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Animal Remains from South-western part of West Bengal, India and their relevance to the Ancient Civilization of the Area

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Zoological Survey of India

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ANIMAL REMAINS FROM SOUTH-WESTERN PART OF WEST BENGAL, INDIA AND THEIR RELEVANCE TO THE ANCIENT CIVILIZATION OF THE AREA

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1. INTRODUCTION

The state of West Bengal with an area of about 87,616 sq. km. lies between the geographical coordinates of 21° 38' N - 27° 10' N and 85° 49' E - 89° 50'E and is divided primarily into three geomorphological regions, viz., (i) Extra-peninsular region of the north (ii) Peninsular mass of the southwest, and (iii) Alluvial and deltaic plains of the south and east (G.S.I., 1974). Of these regions, the southwestern part constitutes a rolling upland with the presence of several hills and virtually an extension of the Chhotonagpur plateau. The districts come under this region are Puruliya, Bankura, West Medinipur, two small segments of western Bardhaman and a part of western Birbhum. The present surface of this region has been derived mainly through the process of degradation. This tract of land is considered as the old landmass of West Bengal and the Archean representing the oldest rocks in the form of gneiss and schist are exposed in places. The whole land surface consists of alternate ridges and depressions (Samanta, 1992).

The evidences of very old human cultures/*Homo* in India dating back to about 2 million years ago to 5000 B.C. without break, have been noticed in recent times in this region and in contiguous part of the neighbouring state . The probability of the Palaeolithic ancestry of Bengal was first projected by Valentine Ball in 1865 who recorded stone tools from the surface near Kunkune village in Bardhaman district. In next two years he reported some more sites from this part of West Bengal which established the gravity of the area from the standpoint of palaeolithic antiquity. Even so, the attention for prehistoric researches in this area was not sufficiently given until Krishnaswami (1959) took up a study with renewed interest. He recovered stone tools belonging to lower and middle Palaeolithic periods from the alluvial deposits along Kangsabati, Kumari and Jam rivers of Puruliya and Bankura districts (IAR, 1960). Lal (1958) however, recovered several microlithic tools in Birbhanpur on the bank of Damodar River in Bardhaman district representing Mesolithic culture. Ghosh (1961, 1962) reported stone tools belonging to Palaeolithic, Microlithic and Neolithic cultures from several places of northwestern part of Medinipur district. During 1961-65 a number of Stone Age, Chalcolithic and Protohistoric sites were discovered by Dasgupta (1963, 1965, 1966 and 1967). Later, Chakrabarti (1993) gave a prehistoric profile of West Bengal highlighting a number of sites dating back from Early Stone Age to Early Historic period in this region.

Despite archaeological records and history of human cultures through ages in this region of West Bengal no concerted effort was made earlier to trace out the zooarchaeological remains from the area. Sporadic reports of animal remains were however, available from places. In this context, an effort was made to explore past animal remains from the area and to make a comprehensive report of the zooarchaeological remains from different lithic cultures in this region. It has also been endeavoured to draw the relevance of the past faunal material in the life and ecology of ancient human folk.

2. STUDY AREA

2.1. GENERAL FEATURES

A number of limitations are faced in describing cultures of an area that developed through ages. Demarcation of a state or province is done largely on the basis of administrative and political considerations. The physical and geological features often become similar with the other adjoining states. Further, two adjoining areas with different physical characteristics do not necessarily show major differences in the constituents and forms of culture. A culture has a number of components of physical and biological elements. The area of West Bengal under consideration has been contiguous with the adjacent Jharkhand and Orissa states and the evolved human cultures in this zone were no way very different.

The southwestern region of West Bengal is an eastward extension of Chhotonagpur plateau that merges ultimately with the Gangetic plain. The area is generally undulating with hillocks in between and is traversed by a number of rivers and their tributaries. The easternmost portions of the districts of Bardhaman, Bankura, West Medinipur and Birbhum are, however flat and may be considered as transition between the plateau and the Bhagirathi delta. This region is fringe of the plateau and within the western laterite piedmont plain lying between the rivers Bhagirathi, Hugli and the peninsular block (Banerjee, 1964).

2.2. LOCATION

The area under consideration lies between 85°49' E and 88°25' E longitude and 24°35' N to 21°47' N latitude. The area consists of total five districts, namely, Puruliya, Bankura, Bardhaman, Birbhum and West Medinipur, covering an area of approximately 25415 sq. km. It is bounded by Jharkhand in the northwest and west, Orissa in southwest, East Medinipur district in the south and, East Medinipur, Hugli, Nadia and Murshidabad districts in the east. [Text Fig. 1]

District	Latitude	Longitude	Area (sq. km)
Puruliya	22°43' N- 23°42′N	85° 49' E - 86° 54' E	6259
Bankura	22°38' N- 23°38′N	86° 36' E - 87° 46' E	2621
Bardhaman	22°56' N- 23°53′N	86° 48' E - 88° 25' E	2689
Birbhum	23°32' N- 24°35′N	87° 05' E - 88° 01' E	4551
West Medinipur	21°47' N- 22°51′N	86° 40' E - 87° 52' E	9295

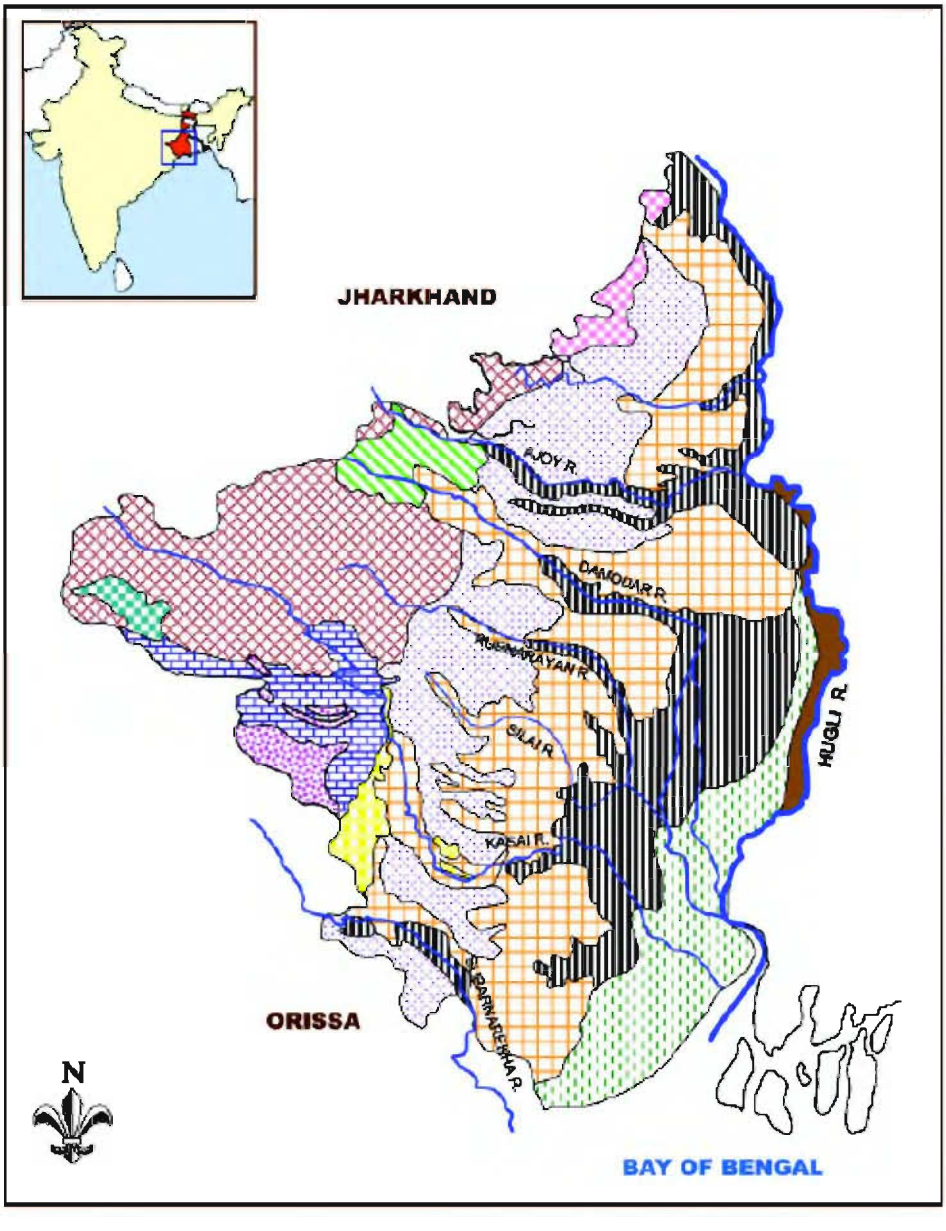
Text Fig. 1. Map of study area

2.3. GEOLOGY

The information on the geology of an area, in the background of the study of ancient habitation and culture, has been imperative. Because the tools, implements and other materials of antiquity not responsiveness to isotopic age determinations need to be correlated geologically with rock types / sediments from which they were recovered. The information on the geology of this area have been gathered through years by the following workers: Hunday & Banerjee(1967), Majumder & Ghosh (1979, 1980), Ghosh & Majumder (1981), Chatterjee, Majumder & Ghosh (1980), Majumder (1981, 1982), Chatterjee, Sharma & Majumder (1982); Chattopadhyay, Majumder, Das & De (1987); Chatterjee, Majumder & Chattopadhyay (1988); Bhattacharya & Banerjee (1979), Dassarma & Biswas (1978); Sastry *et al.* (1976); Chakrabarti & Sarkar (1987), Ghosh & Majumder (1991). The present account has been derived mainly from that earlier works.

