similar equation of śilpa with a host of other arts is found in the non-Buddhist texts too. Śilpa and nātya are mentioned together in the Śukraniti (2.347), and the spending on it is regarded as bhogya vyaya. Śilpaśātra is one of the thirtytwo vidyās (ibid 4.3.24,58) and it comprises the knowledge of building prasāda, pratimā, gardens and vāpi-s : prasāda pratimā ārāma grha vāpyādi saṃskṛtiḥ. The sense of śilpa is included in the Śukraniti (4.3.24, 84) where kalā among sixtyfour skills is mentioned as consisting of making images in clay, wood, stone, metal and painting: mṛttikā kāsta pāśāṇa dhātu bhāndādi sā kṛyā, prthak, kalā catuskantu citrādyā lekhanam kala. The text describes many more arts which traditionally go under śilpa-s (Śukraniti 4.3.84-90). The tradition of designating gīta a (poetic composition) (hymns included) nātya, nṛtya and instrumental music, the work of a potter, a weaver, and a goldsmith under śilpa goes back in antiquity to the Brāhmaṇas, and is mentioned in the Aitareya and Kausitaki (op. cit.). That these skills fundamentally belong to the same class and were inter-related is indicated in bracketing them together under the group of sixtyfour kālās. Their complementality is indicated in the Viṣṇudharmottarā Purāṇa (3.2.2-8) in which the principles of citra, pratimā, nṛtya and gīta are regarded as mutually dependent. The Nāṭyaśāstra of Bharata (1.116) takes all the knowledge viz, jñāna, tapa, vidyā, kalā, yoga and karma incomplete unless it was validated by nātya (drama). Almost a similar sentiment is expressed by Bhāmaha who wonders at the great burden that a kavi (poet) carries in that he has to validate by kāvya the knowledge that may exist in jñāna, śilpa, vidyā and kalā. Similar sentiment about the complementality of different arts have been expressed by
Bṛhaspati and Devaṇa Bhaṭṭa in the Vivāda Ratnākara (141) Bṛhaspati says: vijnānāṁ ucyate sīlyāṁ hema kupyādi saṃsthitih, nṛtyādikām chetat sīksānkuryāt karma gurorgrhe. Devanabhātta, commenting on it observes: kaṅkaṇa kātakādi nīrmaṇa viṣayaṁ nṛtyaṁ gītādikaraṇa viṣayaṁ cakāraṇa stambha kumbhādi račana viṣayaṁ sva vijnānaṁ sīlpaṃ ca sīlpaṃ caryāyake. It is fairly pervasive definition of sīlpa and includes many crafts under sīlpa by designating it as vijnāna.

Sīlpa is also a vṛtti (occupation), and in this equation lies encapsulated the entire history of servile class in India, particularly its gradual devaluation. Sīlpa as vṛtti was regarded as means of livelihood exclusively for śūdras in ancient India. The vṛtis were anindita not censed' for a Śūdra (Sukranīti, 4.1.8). In the Manorathapūrṇa (3.327), Sīlpa-sthāna is regarded as a station of jīvika (livelihood). The Agni Purāṇa (18.41) dittoes this view but refers to it as comparable to taking up an ornament, as it were: maṇusyaścāpajivanti sīlpaṁ va bhūṣanādikāṁ. It regards sīlpa as an exclusive preserve of śūdras: śūdrasya dvija suṣṭhā sarva sīlpaṁ cāpyatha (Agni Pur. 151.9). From the beginning of Indian tradition in the Vedic texts where sīlpa is extolled to the subsequent position of its devaluation by the sixth century B.C., there is a long history which explains this contradiction. But first about what comprises sīlpa.

The Jātakas refer to eighteen crafts without enumerating them. This appears to be a stock number. The Majjhima Nikāya (Trenckner 1.85) refers to sīlpa in the sense of livelihood: kulaputto yena sippaḥhitthānena jīvikām kappeti; and lists them, namely, muddā, gaṇanā, saṅkhā, vanijja, gorakkhena, agriculture, king's service and sippamannatarena (other crafts). The Dīgha Nikāya (1.51) mentions 25 sippas which are indicated by their practitioners. They consisted of elephant-riders, horse-riders, charioteers, archers, sword bearers, camp marshalls, camp followers, high military officers of high birth, military scouts, brave men, warriors (camma jodhino) home-born slaves, cooks, garland makers, washermen, weavers, basketmakers, potter, gaṅaka, muddika, and others: annāṁ pi evam gatam putu sippayatanāni. According to this text, all these people practising their crafts enjoyed the fruits of their crafts: sippam phalaṁ upajivanti, and thus maintained themselves, their parents, children and friends. They also afforded daksīnā to Brāhmaṇa-Śramaṇas for attaining bliss (sukha vipāka).
The ‘sukha vipāka’ (consummation of the happiness) is explained in
the commentary as īsta vipāka (consummation of desired), (Liṇattha-
vananā 1.282). The commentary adds citrakāra, bhrmākāra, kuṭṭaka,
lekhaka and vilivākara also to the Dīgha Nikāya list. A scrutiny of the
Dīgha list seems to indicate not more than 6-7 categories which
altogether constituted śilpa e.g., those relating to services, including
military and royal service, vṛttis, manufacture of utility goods for
consumption of the community, trade, agriculture, entertainment and
in some cases, learning. The Udāna (31-32) repeats many of the crafts
already described in the Dīgha but at the same time adds to the list
the tharu sippa, kāveyya sippa, lokāyata sippa and khetta sippa.
Incidentally, the Udāna regards agriculture as foremost among all the
sippas: sippam aggam. The Milinda Pañho (34) is significant in
adding to the list a nagara vaddhakt (architect) who is mentioned as
moving away from the town once it is laid out and completely built
with a mote, gates and ramparts etc. This architect is represented as
an itinerant professional. The Mahāvastu (3.12) deserves a special
mention in regard to the lists of crafts as it deviates from other list
and in particular mention those who were performing the tasks
exclusive to śilpa in the sense of architecture and sculpture and the
like. These, in the list, consisted of citrakāra, vārdhakt, rūpakāra,
kārupatrika, pustakarmakāra, pustakāraka, sthapati and sūtrakāra.
Similar categories of artisans is mentioned in the non-Buddhist works
also e.g. Rāmāyana (2.80.1-3; 1.13.7, 14) which refers to sūtrakarma
viṣārada, khanaka, yantraka, karmantika, sthapati, vṛksa-taksaka
kāpakāra, sudhākara, vamśakārakṛta and others. As regards the work
in architecture and sculpture which were the pre-eminent śilpas, the
list seems to have narrowed down to four categories namely sthapati,
sūtragrāhin, taksaka, vārdhaki and the citrakāra (For these and many
other categories of artists engaged in art work (cf. R.N. Misra 1975:
75). In any case, whether in the Buddhist texts or elsewhere the śilpas
and their practitioners denominate and validate each other sometime
explicitly as in the Dīgha Nikāya (1.51) and sometime by implication
as in the Šukrantrī (2.195-205). The Dīgha starts with an enumeration
of the sippas and ends up enumerating the practitioners. This
reciprocal identity of the crafts and those who practised them also
indicates their complementality whereby a reference to one ipso acto
encompasses the other. The texts also afford alternative and mutually exchangeable terms such as kāru, karmakara, bhṛtya etc., for artists and craftsmen. The dictum of the Śukraniti (4.3.66) that arts are differentiated by the action involved in them is significant in this connection: prthakprthak kriyābhirhi kalābhedastu jāyate, yaṃ yaṃ kalāṃ samāśritya tannāma jātirucyate.

As regards their status, crafts are regarded in a different manner according to their context. The Buddhist texts reflect an ambivalence in regard to the status of crafts. Sometimes they are mentioned as ‘high’ and sometimes as ‘low’. The Vinaya Piṭaka refers to both the kinds, and among the ‘low’ crafts it enumerates those of basket-maker, potter, weaver, leather-worker and barber; thus telling us that “whatever is disdained... despised in these districts—that means low craft”. It says that muddā, gananā and lekhā are high crafts, “... what is not disdained... what is esteemed in these districts—this means high crafts” (Horner, Rook of Discipline 2.176f). In the Dīgha Nikāya (op. cit.) even the last three crafts of the above passage are regarded as puthu (ordinary). There is little suggestion of crafts being regarded as polluting or impure in the Buddhist text unlike in the dharmasūtras and smṛtis etc., where they are generally stigmatized, and thereby hangs a tale. It will be conceded that the unexalted inflexions in the meaning of the term were actuated by the prejudices of the priestly, orthodox temper which in the post-Vedic age continually tried to devalue manual work and also the skills involved in it. This development about śilpa was diametrically opposite to the situation that had obtained in the early Vedic period when crafts and their practitioners enjoyed respect. In the later texts (500 B.C. and later) śilpa came to be used in a pejorative sense. The Maitri Upanisad (7.8) disparagingly lists nityā śilpopajīvin ‘those continually living on śilpa’ as a part of a group which was regarded as ‘hindrance to knowledge and, therefore, unworthy of heaven’. Others of this category in this list consisted of those ‘who are continually hilarious, continually roving about, town-beggars, disciple of (śūdras and also those who in spite of being śūdras are learned) rogues, dancers mercenaries, renegades in royal service and also those who hinder the believers in the Vedas by offering tricks of futile reasoning and observation” (Chattopadhyaya 1977: 286ff, also p. 220). The text further says that
“by the soul-denying doctrine based on tricks of false observation and reason people are bluffed (by such categories of persons) and thus are disabled to discern between what is genuinely Vedic and what is not so” (Chattopadhyaya 1977: 268ff). The Maitri Upanishad represents the diatribe and contempt of the orthodoxy towards certain types of people including those practising śūlpa whose pursuits were not in tune with the theoretical temper of the orthodoxy. It also spells out the latent tensions between orthodoxy and heretics and to a certain extent explains why in ancient India engineers and technologists did not find a conducive climate for their profession. This conclusion is supported by other sources also. For instance, the Udāna (31-32) enumerates lokāyata as a sippa in the list where it enumerates the different crafts. Lokāyata represented a nāstika philosophy which was not sympathetically viewed by the orthodoxy. Therefore, quite in concert with such an attitude, the sippa’s validity as a pursuit became questionable in as much as their ideological premises were based in the materialistic tradition. Thus, when śūlpas were devalued, their practitioners also suffered the same fate. The dharmasūtras seem to have queered the pitch for devaluation of crafts and craftsmen, when Gautama and Āpastamba (500 B.C. to 200 B.C.) and later the dharmasāstras accorded an impure status to artisans and relegated them to the rank of śūdra (Misra, Kalaksetra, v. 4:6). As an instance, we may quote Gautama who accords an impure status to artisans in ordaining that the twice-born should not, accept food of an artisan, as also of an unchaste woman, a criminal a carpenter, a surgeon and such other persons. In conclusion it may be said that occupational divisions in the later Vedic society (1000 B.C. to 500 B.C.) had already produced social differentiations. The ideological divide as reflected in the Maitri Upanishad gave a sound theoretical basis to such differentiations, and by 500 B.C. we see the śūlpa stigmatized as impure and their practitioners relegated to the rank of śūdra in the varna hierarchy.

Nevertheless, sippa seems to have assumed some credibility with the ascendance of the Buddhism, and rise of trade in the wake of the ‘second urbanization’. Specially because of their utility in a settled agrarian society under the impact of trade and urbanization.

Crafts were learnt by intensive training imparted by the master-
craftsmen to their children and disciples. The latter sometimes came from distant regions to which they returned after training. This system has in it the making of gharāṇā system, which still prevails in India in the field of music and dance. The Digha Nikāya (op. cit.) shows that the training had its rules, whereby a disciple had to learn the crafts while serving his ācārya. The Mathura inscription of the pre-Christian era found on the Yakṣa and Yakṣīni images from Parkham and Jhing-ka-Nagla refer to the ācārya Gamitaka and his two antevāstīs Kunika and Naka who made those images. This along with other such evidence and also the fact that master-sculptors were designated as ācārya, shows the operation of gharāṇā system in sculptural art in the pre-Christian era. The rules that bound an ācārya and his antevāsti are described in various texts. The Manorathapūrṇa (5.86) refers to the practice of giving dakṣiṇā to the ācārya by disciples who learnt the craft from him: ācāriyam dānanī pariyesissanti ti aṅnathiyā hi yassa santike sippanī uggahanti, tassa sippaggahnato pūre vā pacchā va antarantara vā gaheto niharitvā dhanam denti. An antevāsti in the dharmaśāstra is defined as a karmākara who may come from a distant land and lodge with an ācārya. The ācārya who accepted such an antevāsti was ordained to treat him like a son and provide food to him. He was supposed to take care of and impart training to such a disciple. Any dereliction from duty either by the ācārya or by an antevāsti was a punishable offence (R.N. Misra 1982 : 38, 39). Artists functioned in the śilpiśālās also, and sometimes they operated under codes of their profession which, if broken, was visited by their community's disciplinary steps. Śilpiśālā is mentioned in the Arthaśāstra of Kauṭilya and the Śukraniti (1.228), and an epigraph from Sanchi refers to an āvesanin who was perhaps the foreman in such a śilpiśālā of a Sātavāhana ruler. (Misra 1975). This āvesanin was responsible for the carvings on the south gate of the Sanchi stūpa.

In a special sense, śilpa relates to image-making and in it is designated also citra. See for instance, the Viṣṇudharmottara Purāṇa (3.44.31-32). Citra consisted of an image in gold, silver, bronze, wood and iron. Śilpa specifically involves karma and depending on the materials used in image-making it is an (ālekya) 'painting', lekha (scribing), dārurkarma (wood-work), citikarma (mental-work), pāśāṇa karma (stone-work), raupaya karma (silver-work), and citrakarma
(painting) (Kuṭantmatam Comm., T.P. Bhattacharya 1947, 371). It is a śāstra or a vidyā (Silprk. 2.730, 805) in which lakṣaṇa assumes a primary significance. It has a sanctity par excellence for the Creator Brahma created it and transferred it to an artist. Reference here is to Nagnajit who, endowed as he was with tapas, vrata and veda, brought life back into a dead child by merely painting him. This enlivened form—the first painting—became the source of all citra (Citralakṣaṇa, 70-71). There lies the genesis of image making as recorded in the Citralakṣaṇa, and also of enlivening the form. And these lakṣaṇa, vyāṇjana and the art of pramaṇa brought about further differentiation of the citra. According to the Citralakṣaṇa all “bodied ones” (gods, kings great men, sadhus, women) are provided each with a body, and the art of measurement (pramaṇa) besides lakṣaṇa and vyāṇjana is supposed to capture these forms in an image (Citralakṣaṇa, 76-79). This quality of reconstituting a being by lakṣaṇa etc. is not different from anukaraṇa or sādṛṣya of which the former is mentioned as early as in the Aitareya Brāhmaṇa (op. cit.) and the latter in the Citralakṣaṇa of Srikumāra, though its antiquity is Vedic (Misra 1986; Heidelberg paper; in Press). The quality of a citra lies not in the approximation of the form but in the likeness of it as of a “shadow in a mirror”: sādṛṣyaṁ drṣyate yattu darpane pratibimba vat, tat chitram iti vikhyātami nā aliṁ akaramatrakaṁ (Citralakṣaṇa v. 147).

The implications of some of these terms viz. lakṣaṇa and anukaraṇa are best explained in the texts on poetics and pramaṇa is a term which relates to epistemology. Significance of lakṣaṇa lies in its original meaning as occurring in the Brāhmaṇās where it means among other things the “sign which becomes the denominator of the essence of an object for it distinguishes an invocatory formula qualifying particular deities which either figure in that formula or were physically visible. This meaning of the term and its association indicate its use originally to qualifying deities with symbols, which is significant for art and iconography. In any case, lakṣaṇa connects the parokṣa (distant) from the pratyakṣa (immediate), which represent two levels of reality, and in that sense lakṣaṇa eventually becomes a part of lakṣaṇa vidyā concerned with the prognostication on the basis of distinctive mark... on the body of men or of deities, as in iconography” (V.S. Pathak 1986).
The word *pramāṇa* has a similar connection, and its significance in connection with *pratimā lakṣaṇa* cannot but be emphasized. *Pramāṇa* is both the standard of measure and the proof of its identity with the object which it seeks to capture. In the ‘form’ it has connections relating to the different types that need being represented according to the dictates of a Śīlpaśāstra. In the latter, *pramāṇa* gives a proof by a recourse to *pratyakṣa* and *anumāṇa*. These two *pramāṇas* are variously defined, but its definition by Bhāmaha who regards *pratyakṣa* as endowed with *kalpaṇā* or in other words, with a super-imposition of the five *upādhis*—*jāti*, *guna*, *kriyā*, *dravya* and *nāma*—seems relevant to a work of art. The essence of an object of art is thus authenticated by super-imposition on it of the *upādhis* which may lead to its cognition, and according to Vātsyāyana, in this cognition, *anumāṇa* authenticated by direct knowledge or by tradition aids substantially. Anumana is the very soul of art and gives to an artist a virtuosity which may otherwise be missing. (Misra 1986: in Press). Similarly, *anukaraṇa* too is the basis of śīlpa. Its significance in śīlpa is indicated in the *Aitareya Brāhmaṇa* (op. cit.) where it is said that the sheer knowledge of it together with *devaśīlpa* renders in the knower of it the accomplishment of śīlpa. Later on *anukaraṇa* is explained by Śankuṇa in connection with the *rasa* theory. He equates the *sthāyin* with *rasa* and says that in a drama it belongs to the actor who renders the character of the original. Evocation of *rasa*, according to Śankuṇa thus rests in the *anukaraṇa* of the *sthāyin* in an actor from the character where it originally belonged (Walimbe 1980; 20-21). The validity of this theory of *anukaraṇa* in an image which is but a counterpart of the original, thus becomes more explicit with the help of the analogy from kāvyā literature.

Through *pramānas*, *lakṣaṇa*, *anukaraṇa* and by inducing *sādṛṣṭya* thus a śīlpa arrests limitless forms which lie in the differentiation of *nāma-rupa*, and there lies the quality of śīlpa. Śīlpa is where ‘form’ is, and sometimes śīlpa is even if ‘form’ is not; hence the *manomaya pratimā* (op. cit.) and hence the statement that śīlpa liberates, or that the śīlpa-siddhi emancipates its practitioner from the cycle of birth and re-birth: nahi jannāntaraṇā tasya śīlpa siddhir bhavettathā, śīlpa vidyā sadā śreśṭhā sarva ānanda dāyika. (Silprakasa. 2.730).
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THE Kushâna Period witnessed a marked increase in the production of terracotta figurines both in volume and variety as evidenced by their widespread finds in India and beyond her present political borderlands in west Pakistan, Afghanistan and Soviet Central Asia. A large number of terracotta figurines discovered in course of systematic excavations since the mid-forties of this century at many sites in the vast expanse of the Gangetic Valley forms an important chapter towards the study of this art expression through the medium of clay. This pivotal region, both fertile and popular from a remote past, passed through many vicissitudes of history. A large portion of this region was under the domination of the Kushâna rulers during the early centuries of the Christian era which witnessed considerable growth and prosperity.

The present study of the terracotta figurines is primarily based on excavated materials which have been recovered from stratified contexts by way of modern scientific method of excavations. The strata have been ascribed to a definite and precise chronological horizon on the basis of datable associated objects.

The sites excavated so far are mainly urban centres or prosperous villages in the contemporary socio-economic setup. In many cases, traces of continuous occupation prior to the Kushâna rule as well as anterior to it, have been noted. Further, the occupation at the sites extends over a long period of time.

A brief and precise description of the important finds at the
Kushāṇa levels in the Gangetic Valley may be enumerated here. The survey of the excavated sites where new methodology and strategy were first experimented as early as during mid-forties, begins with Ahichhatra, district Bareilly, Uttar Pradesh. The “stratum IV”, falling within our present scope of study yielded votive tank being ritualistic in character, dwarf and grotesque figures (Vāmanaka, Gaṇas) and Viṣṇu, the latter precisely in “stratum IV-b” (circa A.D. 200-300).¹ The site of Hastinapura, district. Meerut, Uttar Pradesh on the Upper Ganga basin produced votive tank, as well as sculpturesque torso of the Bodhisattava Maitreyā in terracotta from level IV assignable to the Kushāṇa Period.² Some notable and prospective sites in and around Mathura, viz., Katra, Dhulkot, Kankali Tila, Ambarish Tila, Geeta Enclave, Govindanagar were excavated from 1973-77, resulting in providing valuable data on the flourishing and continuous occupation of the area.³ Period IV, ascribable to the Śaka-Kushāṇa levels in particular, yielded terracottas “varied and quite large in number.”⁴ The figurines that deserve special mention in this context include Yakṣīṇṭs with charming dress and attitude having striking resemblences with stones parallels, Yakṣas, Gaja-Lakṣmaṇ, Gaṇḍā riding on makara, mother and child variety (Mātrkā), Gaṇas or Vāmankas, votive tank and alien figures, viz., warrior carrying large and heavy shield and long axe (paraśu), wearing a long-belted cloak or coat, detached heads, wearing helmet with protuberant knob or fillet.⁵ The site of Sonk (Mathura) excavated between 1966-74 threw more light on the domain of the Kushāṇa Period art expression in terracottas. The levels in question, according to the excavator, “yielded an abundance figurines of various divinities, predominantly those of Kubera and Durgā in her Mahiṣāsuramardini form.”⁶ The finds in the Śaka-Kushāṇa level at Purāṇa Quila, Delhi consist of votive tank, human head wearing a decorated cap, Yakṣa and a plaque exhibiting three elephant riders.⁷ The remarkable find during the period under review at Atranjikhera, district Etawah, Uttar Pradesh, is “a head of an Iranian nobleman”.⁸ The site of Kausambi, district Allahabad, excavated over a considerable period of time since the fifties, yielded quite a good number of terracotta figurines assignable to this period. The notable finds include votive tanks, figures of Hārit, Naigamesa and a favourable number of human heads, some of which betray alien physignomy and expression.⁹
Considerable parts of Period II and III at the site of Hulaskhera, district Lucknow, coincide with the Kushāṇa Period rule. Important finds that concern us here are restricted to Naigmeṣa figures only. Phase B of Period II at Moradhwaj, district Bijnor, Uttar Pradesh, assignable to the Kushāṇa times, yielded moulded figure of the Buddha seated in Jñānamudrā, the Bodhisattvas and a plaque depicting Kṛṣṇa slaying the demon Kesin. At the site of Ayodhya, district Faizabad, Uttar Pradesh, cult figurines, occasionally of massive proportions and of the so-called exotic types come from the occupations of the first-second centuries A.D. The notable finds at Sringaverapura, district Allahabad, Uttar Pradesh, consist of serpent figure, Hārīt or Shasti and Kubera. The Kushāṇa levels at Ganwaria and Solargarh, district Basti, Uttar Pradesh adjoining to the famous site of Piprahwa gave out quite a good number of remarkable figurines which include heads of the Buddha, the Buddha seated on a lotus throne in dhyānamudrā, warrior and drummer types, mother and child variety, ornamented females with elaborate coiffures and decorated anklets in their feet and three-eyed Śiva, wearing heavy kuṇḍalas in the ear. Human figures revealing typical non-Indian ethnic features characteristics of the Kushāṇa Period and female figures shown seated on a stool bedecked with ornaments are the important finds from Kheradīh, district Ballia, Uttar Pradesh. The famous site of Rajghat, district Varanasi, Uttar Pradesh, where excavations extended over a long period of time, provided us with some data of the period under review. Period III here which concerns us, yielded Naigmeṣa, hand-made mother goddess, votive tank and human-heads betraying alien physiognomy and expression which are characteristic of the time. The finds in Period III at Mason, district Gazipur, Uttar Pradesh (circa first-third centuries A.D.) almost repeat the similar finds from Rajghat which include human heads having typical Kushāṇa style, plaques showing couple in an amorous pose and votive tank. The site of Buxar, district Shahabad, Uttar Pradesh, provided us with human figures having typical Kushāṇa head-dresses and head-bands. In the stratas ascribable to the Kushāṇa Period at Vaishali, Bihar, Naigmeṣa and Nāga figures dominate. Almost the same picture is repeated in the Kushāṇa levels at Kumrahar and Pataliputra, district Patna. At the site of Chirand, district Saran, Bihar the levels
ascrivable to the Kushāṇa Period produced figures of Naigamesa, Saptamatrkās, votive tanks with usual drummers and an amulet in terracotta depicting Surya, riding on a four-horse drawn chariot, flanked on either side by two female attendants. The Period III at the site of Sonepur, district Gaya, which coincides with our area of study gave out a female figurine under a foliage. The site of Tamulk (ancient Tamralipta), district Midnapur, West Bengal, yielded a few interesting terracottas having strong Kushāṇa influence. The Period III at Chandraketugarh, district North 24-Parganas, West Bengal datable to the first-third centuries A.D. gave out female figures having elaborate coiffures and drapery, erotic plaques and a variety of other objects. At the recently excavated site at Mangalkot, district Burdwan, the flourishing Kushāṇa level yielded quite a good number of terracotta figurines which include the lower part of a female figure wearing transparent folded sari, torso of a soldier with a dagger in his waist having prominent hilt, a Naigamesa figure, mother and child variety, a plaque showing a capprisoned horse in motion, etc. Further two detached male heads, hollow inside, found in the Kushāṇa level point out that the artists equally showed competence in handling large-sized terracottas also, a feature already common with the Kushāṇa Period artists noted at many sites. One of the heads having round and plump face with a demonic look is interesting. The other head can be easily identified as a Nāga figure from its prominent decorative snake-hood.

