

Archaeology of the Middle Ganga Plain

The Chalcolithic Phase

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Though not a clear-cut physical unit, the Middle Ganga Plain (24° 30' N – 27° 50' N and 81° 47' E – 87° 50' E) stretches for about 300 km from the Himalayan foothills in the north to Vindhyan ranges in the south and covers a large physical area (144, 409 sq. km). It attained its present form during the post-Tertiary period when this deep trough was filled up by fine alluvium brought down from the Himalayas in the north with an average thickness of 1300-1400 metres. In historic times, the main river Ganga, watered by several tributaries, flowed sluggishly in meandering fashion forming ox-bow lakes, some of which are perennial. These lakes were rich in aquatic fauna and the lands around them were covered with wild grasses, many of which had edible grains. With the onset of the milder climate of the Holocene, the marshy land gradually turned into good grassland, which attracted small animals.

The Middle Ganga Plain is bounded by the Ganga-Yamuna confluence in the west and the West Bengal and Bihar border in the east, Himalayas in the north and the Vindhyas in the south. The area includes modern eastern Uttar Pradesh and parts of Bihar. The western and eastern limits of the Middle Ganga Plain have been demarcated as follows:

The delimiting line marks the western boundaries of the tahsils of Utraula and Balrampur (Gonda district), Faizabad and Akbarpur (Faizabad district), Sultanpur (Sultanpur district), Patti (Pratapgarh district) and Phulpur and Meja (Allahabad district). As regards the eastern limit of this plain the problem is rather easier. Here the natural boundary i.e. the old Kosi-Mahananda divide very easily solves our problem" (Singh, S.C. 1973).

The eastern boundary thus follows the western margin of the Rajmahal hills and the West Bengal-Bihar state boundary excluding the Kishanganj division.

The Drainage System

The drainage system of the Middle Ganga Plain is governed by the general lie of the land, which slopes from the northwest to the southeast. The entire region is drained by the Ganga system. The Ganga is the trunk river of this Plain covering a distance of about 2000 km within the alluvial plain. It is a Himalayan source river having a large catchment in the mountains. Emerging out of the Himalayas near Hardwar, the Ganga flows majestically for 1200 km eastwards, turns south, and then flanks the eastern face of the Rajmahal hills. All along this course it receives waters from various tributaries as follows:

The Yamuna

For the greater part of its course, the Yamuna flows between high banks, considerably dissected at places by gulley erosions. It runs for 800 km parallel to the Ganga and joins it at Allahabad after having received on its right bank a number of tributaries—the Chambal, Sind, Betwa and Ken—from the Central Highlands.

The Ghaghara

The Ghaghara is the recipient of all the drainage of the Saryupar—west of the Gandak—through its tributaries like the Kuwana, the Rapti, the Chhoti Gandak and the other smaller ones. It is highly notorious for its flood, changing courses and its capacity to render vast agricultural tracts into sand flats (Singh, R.L. 1971: 195). This behaviour of the river must have adversely affected human settlements during the Chalcolithic period. Other streams like the Rapti, although equally notorious, deposit fertile silt and provide highly fertile agricultural tracts.

The Kosi

The Kosi, formed by seven important streams (*Sapt-Kosi*) in eastern Nepal, receives no tributary in the plains because of its raised bed; it meets the Ganga, at present, a little below Kargola. It is the sorrow of Bihar and the wildest and the most devastating of Indian rivers, and it flows through several capricious channels. It deposits infertile sediments consisting of micaceous sands and renders vast fertile lands into sandy and marshy flats. This again deterred prehistoric man from settling in its catchment area.

The Son

The Ganga receives numerous tributaries from the Southern Uplands among which the Son is the largest. The channel of this river is very wide (about 5 km at Dehri), but its flood plain is narrow: only 3 to 5 km wide. The river—as is traceable from several old beds on its east—must have been notorious for its changing courses in the past, but it has now been tamed squarely with the anicut at Dehri and, more so, with the Indrapuri Barrage that has been built a few kilometers upstream (Singh, R.L. 1971: 196).