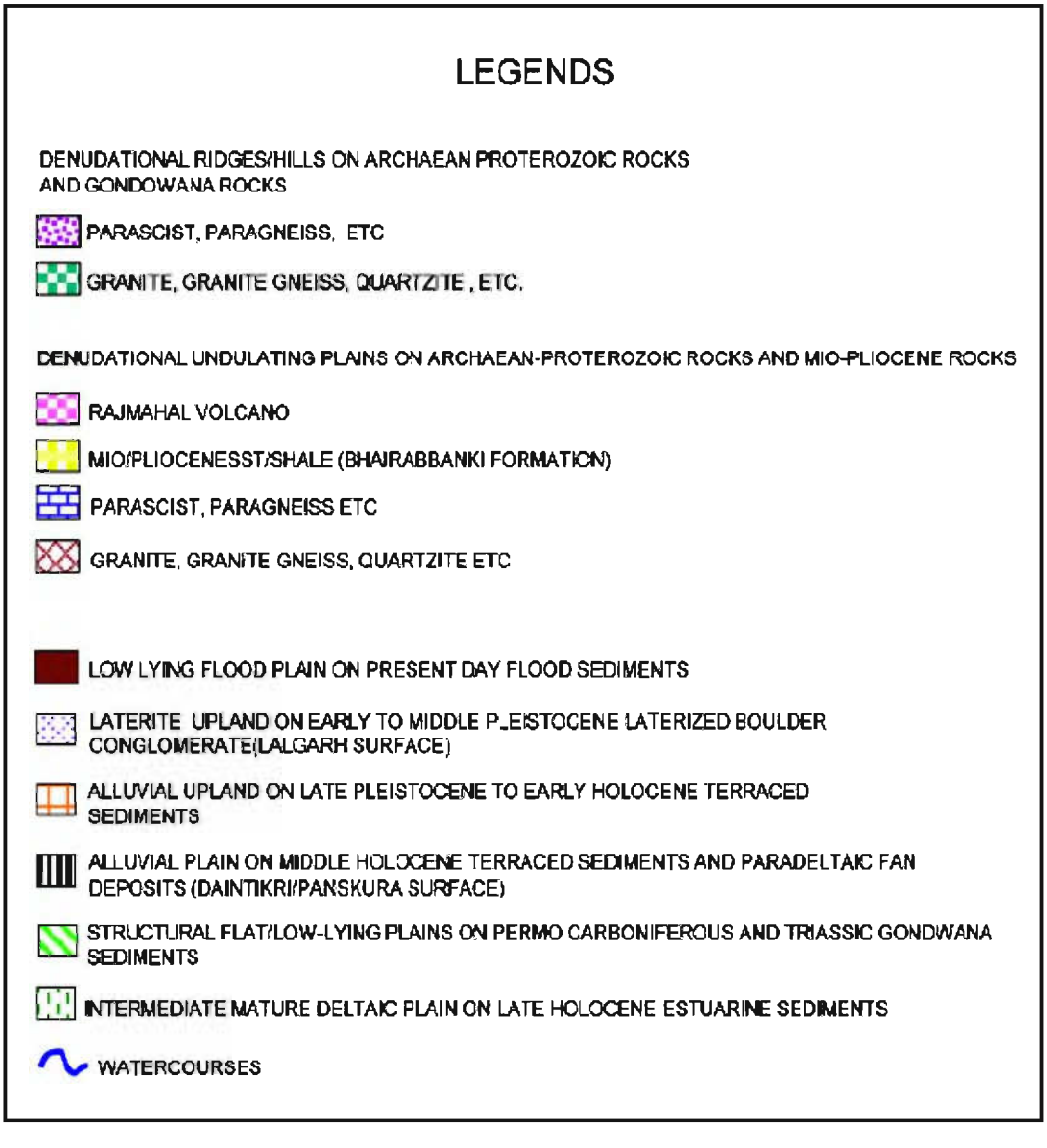
2.3.1. GEOMORPHOLOGY AND LANDFORMS

The eastern fringe of Singbhum craton of the Indian shield skirts the western part of West Bengal. The cratonic mass is composed of Archean-Proterozoic paraschist, paragneiss, amphibolite, granite-gneiss, anorthosite, *etc.* as well as Jurassic volcanics and Gondwana rocks in intra-cratonic fault-basins. Prolonged weathering, erosion and



Text Fig.2. Distribution of Morphostratigraphic units in south-western West Bengal
[After Ghosh and Majumder, 1991]

denudation that continued throughout the geological history from Precambrian to Quaternary have given rise to denudational landforms in this region. Incidentally, low-lying plains with Gondwana rocks restricted within intracratonic linear fault troughs are the only geomorphic unit of structural origin. Despite severe denudation, these fault basins have maintained their structural control. These structural low-lying plains occur around Ajoy-Damodar- Barakar river basins and are linearly disposed in the western border of Bardhaman district. Its surface is undulating with frequent rock outcrops and mounds and is fairly dissected.



Residual flat-topped hills, hummocks and mound of paraschist, phyllite, sericite schist, calc-granulite, pyroxene granulite, schist, amphibolite, quartzite, granitwe, gneiss, meta-basite etc. are seldom seen in Medinipur, Puruliya and Bankura Districts. Bornhardt-type of isolated hills of quartzite (Susunia) in Bankura district and sandstone (Panchet and Biharinath) in Bardhaman District are seen under the geomorphological category of denudational hill. Linearly stretched low denudational ridges are also seen, like Ayodhya hills in Puruliya District and several other low ridges in Medinipur

Text Fig. 3. Important Zooarchaeological Sites in South-western West Bengal.

district. The altitudes of these denudational hills never exceed above 700 metre above msl. (viz., Ayodhya Hills: 677m; Panchet Hill: 643m; Biharinath Hill: 448m; Susunia Hill: 440m etc) (See Hunday & Banerjee, 1967). Small ephemeral streams originate from and flow down the steep slopes of these hills. At the foot of these hills narrow belts of pediment with hill wash materials accumulate which merge with rocky, undulating pediplain. There are other low hills, hummocks and mounds which do not attain altitude even upto 300 metre. Most of these residual flat topped low hills and hummocks of Precambrian –Palaeozoic laterite crust are found at the top. All these rock masses represent the cratonic mass belonging to the eastern fringe of the Singbhum craton of the Indian peninsular shield.

In eastern fringe of the shield area denudational undulating plain extends over Neogene sediments. Geomorphologically, this forms basically on younger and lower surface than that formed over Precambrian - Jurassic rocks. This plain over gently dipping Miocene-Pliocene sandstone/shale occurs at an average height of 100 m, varying between 60 metre and 180 metre above msl. It is much less dissected and has a gentle easterly slope. This geomorphic unit is primarily featured on the west of middle reaches of the Kasai River.

2.3.2. PREQUATERNARY GEOLOGY

The western part of West Bengal represents the eastern border of the Precambrian shield with stable cratonic mass. This tract comprising Archaean – Proterozoic rocks becomes the eastern continuity of Chhotonagpur plateau. The oldest rocks available here are the para-schists and para-gneisses those include phyllite, carbon-phyllite, garnetiferous quartzsillimanite schist, talchlorite-tremolite schist, etc.These form the basement overlain by para-amphibolite, calcgranulite, pyroxine granulite, pyroxene gneiss and hornblende gneiss. These rocks are primarily found in the western and northwestern parts of Medinipur District, southwestern part of Bankura and southern part of Puruliya Districts.

Anorthosites and Norite of presumably primary magnetic origin are also there. These are found mainly in western Puruliya and northwestern Bankura. Younger to these rocks are granitoid rocks, occurring in major part of Puruliya and southwestern part of Bankura and southwestern part of Birbhum Districts. These include banded biotite granite-gneiss, migmatite, aplitic granite gneiss, feldspathic gneiss, etc., formed by granitization of various para-schists and gneisses. These are equivalents of chhotonagpur granite gneiss. Mica pegmalites, aplites and quartz veins are intruded into all the older schists, anorthosites and granite gneisses. The younger intrusive rocks are dolerite and metadolerite dykes. All these Precambrian rocks are characterized by a prevailing ENE-WSW regional structural trend that is analogous to Satpura strike (Sengupta, 1966).

A notable feature of this Archean-Proterozoic shield is its hosting of E-W trending intra-cratonic fault troughs where thick piles of Gondwana sediments (Upper Palaeozoic-Triassic) including coal occur. The Ranigunj coalfield covers about 1500 sq. km. area in Ajay-Damodar-Barakar river basin. The gravity survey by the ONGC showed subsurface continuation of Gondwanarocks in whole of southern part of West Bengal below basaltic lava at depths of 4000 metre and more (Tectonic Map of India, ONGC, 1968). The isolated hills of Panchet and Biharinath consisting of Panchet sandstone stand as landmarks on the southern bank of Damodar River. The shale-sandstone-coal sequence is seen to have been intruded by silts and dykes of mica peridolite, lamprophyre and dolerite of presumably Jurassic period.

A narrow strip of ferruginous gritty sandstone, grits, black clay stone with leaf impressions, white shale and brownish white sandstone of probable Mio-Pliocene age occur in the Kasai basin fringing the Precambrian shield in western part of Medinipur district and southern part of Bankura District (Majumder & Ghosh, 1979; Ghosh & Majumder, 1981). These rocks underlying the laterized boulder conglomerate of Pleistocene age and overlie either the Precambrian rocks directly or the pre-Mio-Pliocene laterite, developed on Precambrian rocks. Ghosh & Majumder (1981) named this rock sequence as the Bhairab-Banki Formation. Occurrences of Tertiary grits, gravels, soft sandstone and shales with or without Miocene fossil wood are reported in isolated patches in Medinipur, Bankura, Birbhum and Bardhaman Districts (Hunday, 1954; Chowdhury *et al.*, 1960; Banerjee, 1962, 1966; Hunday & Banerjee, 1967).

2.3.3. QUATERNARY GEOLOGY

Good information on the Quaternary stratigraphy is available in the works of Sastry, Dassarma & Biswas (1976) of Bankura district and Ghosh & Majumder (1981) of the Kasai basin. The probable Neogene-Quarternary boundary may be set between the Mio-Pliocene Bhairab Banki Formation and the Pleistocene Lalgarh formation in the Kasai basin (Ghosh & Majumder, 1981). This divided into lower and upper Lalgarh Formations, represents basically a boulder conglomerate, these later uplifted and laterized, and represents the beginning of Quaternary sedimentation over the plantation surface of Mio-Pliocene rocks in the eastern fringe of the shield area. The lower Lalgarh Formation occurring at the higher level represents the primary laterite developed over the Pleistocene boulder conglomerate. It consists of rounded pebbles, cobbles, boulders of Precambrian quartzite, amphibolite, schist, granite, Tertiary (pre-Mio-Pliocene) laterite, Mio-Pliocene fossil wood and pallets of white shale of Bhairab Banki Formation. The Upper Lalgarh Formation comprises reworked and redeposited sediments of the lower elevation areas. Vertebrate fossils of middle to upper Pleistocene age have been noticed here. Various Palaeolithic tools and implements were recovered from this sequence of southern West Bengal as well as in adjacent parts of Orissa and Jharkhand states (Bose *et al.*, 1958; Ghosh, 1962, 1966; Ghosh & Majumder, 1981). The Baltora

Formation, characterized by Sastry *et al.* (1976) and Dassarma & Biswas (1978) in Bankura district is equivalent to upper Lalgarh Formation. The similar formation has been described by Niyogi (1975) as the Kharagpur Formation and Worgram Formation in western Medinipur and Bardhaman Districts respectively.