The above survey brings forth that the period under review yielded quite a good number of terracotta figurines both in variety and volume. Still we are handicapped by a few limitations towards formulating a comprehensive and detailed picture of this particular period within this region, Firstly, due to limited area excavation by way of vertical probing at some sites adequate information is indeed lacking. Excepting a few sites like Kausambi, Ahichhatra and Sonk (Mathura), which were excavated on a larger scale, most of the sites were excavated with the intention of solving some specific problems. Secondly, in most cases, detail and exhaustive reports are yet to be published. So we have to depend on concised reports published so far. Thirdly, the materials recovered from excavations by various institutions are generally inaccessible for study due to various reasons. In
spite of these limitations, the survey undertaken brings forth an authentic and dependable picture of the terracotta art that flourished in the Gangetic Valley in the early three centuries of the Christian era.

To sum up, the following points deserve our attention. Since the terracotta objects are found from a region both widely and continuously inhabited over a longer period of time and at the same time within a specified chronological horizon, it is quite likely that the objects present before us the definite expression and ability of a particular identifiable community bound by space and time.

Secondly, the survey based strictly on stratigraphic criteria offers adequate scope and opportunity to assess the date as well as the provenance of a large number of terracotta figurines recovered either from the surface or from the unstratified levels.

Thirdly, the majority of the sites excavated so far are either urban centres or large prosperous villages in the contemporary socio-economic view. So the variety of terracotta objects produced out of cheap medium available in plenty in the vast alluvial plains may, therefore, be taken to reflect the prevailing beliefs, rituals and tastes of average people of the contemporary society.

Fourthly, the size of the majority of terracotta figurines recovered from the doab in the early centuries of the Christian era are relatively small which in a way signifies the continuity of the earlier tradition. Terracotta figures of larger sizes, though appeared in this period, are comparatively small in number. Further, it is not clear whether the brick structures, both secular and religious, were embellished with terracotta plaques during the Kushāna Period as was done during the Gupta Period. It is well-known to us that the brick-built temples adorned with terracotta sculpture and reliefs became increasingly popular during the Gupta Period.

Fifthly, the artists during the period under review produced terracotta figurines both by hand and mould and sometimes both these techniques were employed for the production of one particular object. Hand-modelled specimens exhibit a perfect mastery in rendering expressions of the human faces. Moreover, evidence is available to show how beautifully the artists worked on the finished objects by way of incisions and notches. One may note in this context that the entire repertoire of the terracotta art during the Kushāna
Period reveals that both a refined and sophisticated art as well as
distinct tradition of folk art continued side by side. One distinguishing
feature in the manufacture of terracottas in this period is the intro-
duction of double mould. This technique, in all probabilities, was due
to Roman inspiration. It is very likely that due to trade contacts with
the Roman world, this idea gained momentum in India. Investigation
further reveals that the Kushāṇa artists did not pay adequate attention
in selection, processing or fashioning of clay compared to the artists
of the succeeding Gupta Period. Presence of air holes, grit and
admixture of rice-husk were common in the ingredients required for
making terracottas in this period.

Sixthly, the period further yielded a number of terracottas
painted with a variety of pigments of which red colour is most
common. It is assumed that hirmaji (a kind of red clay) and geru (red
ochre) were used to produce red colour. Other pigments used include
rāmrāj (yellow ochre), verdigris (a greenish blue poisonous compound)
etc. In exceptional cases, coating of silver or gold obtained from
silver or gold dust have been applied on terracottas. Only a few
examples of these varieties survive now.

Seventhly, the period witnessed the emergence of new pantheons
belonging to different sects and their embodiment primarily in stone
as well as in terracotta in abundance. We have during this period
iconic representation of Dūrgā as Mahiṣāsuramardīṇī, Śiva, Viṣṇu,
Śūrya, Mātrikās, etc. Some of the folk divinities (Lokadevātā),
already in existence from the earlier period of time, continued unabat-
ed during the Kushāṇa Period. These include Yakṣhas, Yakṣhīns,
Nāga, Nāgīṇī, Kubera, Naigamesa and Naigameyi.

Eighthly, representation of the Buddha and the Bodhisattva
figures in terracotta appeared for the first time during the Kushāṇa
Period rather in a restricted manner. The region under study being
the cradle of Buddhism, it is expected that like its stone counterparts
terracotta medium should have been in wide use. The picture,
however, takes a different shape from circa the eighth century A.D.
when more Buddhist sites grew up yielding different varieties of the
Buddha and the Bodhisattva figures as well as Buddhist gods and
goddesses.

Ninthly, it is during this period in particular that we come across
with profuse terracotta figurines exhibiting alien and outlandish types. Innumerable terracotta heads with features of foreign ethnic types have been found at many far-flung areas within the valley and beyond. The major sites include Ahicchatra, Kausambi, Hastinapur, Rajghat, Mason, Mathura, Ganwaria, Sravasti, Kheradih, Kumrahar, Pataliputra, Vaisali, Buxar, Tamluk, Chandraketugarh, etc. Alien physiognomy, head-dresses, costumes, decorations, etc. etc., no doubt, suggest influx of foreigners. It is quite likely that the foreigners used to visit some of these sites as merchants or officials or pilgrims or just visitors. The alien faces and features attracted the notice of the humble modellers who spontaneously represented them to satisfy the demand of the contemporary society. Some of these human figures may have been attempted at portraiture where emphasis on individualism of faces and traits is prominent. It is true that it is during this period that one comes across a powerful intensity in facial expression.

Tenthly, the distribution pattern and trends of the terracotta finds tend to show that the figurines betraying alien and outlandish types moved from the west to the east. In other words, it may be concluded reasonably that along with the migrations of alien types from the west and central Asia and subsequent intermingling of foreigners with the existing population, the terracotta motifs and designs also migrated in similar direction and ultimately got absorbed to a great extent.

Lastly, all of us are aware of the fact that some of the terracottas served as play-things of children and a substantial number of these objects were intended to educate the child. Ancient literature confirms the archaeological evidence by frequently mentioning terracotta toys of wide variety. The Charakasamhitā describes a variety of terracotta dolls named after words denoting various family members such as ‘daughter’, ‘son’, ‘sister’, ‘brother’, ‘aunt’, ‘uncle’ and others. All too often scholars identify female figurines of early India indiscriminately as mother goddess. Some are so urbanely stylish that one wonders if they were not meant to be dolls. The elegant representations of some of the noble ladies may well be dolls depicting aunt.
NOTES AND REFERENCES

1. *Ancient India*, No. 4, p. 119, pp. 125-127, Pls. XXXVIII, XXXIX Nos. 87, 88 and 89.
2. *A.I.* Nos. 10 and 11, p. 84, Pl. XXXVIII, p. 87, Pl. XLII, B.
5. op. cit., p. 29, Pl. IX, Fig. 40.
24. *I.A.* 1960-61, p. 40; 63-64, p. 64.
25. Information from the Department of Archaeology, Calcutta University.


INVOCATIONS of the river Lauhitya, i.e. Brahmaputra, in the early Assam inscriptions make sense in the context of its enormous significance in the life and psyche of the people in the valley. Running as it were, through the heart of the province, the river Brahmaputra defines and shapes much of its past and present. Lying between Sadiya in the north-east and Dhubri in the west the wide alluvial tract, which makes the valley, is spread over 450 miles. Demarcated by the Himalayan ranges on the north and east, and by the Karbi Anglong, Khasi-Jaintia and Garo Hills on the south, the valley is open towards the west and meets the Indo-Gangetic plains.

Unlike the Indo-Gangetic plains, the Brahmaputra Valley enters into the history straightforward from its neolithic past without a chalcolithic interlude. Locations of the neolithic-megalithic sites indicate, in no uncertain terms, that the hills and not the plains, had known the first spell of human settlements. If literary works are any indication, then human habitation in the Brahmaputra Valley cannot be traced beyond the last phase of the pre-Christian centuries. Amidst the conflicting statements of the epics, Prag Jyotisa emerges as a region, whose links with the northern India were, at best, tenuous. Frequent references to Prag Jyotisa in connection with the *Mleccha, Dānava* or *Asura* families, clearly brings out the fact that as a cultural region, the Brahmaputra Valley remained unassimilated with the Gangetic plains. However, by around the fourth century A.D., the region was gradually exposed to the historical developments of northern India through a variety of factors. The extension of authorities of the extra-local power like the Imperial Guptas added a political connotation;
Raghu’s exploits in Kamarupa in course of his northern expedition has to be viewed against this background. Kamarupa, is certainly mentioned as an outlying (Pratyanta) region, but its isolation was far from total.

What, probably, linked Kamarupa with the Gangetic India is the introduction of shaft-hole iron-axes and iron-tipped traction plough—a combination of which lead to the clearance of forests on an extensive scale and cultivation of wet rice in the valley. These not only led to the colonization of the valley, but generated resources necessary to support State structures. Although direct evidence is still lacking, broader historical condition tends to indicate the spread of iron in Kamarupa from the neighbouring Pundravardhana region.

The emergence of state-structures necessitated re-alignment of social and economic relationship within the dominant tribal population. Smaller tribal political formations and sub-regional powers were integrated within an overriding regional identity, viz. Kamarupa by around the sixth century A.D. Davaka, identified with Daboko in Nagaon district, is recognized as a frontier power in the Allahabad Pillar Inscription. A Chinese text (Shung Shu) ascribed to circa 420-479 A.D. refers to the King of Kapili Valley (Nagaon district) having despatched an envoy to China. But the sixth century A.D. inscription of the time of Bhutivarman suggests the inclusion of the area within the Kamarupa Kingdom.

The ascendancy of Kamarupa as the all-pervading regional identity was further reinforced by accommodating the local/tribal chiefs within the political processes, through generous import of religious and cultural elements from the Gangetic India and by redefining the myths and symbols of local origin. It is not without significance that from around the sixth century A.D. Assam inscriptions are replete with references to royal functionaries, rajas and rajaputrás, who must have emerged from the tribal base and provided adequate support to the State. Simultaneously, Varna ideology was transplanted on a predominantly tribal milieu by importing Brahmanas and granting them lands. Earliest inscriptions of Assam record excavation of a cave (temple) for Balabhadravasvami as early as fifth century A.D., construction of a religious establishment (āśrama) in the succeeding century and large-scale donation of land to Brahmanas of different
gotra and carana. Brahmanas, in turn, must have rationalized territorial expansion of the kings in terms of āśvamedha sacrifice, endowed tribal antecedents with respectability as is clearly evident from genealogical portion of the copper-plates, introduced the use of Sanskrit and popularized the Hindu pantheon. But what makes their role more effective is the way in which essentially local myths and symbols were given new orientation in order to assimilate them into the Hindu system. The elaboration of Naraka-Banasura legends and their religious overtones clearly indicate deft handling of a local myth. Tribal rituals associated with male and female stones were redefined in relation to Śiva and Śakti. The elevation of the mother-goddess Kāmakhya to the position of the supreme goddess has also to be viewed in this perspective. B.K. Kakati has argued that the restrictions and rites associated with different aspects of individual and communal life observed by the indigenous population might have been translated into the Brahmanical concept of purity and pollution. Transformation of a tribal cult and its subsequent assimilation within the Śakti mythology is not unique to Kāmakhya, but its impact on the Brahmaputra Valley in the making of a regional tradition can hardly be overlooked.

One must not, however, lose sight of the contribution of indigenous elements towards the growth of the regional tradition. Wet rice cultivation made judicious use of indigenous irrigation technology. It has been pointed out that gravitational irrigation involving throwing up of dams across the hill streams in their upper reaches and leading the stored up water to the field through a network of dug-out channels was a speciality associated with the Kachari tribes—one of the earliest group of inhabitants in the Valley. Hiuen Tsang’s observation of the abundance of ‘streams and tanks’ in the towns is indicative of the importance of irrigation technique in the region.

Hiuen Tsang’s testimony brings out the distinctiveness of Kamarupa vis-a-vis the Gangetic India. He observed: “The people were... small of stature, black looking, their speech differed a little from that of ‘Mid-India’... To the east of Kamarupa, ... the country was a series of hill and hillocks without any principal city, and it reached to the south-west barbarians (of China), hence the inhabitants
were akin to the Man and the Lao”\textsuperscript{12} Ethnic composition in the Valley and their linguistic affiliation, in spite of the assimilative processes, could be specifically distinguished. An indication, as to how the local dialects influenced the standardized Sanskrit, is available from the use of certain word forms in the inscriptions. Personal names like Kshikunḍa, Dugdhnath, Kāliyā appearing in the lines 133, 134, 136 in the Nidhanpur grant\textsuperscript{13} or word forms like Sahi, Dhani and Ani in the Guakuchi grant (1071 A.D.) of Indrapala,\textsuperscript{14} or use of Gaḍaunātha in place of Gaṇurinatha in the Hari-Hara image inscription of Deopani,\textsuperscript{15} point to this direction. Although, the indigenous population figure very rarely on the written records,\textsuperscript{16} their perception, speech and technology must have shaped the tradition to an appreciable extent. Varna ideology accommodated a substantial portion of the tribal peasantry as Śudra, but their trial links were not lost altogether. Early Assam inscriptions (with the exception of Nidhanpur grant) hardly refer to any artisan group—the tribal village units do not admit of specialized professions—and make no mention of the two intermediary Varnas (viz. Kṣatriya and Vaiśya).\textsuperscript{17} The highly problematic text of the Deopani Viṣṇu image inscription\textsuperscript{18} refers to Śudra Dvijavarna and Nāri, but nothing beyond the three groups. Invocations of Śiva, Devī and Viṣṇu and their suggested oneness probably culminated in the curious mix-up of Śākta, Śaiva and Vaishnava elements, with generous use of local myths, in the Kālikā Purāṇa—a text which attempted to crystallize the regional tradition in the image of Kāmakhyā.

II

This, somewhat lengthy, preamble seeks to emphasize the need for a proper perspective in understanding the emergence of art activities in the Brahmaputra Valley. An essentially non-figural art tradition characterized the neolithic-megalithic cultures of the hills and submontane areas. With the exception of Daojali Hadin,\textsuperscript{18} no other site has yielded neolithic pottery. Decorative scheme is restricted to extremely simple cord-mark, cross-hatching on herring bone patterns. The situation is quite in conformity with the non-iconic spiritual traditions of the indigenous population involving rituals connected with the stone, hillocks, rivers and sacred spots.
It is but natural that the growth of iconic tradition, centering around the anthropomorphic forms, would be rather slow and its success dependent on a variety of factors. The emergence of state-structures with its necessary appendages: elaborate genealogical myths, ascription of divine powers to the king, varna ideology, introduction of Hindu pantheon and Sanskrit language, created the favourable condition in which iconic tradition gradually spread its roots. The first set of sculptures, discovered at Rangagora Tea Estate near Tinsukia—on the easternmost extreme of the Valley, are most certainly imports. Not only are the two figures portable (34×23 cm and 31×16 cm in size respectively), they are carved out of a variety of fine grained stone, the kind of which is not known in Assam statuary. But, more important are the stylistic elements and iconographic features. In both the figures, powerful physical type has been blended with rounded modelling without any tension on the surface. Datable around the fifth century A.D., these two figures represent a degree of aesthetic and technical perfection, which cannot be associated with the contemporaneous situation in the Valley. Again, the evolved nature of iconographic programme is typified by the figures of Parvati seated in the utkatikāsana with her hands holding an aksamāla and a ghata and by the figure of pot-bellied and goat-headed Daksa seated in the ardha-paryāhākāsana. These would not have been possible without certain amount of standardization. Although one cannot be very categorical about the original locus of the figures, a number of elements like fully evolved iconographic and stylistic elements and an emphasis on rendering sturdy physical built would indicate some links with central Indian ateliers. So long as the two sculptures continue to represent the only evidence of early art in the Valley, their occurrence on its easternmost extreme would remain problematic.

Literary and oral traditions, however, enable us to review the entire issue. An important religious complex, viz. Parasurama Kunda and Tamresvari Temple, is located near Sadiya which marks the easternmost limit of the Brahmaputra Valley. Kalika Purāṇa, incorporating some earlier traditions, alludes to Parasurāma's association with the river. Significantly, two eleventh century copper plate inscriptions refer to the conquest of Prajyarājya (the Sadiya tract) by the strength of the arms of Parasurāma. Stripped off the religious
overtone, the legend is indicative of the historical process of introduction of iron-implements and consequent growth of state-structure in the eastern extreme of the Valley at an early date. Archaeological evidence for the existence of a religious centre in the area in around fifth-sixth century A.D. is still somewhat inconclusive, but the import of sacred images must be viewed in this context.

III

Isolated examples apart, the first traces of organized art-activities in the Valley cannot be dated earlier than the seventh century. By then Kamarupa, as the all-pervading regional identity, is fairly well-established. The Varmana line has developed contact with the extra local powers, Kamarupa’s links with the northern India are now, more than ever, unmistakable. Hiuen Tsang’s testimony leaves little doubt about the entrenchment of Hindu pantheon in the region, his allusion to Deva temple, ‘some hundreds in number and ‘various systems’ with ‘some myriads of professed adherents’ probably suggests growth of different sects. No wonder, temples would come up as an indispensable element of sectarian worship.

During this period, the central portion of the Valley stands out as the most important zone. As early as 1929-30, K.N. Dikshit correctly observed ‘The earliest monuments in the Assam valley are undoubtedly to be sought for in the localities where the foothills of the surrounding ranges throw offshoots, washed by the mighty Brahmaputra as it turns westwards before it debouches into the plains of Bengal’. The most representative, and probably the only known monument of the seventh century, is located on the northern bank of Brahmaputra at Dah-Parbatia near Tezpur in the Darrang district.

Identified by R.D. Banerji as an early Gupta monument affiliated to the ‘Pataliputra school’, Dah-Parbatia door-frame has been widely discussed over the last sixty years. Admittedly, the monument draws heavily on the iconographic programme and ornamental pattern evolved in the fifth-sixth centuries in northern India, but it certainly does not come within the chronological confines of the Gupta Period. Its remoteness from the mature Gupta idiom of the fifth century is best illustrated by the floral and vegetal motif which are essentially flat and
repetitive as against the bold and prosperous floral form found carved in the Gupta Period works per se. Instead they come close to the floral carvings on the door frame of the Buxar Temple, ascribed to the late sixth-early seventh century. The figure of the Dah-Parbatia river-goddess are extremely elongated. A sense of movement is imported through a break of the body axis along the knee and bring in them a forward tilt. The plain and imposing halo with geese pecking on the border is an unconventional motif that should be viewed as an independent regional innovation. One should not lose sight of oval-heads and rendering of facial features which further emphasize their local roots.

What is also important about the monument is the clear standardization of the iconographic programme. Apart from the Ganga-Yamuna figures on the door-frame, the lintel is occupied by Lakulîśa, Sûrya and Garudâsanna Viṣṇu. Clearly, the patronage and the craftsmanship are local, but extra-regional connections can be clearly discerned.

This is clearly borne out by another detached sculpture from a site on the southern bank of the river in Nagaon district. The Mikirati Viṣṇu is remarkable for its pent-up energy and virility. It stands between two distinct idioms: on the one hand, it has much in common with the massiveness and iconographic features of the early Vaishnava images of adjoining provinces, more specifically with Narhatta Viṣṇu of neighbouring Varendra, on the other, it is touched by distinct local elements. The bold and rounded execution of the limbs, upraised shoulders and the positioning of the lower hands in relation to the āyudha testify to the affinity with the former, while the broad-face with sunken eyes have to be explained in terms of local perception. The date of the sculpture is certainly problematic, but it can be ascribed, somewhat tentatively, to the late sixth-early seventh century. At the westernmost extreme of the Valley, the idiom was more closely dependent. On the eastern India idiom, the late seventh century Viṣṇu from Dudhnoi in the Goalpara district is either an import or carved by an itinerant group of artisans.

There is little doubt that, in spite of generous borrowing from the northern and eastern Indian tradition, a regional idiom is in the process of formation in the central portion of the Valley. In
the two subsequent centuries, the regional idiom becomes very clearly articulated, along with a more generalized idiom.

One can probably identify a pattern about the cultural contexts of each idiom. While the former thrives in areas with a dominant tribal base, the latter is concentrated in areas enjoying a far greater degree of exposure in relation to the Gangetic plains. All the principal centres associated with the regional idiom can be placed within or close to the tribal milieu; Deopani in the Golaghat district, Mikirati and Badganga in the Nagaon district or Barapathar in the Jorhat district should be cited as representative examples. By contrast, Sri Surya Pahar in the Goalpara district or sites around Gauhati stand on the main channel of communication and their ethnic surroundings are decidedly different. In archaeological parlance, one thrives in ‘the area of relative isolation’ and the other in the ‘area of attraction’.

The beginnings of the regional idiom is marked by a group of sculptures from Deopani; the earliest of which may be assigned to circa eighth-ninth century on the basis of the inscriptive evidence. In spite of a stocky built, the treatment of the Śaṅkara Nārāyaṇa figure is essentially flat and two dimensional. Carved in a low relief, the figure is characterized by open eyes, high cheek bones, broad chest and shoulders. Another sculpture, identified as Harihara, shares these features with the Śaṅkara Nārāyaṇa. A distinctive product of the Deopani atelier is a Viṣṇu bearing a ninth century votive record. It is certainly carved in higher relief, compared to the Harihara images, and shows better concern with pliability. But there is no denying the fact that the facial features and overall appearance are very much remote from standardized forms. Notwithstanding some amount of refinement, the other Viṣṇu, with his stunted look; as well as a Narasimha, pertain to the idiom under discussion.