Floods

Floods are a recurring feature of the region, particularly in the Northern Ganga Plain. Not infrequently, when the Ganga itself remains in spate, and thwarts the incoming water from its numerous tributaries in the region, large areas get flooded leading to breaks of transport system and devastation of life and property.

The Ox-Bow Lakes

A striking feature of the Middle Ganga Plain, particularly its western section, is the existence of a large number of horseshoe or ox-bow lakes. A large number of them have been filled up partly by nature and partly by man but many of them still survive. Obviously, these lakes were formed by the meander of the Ganga and represent the various stages in the withdrawal of the river to its present channel. In fact, it has been claimed that the Ganga shifted its course some 55 km southward during terminal Pleistocene time (Kennedy 2000 : 202). These horseshoe lake formations have been studied at some places. The available evidence suggests that very arid climatic condition, which existed in the beginning, were followed by arid, semi-arid, and semi-humid conditions (Misra and Gupta 1995: 22). In any case, these lakes are important, because it was on their banks that the first settlers of the Mesolithic times came and settled, and prehistoric man's life came to be governed by the ecology of the new sandy alluvial formation and by the lakes that were situated in it.

CULTURES OF THE MIDDLE GANGA PLAIN

The Mesolithic Cultures

The first effective forays of prehistoric man in the Middle Ganga

plain were made at the fag end of the terminal Pleistocene and at the beginning of early Holocene period. This stage is known as the Epipalaeolithic (a transitional phase from the Late Upper Palaeolithic to the early Mesolithic). During this stage the Stone Age man from the Vindhya used to cross the Ganga and Yamuna rivers in the north and colonize the Ganga plain. The second phase, known as the Mesolithic, constitutes a transitional stage from the Palaeolithic to Neolithic. The Mesolithic sites, characterized by microliths, have been reported from different ecological zones across the length and width of the country, excepting from the major portion of the Indo-Gangetic plain and the northeastern part of India.

More than 200 Mesolithic sites have been discovered in the Middle Ganga Plain. They have a fairly dense but discontinuous distribution in the Pratapgarh district as against sporadic occurrences in Allahabad, Sultanpur, Jaunpur and Varanasi districts. Such a disparity in their distribution may probably be either as a result of uneven explorations of the region or due to micro-level environmental differences among the districts concerned.

The chronology of the Mesolithic phase in the Ganga valley is still not firmly established. Two radiocarbon dates obtained from Sarai Nahar Rai on bone samples gave a reading of 10050 ± 110 BP and 26601 ± 120 BP. It is believed that the former date represents the early phase of the culture. However, a time span of 8000 B.C. to 2000 B.C. has been proposed for the Mesolithic phase of the Ganga valley (Pal 2002: 77).

The Neolithic Interlude

In the mid-Ganga valley, traces of Neolithic culture were found at Sohagaura in the early seventies of the last century. This site is situated on the confluence of the Ami and the Rapti river in district Gorakhpur. In recent years, Neolithic artifacts comprising a limited number of microliths and the characteristic cord-impressed, hand-made pottery have been found from more than a dozen sites, and of these sites, Imlidih Khurd and Lahuradeva, have been excavated. The excavation at the last-named site has shown, among other things, that paddy was cultivated as early as 5300 B.C.

The Chalcolithic Cultures

The discovery of Chalcolithic cultures in the Middle Ganga Plain is barely three decades old, and this discovery is largely the result of

field investigations carried out by the Universities of Allahabad, Banaras, Gorakhpur and Patna and the Departments of Archaeology of UP and Bihar states. The Chalcolithic levels were identified first at Chirand in 1968-69 and subsequently at Sohgaoura in 1974 - 75, although the latter site had been investigated earlier also.