The oldest alluvial terrace sediments stratified above the Lalgarh Formation is a thick sequence of rather compact, ferruginous brown and sandy loam with more than one caliche horizon developed in it. These sediments have been mapped as Sijua formation in Kasai basin (Ghosh & Majumder, 1981) and Babladanga-Bamundiha Formation in Bankura District (Sastry et al., 1976). These oldest terrace sediments in peninsular India including in Ganga foredeep are considered to be as older alluvium. Ghosh & Majumder, (1981) reported various mammalian fossil bones and microlithic objects from the Sijua Formation. This Formation developed over the eroded surface of Lalgarh Formation forming an alluvial upland in Medinipur, Bankura and Bardaman Districts. The sedimentary deposits are Holocene by age through deposition of its basal part might have started in late Pleistocene.

There is another sequence of alluvial terrace sediments, stratigraphically younger than the Sijua Formation, bordering the shelf zone occupies much lower level and developed over eroded planes of the Lalgarh and Sijua Formations. These younger terrace sediments have been mapped as Daintikri Formationin Kasai Basin (Ghosh & Majumder, 1981).

2.4. PHYSIOGRAPHY

2.4.1. PHYSICAL FEATURES

From the western most part to eastward the land elevation is gradually declining. Puruliya Disticts is almost upland with some hilly area. The general elevation of the hilly area is in the range of 300-600m and that of open upland is 150-300m. The part of Bankura, West Medinipur, northwestern part of Bardhaman and western part of Birbhum is undulating and rocky lateritic upland. These districts are, as previously said, continuations of Chhotanagpur Plateau, gradually merge with Gangetic alluvium. As a general feature, the surface is broken by a succession of undulations roughly from northwest to southeast. In the west the high ridges of laterite are separated by comparatively narrow and defined valleys whereas in the southeast and east the valleys gradually merge into Gangetic Delta.

2.4.2. HILLS

The western part of the area is undulating with many small to medium hills and hillocks (most of which are named after locality as Belpahari, Kankrajhor etc).

There are two major hilly areas in the westernmost district of the area, Puruliya. The principal knot of the hills is in the southwest called Ayodhya Hills which is the

highest in the region. Its highest peak is Ganga Buru with the height of 677m. Another in northeast portion of the district is Panchet Hills with a height of 643 m. Another two major hills are in district Bankura, Susunia and Biharinath. Susunia is situated about 23km. northwest to Bankura town with a height of 440m, Biharinath 448m high in the northwest direction to Bankura town. In the West Medinipur district, northwest part especially Belpahari- Kankrajhor area, the land is gravelly with some hills intruding from Singhbhum range.

2.4.3. WATERCOURSES

The area is traversed by a number of rivers and their tributaries, numerous nullahs and jorhs, mostly originating from Chhotanagpur Plateau region. The rivers flow from west to east and most of the rivers meet River Bhagirathi / Hugli and ultimately directed towards Bay of Bengal. From south to north the major rivers are Subarnarekha, Kasai or Kansabati, Silai or Silabati, Dwarakeswar, Damodar, Ajay and Mayurakshi. Other notable rivers are (mostly branches or tributaries of the said major rivers) Gandheswai, Kumari, Tarapheni, Kunur, Kopai, Khari and others. All these rivers have immense bearing in the in the development of prehistoric civilization in the area. These rivers are mainly rainfed and in the summer most of them become dry. But during rainy season, flooding is very common every year. A number of dams and reservoirs have been constructed on some of these rivers to control flood and irrigation. The major rivers are featured briefly hereunder:

River Subarnarekha – Originated in Bihar (present Jharkhand) near Tori of district Palamau. The river enters West Bengal only touching the western boundry of Puruliya district and then again enters back to Jharkhand. Subernarekha is flowing through the rocky surfaces of the districts. In Puruliya, few rivers and streams, meet Subernarekha, are Shank, Sapuli, Salda, Rupai etc. Subarnarekha again enters West Bengal in West Medinipur near Noaga, then passing by Gopiballavpur, Hatibari, Dantan it finally enters Orissa to meet Bay of Bengal. 477 km long river Subarnarekha is mainly river of Bihar (Jharkhand) and Orissa. All its way it passes through rocky upland. Dulung is another tributary of this river in Medinipur district. The small part of its journey to sea inside West Bengal it offers a number of beautiful places of tourist's interest like Hatibari, Gopiballavpur and others.

River Kansabati – Kansabati is one of the major rivers in south Bengal covering four districts of Puruliya, Bankura, West Medinipur and East Medinipur. Local name is Kansai. The Kansai stream is coming down from the hill Jhabarbn near Ayodhya hill in Puruliya district. Meeting with another streamlet Saharjor River Kansai or Kansabti is formed. At Deulghata, Kansabati turns eastward. After 32 km. another bigger tributary Bandu meets Kansabati. Flowing more eastward near the eastern boundary of Puruliya dist Kansai enters Bankura dist where it meets Kumari river,

another important river of Bankura. A dam and big reservoir have been constructed at this meeting point of Kumari & Kansabati near Mukutmanipur. The reservoir covers some area of both the districts of Puruliya and Bankura. After the dam, Kansabati flows down via Ranibandh etc to West Medinipur. Here its other important tributaries like Tarafeni, Bhairabbanki and Kupin meet. The meandering Kansai enters East Medinipur and after meeting with Kaliaghai takes name of Haldi River and pours down to river Hugli finally.

River Silabati – Another major river originating from the upland of Puruliya dist near Puncha town flows to Bankura dist. The river is commonly known much as Silai. In Bankura, Jaypanda and Purandar – these two tributary rivers meet Silai and flowing in southwestern direction it enters West Medinipur district. In this district, passing through Garhbeta, Kharhkusma, Narajol, Silai meets river Dwarkeswar and joined watercourse is named as Rupnarayan. Other smaller tributaries are Kulbai, Tamal, etc.

River Dwarakeswar – The source of Dwarakeswar River is a pool between Adra and Hura, near Cossipur town in Puruliya district. It is also known as Dhalkishore. It is entering Bankura district near Dumda village passing Bishnupur, traversing approx 96 km. within this district it enters Hugli. Then it meets with one channel of Damodar River and Silai River and finally becomes river Rupnarayan which meets River Hugli in East Medinipur district. Other important tributaries are Gandheswari and Kumari.

River Gandheswari – Originating near the boundary of Puruliya and Bankura dist Gandheswari is flowing through the western side of Susunia Hill in Bankura district Gandheswari meets River Dwarkeshwar near Bankura Town. It has a number of small tributaries like Dhankora jorh.

River Damodar – Damodar is the most important river in lower Bengal after Hugli River. Damodar originates as rainfed river from Khamarpat Hill in Palamau district of Jharkhand. Innumerable of water channels and rivulets constitute the river Damodar which enters West Bengal in Puruliya district. This river was called previously River of sorrow, due to its extreme devastating floods in every year which caused great damage to the thousands of inhabitants. From far old days human culture and civilization were developed in the flood plain of this river. After Puruliya district, Damodar enters Bardhaman dist and flows towards east as boundary of district Bardhaman and Bankura. Again entering into Bardhaman district it suddenly goes down to southward into Hugli dist and then Haora dist where it finally meets river Ganges or Hugli. In Hugli district, it gives one important branch channel named Mundeswar which is now stronger than the original river. Damodar has changed its course many times destroying large area. Its major tributary is Barakar , on which Maithon Dam was constructed by Damodar Valley Corporation and another dam Panchet (in Puruliya near Panchet Hill) is on river Damodar itself. Another major barrage on Damodar is situated in Durgapur. All theses are for controlling flood in

these districts mainly Bardhaman, Hugli and Haora. There are numerous live and dead channels of Damodar in the long course of which carried the weterload in different times.

River Ajoy – Ajoy is a major river also delimiting Bardhaman and Birbhum districts in between. This river flows from west to east. Numerous famous villages, townships and also pilgrimage like Kenduli. Katwa etc. main tributary of Ajoy is Kunur in Bardhaman district and Hingla in Birbhum. A number of ageold habitations and archaeological sies have been found in the flood plain of this river like Pandu Rajar Dhibi, Mongolkot and others.

River Mayurakshi – It is the most important river in Birbhum dist after Ajoy. Originating from the Trikut Hill (western side of Rajmahal Hill) of Baidyanathdham, Mayurakshi is flowing towards southeast. In Birbhum dist, it flows eastward, and then enters Murshidabad district in Kandi subdivision.

River Kopai – Originating from the western region of Birbhum district, Sal River flows east ward which takes name Kopai near Bolpur. It meets Bakreswar River near Labhpur and then enters Murshidabad.

2.4.4. SOIL AND CLIMATE

Soil is fairly fertile in the eastern part of the area, particularly Bardhaman, Birbhum and part of West Medinipur districts. But the western upland is mostly covered with lateritic soil admixed with nodules and gravels, which is less suitable for agriculture.

Climate is tropical, characterized by broad three seasons as hot summer from March to May, cold winter in November to February and abundant rainfall during monsoon between June to October. The temperature rises to 46-48° in summer whereas it comes down to 5-6° during winter. This extreme temperature variation is mostly related to the highlands of western side particularly Puruliya, Bankura and part of Birbhum and West Medinipur districts. Amount of monsoon precipitation varies in different parts.

2.4.5. FORESTS AND WILDLIFE

The area was heavily forested once upon a time but has been subjected to massive denudation in recent past due to anthropogenic activities. Most of the forests belong to 'Northern tropical dry deciduous – dry Sal' type. In the present days, the efforts have been successfully made to regenerate forests and plantation also. Except Sal (*Shorea robusta*), there are Palas (*Butea frondosa*), Mahua (*Bassia latifolia*), Kend (*Diospyros melanoxylon*), Piasal (*Pterocarpus marsupium*), Asan (*Terminalia tomentosa*), Kusum (*Schleichera oleosa*), Gamar (*Gmelina arborea*), Simul (*Bombax ceiba*) etc. Major forest produce is timber, also lac, fuelwood, sal leaves, charcoal. Medicinal plants are important, especially in Puruliya hills.

Due to abundance of forests, the land was previously called as Jungle mahal. That greenery was terminated to few patches of degraded Sal forests. From remote past, the primary forests were removed slowly by increased human population for habitation and cultivation land. In British period, due to availability of better communication system in south Bengal than north, the natural beautiful forests (particularly Sal) was almost destroyed to meet up the excessive demand of timber (railway sleeper etc.) of that time. Early in the 20th century, the extension of Bengal Nagpur Railway was done through Bankura and huge tree felling was done even in personal properties.