What could have been the possible source for Deopani statuary? Iconographic elements are beyond doubt, highly standardized, but the essential stylistic elements pertain to the tribal carvings in wood. The link is unmistakable and it helps explain the flat, two-dimensional rendering of divine form. It might be more than coincidence that in two votive records the material, viz. stone, is specified. As the stone carving tradition spreads its roots, the wooden antecedents became
largely irrelevant. But the stone carving continued to be permeated by the indigenous perception. Two visual elements define their perception: a penchant for the stocky built and distinctive facial features. The ninth century Mikirati Viṣṇu\textsuperscript{34} wears a striated drapery which recalls the early Vaishānava images from eastern India; the iconographic formula does not show any local elements, but its powerful arms, broad chest and a prominent bulge on the abdomen have to be viewed in this perspective. By comparison, the Śaivite figure from Badganga,\textsuperscript{35} or the massive head from Mikirati\textsuperscript{36} are certainly more distinctive. Examples can be multiplied. Two unidentified figures from Barapathar\textsuperscript{37} bring out the very special character of the regional idiom. In sharp contrast to the smooth surface treatment noticed in the Indian sculptures, these figures display taut surface. Again, the squarish facial built, depressed nose and wide-open eyes emphasize their difference vis-a-vis the more generalized idiom. Their stylistic affiliation with the Deopani figures can hardly be overlooked. These are not only products of similar kind of cultural milieu, they are chronologically quite close. Gradually, the indigenous perception comes closer to the idealized nuances of eastern Indian sculpture. The distinctiveness associated with facial details or physical built lost much of their original character as would be clearly evident in the Umā Maheśvara from Davaka.\textsuperscript{38} It can hardly be distinguished from much well-known ninth century examples as Umā-Maheśvara (Acc. No. 77) from the Asutosh Museum of Indian Art.\textsuperscript{39}

There is, however, no reason to assume that the two idioms were mutually exclusive. An uninscribed Mahiṣāmardini plaque\textsuperscript{40} and three other inscribed pieces are illustrative of the co-existence of two idioms at a centre whose links with eastern India are more decisive. Eastern Indian connection does explain the rock-cut figures of Śri Surya Pahar (Goalpara district)\textsuperscript{41} and of Sukresvara Ghat on the Brahmaputra at Guhati.\textsuperscript{42} The contents of the carvings are predominantly Brahmanical with the solitary exception of a Neminātha at Surya Pahar. The surface treatment is smooth, the emphasis is towards the rendering of the elongated physiognomy and comparatively broad chest. The iconographic formula, like the alignment of Cakra in the Viṣṇu figure is fairly conservative. Both the stylistic and iconographic elements conform to the corresponding developments in
Bihar and Bengal around the seventh century A.D. And it would not be unreasonable to place these figures to the same period. By comparison, the rock-cut figures of Śukreśvara have more powerful built—the emphasis is not certainly on elongation—the artist seemed to be more concerned with mass and volume. Seated Viṣṇu and Ganeśa may be cited as typical products of this idiom. Selection of rock surface and boulders on the riverbed as the means of artistic expression, raises a number of questions. What could have motivated the artists, apart from the proximity to the Brahmaputra? What could have been the source for stylistic and iconographic components? Significantly, the experiment is initiated at Goalpara area which links the easternmost extreme of Brahmaputra with the Gangetic system. Along the Ganga, rock-cut technique emerged around the fifth century A.D. in eastern Bihar, at places like Jahangira and Sultanganj.\textsuperscript{43} Thematically, Kuśana-Viṣṇu cycle along with Śiva, Devi, Sūrya and Gaṇapati occupy important position. Most likely, eastern Bihar provided the idea and impetus for exploring the rock surface along the Brahmaputra. No wonder, rock-cut sculptures are to be found along the river which links Assam with eastern Bihar and beyond.

However, from ninth century onwards even the rock-cut imagery started registering the inevitable impact of the regional idiom. In a number of Durgā figures,\textsuperscript{44} the strut-like projection of multiple arms and long-like rendering of the legs clearly point to this direction.

III

As one reads into the historical processes contributing to the emergence of art-activities in the Brahmaputra Valley of Assam between circa fifth-ninth/tenth centuries, one becomes increasingly aware of the limitations of art historical scholarship in India. Not only is our understanding of the regional traditions extremely fragmentary, there seems to be little concern in defining the regions and their cultural context. Regional tradition does not grow and survive in isolation, but it is equally important to identify the elements that go into the making of such a tradition. Art-activities in the Valley cannot certainly be appreciated without continued references to the neighbouring regions, but, in the process, one can hardly overlook the historical developments specific to the Valley, its ethnic composition
and, above all, the mode and mechanism by which the indigenous perception is shaped, changed translated into such mediums as stone, clay or metal.

NOTES AND REFERENCES

   M.M. Sharma, however, provides a different reading, *op. cit.*, p. 310
16. Sharma, *op. cit.*, (Tezpur Rock Ins L. 8 refer to Avar and Subhankara Patak Grant to Vrhad Raicha in L. 62).
25. Age of the Imperial Guptas, Reprint.
26. For a comparison, see Frederick M. Asher, *The Art of Eastern India*, Delhi 1980, Plate 113.
27. B.N. Mukherjee, *Eastern Indian Art Styles—A Study in Parallel Trends*, Calcutta, 1980, Fig. 55.
28. R.D. Choudhury, *op. cit.*, Fig. 28.
30. R.D. Choudhury, *op. cit.*, Fig. 32.
31. N.D. Choudhury, *Historical Archaeology of Central Assam*, Delhi, 1985, Plate XXIX, Fig. 126, 127A.
32. *ibid.*, Plate XXXII, Fig. 40.
33. M.M. Sharma, *op. cit.*, pp. 306 and 310, the terms used are *Saili* and *Saitata*.
34. N.D. Choudhury, *op. cit.*, Fig. XXIX, Fig. 127 (B).
36. *ibid.*, pl. V.
37. R.D. Choudhury, *op. cit.*, Fig. 30-31.
38. Arun Bhattacharjee, *Icons and Sculptures of Early and Medieval Assam*, Delhi, 1977, Fig. 42.
40. R.D. Choudhury, *op. cit.*, Fig. 32. For a discussion on the inscriptions, on related pieces. See B.N. Mukherjee, *op. cit.*, pp. 28-29, Fig. 77-80.
41. R.D. Choudhury, *op. cit.*, Figs. 33-36.
42. Bhattacharjee, *op. cit.*, Fig. 15, 102-105.
44. Bhattacharjee, *op. cit.*, Figs. 70-73.

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The paper owes much to the unpublished doctoral dissertation (Jawaharlal Nehru University, New Delhi, 1988) of my colleague Mrs. M. Momin. I have also benefited from discussion with Prof. J.B. Bhattacharjee and Prof. J.P. Singh.
APPENDIX

CATALOGUE OF INSCRIBED SCULPTURES

1. Since the presentation of the paper at Calcutta Seminar, our attention has been drawn to an inscribed early sculpture; a yama (?) from Bisrampur village in the golaghat district (Times of India, March 10, 1988). According to Prof. B.N. Mukherjee (personal communication) the character of the script is datable to circa sixth-seventh century A.D. The four armed standing figure carries all the standard attributes of Viṣṇu; the buffalo appears to be a later addition: it is incised rather than carved. Two distinctive features of the figures are (a) a Monogloid facial built and (b) stunted appearance. There can be little doubt about its local origin: thus it prefigures much of the Deopani statuary. So long as the inscription remains unread, our understanding about its cultural context would be incomplete.

2. Four sculptures from Deopani are on display at the Assam State Museum, Guwahati, three of which are inscribed.

(a) Known since 1905, the Viṣṇu image (2' 6" high) bears at its back a four line inscription, which K.N. Dikshit (Epigraphia Indica, vol. XVIII, pp. 329-30) assigned to the ninth century on palaeographic considerations. P.C. Choudhury, editing the record after some decades (Vishveshvarananda Indological Journal, vol. XII, pp. 1-3) placed it to the eighth century. The text is extremely problematic and, even with M.M. Sharma's Sanskrit rendering, the difficulties persist.

The text may be read as follows:

1. [An auspicious Symbol] Haraṁ trilokyaṁ uragendrasūtram
   Viṣadhvajam Somajaga (ta) prakāsam/Ma. . .
2. Bhagavatistu gurjjall satvāstu-devi bhuvī mārttiloke sthān.
3. ūka Sudro dvijavarannahāri seyyastu devi bhagavatistu
gurjja// pi.
4. ūna madhavīt / Bhagavatex
   (nā ?) rāyana Sāilī pratīmā bhaktyāntah //

Translation: (Homage is paid) to Hara, the lord of the three
worlds, who put on the king of serpents as the sacred thread, who has the bull as his mount, and who illumines the world with the moon (on his crest). Adorable is the goddess (Devi), and the goddess (Bhagavati) is indeed identical with Viṣṇu (Gūhya). True indeed is the goddess (Devi) in this world, the abode of the mortals. The goddess (Devi) who is in association with Śiva (stānu) is worshippable for the Śudras, the twice-born classes and women; and the goddess (Bhagavati) is indeed identical with Viṣṇu (Gūhya). The priest in charge of the temple (to which this image belongs) is named Pi—(This is a) stone image of Lord Nārāyaṇa for the devotees.

Comment: Incidentally, this is probably the only sculpture from the Brahmaputra Valley where the material (Śailāpratimā) is specifically mentioned. The supposed oneness of the three deities as explained in the record, however, remains problematic.


(b) A Harihara (ASM 2454) 1' 2" high and 8" broad carries an inscription on the back of the stela, the text, of which, is given below:

L. 1. (An auspicious symbol) Namah svasti (I) Mahāraddhirājah (read Mahajarañjadhirajah) Sri-Di-
L. 2. glekhavarma-rājye- Kā khyh-putreṇā Harinarāmenah
L. 3. Hariharaḥ Pratimā datteti (II)

Translation: Salvation; may it be well with (one). This image (of) Harihara is given (i.e. installed) by Harinarāma, the son of Kākhya, during the reign of (or in the Kingdom of) Mahārājadhirāja, the illustrious Diglekhavaran.

Comments: The inscription is 'palaeographically datable to the ninth century or a little earlier (circa A.D. eighth century)'.

Reference: B.N. Mukherjee East Indian Art-styles: A study In Parallel Trends, Calcutta, 1980, pp. 45-46. See also B.N. Mukherjee, ‘Epigraphic Sources of Indian Iconography: Some Illustrations from Deopani’ in Frederick. M Asher and G.S. Gai (ed) Indian Epigraphy: Its Bearing on The History of Art, New Delhi, 1985, pp. 169 and plates 185 & 186, M.M. Sharma op. cit., p. 312 gives a different rendering of L. 2: “this image of Harihara has been given to the son of Kākhyā with (the chanting of hundred names of (lord Hari); See also D. Sarma (ed) op. cit. pp. 63-64 (Text section) and 181.

(c) The other inscribed Harihara image (ASM 2410) is styled Śankara Nārāyaṇa in the record is 2'-10" high and 1" broad.

The text runs thus:

L. 1. (An auspicious symbol) Namah 1 Mahārājādhirāja Ś'ri-Jivara rājyeh 1 Guruh Kumadhabadi Sampam—

L. 2. nnā (Sampanna)—Vipanā-Ś'isya Tapasvi—

Kiyāh Sutaḥ 1 Adau nāma Ś'aṅkara-Nārāyaṇa


Translation: Salutation. During the reign (or in the kingdom) of Mahārajadhirāja, the illustrious Jivara. The teacher, Kumadhabadi, the disciple of excellent (or perfect) Vipāna (and) the son of Tapasviki. Praising the name (of) S'ankara-Nārāyaṇa in the beginning. Written by the stone-obtainer (stone engraver or stone sculptor) (or mountaineer of the attendant of the idol) called Valāhidi.

Comment: The inscription is ‘palaeographically datable to circa ninth or late eight century’.

Reference: B.N. Mukherjee op. cit. p. 48, Asher and Gai (ed) op. cit., p. 170 and plate 187 and 188. M.M. Sharma op. cit., pp. 310-311. His rendering is very much different from that of Mukherjee. See also D. Sarma (ed) op. cit., pp. 60-62 and 180.

3. A miniature Surya from Kaki Nowgong bears an inscription on the back of the stela. It is currently deposited in the Assam State Museum, Guwahati, the one-line inscription reads:
Text: L 1. (An auspicious symbol) Svasti I Śri Vanamālavarma devarājye Vas’isthasya Pautra Bhatta Rabi Āditya Pratmetih I

Translation: May it be all well (with us)—This image of the Sun-god is given over to Bhatta Ravi, the grandson of Vasistha in the reign of Śri Vanamāladeva.

Comment: ‘On palaeographical grounds the inscription... may... be placed to the ninth century A.D.’


4. (a) An oval-shaped bronze plaque from Narakasur Hill in the vicinity of Gauhati (ASM 3018) shows a four armed and ithyphallic male figure standing on a tiger. It contains an inscription carved on the right and left of the figure. It reads:

Text: (1.1) Nabhāsasya rājayapāla (1.2) (krara) devata Vana-Har (r) i pratimā 11

Translation: ‘It refers of the figure as the image of Vana-Hari made (?) (i.e. donated?) by a rājayapāla (protector of realm) of Nābhāsa.

Comment: The inscription is ‘palaeographically datable to a period ranging from circa ninth to eleventh or twelfth century A.D.’.

References: B.N. Mukherjee, op. cit., p. 28 and 36, Fig 77.

(b) Another oval-shaped bronze plaque from the same site depicts a male figure with a dog (ass?) standing near his feet. There is an inscription, ‘which appears in one line on the right and in two lines on the left of the figure’. The inscription is too fragmentary. The expression Viyayaka Haradeva occurs in the third line. The inscription is ‘palaeographically datable circa ninth-eleventh century or twelfth century A.D.’

Reference: B.N. Mukherjee. op. cit., pp. 28 and 36 Fig. 78.

(c) Prof. Jai Prakash Singh, Department of History, North Eastern Hill University, Shillong has informed me about recent reading of a inscription on a Surya image from the same site by
Dr. D. Chutia, Secretary Kāmarupa Anusandhana Samiti, Gauhati. According to Sri Singh the part of the text reads as:

Ś'rī Divya Āditya Nārāppna Harjara-rājye,

**Comment:** If the reading is accepted, then the Surya image under discussion becomes the only known sculpture from the Brahmaputra Valley bearing the name of a king whose reign period is fairly well established. Harjaravarman of the Mleccha dynasty in the line of salastambha is know from a very significant record, viz. Tezpur Rock Inscription dated G.E. 510 (=829/830 A.D.) as well as Hayanthal copper plate. Harjara is invoked in the records of his successor viz. Tezpur and Parbatiya copper plates of Vanamālavarmanadeva. Thus, the sculpture may be assigned to the first half of the ninth century.

**Reference:** The sculpture is reproduced in R.D. Choudhury’s *Archaeology of the Brahmaputra Valley of Asssam*, Delhi, 1985, Fig. 59. For a discussion on the date of Harjaravarman, see P.C. Choudhury. *The History of Civilisation of the Peole of the Assam to the twelfth century* A.D., revised third edition, Gauhati. 1987, pp. 211-217. Harjara Varman’s inscriptions have been discussed at length by M.M. Sharma. *op. cit.*, pp. 82-94 and D. Sarma (ed.) *op. cit.*, pp. 36-42 (Text) pp. 168-172 (translation).
IMAGES OF CHUNDĀ AT BODH-GAYA
DEBALA MITRA

I

THE colossal image of the eighteen-armed Chundā within a cell (facing the Lilajan or Nilajan) attached to the eastern flank of the enclosure-wall of the Mahanth’s maṭha at Bodh-Gaya is widely noticed.\(^1\) The attributes (found broken in five hands, apart from the main pair of palms which is also badly mutilated)\(^2\) in the hands of this image have been discussed by J.E. van Lohuizen-de Leeuw in her interesting article which also discusses the attributes of some multi-armed images of Chundā.\(^3\) According to the dedicatory inscription (in characters of the ninth-tenth century A.D.) on the pedestal of the image, the image was donated by the mahākṣa-pañḍāhyakṣa and karaṇika Śri Śubhaṅkara for the attainment of the supreme goal (anuttara-phala) by all beings including his ācārya, upādhyāya and parents. The size (226 cm high above the present floor of the cell and 122 cm wide) and the lavish ornaments meticulously executed with care would indicate that the image was installed within an independent shrine; the image was intended neither as a companion figure nor embellishing the niche of the Mahābodhi temple. There is hardly any possibility of locating this shrine. Bhagwanlala Indrajī, in his book review of Buddha Gaya (by Rajendralala Mitra), noted, on the basis of the information gathered from an old man, that the image had been brought to the maṭha from the ruins of the monastery to the north of the Mahābodhi temple.\(^4\) The remains of this monastery are now completely covered, and a road runs over the raised filled-up area abutting the northern flank of the enclosure of the Mahābodhi temple.
The popularity of Chundā at Mahābodhi is attested not only by this image but by at least four more images that still exist at Bodhgaya despite the considerable spoliation of images from the site.

II

The second image, also eighteen-armed, is fixed to the central part of the east wall of a small box-like structure (used for storage) within a pillared pavilion (open on all sides) in the central courtyard of the quadrangular building of the maṭha of the Mahānths of Bodhgaya; this pavilion houses the sacred gaddi of the Mahānths. Worshipped as Annapūrṇā, it is completely covered by cloth which leaves barely the crowned head exposed. After persistent requests I succeeded in having a glimpse of the image on one night. Unfortunately, the light was very dim. The image is about 68 cm high, the width being 46 cm. The material appears to be blackish (blackish green?) stone. The original eyes are covered by metal eyes.

The image is in a very good state of preservation. Unfortunately, the photograph (photo 40) that could be secured, is not good enough to show some details and some of the attributes in the hands. In fact, several of the attributes are utterly invisible.

Fourteen arms of the image, of fine workmanship, are spread by the sides in an integrated manner. The principal pair of palms shows the dharmachakra-mudrā, the visible right palm having a wheel-mark with petal-shaped spokes. The two hands with bent elbows immediately by the side of this pair of arms are raised; the right palm of the goddess bears a rosary (akṣha-sūtra), the corresponding left holding a book (pṝjñāpāramitā-pustaka as per the Nishpannayogavālt). The palms (along with the attributes) of the two uppermost left hands of the goddess are missing in the first image. These two attributes are a ghāṭa (in the top palm) and a sāṅkha (in the next). The palm below the latter holds a chakra, the next one bearing a pāśa. The object (which should be a kamanḍalu as in the case of the first image) in the next hand could not be made out, as this palm faces the side wall of the niche. The next left hand holds the stalk of a lotus, the flower itself being clearly depicted above the pustaka. The attribute in the bottom left hand is a long pole of perhaps a banner.

Of the remaining seven right hands of the goddess, the bottom
one is in *abhaya-mudrā* and the next one holds the hilt of a long sword. The attributes in the other hands are intact, but not distinct in the available photograph. These attributes are a *mani* (?), a round object (probably a fruit), a *vajra*, a *parasu* and an *aṅkuśa*.

Dressed in a *śāṭi* (with folds marked by double lines and with a part spread on the lotus-seat in the form of a fan), held by a cable-shaped girdle with a central roundel, and a folded *uttarāyā* (a part tucked on her left shoulder) worn in an *upavitt* fashion, the goddess with a benign facial expression is adorned with a number of beaded and plain bangles, armlets with two strings (one beaded) and a projected half-flower, a necklace with a row of pendants, *kuṇḍalas* and a *mukuta* having a base of three strings (the central one plain and the flanking two beaded) capped by three projecting half-flowers. Tied by a string, the hair is neatly arrayed in the form of a large bun, in front of which and projecting above it is an ornate triangular flower. On either side of the head is a fan-shaped projection of the ribbon.

Around the head of the goddess is a plain halo inscribed with the Buddhist creed in characters of the ninth-tenth century A.D. Above the halo is an umbrella with a beaded band near its base. It is crowned by a convex member with a small disc at the apex. On either side of the halo is a small *stūpa* (carved out of the back-slab with a semicircular top) with a drum having two mouldings, a hemispherical dome, a squarish *harmikā* and a conical finial.

With a mark in the form of wheel (with petal-shaped spokes) on the soles of the feet, the goddess is seated in *vajraparīyaṅkāsana* on a fully-blossomed lotus with two rows of petals bearing a donative inscription of a *bhikṣu*, a resident of Abhayagiri. Evidently, he came from Sri Lanka, the Abhayagiri-vihāra of which was a celebrated Buddhist establishment.

On either side of the stalk of the lotus is the bejewelled upper part (anthropomorphic) of a well-modelled two-armed hooded *nāga*, touching the stem with one of their palms and a scroll of foliage with their other palm.

Below the pedestal of the image is a *tri-ratha* pedestal which did not form the part of the image and might have supported an image of Buddha in *bhūmisparśa-mudrā*. This pedestal presents two mouldings (*khurā* and *torus*) at the base and a *khurā*-shaped moulding at the
top with a broad recessed part in between. Within the recess of the rāhā, having a moulded pilaster (with a khurā-shaped base, a baluster-shaped shaft and a bracket in the form of an inverted khurā relieved with lotus-petals) at either end, are two figures with perhaps a bowl with offerings in between. The figure on the dexter represents the bejewelled half-kneeling earth-goddess with her raised left palm supporting a ghaṭa, the right palm turned close to her right shoulder. The other figure appears to be a kneeling monk with folded palms. The kanikas of the recessed part bear each a seated lion with the raised tail.

III

The third image, intended to be eighteen-armed, appears to be unfinished. This image, which was collected from the ruins of the Mahābodhi temple complex and was installed within an exterior niche of the north wall of the Mahābodhi temple during the major overhauling of the temple in the last quarter of the nineteenth century, has now been fixed to a conical pile (in cement mortar) over a ruined temple on the east side of the enclosed area of the complex. The visible part of this fragmentary image (photo 41), of perhaps blackish green stone, is 61 cm high and 55 cm. wide.

With an oblong mark on the forehead, the goddess is seated in vajra-paryaṅkāsana on a double-petalled lotus; the petals are either defaced or more probably left uncarved. She wears valayas, armlets, a broad necklace, kundalas and a short mukuta with a projecting lotus in the middle and two triangular projections. The hair is arrayed in the shape of a bun on the top of the head; against the front side of this bun is a leaf-shaped motif. The pair of palms of the two principal hands is in dharma-chakra-mudrā. Some of the attributes are either broken or left unfinished. Her raised left palm (immediately by the side of her left principal arm) with bent elbow bears a manuscript; the broken attribute in the corresponding right palm of the raised arm with elbow bent was perhaps a rosary as in the second image. Her bottom left palm holds a long furrowed (unfinished) staff or pole (circular in section) of perhaps a banner (not discernible); in the grip of the same palm of the first image is the pole of a patakā. Three of the remaining left hands carry a lotus-stalk, a kamaṇḍalu with an
oval body and a chakra. Of her right hands, the bottom right palm (damaged) is in abhaya-mudrā and another hand holds a sword, the attributes in the other hands being broken or left uncarved.

IV

The mutilated fourth image (photo 42) is fixed to a conical pile on the drum of a stūpa on the east side of the Mahābodhi temple. The head, along with the major part (on the dexter) of the back-slab, is missing. Made of greenish stone, the available part of the image is 34 cm high and 25 cm wide. The image with six arms is an unusual form of Chundā.

Dressed in a śatī held by a girdle and perhaps an uttariya, the goddess is seated in vājraparyānkāsana on a double-petalled lotus, from the stem of which have issued stalks of foliated leaves. The available ornaments consist of a large number of bangles (both beaded and plain), armlets, a necklace and beaded kundālas (mostly broken). The main pair of palms shows dharmachakra-mudrā. Her lowest right palm (damaged) is in vara-mudrā, the corresponding left (placed on the lap) bearing a small shallow bowl. Of the two top raised hands, the major part of the forearm of one is broken, her left supporting a bottle-necked kamanḍalu. The available top corner (on the sinister) is curved. The image does not appear to be later than the tenth century A.D.

V

The fifth image (photo 43) is fixed against the back wall of a pillared chamber, called Šākura-vādi, rebuilt or restored by Mahanth Satānanda Giri. This chamber is one of the many rooms of the ground floor of the quadrangular monastery (maṭha). Of bluish green stone, it is 51 cm high above the modern pedestal.

The identification of this four-armed image with Chundā is rather problematic. Her two upper hands carry each the stalk of a fully-blossomed lotus supporting a pustaka (tied by a string), a feature connected with Prajnāpāramitā. Two prajñāpāramitā pustakas on lotuses or utpalas are prescribed by the sides of Kanakavarṇa-(or Pita-)Prajñāpāramitā and Sītā-Prajñāpāramitā in the Sādhana-mālā. However, the remaining two palms are placed on the lap in dhyānamudrā—a mudrā with or without a bowl found in many sculptures
identified as Chundā. This mudrā is not associated with Prajñāpāramitā.

Dressed in a sabita (with folds marked by double incised lines) fastened by a decorated girdle with a flower-shaped clasp and a folded uttarīya worn in an upavītta fashion (a part tucked on her left shoulder), the four-armed three-eyed goddess is seated in vajra-paryānakāsana on a viśva-padma (portion below embedded within a modern pedestal). With half-closed eyes, trivali on the neck and a placid face,11 she is adorned with valayas, beaded and plain bangles, armlets having a beaded line, two plain strings and a projected half-flower, a broad necklace with a flower-shaped central piece clasping three strings (the middle one plain and the flanking two beaded), beaded kundalas and a mukuta with three strings, a beaded pendant issuing from an elaborately-carved elongated triangular piece (projected against the bun-shaped coiffure). On the lower part of the hair are two crescent-shaped ornaments. Tied by an ornate ribbon, the major part of the hair is arrayed in the form of a large bun, while some coiled locks of hair fall on the shoulders. On either side of the head is the fan-shaped knot of a ribbon.