THE EXCAVATED SITES

Among the principal excavated sites of the Chalcolithic period, the following may be mentioned:

Sohgaoura

This site is situated at the confluence of the Rapti and Ami rivers in the Bansaon sub-division of Gorakhpur district. It was the find-spot of a bronze plaque with a Mauryan Prakrit inscription. The University of Gorakhpur excavated the site in 1961 - 62 and again in 1974-75.

Lahuradeva

This site is situated on the bank of a lake in district Sant Kabir Nagar. This site, measuring 220 m east-west and 140 m north-south, was explored by the University of Gorakhpur in 1974 - 75 and has been under excavation since 2001 - 02 by the UP State Department of Archaeology.

Narhan

This site is situated on the left bank of the Ghaghara in the Gola sub-division of district Gorakhpur. The present author excavated it during 1984-89.

Imlidih Khurd

The inconspicuous mound of Imlidih Khurd is located on the left bank of the Kuwana, a tributary of the Ghaghara, in district Gorakhpur. The present author excavated it for three field seasons respectively, in 1992, 1993 and 1995.

Khairadih

This small village is situated on the right bank of river Ghaghara, about 40 km downstream of Narhan. The Banaras Hindu University

excavated it for five seasons from 1980-81 to 1983-84 and after that in 1985-86.

Senuwar

This site is situated on the bank of a small river, Kudra, 7 km south of Sasaram in district Rohtas (Bihar). It was under excavation by the Banaras Hindu University during 1986-87 and 1989-90.

Chirand

It is an important settlement of the Neolithic and Chalcolithic cultures. It is situated on the bank of the Ghaghara river in district Saran, Bihar, 11 km east of Chhapra. The Directorate of Archaeology and Museums, Bihar excavated this site for seven seasons between 1962-63 and 1972-73.

Champa

The ancient settlement of Champa lies in the general area of Nathnagar on the outskirts of modern Bhagalpur. This site was excavated by the Patna University between 1969-70 and 1976-77 and again in 1982-83 on a limited scale.

Raja Nal Ka Tila

This site is located on the banks of river Karamnasa in the Sonbhadra district. It was excavated for two seasons during 1996 and 1997 by the UP State Department of Archaeology.

Malhar

This site is also situated on the Karamnasa river in district Varanasi. It was excavated in 1999 by the UP State Department of Archaeology.

As its name implies, the Chalcolithic stage is represented by cultures where *Chalkos* (copper) was used, (though in limited quantities), along with *Lithos* (stones) in the form of microliths which were used as parts of composite tools. However, in the Middle Ganga Plains, the artifacts of copper are very limited and the lithic component is completely missing on sites like Imlidih, Narhan, Khairadih, etc. and wherever it is present (as at the sites of Sant Ravidas Nagar district; Waina in Ballia district and Agiabir in Mirzapur), its number is exceedingly small and it is not clear if their presence made any significant contribution in the economy of these people.

The Neolithic phase in the Middle Ganga Plain and the Vindhya was succeeded by the Chalcolithic cultures. There is no time gap between the two cultures and a gradual evolution from the former to the latter has been witnessed at a number of sites. The excavations at sites like Sohagaura, Imlidih Khurd, Chirand, Chechar and Senuwar have furnished evidence pertaining to the transitional stage from the preceding Neolithic cultures of the region to the Chalcolithic. The only perceptible change during the Chalcolithic is the introduction of copper in this region sometime in the latter half of third millennium B.C. This resulted in tremendous farming activity bringing about agricultural surplus in a big way and the consequent increase in human population. Whereas the Neolithic settlements were few and far between, the number as well as the size of the settlements increased several fold in the Chalcolithic phase. Exploration carried out in 14,600 sq. km. area of the Middle Ganga Plain has brought to light more than 200 sites. Surely, many more sites lie buried and are yet to be documented. Of the explored sites, about two dozen have been excavated so far (Misra, B.B. 2000 : 66). Important among them are Kakoria, Magha, Koldihwa, Khajuri, Banimilia-Bahera, Takiaper, Malhar, Raja Nal Ka Tila in the Vindhya and Jhusi, Kausambi, Sringaverapura, Rajghat, Prahladpur, Masondih, Sohagaura, Narhan, Imlidih, Khairadih, Chirand, Chechar, Maner, Oriup, Champa, Sonepur, Taradih, Manjhi and Senuwar in the Ganga Valley. The general features of the chalcolithic culture in the Middle Ganga Plain can be listed as follows:

Houses and Settlement Pattern

The Chalcolithic inhabitants lived in wattle-and-daub structures, circular or oval in plan and in houses having mud walls. The Chalcolithic cultures in Bihar have been documented in the excavations at Chirand, Sonpur, Oriup and other sites. Evidence coming from the first two of these sites shows that the Chalcolithic people lived in houses made of mud plaster, reeds or bamboos. The 5.50 m thick Chalcolithic deposit at Chirand revealed, at its earliest level, a circular hearth and post-holes and floors of burnt earth. The exposed lime floors at Sonpur had circular pits representing circular huts, with varying diameters of 1.84 to 2.44 m. and with bones of animals and birds inside.

Ceramic Industries

As it has been rightly said, pottery is the alphabet of archaeology and until recently ceramics was considered as a diagnostic trait of Neolithic culture. However, the discovery of an a-ceramic stage of Neolithic cultures of Western Asia has exploded this myth. In India, pottery has been reported from the Mesolithic levels of Chopani Mando, Baghai Khor, Lekhahia Rock Shelter I, Langhnaj and other sites, but it is absent on the Mesolithic sites of Pratappgarh. Pottery appears again in the Neolithic levels at Lahuradeva, Sohagaura and Imlidih Khurd where it is marked by a handmade cord-impressed red ware.

In the Chalcolithic cultures the ceramic assemblage mainly comprises the black-and-red ware, the black slipped ware and the red ware. The pots are usually wheel-thrown, though hand-made specimens are also met with. The red ware, the most prolific ceramic industry, is characterized by the bowl, including the lipped and pedestalled varieties, with convex sides and everted rim; convex or straight-sided dishes with sagger or flat base; shallow basin including the lipped variety and storage jar. The types in black-and-red ware include the deep carinated, lipped or pedestalled bowl; dish with convex or straight sides and sagger base; small vase, basin, and straight-sided troughs. Though, in general, the pottery is plain but decoration in the form of paintings, (essentially linear), incisions, and applied patterns are also met with.

In the Sarayupar plain, the chalcolithic cultures have been identified at Sohagaura, Narhan, Khairadih and other sites. At all these sites, this phase is characterized by the occurrence of black-and-red ware (plain and painted), black-slipped ware (plain and painted), red ware (both slipped and un-slipped), burnished black ware, cord-impressed pottery and rusticated ware. The last three wares are found in limited number. At Narhan, the painted black slipped ware is meager: the prominent ware being the painted black-and-red ware. About twenty per cent sherds in this ware have been reported. On the contrary, the painted black slipped ware is the prominent industry at Khairadih (Singh P. 1992: 78).

The ceramic industry at the Chalcolithic sites of Bihar is represented by kiln-burnt plain and painted black-and-red, black, steel-grey and red wares. The pottery, of sandy clay and porous section, is both wheel turned and handmade and has a thick slip over it. The early specimens of Sonpur are brittle and too small to indicate any shape,

but the types at Chirand include dish-on-stand; long-necked jar, lipped bowl; basin; bowl with ring base; spouted vessel; four-legged and ring-based perforated pot in black-and-red ware; and high-necked jar, lipped bowl; basin; bowl with ring base; spouted vessel; *lota* with corrugated shoulders in black-slipped ware. Generally bowls and dishes bear painted designs comprising groups of wavy and straight lines or dashes executed in white on black surface.