The forests of this region housed a number of important wildlife species, even centuries back. Among bigger species, tiger (reported in Bankura District Gazetters by William Hunter in 1877), bear, elephant, hyena, blackbuck, chowsingha etc., which were reported from different regions of western side of the area in past, are now totally vanished from the area due to destruction of their natural habitat. Now important mammal species, surviving in the region are wolf, pangolin, civets, boar and hyena. Leopards are sometimes reported, possibly strayed. Cheetal or spotted deer is reintroduced in the regenerated forests. Elephants found here are migrated from Dalma hill of Jharkhand causing serious problem of the area for crop damage and man-animal conflict. The area is still rich in diversity of reptilian fauna, of snakes and lizards. There are many wetlands in this area which are visited by a good number of migratory birds every year in winter.

2.4.6. LANDUSE AND IRRIGATION

Forested land (natural as well as plantation) and agricultural field occupy most of the area in this region. Some rough undulated hilly terrains, without any vegetation cover and also not suitable for agriculture, are there as wasteland in Puruliya and Bankura districts. The area is interspersed with many natural lakes, ponds and other waterbodies and also some man made reservoirs and local small dams for irrigation purpose.

In past, rain water was the only source of water for cultivation. No such irrigation method was there except some local damming of river courses. Hence agriculture system in the western arid zone (due to low rainfall) was very poor. Now a number of large to small dams and reservoirs have been constructed and also deep tube wells, for the development of agriculture of the entire area. Also some wastelands had been converted to plantation forests by irrigation in recent past.

2.5. DEMOGRAPHY AND LIVELIHOOD

The area is not as thickly populated as the adjoining districts of West Bengal. But the eastern part of West Medinipur, Bardhaman and all the big towns are well populated. A major section of the population of this area is tribal, particularly Puruliya and Bankura, mainly of Santal, Kheria, Shabar and some others. The main profession

of the people is agriculture and they produce mainly paddy, potato and other vegetables etc. where cultivable land is available. Sericulture and lac culture are another two commercially important cultivations in this area. Collection of leaves, timber wood, and other minor forest produces are common among the poorer people. The tribal people still continues hunting of animals existing in surrounding area, in a limited scale. People are also engaged as labourers in the colliery and industries in the Asansol and Raniganj belt. The whole region is very widely famous for various local handicrafts and handloom, some of which are terracotta or Baluchori of Bankura district.

3. HISTORY OF ARCHAEOLOGICAL EXPLORATIONS IN SOUTH-WEST WEST BENGAL

The study of antiquity of Bengal came to way with the chance discovery of some stone implements by Valentine Ball in 1865 from Kunkune village in Bardhaman district and in 1867 from Gopinathpur village (11 miles SSW of Biharinath hill) in Manbhoom District (now Puruliya) (Ball, 1865, 1867). After a long period of neglect, N.G. Majumder in 1937-38 noticed some stone implements in association with pigmy flakes, cores and beads from surface flood plain of Damodar river near Durgapur (Goswami, 1993-94). In 1948, D. Sen of the Anthropology Department of the University of Calcutta explored some stone artifacts in the bank of river Kansai in Jhargram Subdivision of Paschim Medinipur district and these were claimed to be the first record of Neolithic stone implements from Bengal (Sen, 1948). In 1954 a site in Birbhanpur in the bank of Damodar River in Bardhaman District was noticed by B. Lal and was excavated by him on a small scale. The excavation gave rise to several nongeometric microlithic tools unassociated with pottery. The cultural information, out of this Mesolithic site, indicated a factory - site combined with living site (Lal, 1958). V.D. Krishnaswami of the Archaeological Survey of India started exploration in Bankura and Puruliya in 1959 along rivers Kumari, Kansai, Jam, etc. and various tools belonging to lower and middle Palaeolithic periods were reported from these river belts. No stratigraphic context could however be ascertained from these surface collections (Krishnaswami, 1959-60). A.K. Ghosh (1961) reported an assemblage of stone tools (of Palaeolithic, Microlithic and Neolithic in nature) from several localities like Astajuri, Bamandih, Bhaduaxin, Mynagar, Laboni, Simulpal etc. around the regged terrain of Belpahari and neighbourhood in the northwestern part of Medinipur District.

The Directorate of Archaeology, Govt. of West Bengal carried out extensive field investigations, led by P.C. Dasgupta, in different river valleys and terrains of West Bengal covering the Chhotonagpur fringe lying in the districts of Puruliya, Bankura, Medinipur, Bardhaman and Birbhum (Dasgupta, 1963, 1966). They excavated the most famous Chalcolithic site at Pandu Rajar Dhibi in the Ajoy Valley of Bardhaman district during 1961-1965. Archaeological Survey of India, Eastern Circle explored a few important sites like Mahisdal, Haraipur and Nanur in Birbhum district in 1964, 1965

and 1967 (IAR, 1965, 1966, 1967). The site of Baneswardanga near the village of Barabelun of Bardhaman district was first discovered by D.K. Chakraborti in 1972 and the excavation was carried out in 1974 by Directorate of Archaeology under supervision of P.C. Dasgupta. The site of Bharatpur near Panagarh of Bardhaman district was explored by the Archaeological Survey of India and Burdwan University in 1971- 74 (IAR, 1972,1973,1974).

The Archaeology and Museum Unit, History Department of University of Delhi, carried out investigations on the prehistory of West Bengal and adjoining regions of Chhotanagpur in Jharkhand and Orissa from 1981-82 (Chakrabarti *et al.*, 1982a &1982b; Chakrabarti & Chattopadhyay, 1984a & 1984b). The team excavated the important site of Bahiri in Birbhum district and added many more sites important for the prehistoric study of the area. The detailed report on different sites spanning from Stone Age to Early Historic days, has been presented by Chakrabarti (1993). Bhattacharya (1987) reported the outcome of explorations in Tarafeni basin in Medinipur district. Datta (1991c) reported a material analysis of Upper Plaeolithic blade tools from the mid-Kasai Valley in West Medinipur district. Some other investigations were carried out by Viswabharati University in Kotasur (1986-87) and Hatikra (1986-87) in Birbhum District (IAR, 1987, Ghosh *et al* 1988). Department of Archaeology, University of Calcutta conducted excavations at Dihar of Bankura district in 1983-84 (IAR, 1977, 1984), Mangalkot of Bardhaman district in 1975 and 1987-1990 (IAR, 1987; Ray & Mukherjee, 1992) and more recently Pokhorna of Bankura District during 2002-03 (A. Datta, Pers.com.).

4. ANIMAL REMAINS FROM THE STUDY AREA – EARLIER STUDIES

Though the history of archaeological study of the area dates back almost one and a half century, the study of the remains of the animals which reigned on earth along with primitive man in remote past (and took active part in the civilization process of mankind) is not very old.

Discovery of *Lystrosaurus* fauna of Panchet series actually started with the collection of fossil limb bones by A. Tween and W.T. Blanford of G.S.I. in 1860. Afterwards subsequent researches have been carried out by authors Like Lydekker (1879), Dasgupta (1922) from time to time. Later, S.N. Puri and B.R. Narayanmurthi resurveyed Raniganj coalfield area and collected a number of important vertebrate fossils in 1952. Later on, extensive field survey in the Panchet area undertaken by GSI and Indian Statistical Institute resulted in a number of fossil collections. The account of which has been given by Tripathi and Satsangi (1963). The age of the Panchet bed has been established as Lower Triassic due to the presence of *Lystrosaurus* fossils (Tripathi & Satsangi, 1963). Study of the Gondowana fossils from Panchet series of Triassic age is not, however, helpful in understanding the environment of comparatively recent quaternary period when human civilization evolved.

In the sixties of twentieth century, Directorate of Archaeology of Govt. of West Bengal recovered some vertebrate fossils around the human cultures site in Susunia of Bankura district. Those collections were later studied by Geological Survey of India. GSI also made survey in that region in 1966 to obtain geological data and collected more fossils from that region. The outcome of the study is available in the report of Sastry (1968). A number of important fossils, mostly of mammals like, *Palaeoxodon namadicus, Bubalus palaendicus, Equus namadicus, Bos namadicus etc.* Sastry determined the age of these fossils belong to upper Pleistocene. As a sequel to this important finding, GSI carried out field investigation in that area along with some other basins of Bankura, Puruliya and Bardhaman districts. As a result of that survey, numerous fossils were found which ranges in age from upper most Pleiostocene to early Holocene. They include living forms as well as some extinct forms. The collections include *Bos cf. namadicus, Bubalus bubalis var. palaeindicus, Boselaphus namadicus, Palaeoloxodon sp., Crocuta sp., Hystrix crassidens, Antilope cervicapra, Sus cristatus, Panthera leo, Batagur baska, Gavialis gangeticus etc.* The detail of the survey collections and their description was published by Dassarma *et al* (1982). Occurrence of fossil lion and spotted Hyena from the deposit was discussed by Dutta (1976). Some other animal remains excavated during the exploration of Directorate of Archaeology, W.B. during 1969 in Susunia were studied by ZSI, among which the occurrence of fossil of *Bos namadicus* and *Miotragoceros* cf. *punjabicus* are reported by Banerjee and Saha (1976), Banerjee, Saha and Roy (1987), respectively and the occurrence of *Giraffa* from the same was reported by Banerjee and Ghosh (1977, 1978) and occurrence of fossil *Panthera pardus* by Saha, Banerjee and Talukder (1984).

Later on, when Directorate of Archaeology conducted a more organized survey in Gandheswari river basin region around Susunia and surroundings, a number of animal remains were found along with the archaeological artifacts. Teams of ZSI also conducted few surveys (in 1981, 1982, 1984 and 1985) in that area for animal remains. All those materials were studied by the ZSI.

Apart from these fossil or semifossilized remains from Susunia region, which are of different nature, animal remains were recovered from the organized excavation work of some important Chalcolithic/ferro-chalcolithic sites as well as more recent cultural period. As the systematic excavation revealed the proper stratum etc, the aging of those materials could be judged and also collated with the archaeological findings. These could be assessed for Pandu Rajar Dhibi (Ghosh, 1991; Ghosh & Saha, 1991, 1992), Bharatpur (Banerjee, 1981), Baneswardanga (Ghosh, 1993-94), Bahiri (Ghosh, Saha & Banerjee, 1993) and few others.

Findings of animal remains from the region are reported in various literature of archaeological study. These emphasized mostly bone tools and other artifacts. In most cases other animal remains are not studied or described in detail. Some material from few sites were sent to ZSI for study, as Laljal Cave (Ghosh, 1990), Kotasur (Ghosh *et al*, 1992a), Hatikra (Banerjee et al, 1992) and others (Ghosh *et al*, 1992b).

5. ANCESTRY OF HUMAN CIVILIZATION OF THE AREA

A profile of the ancestry and graduation of human civilization in the southwestern part of west Bengal is depicted from scattered information, sporadic findings and outcome of a few systematic archaeological excavations in this area. Still many a points need to be properly addressed especially the routes of cultural migration and concerned time periods.