The back-slab around the head of the goddess is inscribed with the Buddhist creed in two lines in characters of about the tenth century A.D. The raised border of the back-slab with an arched top is edged by coiled tongues of flames.12

NOTES AND REFERENCES


2. In the drawing (prepared in 1811) of Buchanan-Hamilton reproduced by M. Martin, the main pair of palms in dharmachakramudrā is shown intact. However, the palms are seen broken in the drawing illustrated by Foucher in his book published in 1900.

3. J.E. van Lohuizen-de Leeuw, op. cit., pp. 119-143. She suggested a few corrections of Foucher’s identification of the attributes of the image at Bodh-Gaya.

4. The Indian Antiquary, vol. IX, 1880, p. 115. From the caption of Buchanan’s drawing, it is seen that at the time of Buchanan’s visit in 1811, the image was ‘on the east gate of the Sannyasis at Bodh-Gaya’. The cell in which the image now exists is very close to the east gate of the enclosure of the maṭha of the Śaiva Mahanths.

5. The forearms of these two hands of the first image noted above are broken; these two palms, on the analogy of the second image, most probably held these very attributes. J.E. van Lohuizen-de Leeuw suggested abhaya-mudrā for the right palm and a lotus as the attribute for the left palm.

6. This mudrā is depicted more appropriately in this image than in the first image.

7. There are two three-hooded nāgas holding with one of their palms the stem of the double-petalled lotus supporting the first image. This feature is rather enigmatic in an image of Chundā. This depiction is appropriate for an image of the goddess Prajñāpāramitā who is the embodiment of the scripture of the same name. The scripture is believed to have been entrusted by Buddha to the care of the nāgas in the nether region, from which Nāgarjuna is said to have rescued it (Benoytosh Bhattacharyya, Indian Buddhist Iconography, p. 197). The introduction of this element in the images of Chundā may be due to her personifying prajñā concepts associated with Prajñāpāramitā.

8. Copyright: Archaeological Survey of India.

9. ibid.

10. Edited by Benoytosh Bhattacharyya, (reprint; Baroda, 1968), Sādhana nos. 152 (p. 312), 154 (pp. 313-314) and 159 (p. 324).

11. The facial expression is marred by two cut-marks.

12. None of the images noticed here is earlier than the ninth century A.D. However, the emergence of Chundā in the Buddhist pantheon is earlier. The Mrohaung inscription (on the west face of a pillar at the Shitthaung Pagoda) of Ānandachandra (first half of the eighth century A.D.) of Arakan mentions images of Buddha, Bodhisattvas, Chundā and others. E.H. Johnston, ‘some Sanskrit Inscriptions of Arakan’, Bulletin of the School of Oriental and African Studies, vol. XI, 1943-46, pp. 365, 377 and 381.
The images of Viṣṇu are distinctive for their ornaments and armaments. Archaeology has posted us with many evidences of Viṣṇu imagery bearing these characteristics. Of the typical adornments of the image of Viṣṇu, the ones that deserve mention are the kirīta or karanda-mukuta, the vanamāla, and the kaustubha. Four items, viz. śāṅkha, cakra, gadā, and padma, either in quadruple presence or in selective pairs, constitute what is loosely called as the weaponry (āyudhas) of Viṣṇu. Not that all these characteristics are simultaneously present in all the images of Viṣṇu known to us. In some a few of the items are there, in others they are conspicuous by their absence. Artistic preference for any of these items sometimes was based on a priority ordained by an antecedent development in the faith itself. Nothing virtually was arbitrarily done by the artist, when he applied himself to the representation of a cult image. That does not, however, mean that imagination played no role in iconographical expressions, and for that matter, that artist’s liberty was at stake when he had to represent an image for worship. The contribution of the artist in the enrichment of the expressive content, even in iconic formulations, cannot be underestimated. But, at the same time, we should be absolutely sure that a particular innovation, credited to the artist, is not based on a cultic prescription unknown to us.

In the images of Viṣṇu, the four emblems mentioned above are usually shown in their respective natural figurative forms, viz., śāṅkha as conch, cakra as wheel or disc, gadā as mace, and padma as lotus. Apposite to their function, they are shown in the four hands of
Viṣṇu in various permutations and combinations. A leap forward from this traditional approach brought in a new concept and its visual transcription. These emblems were conceived in terms of their personalized presence. Their consequent humanization led to a change in their visual presentation. They could no longer be shown in the clasp of Viṣṇu. Instead, they were transformed into Viṣṇu’s encourage.

Personalization or humanization may not have been anything exclusive to Viṣṇu’s emblems. Even the question of the chronological priority can at this moment be set aside. The crucial point that needs attention is that, in respect of Viṣṇu’s iconography, the cakra or the wheel was the first to have this transformation. Some scholars believe that the first humanized presentation of Viṣṇu’s wheel occurs in a rare gold coin of Candragupta II, which shows the ruler receiving prāśāda or favour from a figure encircled by a spoked, oval form. This figure, according to them, represents the personified wheel of Viṣṇu, which later came to be known as the Cakra-Puruṣa. The suggestion, although interesting, is not, however, acceptable to all the scholars. The sculptured representations of figures set against spoked wheels, noticed from the art of Rajgir and Pawaya, are also similar dubious predecessors of the Cakra-Puruṣa of the Viṣṇu triptych.

However, the exercise of personalization of the attributes of Viṣṇu is very effectively realized in the Anantaśayi relief from Deogarh. From about the beginning of the Gupta Period, a selective approach is noticed in the personalized representation of the emblems of Viṣṇu. The cakra and the gadā received significant priority in this regard. Shown as a male and a female displaying stop the head a wheel and the mace respectively, they frequently flank the image of Viṣṇu. The latter usually places his hands on their heads as the symbolic registration of the fact that they are his forte.

Interesting variations are noticed in their representations from sculpture to sculpture. Even in a few examples only the cakra is shown in the personalized figurative form. But it became more or less a convention to show both the cakra and the gadā in the aforesaid formulation in the sculpture from the early Gupta period through the mediaeval period. This mode is noticed not merely in the standard images of Viṣṇu. In some of his specialized presence, for instance in
the Vaikuntha or Abhicara forms, the accompanying figures of the cakra and gadā are shown in the manner described above.

These archaeological evidences on an innovative iconographical formulation raise some pertinent queries: did the artist of his own fancy or imagination bring about this mode of representation? Was it, on the other hand, due to a new conceptual development in the Vaiśhṇava theism? Or should we explain it as aberration which eventually assumed contrived significance?

In this connection an important point needs attention. The wheel is invariably represented as a male, while the mace is shown, without exception, as a female. In later iconographical parlance, therefore, they have been respectively referred to as Cakrapuruṣa and Gadānāri. Some scholars put forth the suggestion that since the words cakra and gadā respectively are in the masculine and feminine, the sex of their personalized forms was but a natural corollary. Although the visual transcription of the literal sense is not unknown as a phenomenon in Indian art history, the above explanation is perhaps too naive to be accepted. The word rathanga is used, on occasions, as a synoterm for cakra. The former being in the neuter, the artist working on a description using it should have then shown the wheel of Viśṇu in a completely different way.

In fact, the representation of the wheel and mace as a male and female seems to have been based on a deep-rooted and expansive symbology that permeated the Vaiśhṇava faith from about the early Gupta period. In this connection some illuminating information is found from the Viśṇudharmottara. Describing the eight-handed form of Viśṇu, the text says that its two hands pertain to his Vasudeva aspect (the others relate to Saṅkarṣana, Pradyumna and Aniruddha) and that they hold the sun and the moon (Vasudevasya Karayojnatavyau suryaratrapau which represent Viśṇu’s well-known attributes, the cakra and gadā, symbolizing respectively the male and the female principles (Puruṣaprākriti jneyau suryācandramīsamubhau, ete ca Vasudevasya kare cakragade smrite). In other words, in the iconography of Viśṇu, the sun and the moon symbolically represent the male and the female principles, which in visual terms are shown by the two of his attributes, cakra and gadā. The information, thus obtained, can be put in terms of the following equation: cakra and gadā = Surya
and Candra = Puruṣa and Prākṛti. The logically of the interpretation of the Cakra and Gadā respectively as a male and female figures understandably lies here.

The Viṣṇudharmottara, in its chapter 85, gives a detailed account of the Vaishnava cosmogony and its relationship with the attributes of the image of Viṣṇu. It has been stated there that the emblems in the hands of Viṣṇu are not in the true sense of the terms (paramartha) the weapons (naitanyaayuuhajnatani). They constitute the tie between noumenon and phenomenon over which he presides. The wheel and the mace stand for the highest qualities of head and heart that Viṣṇu represents (manastvatmakam cakram buddhitatvatmikam gadam, dharayan lokaraksārtham uktascakragadādharāh).

Although similar interpretations are there in the Ahirbudhnya Saṁhitā and the Parama Saṁhitā, the impact of the Samkhya system of philosophy cannot be denied. At the same time, we cannot but give credit to the artist for the ingenuity of the visual realization of the ideology. The three constituents of the imagery, viz., the central figure of Viṣṇu and the two flanking figures of the apotheosized cakra and Gadā, are not arbitrarily or mechanically placed together. They reciprocally involve one another and form a unity in trinity.

A similar explanation can be given for the other set of the symbology represented by the sun and the moon. The relevance of this interpretation is more widespread. It permeates even Buddhist art of India and of Central Asia. We have discussed it in details elsewhere.

Be that as it may, while concluding this brief note, the point that we intend to emphasize is that archaeological evidences pertaining to a cultic system should be assessed in the light of the developments both within and without the concerned system. Art-history being an order-seeking discipline, an art-historical approach to archaeology can perhaps reveal more than what is apparent.
A hermeneutical coalition between archaeology and literature is an imperative and urging ingredient for the reconstruction of history of a country like India. It is needless to evoke the contribution of Indian literature bearing abundant historical data which are also regarded as one of the earliest documents of the world literature. Without evaluating the importance of vast panorama of Indian literature for peeping into the Indian history of its past, we may analyze the hidden treasures of Indian history, i.e., archaeological data, and the role of archaeologists for achieving the identical objectives.

A recent re-evaluation of the aims and objectives of archaeology has made it possible to debate and discuss one of its most neglected aspects—viz., its theoretical and interpretative machinery. In fact, Indian archaeological store-house is fortunately full of evidences relating to the historical bearings of the contemporary period. But neither the archaeologists nor the historians have satisfactorily developed their ideas in this respect. S.C. Malik has argued that “Indian archaeology will progress, specially at the interpretative level, only if its empirical evidence is viewed within the framework of a structure of ideas that are formulated into explicit models or hypotheses”.

In Indian context, the concept of models and modalities are applicable fully in the archaeological spectrum of the pre-proto-history sequence. In the later period, or more precisely in the historical period we have ample material in various literatures of different forms, and these works are to be substantiated by the archaeological artifacts, if an unbiased history of the time is aimed at. It is no doubt
that the archaeological data can provide us with more precise answers to some of the vexed questions which are not recorded in the literatures and it will also encourage historians to look more analytically at the literary evidence. Moreover, as suggested by Romila Thapar, "the process of change and transition from one type of society to another can be better culled from literary sources if there is a general framework for archaeology with it can be co-related or at least compared; a framework which will be based on the tangibles of archaeological data in addition to the all-too-frequent abstractions of literary sources. Archaeology can thus assist in answering the question relating to the 'how' and 'why' of cultural change, of which the total image is reflected in literary sources. If precise evidence on material culture is available it enables a historians to discuss institutions with greater clarity. Human institutions emerge as a result of many factors and material culture together with ideology join in varying proportions to evolve an institution. Archaeology can at least provide the data for the former."  

The present paper is an attempt to make a case study of the Mansā cult in the light of several literary and, to some extent, archaeological data and it also endeavours to point out that the rites relating to the worship of Manasā have conspicuous variations in different parts of Bengal, although the basic elements are almost the same and identical.

Goddess Manasā or the serpent deity is still regarded as an object of popular worship in Bengal and its neighbouring regions. Like other folk deities, viz., Śītalā, Shashṭhi, etc., she was originally worshipped by primitive peoples but gradually found a place in the orthodox pantheon of Hinduism. It is only in the later purāṇas like the Padma, Devī, Bhāgavata, Brahma Vaivarta, etc., that the name of Manasā is mentioned as the serpent goddess.

Although the prevalence of the Nāga worship can be traced from the remote past, i.e. at least from the Indus Valley Civilization, but no mention is to be found anywhere of any important female serpent character right from the beginning of the Vedic times down to the age of the early Buddhist literature or to the age of the Mahābhārata. Of course, it is admitted that the Mahābhārata speaks of the name of Jaratkāru, sister of Vāsuki, and contains a detailed account of her but her existence ceases after the birth of her son,
Astika. Elsewhere in the same epic the Nāgas, the off-spring of the poisonous snakes, are said to have born from Kaśyapa by Kadru who is described as the mother of all the snakes. In the *Rāmāyaṇa*, it is Surasā who is said to be the mother of the snakes. But, no divinity was attributed to them.

The wide distribution of the Nāga figures belonging to different periods all over India suggests the popularity in which the Nāgas were held and also indicates the prevalence of the Nāga worship. They are still being worshipped on the day of *Nāga-pāñcami* falling on the fifth day of the ascending node of the moon in the month of Śrāvana (July-August) every year, when offerings of milk and parched grains (*lava*) are made to them. In Bengal and its adjoining regions a special worship is performed on this occasion in honour of the snake goddess Manasā. These performances of the present times may well be regarded as the fitting counterpart of the *sarpabali* of the *grhya-sūtras*, the performance of which annual rite lasted for the four rainy months.¹⁰

It may be noted here that the predominate position of the serpent goddess in this region is possibly due to the strong-hold of non-Āryan cultural influences. A. Bhattacharya thus observes:

"The eastern provinces of India and the peninsula of the Deccan are the places where Aryan influence could not spread so effectively. Hence it is this part of India that possesses some of the pre-Aryan cultural characteristics. Śakti worship of the goddess power of some specific nature is one of them. This is why in no other place in India except Bengal, some parts of Bihar and Assam and the South can the worship of the anthropomorphic serpent goddess be met with. In all places subject to the direct influence of Aryan culture the serpent too is worshipped but as *Nāga-rāja* or the king of serpents who is obviously a male deity."¹¹

A close scrutiny of the worship of Manasā, also known as non-Vishahari, in the present day reveals its strong association with the Aryan mother goddess worship of India. In fact, the worship of Manasā is prevalent all over Bengal, especially the rural Bengal and neighbouring regions among the people of the lower stratum of the
society like the Đom, Bauri, Keot, Māl, Bāgdi, etc., mostly Hinduized aboriginals. There is hardly any village in the district of Birbhum where the worship of the Manasādevī is not performed. In some parts of the district of Burdwan the higher class Hindus observe aradhana or abstinence from cooking on the Nāga-paṅcamī day and placing of few leaves of milky hedge plants inside the oven in order to worship the deity. An account of the worship of the goddess Manasā in the district of Burdwan was given by Risely nearly a century earlier. The deity is believed to be serpentine goddess and is primarily worshipped to get rid of snake bites during the rainy season. She is also worshipped for other purposes like curing chronic diseases and to get a child showing the association of the deity with fertility cult. She is accredited with occasional violent anger manifested in snake-bite and other curses as depicted in the mediaeval Manasā-maṅgala Kāvyās. The rites and rituals relating to the worship of Manasā have variations in different parts of Bengal, but the basic elements are almost the same and identical.

The deity is worshipped in some places regularly in a permanent shrine or she is offered annual/occasional worship particularly during the rainy season. Shrines are like the temples made with the walls and covered with straws, commonly known as Manasā-bōḍi (house of Manasā). The images in these shrines are the painted earthen pitchers, usually odd numbered, with a representation of the hooded snakes. In some villages there is no such temple but an uncovered altar on which there is a Manasā or Sīja Manasā (Euphobia Lingularia) which is regarded as the deity. This place is known as Manasā-talā (abode of Manasā). Both these places are considered for performing annual or occasional worship of the deity.

Although, the worship of the deity on the Nāga-paṅcamī day is prescribed in the sāntī scriptures, but in this region different other practices relating to the performances of worship are also to be found. While in the eastern part of Bengal (Bangladesh), the last day of the Bengali month of Śrāvana is observed for worshipping the goddess, in West Bengal, according to practice obtaining in various villages it is held on the first or the last day of the Bengali month of Bhādra or on any Saturday or Tuesday of the same month or on every fifth day dating from the Nāga-paṅcamī in the month of Āshāḍha and Śrāvana.
or on the Daśahara day when the river Gaṅgā is worshipped. Besides, the deity is also worshipped in the Manasā-talā or Manasā-sṭhāna on any day in the rainy season or other seasons as decided by the villagers.

The deity is worshipped with flowers, incense, unboiled milk, ripe plantain, vermilion, etc. Animal sacrifice are not unknown. Pig, goats, pigeons, etc. are offered to the deity in some places specially when a vow is taken by a person and the desire is fulfilled. Sometimes a stone piece or a brick is tied with a thread by the side of the Manasā tree or by the side of the shrine when a vow is taken. After the fulfillment of the vow, the worship of the deity is performed by observing all the rites and rituals. The Brahma Vaivarta Purāṇa ordains that those who worship the goddess Manasā with bāḷī (sacrifice) and other objects on the Paṅcami-tithi, will obtain wealth, fame and child:

Paṅcamyāṁ Manasākyāyāṁ davayai bāḍyācca yo valīṁ I
Dhanavāṁ Putravāṁśaiva kirtimāṁ sa bhaved dhravāṁ II

There are some minor variations pertaining to the performances of worship of the goddess in different places and regions but no difference of opinions persist about the non-Aryan female character of the deity. The deity does not initially find any place in the orthodox Brahmanical religious systems, although various attempts have been later on made to equate her with the Vedic goddesses, like Sarasvatī, Lakṣmī, etc.

With this brief background bearing the literary Orientation of the Manaā cult we may search for its archaeological coalition. Definite divine character of the serpent goddess, along with the Nāgas, is revealed possibly for the first time in the archaeological objects discovered from Rajgir, Bihar, as early as the beginning of the Christian era. The excavations of the mound at the site of Maniyar Math which disclosed the remains of curious cylindrical structure of a shrine dedicated to the worship of Mani Nāga. It contained the well preserved figures out of which five represented Nāgas and one Nāgini (female serpent). All the figures have been found portrayed as human beings, standing, two-armed, held different positions and provided with the usual snake-heads, varying in number from five to one. In course of his analysis of these antiquities, Dr. Bloch suggests that “it was a kind
of pantheon(?) where serpent deities were worshipped and that serpent worship must have been the popular religion of the local inhabitants. Dr. Bloch also suggested that one of the Nāga figures might probably be that of Manikāra or Mani Nāga, named in the Mahābhārata as the protector of Rājagriha, whose favour people invoked for rain. . . . An inscription discovered on a red sand stone sculpture and engraved in characters of the second century A.D. brings out the name of Mani Nāga whose favour is referred to apparently as being conducive to some benefit to the donor. The sculpture in question was found in various fragments during the last five years and, when placed together, was found to reveal a row of Nāgas with snake-hoods on the head and several female figures or Nāginis, one of which has the inscription Bhagini Sumāgadhi or sister Sumāgadhi. From her name Bhagani Sumāgadhi appears to have been a protecting deity of ancient Magadha (modern Bihar). The finds afford a glimpse into the popular religion of the ancient citizens of Rajgir, and show that the snake deities, both male and female, were worshipped, particularly for bringing in the much needed rains, the association of snakes with rain being probably due to the fact that snakes are more in evidence during the rainy season than at any other time of the year."

Another aspect of archaeological data is the iconography of the deity. But before studying the sculptural representations which are generally assigned to the eleventh-twelfth centuries A.D. onwards, we may mention here that according to some scholars the Mahāyāna or Tāntric Buddhist School of eastern India witnessed the worship of the serpent goddess in the name of Jaṅguli. It is believed that Buddha taught some of his chief disciples the mystical formula of the worship of this goddess.19 The Sadhanamālā informs us that "The Hindu goddess Manasā or Viṣhahari has a marked resemblance to the appearance of Jaṅguli, and some of the meditative verses in the Hindu Tantric works for the goddess distinctly give her the epithet of Jaṅguli."20 In the description of the images there are also conspicuous resemblances which also led to believe that—"The influence of Mahāyāna Buddhism continued almost till the times of the Pāla Emperors in Bengal. Therefore, there is sufficient reason to believe that the supremacy of this most ancient anthropomorphic serpent-goddess Jaṅguli was widely prevalent in Bengal upto that time. When,
with the decline of the Pāla Empire, there was revival of Hinduism in
the hands of the Sena kings, many Buddhist priests left this country
for Nepal where Mahāyāna Buddhism was still very popular, but
those who stayed on preferred to introduce their gods and goddesses
in new names so as to avoid any suspicion of their Buddhist affiliation.
It seems that the name Jaṅguli for snake-goddess was dropped at that
time and a new name Manasā was taken instead. 21 To the Jainas
Padmāvatī is regarded as the serpent goddess. A.K. Bhattacharya has
aptly discussed this issue in a paper entitled ‘Tārā as a Serpent deity
and its Jaina Counterpart Padmāvatī.’ 22

While dealing with the origin of the name of goddess Manasā,
Acarya Kshitimohan Sen points out that the serpent goddess Mana
Maṅcammā of the Canarese country is a source of the Bengali snake-
goddess Manasā. 23 And the earlier Sena kings who hailed from this
region possibly carried the tradition of Mana Maṅcammā to Bengal.
In fact, there are many other views relating to the origin of the name
of goddess Manasā, 24 but there is no denying the fact that the present
form of the deity originates not earlier than the eleventh-twelfth
centuries A.D.

A large number of sculptural representations of the deity has
been found from different places of Bengal and its adjoining states.
The general type of the stone image of Manasā has been described
thus:

“The deity is seated on a lotus in the lalitāsana pose, with hoods
of seven snakes spread over her head, her left hand holding the
eighth one (mythologically, eight nāgas are associated with
goddess). Her right hand in the varada pose holds a fruit, and
she is attended on either side by a seated emaciated figure and a
crowned male person.” 25

A beautiful bronze figure of Manasā, probably belonging to the
Pāla Period, is now in the Indian Museum, Calcutta. “It shows the
goddess seated under the usual snake-hoods in the lalitāsana pose,
with a child on her left lap and her right hand holding a long leafy
branch.” 26

Two images of Manasā, one from Paikor and the other from
Bhadiswar in the district of Birbhum have been discovered. 27 One of
the images found from Paikor bears an inscription [ ... rājena Śri Vijaya Se (nena)] showing that the image belongs to the time of Vijaya Sena of the Sena dynasty. It is carved on a stone pillar. The image is two armed and seated on a blooming lotus; part of the head is broken; on the right side of the image there is a small male figures, probably that of the sage Jaratkāru, the right hand is placed on the right knee; the left hand holds a serpent. The second image does not bear any inscription but from the stylistic point of view it may be placed with that of the image discovered at Paikor. The image is well preserved. Seven serpents are found spreading their hoods over the head of the goddess. Her left hand holds a snake, her breasts are covered with bodice of snakes; on the one side is a female attendant, on the other a male figure like the one discovered at Paikor, possibly the sage Jaratkāru. The goddess is seated on a blooming lotus in the lalitāsana-pose. Her limbs are adorned with beautiful ornaments. Below the seat is a worship pot (ghaṭa) upon which her feet are placed.

Innumerable images of the deity have been discovered from different places of Bengal and adjoining regions and they are now housed in the Indian Museum, Calcutta; in the museums of Dacca and Varanda Research Society of Rajshahi in Bangladesh. Almost all the images are assigned not earlier than eleventh-twelfth centuries A.D. and by that time the conception of the anthropomorphic serpent-goddess with Brahmanical attributes found expression in the sculptural representations. Thus from this time onwards goddess Manasā established her worship in all the sections of the Hindu society irrespective of any caste gradation. In the concept of the present day Manasā goddess an amalgamation of Brahmanical deities (like Sarasvati, Lakshmi, etc.), Buddhist Jāŋguli-Tārā and Jaina Padmāvatī is distinctly manifested. A synthesis of both Brahmanical and non-Brahmanical elements is discernible and is very much in vogue even in the practices of rites and rituals as well as the attributions of the sculptural representations.

