

Settlement Pattern in the Neolithic of the Middle Ganga Valley

Prof. Shitala Prasad Singh Department of Ancient History Archaeology and Culture, D.D.U. Gorakhpur University, Gorakhpur

The study of ecological and environment set up of the Middle Ganga plain is essential for the study of early Farming Culture of the region. The Present study aims at delineating the patterns of Neolithic human settlement against the ecological background of the Middle Ganga plains. The concept of settlement pattern in archaeology is derived from theoretical assumptions of human geography, a discipline that is concerned with spatial distribution of modern human Communities. The spatial study includes various aspects of settlement patterns comprising of size and distribution of settlement and spacing of settlements, development of site hierarchies, population and site catchment areas. Settlement patterns have a close relationship to makers of subsistence and environment. It is also attempted to reconstruct the way of life of Neolithic People on the basis of the study of subsistence patterns and technology.

The Ganga plain, lying between Himalayan Tarai in the north and the Vindhyas in the south is divisible into three main units: (i) Upper Ganga Plain, (ii) Middle Ganga Plain, and (iii) Lower Ganga Plain. It is a flat alluvial land, marked by rivers originating from the Himalayas, horse-shoe-lakes and rivulets emerging from these lakes and has a slope from north west to south east. The middle Gangetic plain measuring about 144,409 sq. km. is bounded by the Ganga-Yamuna confluence in the west and Bihar-Bengal border in the east. It includes modern eastern Uttar Pradesh and plain of Bihar. From the point of view of origin and development of human cultures in the plain the middle Ganga plain is most significant. It has been the cradle of Indian civilization right from the terminal Pleistocene period. Archaeological investigations conducted during last four decades by University of Allahabad, Banaras Hindu University, Deen Dayal Upadhyaya University Gorakhpur, University of Patna, U.P. State Archaeology Department, Bihar State Archaeology Department and Patna Circle of the Archaeological Survey of India, have furnished a complete cultural sequence of the region- Epipalaeolithic, Mesolithic, Neolithic, Chalcolithic, Early Iron Age and historical periods. The Gangetic plain was far the first time colonized by the Stone Age culture of the Vindhyas.



The explorations conducted in the eastern part of the mid Ganga valley during the last five decades have resulted in identification of several Neolithic settlements, and the region is emerging as one of the independent centres of origins of rice cultivation. Earlier the traces of early farming culture in the middle Ganga plain were found in three geographical zones; in Bihar, in the northern slopes of the Vindhyas and in the Saryupar plains of eastern Uttar Pradesh (Singh 1998). Primary context sites pertaining to the Neolithic culture have been reported in eastern Uttar Pradesh and Bihar. The important excavated sites in Uttar Pradesh include Jhusi (Misra et al. 2002-2003) and Hetapatti (Pal and Gupta 2005) in Allahabad, Bhunadih (Singh and Singh 1997-98) and Waina (Singh and Singh 1995-96) in Ballia (Singh et al. 1994-95), Sohgaura (IAR 1974-75: 46-47, Chaturvedi 1985) and Imlidih Khurd (Singh 1992-93, 1993-94) in Gorakhpur, Lahuradewa (Tewari et al. 2001-2002, 2002-2003, 2004-2005, 2007-2008) in Sant Kabirnagar district, while Chirand (IAR 1981-82: 13-14, Verma 1971 Narain 1970, Varma 1998, Sinha 1994, Roy 1989) in Saran, Chechar Kutubpur (IAR 1977-78: 17-18) in Vaisali, Taradih (IAR 1984-85: 9-10, IAR 1986-87: 23-24, IAR 1987-88: 9-11) in Gaya, Maner (IAR 1985-86: 11-12, 1986- 87: 25-26, IAR 1987-88: 11-12, IAR 1988-89: 7-8) in Patna and Senuwar (Singh 1990, 1997, 2001, 2004) in Rohtas district in Bihar. Most of these excavated sites are multi-culture sites aving yielded archaeological relics ranging from Neolithic to early historical periods (Misra 2007).

As mentioned earlier the archaeological investigations carried in the middle Ganga plain have revealed evidence of the Stone Age relating to the Epipalaeolithic and Mesolithic cultures. In the western part of the middle Ganga valley, where a good number of preceding Mesolithic sites are located, the succeeding Neolithic culture was not present before the discovery of Neolithic settlement at Jhusi (Misra, et al. 2004) and Hetapatti (Pal and Gupta, 2005) in Prayag District. Jhusi (Lat. 25° 26' 10" N., Long. 81° 54' 30" E.), the ancient Pratisthanpur, is located on the left bank of the Ganga within a marked meander very close to the Ganga-Yamuna confluence at a distance of about 7 km. to the east of Allahabad city. The Department of Ancient History, Culture and Archaeology, University of Allahabad has conducted excavations at the site on Samudrakup mound for five seasons, 1995 (Misra et al. 1995-96), 1998 (Misra et al. 1998-99), 1999 (Misra et al. 1999-2000), 2002 (Misra et al. 2002-2003) and 2003 (Gupta and Pal 2004) in four areas. It is a multi-culture site having occupational deposit of the Neolithic culture at the base (Gupta et al. 2008).