The Small Finds

The negligible occurrence of copper objects, which include a few small, corroded pieces from Sonpur and Chirand, a bead from Chirand and a bangle piece from Oriup reflect the scarcity of the metal. Cores, waste flakes, blades and numerous small nodules on carnelian, chalcedony, quartz and chert represent Microliths from the sites. The appearance of iron in the uppermost Chalcolithic levels of Sonpur and Chirand is significant. A similar stratigraphic position obtains at Narhan also.

The other associated finds from Sonpur and Chirand include tanged and socketed arrowheads having circular or square section and pins of bone, arrowheads of ivory and styli of both materials. Besides, there are terracotta beads, some pear-shaped and some others with incised decorations; beads of steatite, chalcedony, etc.; balls, pestles and querns of stone, bones of birds and fish and a few Neolithic celts from Chirand.

The post-cremation circular pit-burials at Sonpur and suspected such other burials at Chirand are noteworthy (Roy (in Ghosh, ed.) 1989, I: 99). The Sonpur burials having diameter of 1.82 to 2.12 m and a depth of 91 cm and containing ash, charred bone pieces and sherds of black, red and black-and-red wares and a handmade jar with 5 kg of charred rice, suggest that the people burnt their dead and buried their charred bones. The handmade jar with 5 kg of charred rice found in the burial at Sonpur indicates the evidence of rice cultivation there.

The noteworthy small antiquities found at Khairadih, Narhan and Sohagaura consist of beads of agate, chalcedony, carnelian, jasper, steatite besides, socketed and tanged arrowheads of bone, points, pottery discs, etc. Terracotta beads, decorated with incised designs, are common to both Khairadih and Sohagaura. At Khairadih, the use of glass is attested by the presence of a micro bead of blue glass (Singh, P. 1992: 79), while at Narhan a polished celt is reported

(Singh, P. 1993 - 1994: Pl. xxix-a). The presence of a socketed copper arrowhead, an indeterminate object, a rod and a copper piece, respectively found at Khairadih, Narhan and Sohagaura suggest the scarce use of the metal. A noteworthy point, which needs our attention, is the complete absence of lithic tools—an essential element in the 'Chalcolithic' appellation—at these sites (Singh, P. 1992: 79).

AGRICULTURAL BACKGROUND OF THE CHALCOLITHIC PEOPLE

Agriculture is no mean art. It calls for a scientific understanding of the natural phenomena, development of tools and skill, sense of right season for sowing various crops, correct method of storage and preservation of grains from insects, right type of grains for seed, domestication, control, training and use of draft animals, water management, fertilization, weeding out, reaping, thrashing, grinding, pounding, invention of methods of cooking and processing including pottery. The achievements of Chalcolithic people have to be evaluated keeping in view the above factors.

A good quantity of archaeo-botanical remains obtained by floatation from a number of sites give a fair idea of the agricultural practices of the Chalcolithic people. Such evidence comes mainly from Lahuradeva, Imlidih Khurd, Narhan, Senuwar, and Chirand.

The archaeobotanical remains from Imlidih Khurd comprised rice, barley, wheat, *jowar*, millet, *bajra* (pearl millet). The pulses included, lentil, field pea, grass pea (*khesari*) and green gram or *mung*. The oilseeds comprised field *brassica* and sesame or *til*. Jujube, *awla* and grapes were the fruits eaten by the inhabitants.

Recovery of grains by floatation from the Chalcolithic levels at Senuwar indicates that agriculture was practiced on a large scale. Its study revealed that the subsistence economy of the Chalcolithic Senuwarians depended mainly on agriculture, cattle-breeding, hunting and partly on some cottage industries, which included pottery making, lapidary, bone tool making and faience industry. As the detailed report on the excavations at Senuwar has just been published, we get a detailed account of their agricultural practices, which are as follows:

Stage IA: Early Neolithic (c.2200 B.C. to c. 2000 B.C.)