NOTES AND REFERENCES

2. ibid., 'The Historians and Archaeological Data', pp. 388-89.
3. The word Manasā in the sense of a deity is absent in the early Sanskrit texts. The Ashtādhyāyī of Pāṇini and even the lexicon of Amara do not mention the name of Manasā. Some scholars believe that Sanskrit mānas means mind; so in the word manasā the suffix of instrumental has been added to give the sense of ‘by mind’. According to the later lexicographers—by manasā is meant the goddess who has been created ‘by mind’ or contemplation by Kasyapa.

Sukumar Sen (Vipradasa’s Manasā Vijaya, Asiatic Society, Introduction, p. XXX) thinks that “Mahāmanas as an epithet of the victorious gods occurs in the Rg. 10.103.9. Manasā as the name of a celestial nymph is not unknown in Sanskrit literature. This is obviously connected with mānas ‘mind’, and it does not exclude other connotations of the verb man (think). H. Bhattacharya (Hinduder Devadēvi; Udbhava O Kramavikāśa, vol. III. Calcutta, 1980, p. 153) says that the expression Atispradhaḥ samaryata Manasā Sūrya kaviḥ (Rg. 5/44/7) shows the prevalence of the name Manasā (here represented as the wife of Sūrya or as the ray of Sūrya).

4. This kind of changes and the subsequent absorption of various local and minor deities into the broader-fold like Śaivism, Vaishnavism, etc. was a common practice in ancient Indian religious tradition. For details please see—Pranabananda Jash—History of Śaivism, Calcutta, 1974; History and Evolution of Vaishnavism in Eastern India, Calcutta, 1982.

5. Besides some stray references in the earlier religious scriptures there are series of literary works of the Maṅgala-Kāvyas in Bengali literature in which Manasā-Maṅgala is very important and exhaustive one, depicting the worship and her positive potentiality.

6. The Aittareya Brāhmaṇa (23.298) speaks of the word saryā-rājñī, but the term here means the earth and not the queen of serpents (M. Haug’s edited Aittareya-Brāhmaṇa, pp. 359 ff).

7. Mahābhārata, Ādi parvan, xvi.

8. Rāmāyaṇa, Sundarakanda, i, 137.

9. Brhadāranyaka Upaniṣad, Uttarā-khaṇḍa, xi. 52:
Svaḥ svapaksha ya pāṇcamē tara mānavaḥ
Yah pājavitā nāgan vai tasya nāgabhayaṁ bhavat


The Amarakośa (Vogel, J. Ph., Indian Serpent Lore, p. 192, fn. 2) mentions with Śeṣa-Ananta and Vāsuki as the names of the Sarparājas. The Nāgas are also regarded as the guardians of the Jewels and the treasures. They are also to be the originators of several dynasties of kings in ancient India. Nāgasena, Gaṇapatināga, Nandin mentioned in the Allahabad inscription of Samudragupta belonged to the Nāga lineage.


15. Brhadārāma Purāṇa, Uttarā Khāṇḍa, XVI. 49: 
Pañcayānica tataḥ kurvyāt sarpanāṁ devatārācanam 1
17. N.R. Ray, Bāṅgalīro Itihāsa, p. 588; Sukumar Sen, Bāṅgalā Sāhityera Itihāsa, 
18. According to tradition current in Bihar, Maniyar is the name of a chief 
serpent, so the name Maniyar Math means a serpent shrine. cf. also, A. 
Bhattacharyya, op. cit., p. 133; Vogal, J. Ph., op. cit., p. 219, pl. xxiv; ASIR, 
1905-6, pp. 102 ff.
20. Sādhanāmālā, 120.
21. B. Bhattacharyya, Buddhist Iconography; Calcutta, 1924. p. 80.
22. A. Bhattacharyya, op. cit , pp. 137 ff. Manasā is said to have Jaṅguli in the 
Manasā legend of Vipradā—Sāhitya Parishad Patrika, Calcutta, vol. 43, 
p. 68.
According to N.K. Bhattachali (Iconography of Buddhist and Brahanical 
Sculptures in the Dacca Museum, Dacca, 1929, p. 222) Mahāyāna School of 
Buddhists owe this concepotion of the serpent goddess to the Vedas.
25. D.C. Sicar has pointed out (Epigraphia Indica, XXVIII, pp. 138-38) “how the 
snake goddess worshipped in various parts of Bengal and Bihar in the 
mediaeval period under such names as Bhattini Matuva contributed to the 
growth of the cult of Manasā” (Religious Life in Ancient and Mediaeval India, 
Delhi, 1971, p. 137).
Among the Ahoms of the Brahmaputra Valley Manasā is worshipped as the 
snake deity as in Bengal. A sculptural representation of the deity having 
elephant as her vehicle has been discovered from Assam. (Rajmohan Nath. 
Gaurabmaya Assam, Shillong, 1949). Similarly, the deity is also popular with 
the nomenclature of Manasā among the people of Punjab and some western 
districts of U.P. (H.A. Rose, A Glossary of the Tribes and Castes of the Punjab 
27. ibid., p. 556.
31. ibid., p. 79.
32. N.K. Bhattachashali, op. cit., pp. 220 ff; History of Bengal ed. R.C. Majumdar, 
Dacca, pp. 460 ff.
HĀRITI IN BUDDHIST MONASTERIES

MALLAR MITRA

IN India, temples are standing witnesses to the development of the religions, religious practices, sectarian rivalry and cult syncretism. Apart from the image of the main deity who is worshipped in the sanctum and in whose name the temple is dedicated, the temples also contain in many cases the images of the pārśva-devatās and parivāsra-devatās and other divinities on the exterior-walls. The placement or location of some of the divinities is also fixed. In many Brahmanical temples, particularly in Orissa, grahas are sculptured on the architrave over the lintel of the doorway, while the eight dikpālas are carved on the exterior walls at their respective directions.

Very little information about the placement of deities in the Buddhist temples is available except in respect of the surviving divinities in the sanctum, as most of the Buddhist temples are ruined. With regard to the monasteries, the sanctum facing the entrance gate usually contained Buddha, either alone or in the company of Bodhisattvas like Avalokiteśvara, Vajapāṇi and Maitreya. The placement of other Buddhist deities does not appear to be standardized, except perhaps that of the yakṣī Hariti with or without her consort, for which there is evidence both textual and archaeological.

While travelling in and around Pushkarāvatī (Po-shi-kie-Po-fa-ti) Hiuen Tsang noted as follows:

“Going north-west about 50 Pl from these stūpas there is another stupa. Here Śākya, Tathāgata converted the Mother of the demons and caused her to refrain from hurting men. It is for this reason the common folk of this country offer sacrifices to obtain children from her.”1
The stūpas referred to by Hsiien Tsang were the two stone stūpas near the Aśoka stūpa close to the town of Pushkalāvati. “The Mother of the demons” of this passage apparently stands for Hāritī.

I-tsing, who visited India in the seventh century A.D. sometime after Hsiien Tsang had left for China, has referred to the custom of the installation of an image of Hāritī either in the porch or in the dining room of Indian monasteries. While enumerating the rules about the reception at the Upavasatha-day (i.e. the fast day) in the monasteries I-tsing has narrated the story of Hāritī. The story is summarised below.

In a former birth Aāriti from some cause or other, made a vow to devour all the children of Rājagrīha. In consequence of this wicked vow, she forfeited her life and was reborn as a yakṣī and gave birth to five hundred children. In order to feed her children every day she started stealing the children of Rājagrīha. Hāritī was not, however, to continue her existence as the killer of children for a long time. The distressed parents approached Buddha who took and concealed one of her children whom she called her beloved child. When the disconsolate approached Buddha for her lost child, Buddha told her, “Are you so sorry for your lost child? You lament for only one lost out of five hundred; how much more grieved are those who have lost their only one or two children on account of your cruel vow?” Touched by these words, soon the yakṣī was converted, but in her anxiety for her children she asked the Buddha, “How shall my five hundred children subsist hereafter?” The Buddha’s reply was, “In every monastery, where Bhikshus dwell, your family shall partake of sufficient food, offered by them every day.” For this reason,” comments I-tsing, “the image of Hāritī is found either in the porch or in a corner of the dining-hall of all Indian monasteries depicting her as holding a babe in her arms and round her knees three or five children.” While concluding the story I-tsing pointed out, “A full account of her is given in the Vinaya (Samyuktavastu). So I have given an brief. The portrait of the demon-mother of the children has already been found in China.”

I-tsing’s account makes it clear that his comments on Hāritī was based on his observations at different Buddhist sites and also based on Indian texts like Vinaya, Other surviving texts mentioning Hāritī are the Mahāvastu, Samyuktaratna-sūtra of the Chinese Sūtrapiṭaka of
the Hinayāna School, Bodhisattvāvadāna-kalpalatā by Kshemendra, etc. These texts give us the additional information that the name of her youngest child was Priyaṅkara or Piṅgala. The name of the husband of Hāritī is also known from these texts. He was Pāñchika, the yaksha general of Kubera and he belonged to gandhara.

It is in Gandhāra that the early images of Hāritī are noticed. From the find of a large number of images of Hāritī mostly in the company of his consort Pāñchika in Gandhāra, it is evident that this yakshi was quite popular in this region. Most of these images are of stone, though stucco figures of the couple are also not unknown, as testified by the central panel of the south face of a platform at Takhti-Bāhi. In Gandhāra Pāñchika sometimes leans on his lance, and holds a purse, suggesting his role both as a warrior and dispenser of riches. In keeping with this Hāritī often carries a cornucopia or the “horn of plenty” or a noose, while in some cases she is seen as holding a vessel. Often a child is seen between the couple; sometimes the child is seen approaching the mother and at some place like Sahritahlo a number of children can be seen around. In view of the finding of such a large number of images of Hāritī and Pāñchika at Gandhāra the possibility of the monasteries of Gandhāra containing the images of Hāritī cannot be ruled out.

The remains of a temple of Hāritī are stated to have been exposed near the Ghoshitārāma monastery at Kausambi in Uttar Pradesh.

At Ajanta, in Cave 2, a monastery, on each side of the antechamber is noticed a subsidiary pillared chamber, of which the right one contains the seated figures of Hāritī and her consort Pāñchika. She holds a purse in her right hand and a child is seated on her left knee. Pāñchika holds a fruit. Below the figures of the couple are seen the children. The two scenes at the top corners show Hāritī’s life just before her conversion. The right side depicts four-armed Hāritī attacking Buddha with the weapons held in her hands. The scene on the left shows Hāritī kneeling down before Buddha who, unperturbed, is seen soothing her by displaying the abhaya-mudrā. The child, in front of her, adores Buddha.

Cave 7 of Aurangabad has a beautiful sculpture of Pāñchika and Hāritī in the pillared cell at one end of the verandah. Both of them are seated side by side. Hāritī holds the child in her lap.
The recesses at the ends of the verandah of Cave 2 of Ellora house possibly Hārītī and Pāñchika,⁹ the latter resembling Kubera. Cave 8 of Ellora is a chapel *cum* monastery. On the outside wall of the Cave is carved an interesting sculpture of Hārītī and Pāñchika. Hārītī displays the *abhaya-mudrā* with her right hand, while the left holds a child who is seated in her lap.

A detached image of Hārītī was discovered at Bojjannakonda (at Sankaram, Andhra Pradesh), which is replete with *stūpas*, shrines and monasteries. The original context of this image could not be ascertained.

The entrance-portico of some of the monasteries of Nalanda had attached to their side walls stucco figures, which have disintegrated. It is not unlikely that the figures included Hārītī and Pāñchika.

Fortunately, the seated image of Hārītī is in fact within a niche of the east wall of the rear porch beyond the gate of Monastery 1 at Ratnagiri.¹⁰ Here Hārītī is seen holding the branch of a tree and in her lap is her child. The corresponding niche of the west wall presents her consort bearing a fruit with his right and pressing with his left hand a mongoose disgorging jewels. This figure bears the attributes of Kubera. The similarity of attributes may be due to the fact that both are considered essentially as *yakṣhas*.

Of the two monasteries unerthered at Sirpur,¹¹ the west wall of the rear porch of the oblong one, entered through the gate, accommodates an image of Pāñchika. Obviously, the east wall of this porch provided an image of Hārītī which was lost. On the central courtyard of the second monastery was found a dislocated image of Hārītī which originally was either close to the dining place or more probably fixed into a wall of the porch.

Apart from the images of Hārītī found in some monastic complexes, many have been found separated from their original locational context. Their position in the temples or monasteries has not been recorded. It is interesting to note that none of the *sādhanas* discovered so far contains her *dhyāna*. Four *sādhaṇas* No. 36 (Trailokyavāṃśikaralokeśvara-sādhanam)¹² No. 48 (Vādirāja Maṇjuśrāsādhanan)¹³ No. 180 (Kurukūltasādhanan)¹⁴ and No. 206 (Paṅcharakṣhāvidhānam)¹⁴ mention her. In *Sādhana* No. 36 she has been descried as *yakṣheśvari* and in the other three as *mahāyakšini*. In Sādhana No. 48
she has been described as taking away all sins. Her *mantra*, according to *Sādhana* No. 36, is *om hriḥ aḥ hām hāriti yaksheśvarisvāhā.*

In the absence of a *dhyāna*, the attributes in the hands of Hāritī are not fixed. The silence of the *sādhanas* in the regard is perhaps due to the fact that she remained essentially a *yakṣī*, even though she came closest to the highest *mātrikā* concept—the mother offering her purest affection to her children. But it is this motherhood that glorifies her—the mother who is totally at a loss at the disappearance of one child of five hundred; the mother who realizes the suffering of other parents in the process; the mother who is anxious for the nourishment of the children. A mother of five hundred children Hāritī is the representation of the fertility. No wonder the Buddhists, honouring this motherhood, tried to have her image along with her husband in a number of fully-developed monasteries, her identifying mark being the child in her lap or children around her.

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15. *ibid.*, pp. 405-413.
ARCHAEOLOGY AND RELIGION:
CASE STUDY OF A HINDU DEITY—DURGA

A. SENGUPTA

From the very beginning of civilization, man has tried to seek an answer to things happening around him; things about which he had only a vague idea; things that were beyond his comprehension. This led to belief in a power all omnipotent and supernatural. This power may be considered to be the root of religion.

Of all deities whose worship continues till the present day, Goddess Durga holds a prominent position. To show how this deity gradually became important, it is necessary first to have an idea of the Mother Goddess cult in general.

The realization of a mysterious force regulating birth and generation can be tentatively said to have worked behind the concept of the Mother Goddess. Now, any idea that has a religious basis is difficult to define in terms of the exact stages of its evolution. For, such ideas generally evolve around concepts that are initially vague, and, which through stages and over a considerable period of time, crystallize into definite forms, and then acquire religious connotations.

It is possible to say that a concept of motherhood grew out of the generative principle with which the mother came to be identified. This then led to the growth of a religious belief centering around the mother. The social set of the time also contributed towards the growth of this concept. As Sir John Marshall points out, like the Mother Goddess of Western Asia, the pre-Aryan cult of the Indian Mother Goddess originated in a matriarchal state of society.

The word 'mother' conjures up a concept of creativity and hence the Mother Goddess cult essentially revolves round the idea of
fertility. With the cult as a whole, the word creativity has a wider implication, being associated with creative manifestations in other areas too, such as the earth and the natural forces. However, creation of life being an essential aspect of motherhood, it was not long before the mother came to be deified. Once this happened, the idea diversified giving rise to several types of mother goddesses governing different aspects of life and not only of birth. Hence, when we talk of the cut of the Mother Goddess, we do refer to a single deity but to the host of goddesses embraced by this term. Dr. J.N. Tiwari points out that the Goddess worship in India is a complex phenomenon, possessing no uniformity but is rather a loose federation of cults embracing diverse elements. Hence the various representations of the Goddess are merely different manifestations of a single goddess which grew to suit the different aspects for which she was worshipped.

It is not possible to say with any certitude when exactly and in what form a goddess began to be worshipped. But explorations and excavations have brought to light various types of female figurines indicating the incipient stages of the Mother Goddess cult at a very early period. Now, all cults are essentially products of an environment, and the most primitive society being agricultural in nature the focus would naturally be on the earth as the provider of sustenance to man. The earth soon became identified with the mother principle. It may, therefore, be assumed that the earth was conceived as a goddess and hence Mother Earth could be regarded as the earliest form of the mother goddess thereby giving rise to a fertility cult. Local village traditions, too, stressed fertility which centered on the worship of local goddesses, called grāma-devatās, and vegetation figures such as tree-spirits (Yakshis).

While on the subject of motherhood, it may be pertinent to note a paradoxical fact that while the mother was greatly respected in the whole gamut of ancient Indian literature, the position of the woman was ambivalent. Only in the Vedas is woman regarded as equal to man in privileges. In most other texts woman is considered inferior to man. Thus in the Mahābhārata, the Mānusmṛiti and the Dharma Sūtras she is regarded as wicked and a source of trouble and man was advised to put a check to her. But motherhood is glorified. In the Tantras and Sāṅkhya literature, the female principle or Prakriti is
viewed as the fundamental reality, being the cause of the Universe, whereas the role played by the puruṣā, or male, is imagined. Again, the Mahābhārata regards the mother as the highest guru while both Manu and Yāgñavalkya place the mother above the guru.

Thus we see how literary data provides ample evidence for the worship of mother from which, not long before, she was deified. However, ancient Indian literature, for the most part, has had additions made to it at various points of time, so that it cannot be stated definitely in which period a certain type of a goddess came to be worshipped. For this it is necessary to examine the evidence of art and archaeology.

In India, the primary religious evidence of the worship of the Mother Goddess in pre-historic times may be traced to the large number of clay female figurines, supposedly of the Great Mother Goddess, obtained from the Indus Valley. The number and variations of these figurines on seals and on terracotas defies a conclusion regarding the nature of worship of the Mother Goddess. More so, since the Indus script has not yet been deciphered. Found along with these figurines were phallic and ring stones which, according to Sir John Marshall point to the Mother Goddess worship. Some of the figurines suggest the Earth as the Goddess of Fertility. For instance, a seal shows a nude female figure upside down, legs, apart, a plant issuing from her womb, and on the other side, figures of men and women with a man holding a knife in the attitude of supplication.

The Vedic age gave new dimensions to religion as a whole. Gods and goddesses, eulogized in hymns, came to play an important role in everyday life. A difference from the earlier periods is noticed in that gods are given a preference over goddesses. By and large goddesses had an insignificant position in the Vedic pantheon, the principal deities being male, for instance, Sūrya, Agni, Varuṇa, and so on. Female deities in most cases occupied a subordinate position, such as that of the consort of a god. It is only at a later period that a cult of the Mother Goddess, or of the Great Goddess, viewed as Śakti, evolved. However, certain female divinities were important, especially in the Rigveda as shown in the hymns. Repeated mention is found of goddesses Rātri, Ushas, Diti, Aditi, Prithvi, and others of these the goddess who emerges as an important deity with potentials for becoming a great goddess is Aditi who occupies the position as the mother
of gods. Yet, Aditi too goes into oblivion at a later stage. But references to an omnipotent goddess called Vāk occurs in the Devisūkta and the Rātri hymns of the Rigveda where she is identified with the primal energy of life. In the later Vedic period also the combined powers of all the female divinities reside in Vāk who emerges as the sole principle of creation working in conjunction with Prajpati, the father of creation, as his Śakti. Thus evolves the concept of Śakti. We may take these texts to be the earliest references to Śakti as the Supreme Goddess, to be identified later on with Durgā.

The Vedic period does not give evidences of a cult image. Some terracotta figurines representing some of Mother Goddess have been found from chalcolithic sites, but definite archaeological evidence of images of mother goddesses is found from the Mauryan period onwards. A stone disc from Taxila belonging to the Maurya-Śuṅga period, the Mauryan terracotta figurines, the Yakṣinīs, all suggest existence of the Mother Goddess worship among the common people.

It is during the age of the Epics and the Purāṇas, however, that the Mother Goddess emerges as a significant deity. From this time a relation begins to be established between the goddesses and the gods of the Hindu Trinity, the Great Goddess being worshipped as the consort of one of the three gods. In, the final stage she becomes identified with Umā, the consort of Śiva and is worshipped as Goddess Durgā. Further, this period makes an attempt to combine the attributes of all the principal goddesses in one Supreme Goddess as the source of all creation.

It is from this period that a definite concept of Śakti emerges. Thus as Dr. S. Chattopadhyay says that gradually Brāhmaṇic thinkers came to conceive one Great Mother Goddess and the different mother cults of India came to be regarded as parts of or identical with that great one. This is why there are such a large number and diverse form of the Goddess.

The culmination of the Śakti conception is found in the Devimāhātmya section of the Mārkandeya Purāṇa, more commonly known as the Saptaśati or Chāndi. Scholars are of the opinion that Devī is a composite conception of the female principle in which different ethnic and religious ideas and beliefs have combined to make it acceptable to both Āryans and non-Āryans.
The Devimāhātmya describes how Durgā evolved out of the energies of the gods. We are told about the victory of the buffalo-demon (Mahishāsura) over the gods in a terrible battle. On being apprised of it by the gods Śiva and Viṣṇu became enraged and their anger together with those of the other gods coalesced into “a peak of excessive effulgence” taking the form of a woman that prevailed the entire world. This woman is Durgā or Chaṇḍikā. She became intoxicated with power and flushed with anger and finally crushed the buffalo-demon with her foot. Hence she is called Durgā Mahishāsura-Mardini, or the slayer of the buffalo-demon.

Besides the Devimāhātmya, different versions of the battle are given in other texts such as the Skanda and Viṣṇu Purāṇas, the Arthaśāstra, Mrīchehhatikā, Kādambari, Harshkumāracharita, etc. These texts also provide descriptions to the different limbs of the Goddess which she got from the different gods, each of whom gave her part of his power. The weapons she got were to be used by the hands. This resulted in her depiction with multiplicity of hands. Also, the Goddess is primarily associated with lion who serves as her vehicle, while the buffalo being a demon is subjugated by her.

The significance of the worship of Durgā in a way indicates the victory of the soul over the animal passions. Durgā represents the soul while the asuras personify passions. Further, Durgā is the generic name of the consort of Śiva in the heroic form.

So far we have been dealing with literary data. References to the Goddess occur in many inscriptions such as the Hāthigumpha inscription of Khārvela, the Junāgaḍh inscription of Skandagupta, the Aphaśād inscription of Ādityasena, a sixth century inscription from the temple of Bhavaramātā in Udaipur district of Rajasthan, which has an invocation to the Goddess who is shown holding a spear and spearing the Asura. Two coins of the Mukhari king Anantavarman in the Nāgārjuni Hill caves refer to Devi and Mahishāsuramardini respectively. In the latter she is called Bhavani.

The earliest known specimen of the Goddess in the form of terracotta is found on two terracotta plaques from Nagar in the Tonk district of Rajasthan. These are datable to the first century B.C. or first century A.D. The deity has been contested by scholars who contend that the lion in these plaques is incongruous in such an early
figure. However, if the dating is correct, Rajasthan would appear to be the earliest centre of this cult from where it penetrated to Mathura. Mathura appears to have been an important centre of this cult in the Kushāṇa Period from which large number of specimens of the Goddess have been found.

On the question of the antiquity of the motif of the Goddess on the lion, we may note the observations made by Dr. B.N. Mukherjee on examination of certain coins. A gold coin shows a female figure with a Kharoshthi inscription referring to her as Āmpā, the deity of Pakhalavati (Pushkalavati). The expression Āmpā has been interpreted by him as referring to Āṃvā or Āṃbā which denotes both mother and Durgā, the consort of Śiva. Proofs of such an identification are given by the figure of the bull on the obverse of this coin. The date has been placed around, fourth-fifth century A.D. On a coin of Huvishka is found the word Ommo (probably Umā) by the side of a figure of an animal referred to as ‘Oesho’ (Vrisha). On another coin of the same ruler we find Nānā, the Babylonian goddess standing next to Oesho. It is well-known that the bull is considered as the mount of Śiva. Its use, therefore, with Nānā suggests that this Goddess was conceived as the consort of Śiva, that is, Umā. Representations of the Goddess are found on still earlier coins, for instance on those of Azes who ruled about the middle of the 1st century B.C.