A new site of the Neolithic culture at Hetapatti (Lat. 25.49386° N., Long. 81.91686°E.) is located on the left bank of the Ganga. It is at a distance of about 20 km. from Allahabad in north-east direction, and is being excavated by the Department of ancient History, Culture and Archaeology, University of Allahabad (Pal and Gupta 2005). The identification of Neolithic level at Jhusi and Hetapatti in Allahabad on the Ganga presents for the first time Neolithic culture on the western margin of mid Ganga plain. There may be hidden Neolithic settlements in between the eastern and western margins of the area.

The explorations conducted in the eastern part of the mid Ganga valley during the last four decades have resulted in identification of several Neolithic settlements. The important excavated sites in Uttar Pradesh other than Jhusi and Hetapatti of Allahabad, include Bhunadih (Singh and Singh 1997-98) and Waina (Singh and Singh 1995-96) in Ballia, Sohgaura (IAR 1974-75: 46-47, Chaturvedi 1985) and Imlidih Khurd (Singh 1992-93, 1993-94; Singh et al. 2003, 2004-2005) in Sant Kabirnagar, while Chirand (IAR 1981-82: 13-14,Verma 1971, Narain 1970, Varma 1998, Sinha 1994, Roy 1989) in Saran, Chechar Kutubpur (IAR 1977-78: 17-18) in Vaisali, Taradih (IAR 1984-85:9-10) in Gaya and Senuwar (Singh 1990, 1997, 2004) in Rohtas district in Bihar. Most of these excavated sites are multi-culture sites having yielded archaeological relics ranging from Neolithic to early historical periods.

The site of Chirand was excavated by the State Directorate of Archaeology, Bihar from 1962-63 to 1969-70. The Chirand had mixed economy based on early farming and domestication of animals supplemented by hunting and fishing game. Subsistence largely rested on the cultivation of cereal crops. It is apparent that paddy was known to the people at Chirand as paddy husk impressions have been noticed on some burnt clay pieces. It has further been confirmed by the discovery of a few examples of carbonized rice along with wheat, barley, moong and masur.

Checher-Kutubpur in Vaishali district of Bihar is situated on the northern bank of the vast alluvial tract of the Ganga on the road between Hajipur and Mohnar. The site was exavated by R. S. Bisht on a small scale in 1977-78.

Lahuradeva is situated in Sant Kabir Nagar district of Uttar Pradesh. The site was excavated by Rakesh Tewari et al., Directorate of Archaeology, Govt. of Uttar Pradesh between 2001-2002 and 2004. The excavation revealed a five fold cultural sequence;



Neolithic followed by Chalcolithic, (Copper Age), early historical (Early Iron Age), the NBPW and Early centuries B.C./A.D.

Taradih is situated south west of famous Mahabodhi temple at Gaya in Bihar. A trial excavation was taken up in the year 1981-82 (the work is still in progress) by the Directorate of Archaeology and Museums, Govt. of Bihar. In 1984-85, 60cm. thick Neolithic deposit was located at the site. It indicates the potentiality of site. The excavations revealed a six fold cultural sequence, Neolithic followed by Chalco-lithic, early Historical, the Kushana, Gupta down to the remains of the Pala period.

Senuwar (Lat. 25°, 56' N; Long. 83°, 56' E) is on the right bank of Kudra river which flows about 1 km. away from the mound, in Rohtas district of Bihar. The site was excavated by late Professor K. K. Sinha and B. P. Singh of the Department of Ancient Indian History, Culture & Archaeology, B.H.U. Varanasi in the year 1986-87. The ancient mound at Senuwar is 360 x 300 metres from north to south, with a maximum height of 9 metres from the ground. Period I is Neolithic at Senuwar.

Maner is in Patna district of Bihar. A.K. Singh, Professor and Head of the Department of Ancient Indian History, Culture & Achaeology University of Patna, is conducting excavation at the site. Period I is Neolithic in character.

Settlement Pattern: All the excavated sites are located on the banks of rivers, generally on the confluence of two rivers near meander above the flood plain or on horse-shoe lakes (as in the case of Lahuradeva).

Structures: The excavations, though conducted on a limited scale, have brought to light evidence of circular or oval huts known through the patterns of post-holes that have come to light from almost all excavated sites of the area. Wattle and daub structure is attested by good number of burnt clay with reed and bamboo impression. At Chirand, the evidence of pit dwelling has also been reported of the other structural remains mention may be made of hearths, pits and silo probably for storing grains.