History of development of human civilization is divided into two major phases – food gathering and food producing. The first revolutionary change of human history was transition from food collector to food producer. Then slowly by the discovery of metals, specialization and diversion of labour, transport, trade, surplus wealth and ultimately establishment of urban areas man became civilized. Thus human race is constantly undergoing a gradual and progressive development.

The ancestry of human culture in the area can be traced back to the earliest cultural phase i.e. Palaeolithic, without any doubt. In this earliest Stone Age or Palaeolithic age, man was hunter-gatherer, savage and used crude stone tools. This stage can be divided into Lower Palaeolithic, Middle Palaeolithic and Upper Palaeolithic. Palaeolithic evidences are concentrated mainly in the region comprised of entire Puruliya, Bankura with an exception of a small part of a small region in the northeast, the western part of Medinipur (actually the present West Medinipur dist), small segments of western Bardhaman and a part of western Birbhum. The Palaeolithic context of whole West Bengal may seem to be restricted only to this region (Chattopadhyay, 1992).

5.1. Palaeolithic

Earliest lower Palaeolithic site was found by V. Ball in the form of handaxe from Bankura district (Ball, 1865). Actually largest number of collection site for lower palaeoliths are from Bankura dist, followed by Paschim Medinipur and then Bardhaman. The most important Palaeolithic site where faunal remains of late Pleistocene were collected in different times is the Susunia Hill and adjacent area in dist Bankura along with the richest collection of Acheulian tools. A random collection of stone tools as well as fossil remains without scientific lines has been made here. Also some systematic digging of some particular areas as Bamundiha, Biribari, Suabasa was done. All these areas lie between 400 – 500 ft contour lines.

It appears from various evidences that Susunia was a suitable area for the habitation of early men. The hill slopes provided raw material for the stone tools in the shape of quartz and quartzite pebbles and nodules (Mukherjee, 1992) to estimate the horizon of the stone age tools, the fossils were recovered from the deposits along the Gandheswari river and its numbers of tributaries (jorhs and nullas) where the water flowed over a considerably steep gradient during the rains. From several exploratory digs in the region and examination of river banks, it was confirmed that the horizon of the fossils came from the weathered sandy silt of the Pleiostocene (late) times when the region

Text Fig. 4. Susunia Hill region, Bankura district – an important fossil bearing site

Text Fig. 5. Tarafeni reiverbed, West Medinipur district – an important prehistoric site.

had forests and waterlogged areas evidently after a wet phase. The animals represented by the fossils once roamed the elevated tract of Susunia. From this area, tools belonging to lower palaeolithic, middle Palaeolithic and other advanced culture have been recovered. The geostratigraphy (from exploratory digs) reveals clay beds including the recent one which might indicate an arid and semi arid climatic condition in the region during the early Stone Age. The faunal character was ascribed to the upper Pleistocene. Presence of *Bos namadicus* indicates still an older date. The fossilized remains of *Palaeoxodon namadicus* (extinct elephant species) found from this region were dated by C^{14} method as belonging to a period before 40000 BC (beyond the limit of the sensitivity of the instrument, Jadavpur University).

The geological horizon of lower Palaeolithic industry is either lower gravel bed or secondary laterite. Both the gravel and laterite beds indicate a comparatively wet phase of Pleistocene period. The broad stratigraphy as revealed from the major river sections shows that there are two types of Pleistocene sedimentation viz. gravel and silt and there are two gravel beds and two silt beds (but in some places the gravel bed is replaced by secondary laterite bed). The alternative deposition of two types of clustic sediments indicate two wet and two dry phases existed during Pleistocene. The lower Paleolithic people in West Bengal started settled down right from lower gravel bed and continued to evolve till the end of upper loose gravel bed. The hunting gathering people of Paleolithic age of this region must lived on the wild animal resource available in that period.

Other palaeolithic sites (as found from the collection of by different workers in different times) from the region are as in the following Table.

A number of Palaeolithic sites have been documented from the region. A higher number of lower Palaeolithic sites as well as tools were recovered from Bankura district, followed by Medinipur and Bardhaman districts. Krishnaswami (1959-60) recovered a number of Middle palaeoliths from Kumari-Kansabati valley and Tarafeni basin of Medinipur district (Text-Fig. 5). A few more were recovered from Puruliya, Bankura and Bardhaman districts. The recovered Palaeolithic artifacts from above sites were often difficult assign to either lower, middle or upper substages of Palaeolithic as there overlapping of features. These overlapping of substages might have been caused due to interactions between different cultural patterns existing simultaneously in different places and in different time span.

5.2. Mesolithic

The term Mesolithic is conventionally applied to denote the cultural stage represented by Microlithic industries not associated with pottery and generally antedating the earliest farming based cultures (Ghosh, 1989).

As the civilization progressed, the subsistence pattern of hunting and gathering did not change much. Only difference came in the use of more sophisticated tools which became smaller than the previous crude forms but much sharper and more

functional and easier to handle properly. With the end of Pleistocene, Palaeolithic age progressed into Mesolithic. With the beginning of the use of these microliths, focus of hunting was shifted to smaller animals. The blade technology, introduced by upper Palaeolithic men, was further modified by Mesolithic people in technology.

During Holocene which started 10000 years back, climate situation did not greatly fluctuate as in Pleistocene. But minor oscillations in climate conditions in post Pleistocene affected man and his culture (Datta, 1991a). Due to expanding population in community life, man had to spread in different direction for food and raw material for his livelihood. New areas occupied by the higher adaptive capabilities of the Mesolithic people and processe of colonizationextended inn space. They occupied new ecological niches as well. There has however been a controversy to the reasons for extension of Mesolithic society to newer environment. While a school relies upon improved technology for exploitation of food resources, other school believed improvement of climate resulted in increased food production. Though microliths are indispensable part of Mesolithic culture, presence of it does not denote only to Mesolithic culture. Use of microlith continued up to varying periods in different region and coexisted with next higher Neolithic culture.

Mesolithic culture continued to survive with varying duration in different parts of India until the shift to food production or impact of higher urban culture put an end to it. In West Bengal, the post Pleistocene Mesolithic culture was not an immigrant culture, rather it was a logical culmination of the blade industry found within Upper Paleolithic culture. All the Mesolithic sites here are spread over two distinct and broad ecological zones: majority of sites in old Paleolithic habitat and others in the piedmont or present flood plain zone of Bardhaman and Birbhum. In West Bengal, basic character of microlithic industry was non geometric tools and major tool types were blades, points, lunates, scrapers, borers etc. In many cases, old Paleolithic habitat zone was continued with Mesolithic culture which further mixed later to Neolithic culture until higher metal technology brought an end of use of stone tools. However, people with Mesolithic culture still survived in isolated places with their past material culture of the historic period in areas of Bankura and Puruliya. The Mesolithic culture of these piedmont or flood plain zones gradually transformed into small agriculture based communities during next Neo-Chalcolithic period displaying remarkable uniformity in their material culture (Datta 1991a).

From early Paleolithic times men had lived along river banks because of the nearness of water and availability of games. This tendency persisted into Mesolithic period. Numerous Mesolithic sites are located on alluvial terraces along river banks in many places like as Birbhanpur on the Damodar in West Bengal (Ghosh 1989). The abundance of microlithic occurrences in the entire forested area (or once forested) of the southwestern part of West Bengal also points out to the dependence of Microlithic people on the forest produce and their association with forested areas (Chakrabarti, 1993).

5.3. Neolithic

With the advancement of culture, as stated earlier, a drastic change was brought in the economy of man. From hunter-gatherer nomadic group, they began sedimentary village community life and started to grow food by incipient agriculture as well as domestication of useful animals. It is well understood that this transition from hunting-gathering to food producing, *i.e.* early development of agriculture was rooted in the environmental and cultural condition prevailed at the end of the Pleistocene. This is marked by the gradual onset of the recent climatic conditions which occurred around 10000B.C. (Ghosh1989). Later on, the factors which influenced in the shift from hunting -gathering to food producing are demographic stresses shown by a tendency to settle more or less permanently at one place in a locality, a proper environment and, a distinctive level and type of exploitative technology (Braidwood and Home, 1960).

Changes in man's relationship with the environment, land and himself would obviously have led him to experiment with some genera of indigenous plants of nutrient potential. But cultivation of cereals alone cannot be considered sufficient for bringing the drastic change in the economy of man. According to Hasan (1976), factors like diet and nutrition played role for an effective change of economy. Cereals, unlike legumes and meat, are deficient in protein and could not provide adequate substitute for food obtained from hunting. The association of cereals, legumes and domesticated animals thus considered as a fundamental adaptive element which contributed to the emergence of permanent sedentary agricultural settlements. Domestication of animals as well as plants had undergone changes through various stages of development and farming system was influenced by many factors like climate, soil etc. The ability to exploit the potential resources at site would depend upon the available technology as Neolithic tools were fashioned and fabricated by chipping, grinding and polishing.

Very few pure Neolithic sites are so far excavated from which early domesticated species could be ascertained. The Neolithic tools have been found in Bankura, Puruliya and Medinipur districts. Presence of a large number of Neolithic tools comprising celts including bar celt, shoulder celt, adzes, chisel, ringstone, pestles, grinders etc. reveal the Neolithic culture of West Bengal. The Neolithic tools found from Bengal, Bihar and Orissa belong to a single culture domain. Though the basal level of Bharatpur, (Datta, 1991a), Pandu Rajar Dhibi (Chakrabarti, 1993), Laljal cave are some evidences of Neolithic culture but due to lack of more excavated pure Neolithic sites in this region, no detailed structure of this changed economy can be substantiated.

5.4. Chalcolithic / Ferro-chalcolithic

Chalcolithic period is mostly evident by its economic life, agricultural pattern, domestication, settlement and other advanced characteristics. Use of metals (coppers, succeeded by iron), formation of potteries, agriculture based well settled community villages were characteristic advancement. Though use of stone tools was still survived, the material culture was gradually changed. There are a good number of Chalcolithic

(more precisely Ferro-Chalcolithic) sites excavated in this area which depict information and picture of the life of people who lived approximately second half of second millennium B.C. in the flood plains of major rivers of Bardhaman, Bankura, Birbhum and adjoining districts.

From the major Chalcolithic sites, four different periods could be identified. The first two are considered as Chalcolithic but according to some archaeologists, the period I is nothing but Neolithic age, characterized by ill fired, mat impressed drab red pottery along grey and black wares. These were mostly handmade, having thick fabric and containing rice husk in the core. This period is essentially Neolithic except a solitary copper tool. The culture had close similarity with Bihar Neolithic. It seems that Bengal Neolithic is much later migrated from Bihar in the middle of second millennium B.C. It was short lived and the Chalcolithic people followed the Neolithic folk again from Bihar (Davalikar, 1997). It was accepted by Mukherjee (1993-94) as he called this kind of overlapping as Neolithic with addition of knowledge of use of metal, though use of copper was limited in most places.