The motif of the Goddess on a lion became very popular by the Gupta Period because its specimens in stone and terracotta have been found from all parts of the country, such as Bhitā, Ahichchhatra, Rājghat, Udaigiri caves, etc. The best known specimen of the Gupta Period is from Bhumara where she is shown with her right foot placed over the snout of the buffalo-demon. On seals and coins from this period there are various representations of the Goddess. On seals, particularly, the Gajalakshmi motif predominates. Some scholars have identified the goddess with Durga. From the Mediaeval period onwards the cult of this Goddess becomes increasingly important.

An important point that needs to be discussed in connection with the Goddess is regarding her origin. There is no doubt that the concept of Sakti, or Divine Power, has its roots in some non-Aryan goddesses. For, the powers attributed to her were not those
that were embodied in the vedic goddesses Ushas, Saraswati, Aditi, or even Vak. None of these formed the proto-type of the Mother Goddess as met with in the historic period. For, the figures and abodes of the Goddess found in this period, as also in contemporary texts, suggest primitive origin. The two Durgā-stotras of the Mahabharata clearly refer to her non-Aryan elements in describing her abode in the forests and in the Vindhya mountains. The following passage in the Harivamsa shows that the Goddess was originally a tribal deity:

"O Mahadevi, your dwelling is in the frightful mountain peaks, in caves.... crowded by cocks, goats, sheep, lion, ..... worshipped by the Savaras, Barbaras and Pulinda."

The identity of this Goddess with that in the Durgā-stotras is proved by both being associated with forests and beasts and also from references to wine and meat as favoured by Devi in the texts mentioned above. In the Purāṇas we find epithets given to her, viz., Kāli, Kātyāyani, Chaṇḍā, Vindhyavāsini while she is shown as having a predilection for meat and wine. Further, in these texts fierce qualities are attributed to her. Thus the Harshkumāracharita and the Kādambari allude to her destructive qualities when giving an account of tribes who consider human sacrifice necessary to propitiate the Goddess. Similar references are made in a text as late as the eight century A.D., the Gaudavāho of Vākpati, which speaks of a fierce mountain deity to whom human sacrifices are made by the Savaras who live there.

While the origins of the Goddess may be traced to some non-Aryan deities foreign influences too be contributed to the modern iconic features of the Goddess. As stated in a preceding paragraph, the lion motif of the Goddess is a later addition. According to Dr. B.N. Mukherjee, the idea can be traced to representations of the west Asian goddess Ishtar who has been identified with Nānā. One of the conceptions about Ishtar was that of a mother goddess. Lion was sacred to her, for she was a war goddess so that lion emphasizes her warlike character. The following following paragraph gives the observations made Dr. Mukherjee on foreign influences on the iconographic details of Durgā.

Nānā appears on several Kushāṇa coins. Nānā has been
identified both with the Sumerian goddess Ishtar and the Persian
deity Anāhita. Epigraphical records found in a temple complex
at Durga-Europos, datable to about third and second centuries
B.C. refer to Nanaia (i.e. Nānā). She also appears on the clay
votive tablets at Palmyra, while on a few seals from the same
place are found the figure of Ishtar. The lion of Nānā and the
inscription ‘Nanaia’ can be noticed on some coins found in the terri-
tories on the Oxus. These are datable to a period before the rise of the
Kusānas empire. Thus the cult existed in the territories that were
later included in the Kusāna empire or in those regions with which
the Kusānas had trade contacts. The Kusāna period was an era of
extensive trade and commerce with the West. This contributed to a
fusion of ideas in social, cultural and religious spheres. This is noticed
in the coin of Huvishka mentioned earlier where Nānā is placed by
the side of an animal called ‘Oesho’, referring to Śiva, thereby alluding
to a fusion of the concepts of Nānā and Ambā (Umā).

From the above discussions, it is evident that the history of the
cult of the Mother Goddess begins from the time when society was in
its most primitive stages, the form and worship of the Goddess corres-
ponding to the beliefs held by the people of these times. In the Vedic
period the same respect was not accorded her. But from the post-
Vedic period onwards she emerges as an important deity and is repre-
sented in numerous sculptures and coins apart from literature. During
these periods a relationship is established between the Goddess and the
three gods of the Hindu Trinity. From the Gupta Period onwards she
becomes increasingly identified with Durgā, the slayer of the buffalo-
demon Mahishasura, from when she begins to be worshipped as
Durgā-Mahishāsuramardini, and is regarded as the Supreme Deity.

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THE study of paintings as a source for history presupposes certain methodological problems. This is because the historians trained to read records as narratives of the past mainly focus on the changes in the economic base and its corresponding political superstructure. When using paintings as a source, they are confronted with certain constant elements in its structure like lines, colours etc. which do not always respond to the changes in the economic bases of its production. It is these autonomous moves in the artistic logic which pose certain problems for the historians.

Yet in response to contemporary demands more and more historians are turning to art as additions to the archival sources of history.¹ But it is the more imaginative among them who do not look upon it as a photograph but as a record of a defined social relationship between artists and patrons.

Their task is made more difficult by art historians who limit their observations to the formal aspects of the art product, noticing in every slight stylistic change an entire transformation in the superstructure. A solution to the problem lies in a more comprehensive study of the art object itself. This necessarily involves a careful analysis of three basic factors—one, the economic basis of artistic production; two, its links with the dominant ideology and three, the particular mode of handling lines, colours etc. which alters in given historical conditions.

I

The paintings under survey were commissioned and produced in
the Mughal Court. In the pioneering studies made by Lawrence Binyon, Thomas Arnold and others, the Mughal paintings were situated within the large framework of an Islamic culture. The problem that arose, centered round the question of historical specificity. In Percy Brown's work the studies of Mughal painting returned to the specific area of Mughal experience. Since then most scholars have used Percy Brown as a model and catalogues of Mugal painting scattered in various collections are still being made on the lines suggested by Brown.

Mughal artists used more illusionist methods (after 1580) following the European examples which arrived in the Mughal court and historians studying these paintings have tended to accept them as photographic records. This ignores the problems of how and why the stylistic changes occurred. A total break with the previous perception scheme needs to be analysed more carefully as it indicates a change in the cognitive powers of an entire community. However, the previous studies of Mughal painting have at best posed the problems of patronage, unfortunately leaving out the more basic question as to how social experiences are transformed into an artistic language which is understood by the contemporary audience.

In this brief paper, I would like to show how Mughal painting reflected the perception scheme of a small ruling class and how the stylistic transformations can be read as a challenge to certain basic assumptions, maintained by this (Mughal) ruling class till 1580 A.D.

II

The stylistic transformation in Mughal painting began when Mughal patrons started commissioning illustrations of royal biographies and official chronicles of their reign. It not only broke away from existing artistic conventions but posed a challenge to Islamic religious norms. The first step taken in this direction was by Akbar who used paintings as a medium of royal propaganda, depending upon art to visually enforce the ideology of the ruling class.

In commissioning illustrations of historical works (specially the three illustrated versions of the Baburnama, the single copy of the Khandan-i-Timuriya along with his own biography written by Abul Fazal—the Akbarnama) Akbar had to take an ideological stand
against the existing Islamic ban on representation of living beings. He declared, "there are some who hate painting but such men I dislike. I think the artist has his own means of recognising God." The discovery of some wall-paintings in the Lahore fort reveal that Jehangir was aware (like his great ancestor) of the potentials of murals as propaganda. Yet in spite of this, the Mughal emperors who, except Aurangzeb, remained involved patrons of arts favoured miniatures on a small format usually painted on paper and these have remained as the main examples of Mughal court art. Generally executed in a technique known as gouache (i.e. a mixed medium of oil and water colours) these miniatures were perishable objects; by no means suitable for propaganda on a large scale. It was meant for intimate viewing, and had to be limited to a restricted circle of the omrahs at court. Yet the fact that the illustrations of royal biographies and official chronicles continued up to the eighteenth century, often extending to two or three copies, suggest that these were being circulated and utilized to project the approval of self images of the Mughal emperors. The audience, however small, remained significant as members of that elite group who were the main recipients of the extracted social surplus in the form of revenue. (Recent research has shown that during the period of Akbar 82 percent of the entire net revenue resources of the empire was appropriated by just 1,071 persons.)

Since the Mughal empire rested on an elaborate apparatus of coercion, the small ruling class who supported it, demanded as patrons, their rights to express their own ideology through art. The artists attempting to transform their lived experience into a figurative language depended heavily upon the guidance of their patrons. As a result, the style which came to be accepted as 'Imperial Mughal painting' mainly reflected the 'perception' of this privileged group.

The new style painting evolved after 1580. It was influenced by examples of European art i.e. both oil painting and miniatures brought to Akbar's court by the Christian missionaries and European merchants. The close imitation of nature, which was central to European art, provided new artistic models for Mughal artists in their hunt for images. The propaganda inherent in the Christian allegorical paintings and the state portraits of European monarchs (from Spain, Portugal
and even England) was realized by both the patrons and artists in the Mughal court.  

During this period (after 1580) a departure was brought about in the composition of Mughal painting by the discarding of heavy contrasting colours, the schematic placing of figures on a flattened picture space and the general creation of a romantic pictorial order necessary for the illustrations of Persian literature and Hindu epics. This kind of a marked change in the perception scheme of a people presupposes the adoption of a new set of ideological assumptions following a change in the social order. With Akbar’s declaration of Subh-i-kul (i.e. Peace for All) a more rationalist approach permeated the intellectual activities of his court. Abul Fazal’s chronicle now depended upon actual historical events of Akbar’s reign and a detailed description of the emperor’s daily routine. Though divine sanction was perceived as the source of imperial power, its exercise was seen to be on earth and through well thrashed out secular laws and conventions.

The artists commissioned to both construct and project this image of “the shadow of God” on earth, did it through a judicious combination of symbols with accurate drawing of physical feature and facial expressions. The artistic model of European portraits, which provided the scheme—a profile framed in a square border was juxtaposed against the artist’s actual visual experience of the emperor at the window granting ‘Jharokha darshan.’ By transforming the living emperor into a secular icon the Mughal artists fulfilled the patron’s demands. They also overcame the artistic constraints on narrating a story without an iconography.

III

“Zilla Ellahi (the Shadow of God) King of Kings, the lighter of all the lamps of the universe . . . evaluator of the artists talents like the true jeweller, the men are lucky who are promoted by him”11. . . . Though specifically referring to Akbar, these metaphors (minus the royal titles) were applied to all the Mughal patrons.

By contemporary definition this Mughal patron was an Omrah (i.e. a noble man) whose social role was manifest in the fabulous lifestyle which he maintained, commanding the services of numerous
craftsman working in their household workshops. The emperor and the Mughal noble enjoyed exclusive rights over the luxury objects thus produced. It was the use of these specially manufactured arms, jewellery and clothes which distinguished the Mughal *Omrah* from the man of the street. When drawing his portrait, the Mughal artist was, therefore, careful to emphasize these clothes and gestures which served as the overt signs of class.

As members of a small ruling class, the Mughal nobility claimed a large share in the extracted surplus as revenue. Under Akbar 18.59 percent of this total *jama* (i.e. the assessed revenue) was concentrated in the hands of the top twelve *Mansabdars*. Following the example of the emperor about two thirds of the household budget of the nobility was spent on craft production; i.e. mainly those skill consuming articles like clothes, jewellery and perfumes. This also spent a lot of money acquiring rarities. Yet it was this trait of the Mughal nobility to acquire and consume all that caught their interest that also made them important patrons of the arts and therefore the main architects in the erection of a specifically Mughal courtly culture.

IV

From their inception in the Mughal court the portraits, more than any other genre of painting, represented the powers of the Mughal ruling class. The earliest portrait studies which have been discovered are those found in the illustrated versions of the *Akbar-nāmā*. Interestingly, no single portrait of the Akbari period has been discovered, though Abul Fazal mentions that an album containing the portraits of the "grandees of the realm" had been prepared on Akbar's command.

On the three illustrated versions of the *Akbar-nāmā*, those reserved in the Victoria and Albert Museum, London, clearly testified to that vitality which had permeated Mughal painting after 1580. Here the mimetic principles of portraiture were followed to distinguish each Mughal courtier. But each single illustration added extra meanings to the text by allowing the viewer to relive the experiences of those "glorious events" in which the patrons and artists had both participated.

One of the best examples of this pictorial reconstruction is the
depiction of Abul Fazal offering his work to the emperor. The entire picture space is here divided into three tiers. In the centre is a raised dias where on a throne (the highest level in picture space) sits Akbar. Abul Fazal sits at his feet holding open the book. While Akbar speaks, the entire court turn their full attention to him. Here the artists, with all the skill at their command, by depicting the animated figure of the emperor as the centre of the composition, fixed the viewers full attention to him. However the artists have not only reinforced Abul Fazal’s description by allowing the viewers’ attention to remain riveted to the emperor while the rest of the courtiers merge into the colourful mosaic of the pictorial design, they have also added their own interpreter to the narrative by focusing on those aspects of the emperor’s personality which commanded the respect of his subjects—he was here reason and tranquility personified. In the eyes of an observer—“he creates an opportunity almost everyday for any of the common people or of the nobles to see him and to converse with him. It is remarkable how great an effect this has in attaching him to the minds of his subjects.” All these were in art changed to a metaphor which Akbar through a number of symbolic acts established as indispensable for the image of a good and just ruler.

The contracts which highlight the august persons of the emperor and his nobility are the representations of toiling men. In a double page illustration depicting the building of Agra Fort we see a scene of bustling activity of men and women at work. Here the animated figures of animals drawing the carts are as energetic as that of the men and women carrying loads of mortar and brick up the makeshift ladder. The three tiered division of the picture space is utilized here to carrying on the narration of creating the stronghold of a huge empire. The story moves on from the bottom of the page, spiraling up as men and women acquire the supplies brought in by boats and animal carts to carry it to the top where the wall of the great fort is being completed. Here the half-naked bodies of labourers mark the difference in their social position from those of the well-clad royal officials who supervise their work. But none of these figures command that complete attention of the viewer as in the representations of the emperor in court.

If the emperor is hailed as the ‘Source of light’ due to the
benevolent face which he presents to his subjects, his real authority is invested in his ability to punish. In the illustration of the punishment of Adam Khan, Akbar’s foster brother, we perceive Akbar as the just avenger of rebels for as pointed out by Abul Fazal to challenge or destroy the emperor’s person who was to challenge the imperial symbol for the emperor and his empire was united.

The picture space divided into the conventional three tiers has a staircase connecting the topmost level with the courtyard. This is used as a symbol of passage to power. The punishment of Adam Khan is perceived as a cinematic scene. The structures of the Zenana mahal from the backdrop which breaks and monotony of the flat surface. The dramatic moment hits the viewer with an immediacy as the enraged emperor is seen emerging from the Zenana mahal. The women rush out from behind, and the two noble men bow before him. The emperor with awe inspiring majesty commands the two officials who throw Adam Khan down to his death in the courtyard below. The dramatic action proceeds through serialized motion ending with the broken figure lying in a pool of blood on the flagged stones of the courtyard.

The falling figure of the unfortunate nobleman is shown with his head down arms and legs thrashing in the air and is depicted shorn of all his dignity. The staircase placed parallel to the falling figure marks the speed of the descent while the panic stricken fleeing figures in the courtyard from the scene of disaster heightens the dramatic element of the incident depicted. The painting no longer serves as an illustration, it intervenes and the artist’s perception is added to Abul Fazal’s narrative affording the viewers a different version of reality. Adam Khan’s death is symbolised as the fall of a powerful Omrah from grace. The painting represents Akbar as the incumbent of that infallible unchallengable authority which Abul Fazal outlines in his eulogies of Akbar’s genealogy.

The demands on the Mughal artists were increased by Akbar’s successors in their attempts at propagating their legitimate rights. In Jehangir, Akbar’s son, we have all qualities of a true patron. The latter claimed to be able to recognize the brush strokes of each of his artists. Realizing the importance of paintings as a medium of expression Jehangir commissioned a number of allegorical portraits which have been aptly termed as ‘mythopoetic allegories of his kingly role’.
In the scattered illustrations of the Tuzuk-i-Jehangiri are to be found these interesting portraits of Jehangir which add to the literary text. These portraits project the approved self image of the emperor. In a double page illustration surmised to be the frontispiece of the literary text, Jehangir is seen to be receiving the globe from the hands of a dervesh.22 Both figures clothed in bright and luminous colours—white, orange and yellow—gold emerges from the dark background creating a dramatic impact upon the viewer. The figures mainly by the clever handling of light coloured pigments appear to be lit up by an inner light. The halo adding to the other symbols assembled round them like the globe, keys, turban-jewels emphasize the divine authority claimed by the Mughal rulers.

A painting reserved in the Chester Beatty Library, Dublin shows Jehangir standing on a globe, shooting at the pierced head of Malik Ambar, the Abyssenian minister, who held Jehangir at bay in the Deccan. The two angles derived from European paintings are seen handing the weapons to the emperor. They obviously signify divine sanction to the act. The many superscriptions on the painting reveal that Jehangir, by virtue of his descent, claimed divine sanction to the killing of Malik Ambar. History testifies that Malik Ambar died of sickness in 1626. His resistance and the result of Jehangir’s frustration in the Deccan made the emperor commission ‘Abul Hasan’, one of his favourite painters to execute this painting.23

A painting which is similar in composition to the killing of Malik Ambar is ‘Jehangir shooting at Poverty.’24 Here Jehangir stands on a globe, an aged man holds up a book in his hand. He is identified (through the inscriptions on the painting) as Manu, the Hindu law giver, while Jehangir shoots an arrow into the eye of a dark monster-like man who is supposed to symbolize poverty. The claims of justice and the presence of angels holding up weapons once again illustrates how the symbols from diverse sources formed part of the Mughal artists vocabulary. A complex visual language was created as the artists strove to meet the demands placed upon them by their patrons.

In this same series of impossible feats are two more paintings. In both Jehangir is seen with Shah Abbas, the ruler of Iran. The first painted by Abul Hasan shows Jehangir embracing Shah Abbas as the two men stand on a globe showing the maps of India and Iran. Two
European angel-heads support a huge golden-sun and a sickle-moon signifying ‘Nuruddin’, the name adopted by Jehangir when he assumed the throne.  

The second painting by an anonymous artist shows Shah Abbas being entertained in a royal feast. Attending the two emperors are Asaf Khan (Jehangir’s brother-in-law), Khan Alam, the ambassador to Iran and Jehangir’s chief falconer. Above the head of the two seated rulers is a huge golden shield composed of seals of Jehangir’s ancestors up to Timur held up by two European type cupids. These portraits show that a new genre of allegorical paintings were becoming popular in the Mughal Court.  

During Shah Jahan’s reign these allegorical portraits became a convention. In fact as ordinary portraits were reduced into line drawings with the illusive techniques applied mainly to the facial features, the allegorical portraits increased as the major examples of state portraiture.

V

If portraits are accepted as the faithful reconstruction of a relational model and not merely as an accurate record of a visual experience, then the formulating process of type portraiture in Mughal painting becomes clear. Produced mainly due to the demands of aristocratic patrons the Mughal artists began to hunt for visual images to narrate the stories of courtly grandeur. The court served as the centre of their experience. Since they were economically supported by their noble patrons and instituted in the noble kārkhanas, the entire process of artistic production was controlled by this small ruling class to propagate their own ideology. The court artists subscribed to this dominant ideology whatever their own social position, and became mediators between the rulers and the subject people.

Judged by the parameters of artistic necessity, these portraits served as the nucleus of that iconography which Mughal painting required to survive and develop. Yet Islam forbade all kinds of figurative representations. Archaic objects and sacred rites were invested with historical background to be revalued in art but these retained strong symbolized allusions which were used as starting points by the Mughal artists. From the period of Akbar the process was reserved.
It were the historical incidents which were to be utilized for the illustration of royal power and transformed into visual symbols. This was more apparent in the last twenty-four years of Akbar’s reign. He had spent it to develop an eclectic cult and his biographers projected him as a semi-divine or super-human being. Jehangir dismissed the cult and retained its details. In the reigns of his successors as fratricidal wars continued and courts started teeming with ambitious nobles, the Mughal emperors needed to boost up the popular belief in their divinity, and as noticed in the portraits under discussion the artists using all the means at their disposal projected these self-approved images of the ruling class.

NOTES AND REFERENCES

1. Carlo Ginsburg: *The Enigma of Pierro*, Verso, 1985. A noted historian Carlo Ginsburg has taken up ‘Iconography’ in Pierro della Francesca’s works as clues to the political history of the period. The work is interesting for the model which the author provides.


These are only a few among the many attempts attracting the Mughal paintings which are being continued.


11. Abul Fazal, *op. cit.*


15. *ibid.*


19. *ibid.*, Pls. 31-32.


20. *ibid.*, Pl. 25.


SOME DISQUIETING FEATURES OF INDIAN ARCHAEOLOGY

D.K. GANGULY

In a country like India where regular, ancient historical chronicles, comparable to those of Greece and Rome, baring, no doubt, the solitary exception of Rājatarāṃgīnī of Kalhaṇa, are conspicuous by their absence, archaeology has assumed enormous importance, and even in those countries where early historical works are available, archaeology, in alliance with other disciplines like palaeontology, ethnography, anthropology and geology extends written history backwards by enabling the historian to ascertain how man from the stage of a hunter and gatherer, moving from place to place in small groups, had succeeded through millennia in organizing social life, promoting civilization and constantly attaining a gradual and progressive development, notwithstanding temporary retrogression. Archaeology is further conceived as being more accurate than literature. Whereas literary documents seldom portray a historical process or phenomenon in a definite, objective manner, as they are invariably coloured by the opinions and prejudices of their authors, the material remains, barring the eulogistic royal praśastis, present themselves in their pure, unsullied form and serve as an important key to the understanding and interpretation of the material culture of the people who fashioned and used them centuries earlier. It is this comparative freedom from subjectivity that has lent special significance to the archaeological data. Further, unlike the literary source that has been fairly exhausted and explored and is seldom expected to yield anything significant unless read a new from a new perspective, the vast majority of the archaeological treasure still lie buried unceremoniously underneath the earth.
As is commonplace, Indian antiquities, ranging from the crudest of the crude palaeolithic artifacts to the masterpieces of art like the Taj, admit of being classified into prehistoric, proto-historic and historic ones, appearing from the days of savagery, civilization and history respectively. Prehistoric antiquities have further been divided into palaeoliths, microliths and neoliths, and the first further admit of the three-fold sub-division of early or lower palaeoliths, middle palaeoliths and upper palaeoliths. A study of the lower palaeoliths discloses that during the early Stone Age man was a savage, a hunter-gatherer who subsisted largely on fruits, roots, grubs and game. The microliths attest to the continuity of the hunting stage but pre-suppose technical advancement in the form of the introduction of tiny, and yet composite tools like stone-teeth sickles, used, in all probability, for cutting stalks of wild grains like barley and wheat. The neoliths show how man successfully came to domesticate animals, make pottery, practise agriculture and set up some kind of permanent habitation. The proto-historic antiquities include the simultaneous assemblages of neoliths and a small quantity of copper artifacts, vouchsafing for a still advanced culture when the people, inhabiting the areas of their provenances, were accustomed to the use of copper objects which were either imported or indigenously manufactured, and implying what may tentatively be called an incipient chalcolithic phase, while the vast majority are comprised of those of the mature Copper Age, represented by the Indus Civilization, extending over the Punjab, Rajasthan, Gujarat and western Uttar Pradesh, and characterized by the invention of writing, knowledge of smelting and alloying of copper, intensification of urbanization, development of planned cities and brisk internal and external trade. In the category of the protohistoric artifacts are also included those, associated with various cultures like the Gandhāra Grave culture (circa B.C. 1500-500), Banas culture of south-eastern Rajasthan (circa B.C. 2000-500), Ochre Colour Pottery Culture of the upper Gangetic valley (circa B.C. 1400-1200), Kayatha-Malava Culture in western Madhya Pradesh (circa B.C. 2000-600), Jorwe Culture in western Maharashtra (circa B.C. 1200-800) and the Painted Grey Ware Culture (circa B.C. 1100-400), some showing their familiarity with iron technology at subsequent dates. With the introduction of the historical period to Indian history in the sixth century B.C. are encountered,
besides the lithic, earthen and metallic objects, new materials in the form of coins to be complemented at still later dates by epigraphs and monuments enabling the historian to trace man's relations with his environs with a greater amount of accuracy and precision.