Domesticated animals include cattle, buffalo, sheep, goat and pigs. Besides these, the bones of elephants, rhinoceros, stag, deer, etc. have also been found from some of the sites. Of aquatic fauna whose bones have been found, mention may be made of fish and turtle. Bones of birds have also been found. The available evidence, thus, indicates that besides agriculture and domestication the Neolithic people of the mid Ganga plain also practiced hunting, catching and fishing.



Material Culture: The ceramic industry of the Neolithic Gangetic plain is rich and varied. The available evidence indicates that in the early stage of the culture, as indicated at Chirand, Lahuradeva, Jhusi and Hetapatti, people were using hand made pottery but subsequently the slow wheel appears to have been used for the purpose. The ceramic assemblage includes ordinary red ware, lustrous red ware, burnished ware (red, black and grey), rusticated ware, black-and-red ware and corded ware. The clay used for manufacturing the pots is not well levigated. It contains grits, husks and chaff as degraissant. Pots are generally ill fired and have blackish grey core. Pottery types exhibit variety suggesting thereby that these were put to different uses. Pottery types include bowls with varying profile, vases, vessels, basins, miniature jars, handis, etc. However, celts of basalt and granite have been obtained. from Querns, mullers, bulls, homer stones, etc..

Bone tools have been found at Jhusi, Senuwar and Chirand. The last site has yielded a corpus of bone tools and weapons including celts, scrapers, chisels, hammers, needles, points, borers, awls, arrowheads, etc. Other bone objects comprise ornaments like pendants, earrings, bangles, discs, combs, etc.

Terracotta objects including edge ground potsherds (triangular or rectangular in shape), spherical beads with central perforation were obtained from Senuwar. Chirand has yielded terracotta wheels, beads, bangles, cakes, birds, snakes, etc.

The C¹⁴ date belonging to the transitional phase of the Neolithic to Chalcolithic at Koldihwa is 1440 \pm 120 BC (PRL 223). The absolute dates obtained from Mahagara also indicated a late date to the culture, though these dates have the possibility of contamination of samples. Two TL dates reading 2265 BC and 1616 BC and four C¹⁴ dates reading 1440 \pm 150 BC (PRL 409). 1330 \pm 120 BC (PRL 408), 1440 \pm 100 BC (PRL 407) and 1480 \pm 110 BC (BSIP) have been obtained from the samples from Mahagara. These dates are not consistent with the stratigraphy possibly due to contamination of samples. In the light of calibrated C¹⁴ date obtained from Kunjhun, reading 3530 \pm 3335, the beginning of the Vindhyan Neolithic culture was proposed to 4th millennium BC. (Clark and Khanna 1989). Three "C dates have come to light from recent excavations at Lahuradewa in the middle Gangetic Plain, which read as 5320 \pm 90 BP (BS 1951) (cal B.C. 4220, 4196, 4161) and 6290 \pm 160 BP (BS 1966) (cal BC 5298) (Tewari et al. 2001-2002, 2002-2003). Recently three relevant C¹⁴ dates have been obtained from Tokwa. When calibrated these read 6591 BC (BS- 2417), 5976 BC (BS- 2369), 4797 BC (BS-2464). An AMS C¹⁴ date for a carbonized domesticated rice would push



the antiquity of the Neolithic culture at Lahuradewa in 7th millennium BC (Tewari et.al. 2004-2005: 40). From the Neolithic horizon of Jhusi three C^{14} dates have been obtained. These dates when calibrated, read 7477 BC (BS-2526), 5837 BC (BS-2524) and 6196 BC (BS2525). The earliest date obtained from the site would put the beginning of the Neolithic culture of the site in 8th millennium B.C.

Regarding the span of the Neolithic culture, observations of P. Singh are very significant, 'domestication was a process which took considerable time and domestication of each type of domesticable animal and plant species would have taken place in different ecological niches at different times' (Singh 1991:5, Singh 2002: 128). In the Ganga Plain Neolithic culture and Neolithic way of life lasted for a long time starting from 8th-7th millennium B.C. to 3rd -2nd millennium B.C.