Period II is clearly Chalcolithic with wheel made pottery, microliths and copper artifacts. Cultural uniformity throughout the area was due to similar environment, basic uniformity in ceramic ware, mud architecture, rice cultivation, and stock raising and hunting-fishing, besides a very specialized industry of bone tool and restricted use of copper. Lack of stone blade industry points out to non-availability of suitable raw material in the immediate vicinity of the habitation area and also effectiveness of bone tools. Bone tools (see Text-Fig. 6) were as effective as stone implements and hence preponderance of bone tools at several sites could be found.

In general, remains of Chalcolithic culture of Bengal shows potteries including black and red ware with or without painting, beads, terracotta figurines, microlith, bone tools, copper and iron objects. According to many archaeologists, copper technology brought no such great change in the material culture of those people. They used to continue with microlith and bone tools. But with the introduction of iron technology a change in the life pattern came in gradually. Bone tools still survived along with iron and microlith were replaced. In Mangolkot, microliths are totally absent and bone tools along with iron implements are found from the very beginning of the chalcolithic period. This may be due to prevalence of iron technology in Mongolkot site. On the other hand, other chalcolithic site like, Pandu Rajar Dhibi, Hatikra, Bahiri, show a gradual change from copper to iron. Bone tools formed a major constituent all along despite the presence of iron technology. Due to presence of iron (use and later smelting technology) from the earlier levels in various sites like, Hatikra, Bahiri, Pandu Rajar Dhibi or Mongolkot, some archaeologists prefer to use the term ferro-chalcolithic as more appropriate to describe the true character of Chalcolithic West Bengal.

From nomadism, the life pattern of chalcolithic people was changed to community (agricultural villages). This is evident in mud plastered floors with a series of hearths

(as found in Mongolkot). The people used to live in huts of different shapes, mainly mud built and perhaps thatch roofed. Rice was already introduced as staple food (evident from the charred grain and husk impressed pottery). Because of introduction of metals the tools for hunting (as arrowhead etc) became more sophisticated. In the mean time, man also learnt to domesticate few animals for different purposes. Husbandry of animals became a part of life and meat and milk of domestic animals were major food items.

The first excavated Chalcolithic site in this region was Pandu Rajar Dhibi, in 1961, flanking river Ajoy in Bardhaman district. Later on, significant number of Chalcolithic sites was discovered by different institutions. All these Chalcolithic sites are scattered in the valleys of the rivers Ajoy, Kunur, Khari, Damodar, Mayurakshi, Bakreswar,

Text Fig. 6. Bone tools from Pandu Rajar Dhibi, Bardhaman district
[*Courtesy* : Directorate of Archaeology, Govt. of West Bengal]

kopai, Dwarkeswar, Kansabati, Silabati, Tarapheni and Rupnarayan (Mukherjee, 1993-94). A good number of sites are also located away from the rivers. Remarkably, all the locations of these settlements are in conformity with modern village settlement pattern of the area (Chakrabarti, 1993).

There were hunter-gatheres, rather primitive farming, in the high plateau and effective agriculturists in the plain. Both integrated within a network of resourse distribution reaching deep within the plateau. Copper and tin came only from high plateau as evidenced by the old copper and tin workings in the plateau. Different stones used to come also from the plateau. Iron ores are still abundant in Birbhum, Bardhaman, parts of Bankura and Medinipur. Towards the end of this phase, iron

smelting was a major industry, perhaps limited to few areas of Birbhum, Bardhaman and some others. Farmers gradually came down to proper delta (Chakrabarti, 1993) during the second and first millennia B.C.

The spread of this Chalcolithic culture was not evenly distributed through the region. In the upper stretch of Mayurakshi and Bakreswar rivers i.e. the northwestern part of district Birbhum. Otherwise there was a general increase of such settlements in the central and southern part of Birbhum. The Chalcolithic people seemed to have spread further eastwards on the deltaic region of Bakreswar, Ajoy and Damodar. The Mayurakshi -Bakreswar-Ajoy-Kunur-Damodar stretch may be taken as axis of the most densely populated part of Chalcolithic spread, as revealed from the excavated sites. The location of the sites in this area may be divided into three major zones, Mayurakshi - Bakreswar- Sal-Kopai zone(having important sites like Mahisdal, Hatikra, Haraipur, Bahiri), Ajoy-Kunur-Damodar-Khari-Khargeswari (sites like Bharatpur, Pandu Rajar Dhibi, Baneswardanga, Mongolkot) and Dwarkeswar-Gandheswari (Dihar). This Birbhum-Bardhaman zone may be considered as the core zone of Chalcolithic culture though few other sites were also found in other parts of Bankura and Medinipur. Many of these sites showed transition to Early Historic period (Datta, 1991a; Chakrabarti, 1993).

5.5. Early Historic

In this region, Early Historic sites are located in Birbhum (Kotasur, Bahiri), Bardhaman (Mongolkot, upper level of Pandu Rajar Dhibi), and Bankura (Pokhorna, Dihar). The western part of these districts and district of Puruliya do not have any reported Early Historic settlement. But it does not suggest that this plateau region was not in economic network of Early Historic West Bengal. Kushana copper coins came to lower Bengal by trade which was imitated in the following period (continued up to late 4th or early 5th century A.D.) by a similar currency system. Those coins have been widely found in plateau region of Bankura and core plateau region of Puruliya indicating the existence of a distinct geographical and political unit comprising the plateau portion of the districts, probably with its base at Pokhorna in Bankura. King Chandrabarmana of famous Susunia inscription had his capital at Pokhorna and had Susunia within his kingdom which might have had extended more within the plateau region (Chakrabarti, 1993). The distribution of Early Historic sites in Birbhum, Bankura and Bardhaman suggest the major arterial route in southwestern part of ancient Bengal (apart from riverine communication) was associated with some major political administrative units of that period. Trade and commerce connected by a suitable navigation system are considered as major diagnostic traits of historical process. Early historic settlements of Bengal made a large shift towards Lower Bhagirathi Delta.

Table1. Distribution of major prehistoric sites recorded from the districts of study area [after Chakrabarti, 1993; Chattopadhyay, 1992].

Puruliya	Bankura	Bardhaman	Birbhum	West Medinipur
Palaeolithic				
Balarampur Dak Bunglow, Kana Pahar, Dabha, Hanumata, Amruhasa, Sargo, Nagasai, Bhanrarhia & others	Susunia, Guniada Hill (Silabati Valley), Garhpahar, Katro II, Dhankura, Hatikheda, Chiada, Mukutmanipur, Baddih, Pareshnath, Ambikanagar, Bhedua, Basantapur, Rangamatia,	Egara Mile, Bankathi area,	Jibdharpur, Nalhati	Ganganir Math, Parihati, Kashijhora, Mohanpur-Satbati, Tarafeni Reservoir Bridge, Nakbindhi, Patina, Jagannathpur,
Mesolithic / Microlithic *				
Kana Pahar, Budha-ar, Siringi, Bersa, Ayodhya Kuilapal, Jhalda, Sirkabad, Bandowan, Jai Chandi Pahar , Deulbhira, Barabhum, Matha forest, Tilabani, Khayerbani,	Damodar Valley (Monor, Barjora, Kusthalia, Beldanga, Ituri), Sali Valley (Amarkanan, Kara Beliatore,), Gandheswari Valley (Panchsimulia, Parulia, Paharbeda, Suabasa, Jamthol, Gidhuria, Dhankorar jor),	Birbhanpur, Egara Mile, Rampurer Danga, Nadiha	Paruldanga I & II , Taltorer Danga, Khowai (Shantiniketan)	Ganganir Math, Parihati, Kechanda, Kashijhora, Tarafeni Reservoir Bridge, Nakbindhi, Patina, Jagannathpur, Jamdabari, Kushmora, Jamboni, Rangpur, Bansgar, Hijla,

Puruliya	Bankura	Bardhaman	Birbhum	West Medinipur
Chhota Nuniyani, Dharampur, Lalpur, Biramdih &many others	Dwarakeswar Valley (Damodarpur, Majuria & others), Arkasa Valley (Deulbira), Silabati Valley (Patir Danga, Deulgara & others), Kumari-Kansabati Valley (Mukutmanipur , Ambikanagar, Pareshnath, Hatikheda, Mukundapur, Navachiada & others), Bhairabbanki Valley (Ladsol, Thakurbari, Sagarchak, Jugladanga & others) , Jhantipahari, Satsol, Kurkutia			Enthela, Kantharpal, Dumurkonda
Neolithic #				
Bersa, Dabha	Ladsol, Thakurbari, Sagarchak, Jugladanga (Bhairabbanki Valley)		Bhimgarh (?), Batikar (?)	

Puruliya	Bankura	Bardhaman	Birbhum	West Medinipur
Chalcolithic / Ferro-chalcolithic (Black-and red ware sites)				
Copper-hoard - Kulgara	Pokhorna, Tulsipur, Dihar, Kumardanga	Pandu Rajar Dhibi, Baneswardanga, Bharatpur, Mangolkot, Santaldanga, Ketugram, Ganga Danga, Hati Potar Danga, Mandal gram, Siuli Barir Danga, , Basantapur, Rajar Danga, Kantadigun, Barenda, Silut, Malandighi, Munshidanga	Mahisdal, Bahiri, Nanur, Haraipur, Hatikra, Kirnahar, Potanda, Deuli, Beluti, Ghurisha, Supur, Kurmitha and others	Copper-hoard – Agubani, Chatla, Tamajuri, Perua, Akuldoba
Early Historic				
Pakbira, Telkupi, Boram, Chharra Para & others	Kumardanga, Saragdihi, Tulsipur, Dihar , Pokhorna	Bharatpur, Mangolkot	Kotasur, Bahiri, Hatikra, Kankutia, Deuli, Banshanka, Bhadrapur, Baragram, Paikore, Sian, Bakreswar	Panna
* Sites with microliths findings (may not be Mesolithic culture); # Sites where neoliths found				

6. IMPORTANT ZOOARCHAEOLOGICAL SITES WITHIN THE STUDY AREA

6.1. Pandu Rajar Dhibi

Pandu Rajar Dhibi (23° 35'; 87° 39') is one of the most important archaeological sites of West Bengal. The site or the mound (locally known as *Raja Potar Danga or Rajar Dhibi*) is situated in village Panduk in Bardhaman District, in the flood-plain of Ajay River on lateritic undulating plain.