As observed earlier, the importance of the archaeological materials as a source for reconstructing the prehistory and protohistory of the subcontinent is indisputable, and yet due to some inherent deficiencies which characterize them, they have more often than not proved to be inadequate in dispelling darkness altogether, giving rise, in consequence, to a series of controversies on various vital issues concerning the past. Qualifying a culture or civilization by a chronological bracket is of paramount importance for the proper understanding and assessment of that culture or civilization but chronology has remained to be one of the areas where archaeology has often proved to be vulnerable especially on the crucial question of absolute dating.

In the absence of more definite date the startigraphical evidence is usually employed to date a particular culture or civilization. What is, however, ultimately achieved in the process, is relative rather than absolute, chronology. A particular chalcolithic site like Navdatoli in Nimad district, Madhya Pradesh, for instance, may be divided into a few sub-periods on stratigraphical grounds but unless Carbon\textsuperscript{14} dates or other definitely datable objects are available, no specific date is postulated for the commencement of the given culture. Even Carbon\textsuperscript{14} dates are not mathematically accurate, for, they invariably allow a chronological margin in either way.\textsuperscript{1} In such a situation any attempt at fixing an absolute date for a given culture or civilization is likely to evoke a series of controversies as is the case with the Indus Valley Civilization. The various dates like B.C. 3000, B.C. 2500 and B.C. 2300, suggested by competent authorities\textsuperscript{8} as marking the beginning of the civilization vouchsafe for a gap of seven hundred years which is likely to persist till the earliest stratum of Mohenjodaro, Harappa and Lothal yields Carbon\textsuperscript{14} samples. The theories, placing the end of the civilization prescribe dates between B.C. 1700 and B.C. 1500 but what is worth noticing in this context is the fact that the sample from a top level like the one at Kalibangan, providing the date 3510±110 B.C. = 1560 does not mark the termination of civilization but merely bears witness to its continuity. Indeed, not only the Indus Valley Civilization but
also other prehistoric and proto-historic cultures of India do not strictly admit of absolute chronology. When Carbon\(^{14}\) samples do not present themselves, the gap between the exact and estimated dates of a particular site or artifact, especially of those related to the palaeolithic phase, is comparatively large, widening gradually with the regression of time. This explains why archaeologists speak in terms of thousands and millennia while tracing the life of Early Man in northern and peninsular India.

As is the case with absolute chronology, the question of the authorship of the various prehistoric and protohistoric Indian cultures, likewise, cannot be adequately explained with the help of the available materials. An important key to the identification of the occupants of the prehistoric and protohistoric sites in India or ascertainment of their affinity with one or other ethnic group lies in a fruitful examination of the skeletal remains by physical anthropologists and a careful analysis of the artifacts but the relevant data are in most cases too inadequate and confusing to warrant for an unanimous contention. The absence of any skeletal remains from the assemblage of the lower and middle palaeolithic industries has rendered the task of ascertaining the racial affinity of Early Man in the subcontinent difficult, and when, on comparison, the lower and middle palaeolithic industries in India are found to provide many typological parallels in Africa, Europe and other parts of Asia, one is intrigued to identify Early Man, for the alleged similarity may be attributed to either coincidental factors, as suggested by Bridget and Raymond Allchin or migration of Early Man or ideas to the subcontinent—a possibility which H.D. Sankalia was inclined to admit. Notwithstanding a few skeletal remains it has not yet been possible to trace with definiteness the ethnic and racial strains in the population of Mohenjodaro, Harappa, Kalibangan and Lothal. Attempts have been made to identify the groups of people with the Veddoids (or Australoids), proto-Nordics and Alpine-Armenoids but this is no means definite, and the veil of obscurity that enshrouds the authorship of the Harappan Civilization is not completely lifted when it is cryptically asserted that ‘the population in India during the Harappan times descended from earlier population in the same region’. The position still worsens in the case of the protohistoric Aharians who are variously identified with the Aryans, non-Aryans, pre-Aryans and
a group of a mixed character. The instances of this kind may easily be multiplied. It is admitted on all hands that Cemetery H culture at Harappa is chronologically posterior to the mature Harappan. But it is still undecided whether the people of Cemetery H were the same as the earlier settlers at Harappa and Mohenjodaro or were an alien people that had immigrated into this area. In the absence of more appropriate nomenclature the various prehistoric and protohistoric Indian peoples are usually designated by their distinctive tools or the names of the localities they lived in.

It hardly escapes notice that the conclusions derived from the available materials are in some cases likely to be invalidated by later discoveries. What seems to be convincing at the present state of our knowledge may subsequently prove to be outmoded. Our ever changing knowledge about the spatial extent and survival of the Harappan Culture, consequent upon the destruction or abandonment of Mohenjodaro and Harappa owing to floods, invasions or other unascertained causes, in tune with the progress of archaeological excavations in Rajasthan, Gujarat, the Gangetic valley and the Deccan would illustrate this point. Likewise, the date of the introduction of iron technology to the subcontinent has been pushed back to a few centuries earlier from its original hypothetical date in the eighth-sixth centuries, B.C.

A careful investigation into the functional aspect of the various prehistoric and protohistoric objects which were the very tools and instruments of production of the society which fashioned them, is likely to shed interesting light upon the manifold aspects of the life of man that no written document describes. Although the use of most of the antiquarian objects has been exactly determined, archaeologists are not as yet unanimous about the precise nature of the function of some other objects. The use of the handaxes of the lower palaeolithic phase, for instance, forms a subject of keen controversy among scholars, some identifying them as weapons, used in chasing big game, and for protecting oneself against various enemies, and others believing them to have been employed in procuring vegetables and grubs. Whereas the first alternative would represent the handaxe man as a hunter, the latter would make him a simple food-gatherer. There is a third suggestion identifying the handaxe as a truly all purpose tool,
implying thereby that the user of the tool was both a food-gatherer and hunter. The following table shows how scholars have reached contrary conclusions on the possible use of some antique relics by the ancients.

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<th>Sl. No.</th>
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<th>Different views about the functions of Objects</th>
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<td>Sub-rectangular brick-built huge basin at Lothal</td>
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<td>Joint burials in Phase III at Lothal</td>
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<td>A structure, covering an area of 1930 sq. meters at Lothal</td>
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<td>Spherical stones with one or both ends flats, right at the top and bottom, at Piklihal, Tekkala Kota, etc.</td>
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<td>E.</td>
<td>Headrest-like concave objects at Hallur, T. Narsipur, Piklihal, etc.</td>
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<td>Ringstone-like small objects, about 3 inches in diameter, at Navdatoli, Nevasa, etc.</td>
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<td>G.</td>
<td>Anthropomorphic figures in the Copper Hoards of the OCP period.</td>
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<td>Copper antenne swords at Patan and other chalcolithic sites</td>
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Of what is called historical archaeology, a major part is, doubtless, formed by inscriptions, shedding light upon various facets of the history and culture of the Indian people during the ancient and mediaeval periods in such a manner as is hardly provided by literature or any other source. Nevertheless, the historian, while utilizing the epigraphical evidence for reconstructing Indian history and culture, is faced with several problems some of which may briefly be noticed below.

An outstanding demerit which is noticeable in a large number of inscriptions is the absence of the mention of any date in these records. Amidst the thousands of Indian epigraphs there is possibly none that can match, in point of importance, Samudragupta’s famous Allahabad pillar inscription which, also unfortunately, does not refer to any date with the result that none of the various colourful events of the reign of the illustrious Gupta emperor can be dated with any amount of precision. Some of the records are, no doubt, dated in the regnal reckoning of the reigning monarchs but since their corresponding dates in a known era remain unknown, they can only be approximately assigned to a period, rather than to a definite date. Even in the case of the dated records errors arising out of mistaken astronomical calculations have often crept into the details of the dates in such a manner as to render their chronological account highly improbable. Cases are on
record to illustrate that the dates, when given, are couched in such ambiguous expressions as admit of a couple of equally plausible interpretations.  

Exaggerated statements are met with quite frequently in Indian epigraphs where the achievements of kings are often magnified beyond limits, defeats are generally suppressed or coloured by Imaginary victories, realistic statements are replaced by conventional claims, friendly acts are deliberately construed as tribute, and historical accuracy is wistfully sacrificed at the altar of rhetoric embellishment. The statement of the Mahakuta pillar inscription, crediting the Kalukya king Kirtivarman I (circa A.D. 566-98) of Badami with victories against the rulers of Vaṅga, Aṅga, Kaliṅga, Vaṭṭura, Magadha, Madraka, Kerala, Gaṅga, Mūṣaka, Pāṇḍya, Dramila, Coliya, Āluka, and Vaijayanti, and running counter to the testimony of the Aihole praśasti where Kirtivarman I is alleged by his illustrious son Pulakeshin II to have inflicted a crushing defeat upon the Nalas, Mauryas and Kadambas, provides us with an illustration, out of numerous ones, where poetic imagination has triumphed over historical accuracy.

The fabricated version of royal genealogies is not infrequent in Indian epigraphs which occasionally testify an unscientific tendency on the part of their royal issuers, not excluding aboriginal potentates, to trace their descent to mythical and imaginary personages or to some epic families like the solar, lunar and Yādava houses, and to claim relations with some erstwhile rulers who were in no way associated with them. Such a distorted account of the royal genealogy is preserved in the Gaṅga inscriptions where the origin of the Orissan Gaṅges is traced to the god Viṣṇu through his navel-born son Brahman, mind-born son Atri, eye-born son Candra, his son Buddha, his descendants Pururavas, Āyus, Nahusa, Yayāti and Turvasu and their connection with the Gaṅgas of the Gaṅgavāḍi-visaya in Karnataka is highlighted with the insertion of the names of Kolāhala and his successors in the list of the kings between Turvasu and Guṇārṇava, the supposed progenitor of the family. It is doubtful whether the Orissan Gaṅgas were the lineal descendants of their southern namesakes, for, whereas the former claimed to have belonged to the Ātreya-gotra, the latter fondly associated themselves with the Kāṇvāyana-gotra. The eagerness of the king Anatavarman Cōḍagaṅga and his successors to claim
descent from the god Viṣṇu had, in all probability, its genesis in the
elevation of the god to the status of the presiding deity of the family
and kingdom at the expense of the god Śiva.¹⁴

More often than not are encountered in inscriptions such
ambiguous expressions in the course of the description of
kings and events as baffle a clear, definite interpretation. The Manahali
grant of the Pāla king Madanpāla, for instance, while referring to
Gopāla III uses the expression Kṛiṣṇa-paṭala-pāṇi and dhātri-pālana-
ṛmbhamāna-mahimā which A.K. Maitreya and others have interpreted
to mean that the king died in his childhood when he was being
reared by his nurses. This has been opposed by D.C. Sircar¹⁶ who
interprets the term dhātri in the sense of the earth and takes the rele-
vant verse to imply Gopāla III’s accession to the throne in his
boy-hood. D.C. Sircar in support of his contention refers to the
Rajibpur image inscription which is alleged to have been issued in the
fourteenth regnal year of Gopāla III. Since the attribution of the
Rajibpur image inscription to Gopāla II is not entirely ruled out,¹⁸
and a more positive evidence in favour of Gopāla III’s rule of four-
teen years is conspicuous by its absence, doubt continues to enshroud
the exact meaning of the relevant verse of the Manahali copper plate
grant.

It is worth observing that contradictory versions about one and
the same event are occasionally found to occur in the inscriptions of
the same dynasty. The Dasgoba copper plates¹⁷ of circa A.D. 1198 fix
the Gaṅga king Kāmārṇava’s accession to the throne as the Śaka year
counted by nanda (9), ṛtu (6), vyomā (0) and candra (1) which, accord-
ing to the vāmagati principle would be Śaka 1069, corresponding to
circa A.D. 1147. This is contradicted by the later charters of the family
wherein vedas is mentioned in the place of nanda through copyist’s
error, and Kāmārṇava’s accession is wrongly made five years
earlier.

Wear and tear through centuries have cast their disastrous im-
prints upon inscriptions by wiping out some of their portions com-
tely, and giving rise, in consequence to heated controversies among
epigraphists on the reading of the mutilated portions. There is no
gainsaying that the conclusions, based on such questionable readings
are in the generality of cases, speculative in nature. Badly damaged
verses 4-7 of the Allahabad pillar inscription stand in the way of ascertaining the exact nature of the trouble brewing at the commencement of or prior to Samudragupta’s reign, the lacunae in the Mathura pillar inscription hardly enables one to determine the exact date of Candragupta III’s accession to the throne, and the gap in the Bhitari pillar inscription deters the proper identification of the adversaries who had almost imperilled the Gupta dominions during the closing years of Kumāragupta’s reign.

Mention may be made of the unethical practice of forging antique documents like inscriptions, wistfully committed by interested parties. It is well-known how the Rummindī stone pillar inscription of the Mauryan emperor Aśoka (circa B.C. 272-232) was enthusiastically forged in the early years of the present century to propagate the Oriya origin of the Buddha. The fraudulent practice of counterfeiting inscriptions and coins for monetary gains still persists.

Inadequate familiarity with inscriptions has often led to the formulation of erroneous hypotheses which without being discarded are treated as sacrosanct facts. An illustration is likely to make the point clear. It is sometimes argued that the inscriptions referring to grant of land do not occur in any appreciable number until the Gupta period and that there has been a steady increase in the quantum of inscriptions, referring to endowment of land from the post-Gupta Period onwards. The acceptance of this assumption has given rise to so many hypotheses as the gradual weakening of royal power, disinterestedness of the Brahmīns in government services, gradual importance of the Kāyasthas in the bureaucracy, decline in the use of coins and like. The following tables, based on a comparative study of the inscriptions of three different dynasties, each separated from the other by a wide chronological margin, would demonstrate in no uncertain manner how the popular notion of a gradual increase of epigraphic references to gifting of land is not valid for at least the Śatavāhana, Gupta and Pāla kingdoms.
Table 1
(Showing that out of twentythree Śatavāhana inscriptions seven record grant of land)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Inscription</th>
<th>Reference</th>
<th>King/Queen</th>
<th>Grant of land</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nasik cave ins.</td>
<td>EI, VIII, 93</td>
<td>Kṛṣṇa</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Nasik cave ins.</td>
<td>EI, VIII, 91</td>
<td>Śakti Śrī</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Nanaghat cave ins.</td>
<td>SI, I, 192</td>
<td>Nāgārika</td>
<td>X</td>
</tr>
<tr>
<td>4-5</td>
<td>Nasik cave inscriptions</td>
<td>EI, VIII, 71, 73</td>
<td>Gautamiputra Śatākarni</td>
<td>Plots of land</td>
</tr>
<tr>
<td>6</td>
<td>Karle cave ins.</td>
<td>EI, VII, 64</td>
<td>-do-</td>
<td>-do-</td>
</tr>
<tr>
<td>7</td>
<td>Amaravati ins.</td>
<td>ASSI, I, 100</td>
<td>Vāsiṣṭhiputra Pulumāvi</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>Myakadoni rock ins.</td>
<td>EI, XV, 155</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>Nasik cave ins.</td>
<td>EI, VIII, 59</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Nasik cave ins.</td>
<td>EI, VIII, 60</td>
<td>-do-</td>
<td>one village</td>
</tr>
<tr>
<td>11</td>
<td>Nasik cave ins.</td>
<td>EI, VIII, 65</td>
<td>-do-</td>
<td>-do-</td>
</tr>
<tr>
<td>12</td>
<td>Karle cave ins.</td>
<td>EI, VII, 61</td>
<td>-do-</td>
<td>-do-</td>
</tr>
<tr>
<td>13</td>
<td>Karle cave ins.</td>
<td>EI, VII, 71</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>Kanheri cave ins.</td>
<td>ASWI, V, 86</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>Sanchi stūpa ins.</td>
<td>EI, II, 88</td>
<td>Vāsiṣṭhiputra Śatākarni</td>
<td>X</td>
</tr>
<tr>
<td>16</td>
<td>Nanaghat cave ins.</td>
<td>JBBRAS, XV, 313</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>17</td>
<td>Kanheri cave ins.</td>
<td>ASWI, V, 78</td>
<td>Queen of Vāsiṣṭhiputra Śatākarni</td>
<td>X</td>
</tr>
<tr>
<td>18</td>
<td>Amaravati ins.</td>
<td>ASSI, I, 61</td>
<td>Śivamaka Śāta Purport uncertain</td>
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(contd...)
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<tr>
<th>Sl. No.</th>
<th>Inscription</th>
<th>Reference</th>
<th>King/Queen</th>
<th>Grant of land</th>
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<tbody>
<tr>
<td>1</td>
<td>Allahabad pillar ins.</td>
<td>CII, III, I</td>
<td>Samudragupta</td>
<td>X</td>
</tr>
<tr>
<td>2</td>
<td>Eran stone ins.</td>
<td>CII, III, 18</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Nalanda cp.</td>
<td>SI, I, 270</td>
<td>-do-</td>
<td>two villages</td>
</tr>
<tr>
<td>4</td>
<td>Gaya cp.</td>
<td>SI, I, 272</td>
<td>-do-</td>
<td>one village</td>
</tr>
<tr>
<td>5</td>
<td>Mathura pillar ins.</td>
<td>SI, I, 277</td>
<td>Candragupta II</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>Mathura stone ins.</td>
<td>CII, III, 25</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Udayagiri cave ins.</td>
<td>CII, III, 21</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>Sanchi stone ins.</td>
<td>CII, III, 29</td>
<td>-do-</td>
<td>one village</td>
</tr>
<tr>
<td>9</td>
<td>Udayagiri cave ins.</td>
<td>CII, III, 34</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>Gadhwa stone ins.</td>
<td>CII, III, 36</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>11</td>
<td>Meharauli iron pillar ins.</td>
<td>CII, III, 139</td>
<td>Candra</td>
<td>X</td>
</tr>
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</table>

(Showing that out of forty Gupta inscriptions twelve record grant of land)
<table>
<thead>
<tr>
<th></th>
<th>1</th>
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<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>12</td>
<td>Gadhwa stone ins.</td>
<td><em>CII, III, 39</em></td>
<td>Kumāragupta I</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Bilsad pillar ins.</td>
<td><em>CII, III, 42</em></td>
<td>-do-</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Mathura image ins.</td>
<td>Bhandarkar,</td>
<td><em>CII, III, 272</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Dhanaidaha cp.</td>
<td><em>SI, I, 287</em></td>
<td>-do-</td>
<td></td>
<td>plot of land</td>
</tr>
<tr>
<td>16</td>
<td>Mankuwar image ins.</td>
<td><em>CII, III, 45</em></td>
<td>-do-</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>20</td>
<td>Damodarpur cp.</td>
<td><em>SI, I, 290</em></td>
<td>-do-</td>
<td></td>
<td>plot of land</td>
</tr>
<tr>
<td>21</td>
<td>Damodarpur cp.</td>
<td><em>SI, I, 292</em></td>
<td>-do-</td>
<td></td>
<td>plot of land</td>
</tr>
<tr>
<td>22</td>
<td>Bihar stone pillar ins.</td>
<td><em>CII, III, 47</em></td>
<td>Skandagupta</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Bhitari pillar ins.</td>
<td><em>CII, III, 52</em></td>
<td>-do-</td>
<td></td>
<td>one village</td>
</tr>
<tr>
<td>24</td>
<td>Junagadh rock ins.</td>
<td><em>CII, III, 56</em></td>
<td>-do-</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>27</td>
<td>Supia pillar ins.</td>
<td>Bhandarkar,</td>
<td><em>CII, III, 317</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Bihar pillar ins.</td>
<td><em>SI, I, 325</em></td>
<td>Purugupta (?)</td>
<td></td>
<td>plot of land</td>
</tr>
<tr>
<td>29</td>
<td>Sarnath image ins.</td>
<td><em>SI, I, 328</em></td>
<td>Kumāragupta II</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Sarnath image ins.</td>
<td><em>SI, I, 331</em></td>
<td>Budhagupta</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Damodarpur cp.</td>
<td><em>SI, I, 332</em></td>
<td>-do-</td>
<td></td>
<td>plot of land</td>
</tr>
<tr>
<td>33</td>
<td>Eran pillar ins.</td>
<td><em>SI, I, 334</em></td>
<td>-do-</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>34</td>
<td>Damodarpur cp.</td>
<td><em>SI, I, 336</em></td>
<td>-do-</td>
<td></td>
<td>plot of land</td>
</tr>
<tr>
<td>35-37</td>
<td>Vidisa image inscriptions</td>
<td><em>JOIB, XVIII,</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>248, Rāmagupta</td>
<td></td>
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<tr>
<td>38</td>
<td>Eran pillar ins.</td>
<td><em>SI, I, 345</em></td>
<td>Bhānugupta</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>39</td>
<td>Gunaighar cp.</td>
<td><em>SI, I, 340</em></td>
<td>Vainyagupta</td>
<td>plots of land</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>Damodarpur cp. dated G.E. 224</td>
<td><em>EI, XV, 142</em></td>
<td></td>
<td>?</td>
<td>Plot of land</td>
</tr>
</tbody>
</table>
Table 3
(Showing that out of sixty pāla inscriptions thirteen record grant of land)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Inscription</th>
<th>Reference</th>
<th>King/Queen</th>
<th>Grant of land</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bodh Gaya stone ins.</td>
<td><em>JASB</em>, NS, IV, 101</td>
<td>Dharmapāla</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>Khalimpur ins.</td>
<td><em>EI</em>, IV, 243</td>
<td>-do-</td>
<td>4 village</td>
</tr>
<tr>
<td>4</td>
<td>Nalanda ins.</td>
<td><em>EI</em>, XXIII, 290</td>
<td>-do-</td>
<td>one village</td>
</tr>
<tr>
<td></td>
<td>No. 66, 85</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Kurkihar image ins.</td>
<td><em>JBORS</em>, XXVI, 251</td>
<td>Devapāla</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>Monghyr cp.</td>
<td><em>EI</em>, XVIII, 304</td>
<td>-do-</td>
<td>one village</td>
</tr>
<tr>
<td></td>
<td>No. 66, 87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Nalanda cp.</td>
<td><em>EI</em>, XVII, 318</td>
<td>-do-</td>
<td>5 villages</td>
</tr>
<tr>
<td></td>
<td>No. 66, 87</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Rajauna image ins.</td>
<td><em>IHQ</em>, XXVI, 139</td>
<td>Śūrapāla I</td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>Nalanda image ins.</td>
<td><em>IHQ</em>, XXIX, 301</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>Gaya temple ins.</td>
<td><em>EI</em>, XXXV, 225</td>
<td>Nārāyaṇapāla</td>
<td>X</td>
</tr>
<tr>
<td>16</td>
<td>Bhagalpur ins.</td>
<td><em>IA</em>, XV, 304</td>
<td>-do-</td>
<td>one village</td>
</tr>
<tr>
<td>17</td>
<td>Uddandapura image ins.</td>
<td><em>SHAIB</em>, XXII</td>
<td>-do-</td>
<td>X</td>
</tr>
<tr>
<td>18</td>
<td>Bhaturia pillar ins.</td>
<td><em>EI</em>, XXXIII, 150</td>
<td>Rājyapāla</td>
<td>one village</td>
</tr>
<tr>
<td>23</td>
<td>Nalanda image ins.</td>
<td><em>JASB</em>, NS, IV, 105</td>
<td>Gopāla II</td>
<td>X</td>
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<tr>
<td>34. Sarnath image ins.</td>
<td><em>IA</em>, XIV, 139</td>
<td>-do-</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>35. Belwa plate</td>
<td><em>EI</em>, XXIX, 1</td>
<td>-do-</td>
<td>plots of land</td>
<td></td>
</tr>
<tr>
<td>36-37. Gaya temple inscriptions</td>
<td><em>EI</em>, XXXVI, 84</td>
<td>Nayapālā</td>
<td>X</td>
<td></td>
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<tr>
<td>40. Siyan stone ins.</td>
<td><em>Śīlālekha etc.</em>, 102</td>
<td>-do-</td>
<td>X</td>
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<tr>
<td>41-42. Kurkihar image ins.</td>
<td><em>JBORS</em>, XXVI, 36, 37, 240</td>
<td>Vignahapālā</td>
<td>III</td>
<td></td>
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<tr>
<td>44. Bangaon cp.</td>
<td><em>Śīlālekha etc.</em>, 123</td>
<td>-do-</td>
<td>plots of land</td>
<td></td>
</tr>
<tr>
<td>46. Belwa cp.</td>
<td><em>EI</em>, XXIX, 9</td>
<td>-do-</td>
<td>plots of land</td>
<td></td>
</tr>
<tr>
<td>49. Amgachhi cp.</td>
<td><em>EI</em>, XV 293,</td>
<td>-do-</td>
<td>one village</td>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>--------------------------------------------</td>
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</tr>
<tr>
<td>50</td>
<td>Tetrawan image ins.</td>
<td>JASB, NS, IV, 109 Rāmapāla</td>
<td></td>
<td></td>
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<tr>
<td>51</td>
<td>Chandimau image ins.</td>
<td>Paul, 93 -do-</td>
<td></td>
<td></td>
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<tr>
<td>52</td>
<td>Nimdighi stone ins.</td>
<td>EI, XXXV, 288 Gopāla III</td>
<td></td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Rajibpur image ins.</td>
<td>IHQ, XVII, 317 -do-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Bihar image ins.</td>
<td>ASI, Report, III, 124 Madanapāla</td>
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<tr>
<td>55</td>
<td>Manahali cp.</td>
<td>JASB, LXIX, 66 -do- plots of land</td>
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<tr>
<td>56</td>
<td>Jaynagar image ins.</td>
<td>ASI, Report, III, 125 -do-</td>
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<tr>
<td>57</td>
<td>Arma ins.</td>
<td>EI, XXXVI, 42 -do-</td>
<td></td>
<td></td>
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<tr>
<td>58</td>
<td>Balgudar image ins.</td>
<td>EI, XXVIII, 145 -do-</td>
<td></td>
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<tr>
<td>59</td>
<td>Gaya ins.</td>
<td>EI, XXXV, 233 Govindapāla</td>
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<tr>
<td>60</td>
<td>Jayanagar image ins.</td>
<td>JBR, XLI, 143 Palapāla</td>
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Although coins have proved to be an important source for the reconstruction of ancient Indian history, they nevertheless, pose various problems some of which may be studied below.