References

- 1- Agrawal, D.P. and J.S. Kharkwal 2002. South Aasian Prehistory : A Multidisciplinary study : New Delhi : Aryan Books International
- 2- Allchin, B. and R. Allchin 1997. Origins of a Civilization : The Prehistory and Early archaeology of South Asia. New Delhi : Viking Penguin India.
- 3- Chakrabarti, D.K. 2006. The oxford Companion to Indian Archaeology : The Archaeological Foundations of Ancient India. New Delhi : Oxford University Press.
- 4- Chaturvedi, S.N. 1985. Advance of Vindhyan Neolithic and Chalcolithic Cultures to the Himalayan Tarai : Excavation and Explorations in the Saraypar Region of Uttar Pradesh. Man and Environment 9:101-108.
- 5- Kennedy, K.A.R. 1984. Growth, Nutrition and Pathology in Changing Palaeodemographic Settings in South Asia. In Palaeopathology at the Origins of Agriculture. Mark Nathan Cohen, George J. Armelagos (Eds.) pp. 169-192. Orlando, Florida: Academic Press.
- 6- Kharakwal, J.S., A. Yano, Y. Yasuda, V.S. Shinde, and T. Osanda 2004. Cord Impressed Ware and Rice Cultivation in South Asia, China and Japan: Possibilities of Inter- links. Quaternary International 123-125: 105-115.



- Misra, V.D. 2002. Origin, Chronology and Transformation of the Mesolithic Culture in India. In Mesolithic India. V.D. Misra and J.N. Pal (Eds.) pp. 447-464. Allahabad, Department of Ancient History, Culture and Archaeology, University of Allahabad.
- 8- Misra, V.D. 2007. Stone Age Cultures, their Chronology and Beginnings of Agriculture in the North-central India. Man and Environment 32(1): 1-14.
- 9- Misra, V.D. 2007-2008. Prelude to Agriculture in North-Central India, Pragdhara 18: 249-261.
- 10- Misra, V.D. and J.N. Pal (Eds.) 2002. Mesolithic India. Allahabad: Department of Ancient History, Culture and Archaeology, University of Allahabad.
- Misra, V.D., J.N. Pal and M.C. Gupta 2002-2003. Further Excavations at Jhusi: Evidence of Neolithic Culture. Pragdhara 13: 227-229.
- 12- Misra, V.D., J.N. Pal and M.C. Gupta 2004. Significance of Recent Excavations at Tokwa in the Vindhya and Jhusi in the Gangetic Plain. Journal of Interdisciplinary Studies in History and Archaeology 1(1): pp. 120-127.
- 13- Pal, J.N. 1977. 'Bhartiya Nava Pashanik Sanskritiyan' (Hindi). In 'Bhartiya Pragaitihasik Sanskritiyan' (Hindi). R. K. Varma, pp. 272-282. Allahabad: Paramjyoti Prakashan.
- 14- Pal, J.N. 2008. Recent Excavations at Tokwa: Fresh Light on the Early Farming Culture of the Vindhyas. History of Science, Philosophy and Culture in Indian Civilization (General Ed. D.P. Chattopadhyaya) Volume V Part I, History of Agriculture in India (upto c. 1200 AD). Lallanji Gopal and V.C. Srivastava (Eds.), pp. 48-69, New Delhi: Concept Publishing Company.
- 15- Pal, J.N. and M.C. Gupta 2005. Excavations at Hetapatti (Allahabad District): Some Preliminary Observations. Journal of Interdisciplinary Studies in History and Archaeology 2(1) (Summer 2005): 163-168
- 16- Pokharia, A.K., J.N. Pal and Alka Srivastava 2009. Plant macro remains from Neolithic Jhusi in Ganga Plain: evidence for grain-based agriculture. Current Science, Vol. 97, No. 4, 25 August 2009, pp. 564-572.
- 17- Randhawa, M.S. 1980. A History of Agriculture in India, Volume I: Beginning to 12" Century. New Delhi: Indian Council of Agricultural Research. Roy.
- 18- Singh, P. 1991. The Neolithic Origins. New Delhi: Agam Kala Prakashan.



- 19- Singh, P. 1992-93. Archaeological Excavations at Imlidih Khurd 1992. Pragdhara 3: 21-35.
- 20- Singh, P. 1993-94. Further Excavations at Imlidih Khurd 1993. Pragdhara 4: 41-48.
- 21- Singh, P. 1998. Early farming Cultures of the Middle Ganga Valley, in Reconstructing History (Essays in Honour of Prof. V.C. Srivastava) Vol. I (Ed. V.D. Misra).Varanasi: Felicitation Committee.
- 22- Singh, P. and A.K. Singh 1995-96. Trial Excavations at Waina, District Ballia (U.P.).Pragdhara 6: 41-61.
- 23- Singh, P. and A.K. Singh 1997-98. Trial Excavations at Bhunadih, District Ballia (U.P.). Pragdhara 8: 11-29.
- 24- Singh, P., A.K. Singh and B. Singh 1994-95. Protohistoric Investigations in Ballia District, Uttar Pradesh. Pragdhara 6: 21-36.
- 25- Singh, P., A.K. Singh and Brahmanand Singh 1994-95. Protohistoric Investigations in Ballia District, Uttar Pradesh. Pragdhara 5:21-35.