In 1914, a gold coin of Narasimhagupta Baladitya was recovered here, and some medieval sculptures found here were locally worshipped. In 1961, a few microliths, sherds of black-and-red ware and shiny black painted red ware were collected from the site by D.K. Chakraborti and S.C. Mukherjee (1960-1) of Directorate of Archaeology, W.B. Later on, from 1962-1965 large scale excavation by Directorate under direction of P.C. Dasgupta, revealed a cultural assemblage of four distinct periods: Pds I and II are Chalcolithic, Pd III is of Iron Age with overlap with the preceding Pd and Pd IV is Early Historical and Medieval.

In Pd I, the site was occupied by the people who lived in the huts erected over the natural lateritic soil. They used to make handmade drab or thick grey ware with husk impressions of cultivated paddy (identified as *Oryza sativa* L.). They also used to produce wheel turned thin plain ware of sandy fabric and pale red wares decorated with hatched cord designs and also coarse black-and-red wares. A bone point and few stone tools were found as other cultural equipments. Dead burial was within habitation area in extended fashion. Sometimes fragmentary burial in urn was also found. The Pd came to end by a devastating flood in the Ajoy as evidenced by the accumulation of a thick layer of sandy silt overlying the occupational area of this Pd.

The people of Pd II arrived after the flood and they lived in mud huts of rectangle or square or round shape. Those huts were framed with wooden or bamboo posts and walls were made up of wattle and daub. Floors were made with either murram mixed with terracotta nodules or clay mixed with cow dung and lime plastered to prevent dampness. Ovens were used for domestic cooking. Dietary components can be ascertained by the presence of charred rice or paddy husk impressions. Bones of a number of domestic and wild species of animals were found. Antlers were used for fashioning bone tools like arrowheads and awls. Pd II presents flourishing stage of occupation of the site and efflorescence of its culture by the introduction of various ceramic industries mostly turned on wheels. There are shiny red ware and black -and-red ware, painted with mostly geometric motifs, in various shapes of bowls etc. and also some sophisticated forms. Other minor antiquity findings are few microlithic tools, point-cum-scrapers and flakes, copper objects like nail parers, fish hooks, antimony rods, bangles, rings, beads and bone objects like awls, points, harpoons, arrowheads and beads of semiprecious stones. People of this Pd practiced three types of burial like,

primary (extended), secondary (fractional) and urn burial. Sometimes perforated vases or pots with copper or semiprecious stone beads were associated with burials resembled with the burial practice narrated in later Vedic literature. The C^{14} date of an exacavated charcoal sample from the cemetery level of Pd II is 1012 ± 120 B.C.

In Pd III, most of the potteries of Pd II continued as plain and painted red ware and Black-and red ware. But they are outnumbered by plain and painted black slipped ware in various shapes. A kind of black burnished ware decorated with plant and animal motif design like bull, peahen holding snake, a row of fish leaves etc. were introduced in this Pd. Some Neolithic polished celts, perhaps used hafted in wood, bone or horn sleeves, was found for the first time in this level. But it might be evidence of reuse of an earlier material by some backward communities, not an integral part of the main culture stream of the people of this site. Other minor antiquity findings are copper objects like a unique leaf shaped arrowhead without midrib, bangles, rings, bone pikes and arrowheads, microlithic tools, beads of semiprecious stones and terracotta figurines of mother goddess and figurines decorated with even gold pellets and pins. Noteworthy structural features of this Pd are a row of six elliptical ovens flanked by a thick layer of ash containing broken sword blade of iron and iron slag cnsidered to be evidence of iron smelting at the site. Huge accumulation of ash and charcoal and ash with occasional red burnt earth was observed in every trench associated with charred rice and iron tools and weapons signifying advent of iron using new comers.

After a time lapse, Pd IV followed which can be divided into two phases – Pd IVA and IVB. People of IVA lived in brick built houses with floors paved with bricks.The cultural assemblage is represented by bowl, cups and inkpots of decadent Red ware, some NBPW, black ware, stamped pottery, terracotta and stone beads, saddle quern, stone pestle, gold smith's mould and a gold bead. A gold coin of Kaniska I found from the surface is important in this Pd.

Pd IVB is related to the post-Gupta Pd and findings are ordinary conical cups, terracotta net sinkers and wares of medieval times (Ghosh, 1989).

6.2. Bharatpur

Bharatpur (23° 24'; 87° 27') is situated near Panagarh in Bardhaman district, on the left bank of Damodar, providing evidence of the earliest village farming of the people of Bengal. The site was excavated by ASI, Eastern Circle and Burdwan University during 1972-1974. The excavation revealed four cultural periods from Chalcolithic to Late Historical period. Of these first two periods belong to Prehistoric and later to belong to Historic phase.

Period I yielded a thick variety of Black-and-red ware. The earliest Chalcolithic settlers of this period depended on fishing and hunting and also practiced of an incipient

agriculture. They used bone tools, microliths, tiny Neolithic celts steatite beads and copper objects. The preponderance of ill fired hand made mat red ware with husk impression in its core, at times decorated with etched designs of triangles or waves suggests a simpler form of ceramic. A primary Neolithic level mixed with the Chalcolithic occupation at this period is also revealed by careful analysis of unearthed data, particularly the presence of polished celts. The presence of a few pieces of reed-impressed burnt clay plaster indicated that the inhabitants lived in huts of perishable material. A charcoal sample from the mid level of this Period has been dated to c.15th Century B.C. by C^{14} method (Ghosh, 1989).

Pd II of Bharatpur shows a fully blown Chalcolithic culture characterized by wheel turned black and red ware, in variously shaped bowls, also a number of painted potteries, painted in white and black with geometric designs. Besides Black-and-red ware, other types are bright red ware, illustrious red ware, chocolate cream coloured ware (painted in cream) and black burnished type etc. Handmade coarse pottery of red / brownish colour, represented by large urns and storage jars, continued to occur. The period represents a great expansion in both settlement and population. Pd II is marked by the emergence of iron implements, without any vital change in the pattern of life or articles of everyday use. The upper level of this Pd yielded NBPW along with few black slipped wares. Along with a number of animal remains fragments of some human skeleton were also recovered from this site but no burial method is evidenced.

Thereafter the site remained deserted for a long time. Period III is short lived distinguished by the presence of a burnt brick structure without any other evidence.

Pd IV started after a break, is distinguished by the construction of a Buddhist stupa of fine brick work laid in lime-surki mortar. Presence of 13 m sq platform is relieved with projections and recesses. At a later phase the stupa was repaired and plastered except the lower plinth portion. Five stone images of Buddha seating in Bhumi sparsha mudra adorned the niches of stupa were among the most mentioned antiquity found. On stylistic grounds they are ascribed to the 9th-10th century.

6.3. Baneswardanga

Baneswardanga (23° 24'; 87° 50') is situated in the village of Barabelun in Bardhaman district. The mound of Baneswardanga is somewhat drum shaped and bears a late medieval 'Atchala' type brick temple of Lord Baneswar Shiva at its top. The village is 30 kms northeast of Bardhaman town and half a kilometer southeast of the metalled road from Bhatar to Nashigram running in east-west direction. The site was first discovered by Late D.K. Chakraborty and the excavation was carried out in 1974 under supervision of Late P.C. Dasgupta (Mukherjee, 1993-94). The structural mound and had several layers of brick construction beneath the temple of Shiva. Among the three phases of construction, the lowermost phase turned into debris. As many as, 7 and 16

courses of bricks were noticed respectively in the middle and uppermost phases. These courses of bricks stood for the brick walls and the recessed foundation of a shrine and a stupa, were built in different periods beginning from the Late Gupta times to Pala dynastic period.

Total four cuttings were laid out in the eastern flank of the Baneswardanga mound numbered *viz.*, BND I to BND IV. Each trench was dug up to layer 10. Over all the habitation could be divided into total five periods.

Pd I consisting layer (9) and its sublayers assigned to Early Chalcolithic; Pd II consisting layer (8) & (7) and its sublayers assigned to Late Chalcolithic; Pd III consisting layer (6) & (5) and its sublayers assigned to transitional beginning of Early Iron Age; Pd IV consisting layer (4) to (2) and assigned to Early Historic (Post Gupta to Pala Period), and Pd V consisting layer (1) assigned to Medieval.

The periods intervened by break as between I and II, also between III and IV. The site seems to have been abandoned after Pd III (Early Iron Age) to be occupied again in the Sunga-kusana times or after. The Chalcolithic came to an end due to a conflagration in Pd III (at the time of the advent of the Iron Age people).

The ancient people of this site used to live in huts with reed screen and mud plastered wall and floors of beaten moorum or lime-plastered in Pd I. In Pd II lime-plastered (mixed with nodules) or gobri floors were prepared. In Pd III-IV, lime plastered floor was prevalent. Sometimes post holes for the bamboo or wooden posts for raising huts were found in the floors. The material equipments of this civilization consist of various types of Black-and-red ware including knife edged, carinated and channel sprouted bowls, the dish on stand, basins with flaring mouths, convex sided vases, vessel type potteries with perforation and usticated handis with traces of smoke. Associated ceramics are red slipped ware, black slipped ware and a mat red variety. A kind of tall beaker of Black-and-red ware, pair of cups and a vase are distinctive of this place. Black-and-red ware was sometimes decorated with painting. The tool kits comprised microliths, bone objects and fragments of copper points. Apart from pottery, jars and vases with paddy husk impressions on the core, terracotta figure of an elephant are also important findings. The Chalcolithic phase of Baneswardanga seems to have a comparable cultural and chronological sequence as Pandu Rajar Dhibi (Roy, 1994).

6.4. Mangolkot

Mangolkot (23° 32' N; 87° 54' E) is located on the right bank of river Kunur in Bardhaman district. The mound rises 14 to 15 m above ground. River Kunur flows along the western margin and then meets river Ajoy a little further down towards east. During annual floods large chunks of the ancient mound were swallowed by Kunur exposing the occupational deposits. A number of rain gullies have been formed cutting across the occupation debris and splitting the village into a number of mounds.

The site was earlier explored by different scholars and amateur archaeologists and lately by Department of Archaeology, University of Calcutta (Ray & Mukherjee, 1992). Excavation work was carried out in 1986 - 1991 in three different mounds namely Vikramadityer Dhibi, Manumiyar Danga and Kachharidanga, revealing a thick habitation deposit starting from Black-and-Red ware culture continued to successive historical phases. Dug down to a depth of 6.50 m below surface on average, the site revealed the following periods: Pd I is characterized by Black-and-Red ware as dominant pottery along with other associated pottery types like red slipped ware, black slipped ware, all occasionally painted in white and black and with various shapes like bowls, handis, vases, jars etc. The Chalcolithic settlers of Mangolkot had lived for a few centuries which is evidenced by the three superimposed floors. Floors comprise rammed earth mixed with cowdung, sand, kankar etc and sand was used in the base of the foundation. Remains of post holes and a number of hearths have been traced from different floor level. A highly fragmented skeletal remain of a human body along with heaps of Black-and-Red ware have been found in east-west orientation. The Chalcolithic people used bone tools more than stone and a number of animal remains were also found from this Pd. The most important discovery of this phase is the evidence of iron right from the bottom layer of this Pd, though iron tool was restricted in use due to non availability of the metal and lack of technology that time. Use of copper was very limited, except fish hook only for making ornaments. The chronology of this Period ranges from 1200 B.C. to 600 B.C. on the basis of a C^{14} date (940 B.C.) available from the mid level of this Period (Ray and Mukherjee, 1992).