The legends, appearing on coins, are sometimes found to be too illegible to yield a definite reading, leaving us in the dark about their meaning and the question of attribution. The ship type lead coins of the Śātavāhana series, discovered on the eastern seaboard of south India, owing to the fragmentary character of their legends, do not admit of a definite answer to the question whether they were issued by Vāsiṣṭhiputra Pulumāvi or Gautamiputra Yajña Śātakarṇi or by both the Śātavāhana kings. How contrary are the readings of the fragmentary coin-legends may be illustrated with the help of some copper coins which are supposed by some to contain a reference to an alleged Scythian ruler named Māna of the Mahiṣa dynasty, ruling over the southerly part of the erstwhile Hyderabad state wherefrom the coins have been unearthed, and by others as mentioning a scion of the Sagama dynasty named Cūṭukula who is believed to have been a semi-independent ruler under the later Śātavāhana kings, although the exact reading and interpretation of the legend on these coins may
appear to be still elusive. Even in those cases where legends are perfectly legible, doubts sometimes continue to persist over the identity of the issuers of such metallic pieces, as the Candragupta I-Kumāradevi gold coins attributed differently to Candragupta I, Samudragupta and the Licchavis or over the exact significance of coins, as is the case with the unique billion piece in the names of both Muizuddin Muhammad bin Sam (A.D. 1173-1205) and Prthvirāja III (circa A.D. 1179-92), issued by either the Ghaznavide Sultan or the Cāhamāna king under varying circumstances or by a private agency in bullion.

Occasions are not rare when coins mention kings who are otherwise unknown and since the information, supplied about them is extremely meagre, their identity or even dynastic affiliation remain indeterminable. The contrary views advanced on the identity or pedigree of the king Kāca illustrate this point in the uncertain manner.

The scenes or the figures depicted on coins baffle in some cases, a definite interpretation. On the obverse of a certain type of gold coins the king Candragupta II Vikramāditya is represented as a depressed young man, accompanied on either side by a male and a female figures respectively while the reverse legend describes the king as apratīgha, invincible. There has been considerable divergence of opinion among numismatists as regards the real significance of this scene. D.C. Sircar identifies the accompanying figures as divine personages, bestowing upon the king certain objects like the Garudaḥvaja that helped the latter in over-powering his enemies, A.S. Alteker believes the flanking figures as standing for the queen and the general or the crown prince, dissuading the king in vain from opting for renunciation, and V.V. Mirashi interprets the scene as depicting the queen and the crown prince, engaged in deliberation with a Yogin to ward off the calamities that had engulfed the empire but no final opinion on the issue is likely to emerge till the riddle of the obverse legend is solved with the discovery of fresh and better specimens of the series. Similarly uncertainty prevails over the identity of, to mention a few out of such numerous cases, Heliocles and Laodice, depicted on some coins of Eucratides or Strato and Agathocleia, identified by some as husband and wife, and by others as mother and son.

The provenances of coins do not definitely indicate the extent
of the kingdom over which the issuer had held his sway for they are likely to travel from place to place by way of trade and pilgrimage. The discovery of Roman and Chinese coins, mostly from south India, may be viewed in this light.

More often than not far-fetched conclusions are hazardous on the basis of meagre numismatic data. Thus the tiger-slayer type of Samudragupta is taken as a proof of the Gupta king’s annexation of east Bengal and Assam. The lion-slayer type Candragupta II is supposed to attest to Vikramāditya’s conquest of Kathiawar, and the rhynoceros-slayer type of Kumāragupta I is alleged to testify the Gupta king’s political sway over Assam but the theories of this kind are mere guesses that have no positive evidence to rely upon.

Although a coin, be it of gold, silver, copper or bronze, has specific monetary value, the relative importance of different metallic pieces at a given time or region cannot be properly assessed in the generality of cases. The Baigrant plate of circa A.D. 448, while alluding to the system as prevalent in Bengal at the time of the Imperial Guptas, equates one gold dināra with sixteen silver rūpakas but leaves us in the dark about the ratio between gold or silver coins and copper pañas. An almost identical estimate of the relative value of gold and silver is furnished in the Kauṭīliya Arthaśāstra where any reference to the relative value of silver and copper is conspicuous by its absence. A fuller account of the ratio between gold, silver and copper is no doubt, provided by the Śukranti and Lilāvati, composed by Bhaskarācārya but its geographical and chronological context is far from being precisely known at present.

NOTES AND REFERENCES

1. Besides the Radio-Carbon there are other methods of time estimation like Tree-Ring Analysis, Glacial Method, etc. which too have not been found to be mathematically exact.

2. D.P. Agrawala (The Copper-Bronze Age In India [New Delhi, 1971, p. 96] has dated the Indus Valley Civilization between B.C. 2300 and B.C. 1700. M. Wheeler has suggested the period of B.C. 2500 - B.C. 1500 as the overall duration of the Indus Valley Civilization. There is also a view of Mughl and Lamberg Karlovsky (H.D. Sankalia, Prehistory and Protohistory of India and Pakistan [Poona, 1974] p. 283), placing the beginning of the Indus Civilization
to about B.C. 3000 on the basis of its alleged trade relations with southern Iran. The problem of chronology of the Indus Valley Civilization has been elaborately discussed by Bridget and Raymond Allechin in their recently published work *The Rise of Civilization In India And Pakistan*, New Delhi, 1983 (pp. 217-21).

3. Very little positive evidence is available for the factors that brought about the end of the Indus Valley Civilization with the result that the scholars, examining the problem, have arrived at different conclusions. R.L. Raikes and G.F. Dales have advanced the flood theory, Mortimer Wheeler and Earnest Mackey attribute the destruction to the Aryans and Baluchi hill tribes respectively, and other emphasize increasing aridity, changes in the drainage pattern, eustatic and tectonic factors. It is even suggested that 'Mohenjodaro was wearing out its landscape, whether by excessive zeal or excessive indolence. Over the years it was dying out long before the final blow' (M. Wheeler, *Early India and Pakistan* (1959, p. 113). But as rightly observed by H.D. Sankalia (*op. cit.*, p. 390). '......these are not the final answers but reasonable guesses, using altogether modern concepts'.

4. A great deal of confusion seems to prevail among archaeologists about the antiquity of iron technology in the Indian subcontinent. H.D. Sankalia (*op. cit.*, p. 14) at one place traces the beginning of the use of iron to the eighth-sixth centuries A.D. This is in contradistinction to his statement (*op. cit.*, 16) describing the period from circa B.C., 1000 to circa B.C. 700 as Early Stone Age.


8. The expression *tu-vasa-sata*, occurring in the Hathigumpha inscription of the king Khāravela, may be interpreted to mean either 300 or 103 years.

9. Two inscriptions, alluding to the defeats at the hands of the adversaries stand as exceptions to the rule. The Doobi copper plate grant of Bhāskara-varman openly admits that the Kāmarūpa king once suffered a defeat at the hands of a Gaṇḍa monarch and was made a prisoner. The Bakkakalirī copper plate grant, issued by the Cālukya king Kṛtivarman II in circa A.D. 757 relates how the Cālukya king’s grandfather Vijayāditya was reduced to the state of captivity by his adversaries.


11. *EI*, VI.

12. The Gurjara-Pratihāras, the Imperial Gaṅgas and the Rāṣṭrakūṭas claimed descent respectively from the solar, the lunar and the Yādava families.


16. This is precisely the view of R.C. Majumdar [History of Ancient Bengal (Calcutta, 1971), p. 193] who has assigned the record, on palaeographical ground to the tenth century A.D.

17. EI, XXXI, pp. 259 ff. This date is repeated in the Nagari plates of circa A.D. 1230-31 (EI, XXVIII, p. 242).

18. D.C. Sircar, Indian Epigraphy, pp. 436-37. Forgery of documents with a view to establishing one's title to a plot of land or an object of this kind was practised in ancient and medieval India. To this group of inscriptions belong the Nalanda and Gaya copper plate grants of Samudragupta. As pointed out by D.C. Sircar (Indian Epigraphy, p. 435) such records are numerous in the Kannada speaking area of south India.


20. Sobhana Gokhale (JNSI, XLVI, pp. 47-48) asserts that the ship type lead coins were struck by both Vāśṣīthiputra Pulumāvi and Gautamiputra Yajña Śātakarṇi.

21. V.V. Mirashi (IHQ, XXII, pp. 34 ff.) reads the legend on the coins as rāmīṇo Saga-Māna-Mahasasa meaning 'This coin is of the Śaka king Māna of the Mahīṣa dynasty'.


23. These coins bear the names of Candragupta I and Kumāradevi on the obverse and that of the Licchavis on the reverse.


27. JNSI, XII, p. 68.

28. Roman coins have also been found from Pakistan and some places in central and northern India (JNSI, XLVI, p. 37).

29. JNSI, XI, p. 6; ibid., XVII, pp. 105-06; IHQ, XXXI, pp. 175 ff.


31. This is the terminology used by Amara, Yājñavalkya and other early writers as signifying a copper coin. The Arthaśāstra uses the term pana in the sense of a silver coin.

32. Chapter 78 of this text contains the statement: Suvarṇān = māṣakam = apakaharato dvi-śato dandāḥ rūpyadharanān = māṣakam = apaharto dvādasapanaḥ. This gives the ratio between gold and silver as roughly corresponding: to 1:16.6.

33. The Śukranitisara gives the ratio as 1:16:1280.

34. The Lilāvati (I, 2) estimates the ratio as 1:16:256.)
ARCHAEOLOGICAL DATA AND THE HISTORIAN: AN APPRAISAL

M.M. MUKHOPADHYAY

BEGINNING with antiquarianism the scope and character of Indian archaeology had changed considerably by the turn of the present century. Pitt Rivers and others had developed scientific archaeological technique of stratification and seriation for the collection of authentic data for the reconstruction of the past. The basic archaeological techniques of exploration and excavations got more or less standardized. The first major dimension to archaeological studies was added when archaeologists raised the importance of environmental studies conducted by the natural scientists. This resulted in a proper appreciation of the role of environment in history. The combination of chronological and chronological classification of archaeological data can provide an objective understanding not only of the basic lineaments of a culture or civilization but also its major mutations in course of time.

The present archaeological methods of interpretation have developed further by the incorporation of the idea of culture as a system or a totality of divergent factors interacting one another. A lot of academic excitement has emerged after the writings of Binford and others. This has to be understood and operated by the active cooperation of the field archaeologist who is providing data and the historian who is involved in analysing the data. Mark Leon has identified three characteristics of this phase the theory of culture ecology, system theory and the use of computerized statistics. New strategies have been evolved for the collection of data and defining chronologies, cultural sequences and phases of reconstruction of ancient environment and, above all, for studying cultural change. An interdisciplinary
approach drawing upon the techniques and methods of enquiry to be found in different disciplines has become necessary. Study of settlement patterns, and demographic studies came to be increasingly used by the archaeologists to understand the socio-economic and cultural patterns more comprehensively. However, evolution of a scientific method of interpretation that would adequately explain cultural change is yet to be achieved.

No doubt the new techniques of dating, collection and analysis of archaeological data have gone a long way towards a better understanding of technology, ecology, chronology and some of the cultural patterns. But what is most crucial is the question of understanding the stages of socio-economic change and its role in determining the cultural formations and the process of their evolution. This requires recognition on the part of the archaeologists of the vital fact that the data they have to study pertains to the realm of historical sciences and not physical sciences alone. The scientific method of interpretation used by them should accordingly incorporate the concepts of base and superstructure dialectically interacting on each other with the base having a dominating role. Archaeology has to be integrated into the broad framework of historical studies.

The archaeological investigation requires a multi-disciplinary team. The inseparable connection between archaeology and sciences has to be emphasized. Archaeological investigation to be fruitful and meaningful has to depend heavily on ethno-archaeology, paleo-botany, zoo-archaeology, archaeological chemistry, physical and cultural anthropology etc. It is virtually difficult to understand and interpret archaeological data without the help of these. Stratigraphy, ceramic data, vertical sequences and the so-called ‘minor antiquities’ have had their days. That these had their heyday and still to a large extent continue to have it, is entirely because of a large number of ‘excavators’, rather than archaeologists. For taking a site comprehensively the agency or the team concerned must have the help of the experts in different disciplines. While profundity of scholarship demands specialization in one’s chosen and admittedly narrower field, the richness of both analysis and interpretation of the results of research in such narrower fields would be enhanced if one were to bring to bear on such interpretation the totality of the perspective. ‘The nature
of team-work may be noted as such; the archaeologist needs the architect for the reconstruction of building, the epigraphists for the reading of inscription, the anthropologists will take charge of the skulls and skeletons. From the physical characteristics the anthropologist will determine their racial conceptions, the evidence of diseases and so forth. Figures in stone and clay, drawings on pots and engravings on metal may give some idea of the looks and dresses, jewelleries and ornaments of the people, besides their fashions in weapons and/or pottery. The comparison of the contents of the different strata might bring out the process of development and decay.

Historical archaeology in India has yielded remarkable evidence in the last few decades. From the point of view of Buddhist sites, the regions of Andhra and Karnataka have given excellent data attesting to the fact that these two regions were very much under the spell of Buddhism in the early mediaeval period. Buddhist sites with stupa complex have also been reported in other parts of India, for instance, Bharatpur (West Bengal), Antichalk (Bihar), Beast (Madhya Pradesh), Chandravaram, Kondapur, Kilingapatanam etc. (Andhra Pradesh). As to the richness of the architectural and sculptural wealth of these sites, some idea can be formed from the recent official publications. Historical sites without any special religious affinities have also yielded significant results. As for instance, Antichalk (Bihar), has yielded, beside Buddhist monuments and Brahmanical icons, a structure which might have been constructed especially for depositing manuscripts as the special feature for ventilation indicate. Important archaeological sites like Atranjikhera, Kauśāmbi, Rajghat in Ganges valley have been excavated extensively. But sometimes lack of proper planning has resulted in sites yielding limited information with regard to town-planning, area and nature of settlement in a particular period. For instance, in the case of Kauśāmbi, excavations have revealed the existence of the elaborate monastery known as Ghoṣitarāma of the first century A.D. Sinha has raised the question whether the monastic area lay within the township or was placed outside it. According to Pāli texts, the monastic area was required to be built away from the township. This is exactly the situation at Śrāvasti and Piprāhwa. But had the Kauśāmbi monastery been situated within the heart of the township itself, it would have been a notable exception.
But archaeological data is inadequate in this regard.

It has been generally accepted by scholars that there did exist some kind of urban centres in Ganga Valley during the middle of the sixth to third century B.C. Sravasti, Kausambi, Varanasi, Rajghat, to cite only a few, were not only centres of trade but were also capitals of the first monarchical and republican states in the Ganga Valley. We hear of constant territorial feuds between these states. Sinha rightly suggests that the above state capitals may have been no more than the headquarters for conducting military expeditions in the neighbouring states. It is against this backdrop that one had to view the anxiety to acquire weapons namely, of copper, bronze and iron. This was the primary need which also brought about the identification of iron and its subsequent improvement in its technology in the region. The archaeologist has to keep his eyes open for evidence of all sorts. A single excavation is not likely to yield always a complete and continuous record, but by the time a number of sites have been dug-up, the sum of the results worked out by the field archaeologist and his collaborators will be genuine addition to history. Shapes and sizes of bricks varied fairly, consistently at different periods and by recording the dimension of bricks, a tolerably reliable criteria for fixing the period or date of a private house and structural buildings can be made. Absolute precision is too much to be hoped for, but the archaeologist, by evidence of one kind or another, can define within reasonable limits the age of any building he digs-up. To determine the character and types of the buildings, secular or religious, the importance of the plan remained unquestioned to the archaeologist. The ground-plan sums up, what the archaeologist has found of the structural building and on the basis of what he finds out about it. The historian on his part with the plan gets information about the original edifice and throw further light on it. Hence, with these aims in view, the archaeologist must observe and record and weigh each fact, however minute and apparently unimportant and insignificant it may be. Seldom could one mistake the ground plan of a temple for that of a private house or a fort. Perhaps, the doorways and rooms give the general arrangement, question of ventilation and lighting. Thickness of walls may, occasionally, give a hint as to the existence of upper storeys. The bases of columns and pillars may be found, and from the
known cannons of proportions between the length of the pillars and pillasters and their diameters, will indicate the building's height. A shaped stone or a specially moulded brick found loose in the ruins may prove the existence of arched-doorways or vaulted roofs. An architectural style is neither an accident nor an arbitrary thing. They show logical growth answering to the conditions of life. An ancient building, therefore, is important not merely illustrating the evolutionary growth and development of architecture but 'as a setting for the life of man and woman and as one of their chief form of self expression.' Forts constitute an important type of monument. It provides the chief source for the study of the defence architecture of the early period. An intensive study of such monuments, region and periodwise, is bound to enrich our knowledge of the military history of the early and late mediaeval period. While the official Reports have given some details regarding architectural, constructional and sculptural aspects of the excavated monuments but they have not covered at all a comprehensive picture of the monastic life of the community of monks and the need of related components of the monasteries. Deshpande, in his recent study of a group of caves at Panhale Kaji in Ratnagiri district, Maharashtra has brought new facets of information in this respect. According to him, not only the Nāthpanthiyās used the caves, these caves had Buddhist, Jaina and Brahmanical affiliation too. The study has also revealed the aspects of cultural exchange between the three major religious pantheons of India.

In the study of temples, specially in south India, where more recorded evidence has survived than in the North, certain interesting and significant information has come to light. The role of a temple in the life of a people around is kaleidoscopic in its coverage giving an opportunity for the historian to delve deep into the socio-economic aspects, through the medium of religion. The endowments of silver, gold cet. in the early periods, the increasing assignments of produce from the land for services in the temple mainly the food offerings, later, development of investment of the donated money in lakes and channels leading to a boost in agricultural products reveal an interesting story of how the production and the distribution cycle worked through the medium of the 'house of gods.'

Historical archaeology, epigraphy and numismatics cannot be
studied in isolation. Needless to mention that each is related to
the other. Each is dependent on and complementary to the other. To
these may be added literature and language. Literature which provides
added material, language interpret the whole mass of material pro-
perly. Martin Briddle is right when he says, “it is only through a
combination of these two complementary sources, decoummery and
archaeology that a balanced account... of history can be written”.

India is singularly rich in epigraphical wealth. The study of
epigraphy has been mostly employed for the purpose of the study of
chronology and geneology and for getting details of events and per-
sonalities pertaining to the political history. But there is further scope
for utilizing the epigraphical source material for studying other aspects
of ancient life as well, such as history of the society, economy, religion
even art and linguistics. Thousands of place-names, figuring in the
inscriptions provide the richest material in studying the historical and
cultural background of numerous places of India. Political geography
and administration are yet other subjects of study to be conducted
with the help of epigraphical data. Epigraphy caters to the needs of
historians engaged in the study of different phases of early Indian
history and culture. Reference may be made here to a few recent
interesting inscriptions bearing on the history and culture of early
India. A Kharoṣṭhī stone slab inscription from Kamra (near Camp-
bellpur) in East Panjab (Pakistan) is now preserved in the Taxila
Museum. According to Mukherjee the inscription records the digging
of a well at the birth of Kaṇiṣka II in the twentieth year of Kuśāṇa
king Vājhešīka who is said to have belonged to the own line of Kadh-
phises I. The Kamra inscription thus indicates that the line of Kaṇiṣka
lineally descended from Kujula Kadaphises and that for some time
Vājhešīka or Vāṣiṣṭha was a co-ruler with Kaṇiṣka I. The Mathūrā
Museum has acquired some Buddha images bearing on their pedestal
inscriptions dated in the Kuśāṇa era. One of these, dated in the year
25/26, refers to the installation of the image of Amitābha Buddha.
This is perhaps, the earliest epigraphical reference to this Dhyāṇi
Buddha, thereby indicating early development of the concept of
Dhyāṇi Buddha in India. Another inscription incised on the pedestal
of a Buddha image found at Govindanagar, Mathūrā and dated year
115 (corresponding to 434 A.D.) is important as much as it refers to
the name of the sculptor 'Dinna', who carved the image. From another pedestal inscription dated in the Gupta era 121 (corresponding to 440 A.D.) mentions for the first time a monastery called Vinadatta-vihāra.

Inscriptions generally contain information on all aspects of life, as has been hinted above. An attempt to produce an integrated study both ‘vertically and horizontally’, involves the historian in understanding his problem by adopting an inter-disciplinary approach. Even the study of a single coin involves the understanding of the chemistry of the metal the artistry of the symbols, and the meaning and palaeography of the legend, the stratigraphy in its findspot etc. The richness of both analysis and interpretation of the result of research in such narrower fields would be enhanced if one was to bring bear on such interpretation the totality of perspective.

The archaeological contribution to historical studies can be of immense importance when we are concerned with ancient technology. It is in fact for the study of these societies with an imperfect record that archaeological techniques have the greatest value. They can amplify the scanty written sources and archaeology can also add to the historical record by recovering additional source material. It can also illuminate the relationship to its natural environment. It can throw light on aspects of trade, not recorded in any documentary sources. It can also sometimes supplement the existing writing record by providing additional data or act as a check on the art historian by finding stylistically significant dated pieces. Archaeological techniques are capable of application to any field of history, but only if the archaeologist works in the company of others, whose disciplines may lie in the sciences or humanities, but are concerned in one way or the other with the study of mankind. By archaeological techniques, written documents in durable substances can be brought to light, and supply the historian with the essential sources for their studies. Archaeology operating in historically documented societies has the greatest advantage of having at least the broad outlines of chronology concerned already worked out by non-archaeological means. In short, the evidence used by the archaeologists falls into two main stages, viz., primary sources and each with its own group of secondary sources. In the first stage, information elicited by the researcher in person comes from field investigation. This is a primary source and funda-
mental to the archaeological research. In its secondary form, it consists of the reports of such fieldwork or excavation conducted and published by workers. The second stage of evidence is the museum material—the results of the other people's excavation, or chance finds of objects preserved in archaeological collection.

In conclusion, it may be held that the source material of the archaeologists and that of the historian working from written records are to a certain extent different in terms of techniques and approach. All study of the past, is based on the interpretation of the source material available, and making of inferences or analysis from them. Each type of evidence has its potentialities and possibilities. But at the same time has its limitations and drawbacks too. The evidence used by archaeologist either of material or structural objects has its own particular limitation. The archaeologist may get 'near to answering the questions'. But it nearly always means that he has interpreted the archaeological data in the light of inferences from history.

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