The economy of this stage was marked by domestication of animals and incipient farming which included the cultivation of only the

Oryza sativa variety of paddy. The latter fact is rather surprising as only rice was cultivated at Senuwar in the Neolithic period while in the Middle Ganga Plain raising multiple crops is evident from the entire early Neolithic horizon. The domesticated animals comprise cattle, buffalo, sheep, goat and pig (Sathe and Badam in Singh 2004). Though deer, antelope, barking deer and *nilgai* were hunted, their contribution in the Neolithic food economy was marginal.

Stage IB: Late Neolithic (c. 2000 B.C. to c. 1950 B.C.)

This stage is marked by a major shift in the agricultural practices and consequently in the economy. The new cereals now included barley, wheat, jowar millet, lentil, field-pea and finger millet (*ragi* and *khesari*). This shows that agriculture now played a major role in the economy.

Stage II: Neolithic-Chalcolithic (c.1950 B.C. to c. 1300 B.C.)

This stage has been designated Neolithic-Chalcolithic as metal (copper) appears for the first time during this stage. This period witnessed an overall advancement in the living pattern. In the field of agriculture, new cereals and pulse crops were introduced. These comprised bread wheat, *kodon* millet, green gram/ mung, horsegram, *kulthi* and chickpea/gram. The faunal complex now included some wilder species of animals like wolf, four-horned antelope and *chital* along with the species found in Period IA. Besides, various craft such as clay moulding, lapidary, chiselling of bone, shell and stone show gradual refinement, and the high proficiency in bead making at Senuwar remind one of Harappan craftsmanship. But the most important contribution of this period was the introduction of metal (copper). As many as nineteen objects made of pure copper (99%) were recovered from the limited excavations. The introduction of this metal helped in the development of various crafts, and the increased prosperity led to interaction and trade with other regions. Beads and pendants of marine shells, *Turbinella Pyrum* (Linn.) found at Senuwar were probably imported from the Gulf of Kutch; copper was obtained from the Rakha mines; and lead from Bhagalpur district of Bihar (Singh, B.P. 2004: 609).

Stage III: Chalcolithic (c. 1300 B.C. – 7th century B.C.)

This stage of techno-cultural development is characterized by the production of bronze objects, improvement in agriculture and

introduction of plain and painted pottery comprising black-and-red ware and other associated ceramic industries. Several new shapes in pottery forms were introduced; noteworthy among them are: dish-on-stand, bowls of varying shapes and capacity, vessels with long vertical sides and dish. The appearance of the last-named pottery form suggests a change in the food habits of the people.

This stage also witnessed the evidence of alloying (tin, around 5%) which may be considered a technological advancement over the preceding stage. Now the economy of the Chalcolithic Senuwarians depended mainly on agriculture, cattle breeding, hunting and partly on some cottage industry which included pottery making, lapidary, bone tool making, etc. In the realm of agriculture, a new pulse crop, the moth bean, was added and the cultivation of til, field brassica/brown mustard, safflower, linseed/*alsi* and castor were started. Besides, orchard husbandry began to be practiced. Watermelon seeds, mango and jackfruit have been reported from this period. Thus, the pre-iron age farmers laid down the agricultural base of the Ganga valley and no new crops were added after the introduction of iron (Chakrabarti 1988: 73).

At Narhan, grains of hulled and six-row barley (*Hordeum vulgare*), club wheat (*T. compactum*), bread wheat (*T. aestivum*), dwarf wheat (*T. sphaerococcum*) and cultivated rice (*Oryza sativa*) have been identified from the Chalcolithic levels. The pulses include pea (*Pisum sativum*), green gram (*mung: Vigna radiata*), gram/chickpea (*Cicer arietinum*), *khesari* (*Lathyrus sativus*), besides mustard oilseeds and flax/linseed. Seeds of jackfruit (*Artocarpus int egrifoliosus*) found from these levels are an important discovery. Jackfruit grows wild in the Western Ghats and it was taken to cultivation in north India. The present evidence suggests that the Narhan inhabitants cultivated it for its fruit.

Other Sites:

Preliminary observation to identify the grains obtained from Tokwa by floatation indicated the presence of rice, barley, til and mung. Some fruits and beans were also found. The analysis and identification of animal species is under process.

Archaeobotanical remains were collected from Raja Nala Ka Tila in district Sonbhadra. A preliminary examination of these samples showed that the earliest settlers of Period I (Chalcolithic) had sufficient experience of agriculture and they cultivated rice, barley, lentil, field

pea, ragi millet and fox-tail millet, besides khesari and mung.

The presence of ragi and fox-tail millet in the collection, indicate that the inhabitants of Raja Nal Ka Tila gave due consideration to their ecological surroundings. These millets require little water and can thrive on the soil too poor for other cereals. Double cropping, i.e., rice in rainy seasons and lentil, pea, etc. in the winter, was practiced in the inundated area of river Karamnasa.

Concluding Remarks

(1) The introduction of metal (copper) witnessed a spurt of activities in every walk of life and a significant increase in the settlement. These sites are found below the 90 m contour line and are located on higher *bhangar* land, which is above the flood level. These sites are almost always found along the riverbanks. Of the nearly 200 sites, 13 have been excavated. The radiocarbon dates from Sohgaura, Khairadih, Narhan, Chirand, Sonpur and Senuwar indicate that Chalcolithic cultures were firmly established around 2000 B.C. on sites in Bihar and by about 1500 B.C. in the Sarayupar plain.

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

(3) We do not have any indication about the religious beliefs of the Chalcolithic inhabitants of the Middle Ganga Plain. It may be recalled that 'a place of worship' has been identified in the excavation of Baghor in district Sidhi in Madhya Pradesh. This place of worship has been dated to the Upper Palaeolithic period. Further, the discovery of a figurine of a Mother Goddess made on bone and found from the eroded Gravel III in Lohanda *nala*, a tributary of the Belan River has been dated to the Upper Palaeolithic period. It provides the earliest evidence of a belief in the supernatural. The burials of the Mesolithic sites of Pratapgarh provide ample evidence of belief in the after-life, but no such evidence is forthcoming from the Chalcolithic sites.

The only evidence is that of post cremation pit-burials from Sonpur and Chirand, which indicate that this custom was prevalent on some sites in Bihar. But this evidence is missing on other sites. The absence of burials in the Chalcolithic levels indicates that the method of cremation for the disposal of the dead body, which became the principal mode in the latter-day Hindu society, had its roots in the Chalcolithic Culture.

(4) The faunal remains obtained from these excavations have not received adequate attention except in the case of Senuwar and Narhan. Bones of domestic cattle, buffalo, sheep, goat, pig and dog have been reported from Senuwar. Among the wild fauna from this site, mention may be made of antelope, spotted deer, nilgai, four horned antelope, barking deer and wolf (Sathe and Badam 2004). The bones of humped Indian cattle, sheep, goat and horse have been reported from Narhan. A tentative taxonomic classification of animal bones from Imlidih shows that cattle, sheep, goat and presumably pig had been domesticated in Period I.

(5) An insight into the economic activity of the Chalcolithic inhabitants has been provided by the 'site catchment analysis' in the case of Senuwar. (A catchment area—located within reasonable walking distance from a site—is that area from which resources are taken to support human populations.) Vita-Finzi and Eric Higgs first used this technique in 1970 for reconstructing the prehistoric economy of Mount Carmel in Palestine. From this analysis in the case of Senuwar, it has been shown that several resources were available within as well as in the close vicinity of this ancient site, and these included clay for pottery and terracotta objects, house building materials, fish and animals—the latter, both domestic, and domesticated. The arable land around this site was quite sufficient for agriculture. However, the raw material for preparing the lithic blades (agate, chalcedony, jasper, milky-quartz, etc.) was obtained from a distance of eight to nine kms, from the foothills of the Kaimur Hill ranges (Pappu 2004: 410). A similar situation must have obtained on other Chalcolithic sites also.

(6) The archaeo-botanical remains from Imlidih, Narhan and Senuwar have been studied in quite a great detail. This study indicates that by about 2000 B.C. almost all cereals, pulses and oilseeds, which form the staple food of the present-day inhabitants of the Middle Ganga plain, were grown in this region. The only serious omission is the pigeon-pea (*Arhar*), which is presently missing from the archaeological record.

(7) While the economic base of the Chalcolithic culture of the lower Ganga plain was mainly based on rice cultivation, the staple food of the Chalcolithic cultures of the middle Ganga plain (including the Sarayupar region) comprised rice as well as wheat and barley. Here, we find that the cultivation of two crops a year was already firmly established during the Chalcolithic period and almost all the cereals which were the staple food of the urban settlements of the Harappa culture in the northwest, were being cultivated by the Chalcolithic people.

(8) The radiocarbon dates from Neolithic-Chalcolithic sites of the Middle Ganga Plain have conclusively proved that these cultures are a younger contemporary of the Harappa culture. The natural question arises as to whether the Chalcolithic people here were in contact with the mighty Harappan city-civilization. The discovery of more than one hundred tiny beads of steatite from the pre-Narhan deposits at Imlidih Khurd and several steatite beads from Chirand do provide an indication of such a contact, but this remains to be firmly established by further research.

(9) On the basis of archaeo-botanical evidence Saraswat (2004) believes that since Harappan trade with Mesopotamia had declined around 2000 B.C., the Late Harappan people migrated from their homeland to different regions and some of them came to the Kaimur region. From the Kaimur region the tradition spread in inland regions of the Middle Ganga Plain and a number of sites like Chirand, Taradih, Maner and Chechar-Kutubpur are a testimony to this (Singh, R.N. 2004: 607). Harappan influence has also been noticed by some scholars in the pottery types of this period. The bottomless goblet, dish-on-stand and knobbed ware from Chirand are taken as further proofs of the eastward migration of the late Harappans.

(10) Analysis of copper objects from Senuwar (R.N. Singh in B.P. Singh 2004: 597) shows that the coppersmiths of this site had definitely started smelting copper ores since 1950 BC–1300 B.C. (Neolithic-Chalcolithic) for procuring metallic copper. The trace element analysis of Senuwar specimens suggests that the source of copper was Singhbhum copper belt of Bihar, particularly the Rakha mines. The metallurgical analysis of a copper axes from Imlidih Khurd is under progress.

(11) Excavations at Raja Nal Ka Tila, Malhar and Dadupur have provided quite early dates on the introduction of iron in the Middle Ganga Valley (Tewari 2003: 536). A number of radiocarbon dated from these sites put the introduction of this metal to about 1600

B.C., if not earlier. This is a new development that has wider ramifications and the stratigraphic position of this metal in future excavations needs to be watched carefully.

(12) The discovery of well-established village cultures based on the cultivation of two crops a year, by rotation, in eastern UP and Bihar demonstrates an uninterrupted cultural continuity from about c. 2000 B.C. in Bihar and from c. 1600 B.C. in the Sarayupar plain, un-influenced by any external stimuli. This discovery has exploded the popular theory that this part of the country was 'aryanised' by clearing dense forests only around the eighth to seventh centuries B.C. This theory was proposed by some scholars while giving a historical explanation of the Videgha Māthava legend of the *Śatapatha Brāhmaṇa*. There is only casual reference to this region in the early Vedic literature. However, by the late Vedic period, it had become an important administrative unit due to the formation of the Kosala and Videha kingdoms. The region is first mentioned in the *Śatapatha Brāhmaṇa*, a text that relates to the spread of the Aryan culture. In this text, we read about Videgha Māthava, the king of Videhas. Accompanied by the priest Gotama Rāhugaṇa, he carried the sacrificial fire from the banks of the Saraswati river eastwards across Kosala and the Sadānīrā and established a settlement known as Videha after the tribal name of Māthava.

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