Pd II was the succeeding farming culture. This phase is found in all the trenches between the Chalcolithic and Early Historic Period, revealing ceramic types like plain pottery red, brown, grey, black slipped and fine textured red pottery along with coarser varieties of black and red ware and other associated types of preceding Pd. The important finds of this phase consist of iron objects in profuse number like, arrowhead, chisel etc. indicating increasing use of iron technology. This is substantiated by the discovery of huge oven like space, covered with thick layer of ash containing a large quantity of iron slag and half finished iron tools indicating iron smelting in the site. The bone tools continued in this Pd. Approximate date of this phase range from c 600 B.C. to 300 B.C.

Pd III (Maurya-Sunga periods, c. 300 B.C. to close of the 1st Century B.C.) is marked by the absence of Black-and-Red ware and occurrence of several new ceramics like red, grey, black slipped ware, of both plain and painted, few sherds of NBPW etc. other important objects found are a punch marked coin, a number of coins, seals, sealing, copper objects, terracotta figurines and images including two female head typical Mauryan style.

Pd IV representing the Kushana cultural phase revealed a prosperous urban centre. Widespread use of burnt brick found in all trenches. Floors were of beaten earth rammed with surki, sand and lime. Other findings are wells, portion of grannery, huge storage jars embedded in floors, huge sized iron nails, bright red polished ware in pottery, terracotta figurines and seals.

Pd V coeval with the Guptas (c. 400 A.D. - 600 A.D.) reveals large scale structural activities mostly on the ruins of earlier Pd. with houses of well-burnt bricks and used iron nails for construction purpose. Other findings are varieties of potteries, plenty copper and bronze objects, semi precious stones, large number of beads and fine terracotta models of Gupta idiom. .

Pd VI was found disturbed revealing material of long stretch of time starting with post Gupta phase. During Medieval Pd the site was used as burial ground, evidenced by the remains of a series of graves placed in east-west direction. Late Medieval Pd cultural deposit was revealed at a site Aral near Kunur exposing typical Muslim ceramic types like, Chinese porceilin etc.

6.5. Bahiri

The village Bahiri (23° 38' N; 87° 46' E), approximately 7 km east of Bolpur in Bolpur – Palitpur Road in, is one of the most important Black-and-red ware site in district Birbhum. The original habitation area at Chandra Hazrar Danga covered an area approx. 175x100 m. The '*Chandra Hazrar Danga*' or mound of Chandra Hazra was excavated by D.K. Chakrabarti in 1981 in the village Bahiri. The excavated habitation can be divided into three periods.

Period I is assigned to the time period of 1000 B.C. or earlier to c.500 B.C. There are three general classes of pottery, black-and-red which possesses the largest frequency, Black and Red along with painted and incised pottery. The structural evidence is indicated by a mud floor which has survived as a small patch. There are burnt or unburnt clay pieces with reed impressions suggesting mud plaster on reed walls. One kiln was also found from one cutting. Extensive and thick deposit of iron ore and slag was found in the upper level of this period indicating a large scale iron smelting although a limited amount of iron slag was found from its earliest level. Chunks of fossilwood were observed both from period I and II. No copper object was found in this Pd except small piece of a plain ring. Good quantity of bone implements made of splintered bones, plenty of animal bones, semi precious stones, pebbles and pieces of igneous rocks were found along with other miscellaneous objects like fragments of antlers with cut marks, pottery disks, net sinker and fragments of terracotta.

Period II is assigned to the time period of 500 B.C. to c.200 B.C. Dominant pottery was plain red ware, few pieces of black slipped ware and plain grey ware which fits well to the known pottery types of Eary historic time of the gangetic valley. Along

with some bone implements of Pd I, tanged bone arrowheads are new to this Pd. Iron smelting objects continued to occur at the site. Terracotta crucible, piece of nozzle of terracotta tuyere was important findings along with terracotta head of Sunga Yakshini, an elephant and a few beads.

Period III assigned to the time period of 4th to 6th Century A.D. Apart from buffish and generally ill fired pottery, this Pd is evidenced by a massive (about 2m wide) burnt brick foundation wall with three off sets in the foundation which may be indicative of Buddhist monastic establishment of the side. This Pd is only available in one cutting BHR IV.

6.6. Mahisdal

Mahisdal (23° 43' N; 87° 42' E) is situated on the bank of river Kopai, below the northern end of the railway bridge on Kopai near Santiniketan in District Birbhum. This is the first excavated Black-and red -ware site in Birbhum, excavated by ASI in 1963-64. The site was originally quite extensive (230x135m, cultural deposit of 2m) but now eroded. Two cultural periods have been postulated for this site.

Pd I representing a Chalcolithic culture has as its equipments all the essential elements such as microliths, a very limited supply of copper and black-and-red wares, both plain and painted and other ceramics including red ware painted in black and white, with various shapes and designs. Although no house plan is available, two structural phases were identified on the basis of floor levels. The floors were of beaten earth with a soling of rammed terracotta nodules. Reed impressed clay daubs and burnt husk impressed clay plasters suggests mud built clay plastered houses. A pit granary, destroyed by fire, is found. The carbonized - rice grains recovered in bulk from inside the granary and floor are of a slender variety like modern fine grains. While copper was scarce stone and bone implements were quite prolific. The restricted use of copper may be due to non availability of the material in the immediate vicinity. Presence of beads of steatite and semiprecious stones, bangle pieces, combs, gamesmen etc indicate the personal decoration and recreation of the people. There flourished a sedentary peasantry practising mixed economy with an efficient system of food production supplemented by hunting and fishing. Their ceramic industry shows close affinity with Chalcolithic cultures of central India, Deccan, Rajasthan and copper age stratum of Pandu Rajar Dhibi suggesting life based on mutual contact and interrelationship. A large scale conflagration brought about the end of the Pd. The C^{14} dates are 855±100, 1085±110 and 1380±105 B.C (Ghosh, 1989).

Pd II, commenced without any break is characterized by the presence of iron from the very beginning though the earlier cultural traditions largely continue. Microlithic tools were used side by side with iron tools. Finished iron objects like, arrowhead, spearhead etc. and large quantity of iron ore testify to the metallurgical attainment of

the people. Copper is represented by fish hook, bangle piece and rings and also copper slag. Ceramic tradition continues from earlier Pd but with coarser fabric. Occurrence of grey ware with typical shapes was new feature. Clay daubs testify the continued mode of house building of iron-using people. This Period also ended in conflagration. It is dated to c. 750 B.C. by C^{14} method.

While Pd II marks the beginning of the Iron Age in West Bengal, the cultural assemblage shows an apparent continuity of the earlier tradition indicating the pattern of life unaffected by the advent of new technology. Also no change in the objects of daily use except an unburnt clay seal indicative of trade and commercial contacts with other people.

6.7. Hatikra

The site of Hatikra or Hatigra (23°50' N; 87° 35' E) lies on the south bank of river Bakreswar and covers an area of about 4 acres. The site was excavated in 1967-68 by Visva Bharati University, Santiniketan, revealing two cultural sequences from Chalcolithic to Iron Age. Of the two periods, Pd I is reported iron free and iron dagger-like object of low carbon hypeutectoid steel is reported from the mid level of Pd II. Seven C^{14} dates are available from the site. Among them, one Hatikra date is 1400-1015 B.C. (calibrated) and other six dates fall squarely between 325-990 A.D. The cultural assemblage of the site does not differ from the other excavated Black-and-Red ware sites in Birbhum. Mud floors, reed huts with mud plaster, plain and painted pottery Black-and-Red ware, black and black slipped wares, the predominance of cattle bones husks of rice.

6.8. Pokhorna

On the south bank of Damodar in district Bankura Pokhorna is the only site having Early Historic phase. Pokhorna is well known as the capital of King Chandrabarman of the famous Susunia inscription (early 4th century A.D.). Miscellaneous Early Historic antiquities including terracottas (a Mauryan terracotta) have been found at this site. The modern village Pakhanna is on top of the old mound. The earlier phase was marked by black slipped ware associated with carinated handis, incurved bowls etc. belonging to c. 200 B.C. Terracotta ring wells were found associated with this phase. The second phase possibly around the 4th century A.D. showed a profusion of brick bats. The site has again been excavated in 2002-03 by Department of Archaeology, University of Calcutta which yielded large number of potteries along with other artifacts, animal remains etc. The results are not yet published in detail.

6.9. Kotasur

The Early Historic site of Kotasur (23°57' N; 87° 45' E) in District Birbhum was excavated in 1965-66. The most important feature of this site is a mud fortification

wall, about one km in circuit. The modern village of Kotasur largely overlies the ancient site but the outline of the fortification is clearly visible. This is near the Mayurakshi and flood of the river has done considerable damage to this site. On the southern and northern side of the rampart there are two openings, in the east a low lying canal like ground may be indicative of the moat surrounding the wall. The central part of the site is dominated by Madaneswar Siva temple on a 6 m high mound. There are two sculptures of 10th century A.D. In the exposed tank section Early Historic potteries were seen in abundance. Black-and-Red ware was also reported from the place (IAR, 1963).

6.10. Susunia

The most important area in Bankura district which is reported to be singularly rich in prehistoric finds is Susunia Hill area (Text-Fig. 4) lies roughly to the northeast of Chhatna. The highest point of the hill is 440m and there is a steep climb from the contour mark onwards. Otherwise the general elevation of the area seems to hovers around 100-120 m above msl. On the northwestern corner of the hill there is a natural spring and near the spring there is the famous Susunia rock inscription of King Chandrabarman. King Chandrabarman had his capital at Pokhorna on the bank of Damodar River around the hill. There is a fairly open stretch of slightly undulating land cut principally by Gandheswari with a number of tributaries, such as Dhankora Jor. A large collection of stone tools was made by Directorate of Archaeology, West Bengal during 1959-66. A large collection of animal fossils was also made which have been discussed along with the stratigrafic sequence of the alluvial deposits and placed in the late Pleistocene-Holocene bracket. Directorate of Archaeology, West Bengal collected more than two thousand artifacts ranging from Chello-Acheulian to Neolithic types suggesting the starting of the culture in later half or the end of Pleistocene but no clear geological horizon is confirmed (Dassarma *et al.*, 1982). Directorate of Archaeology, West Bengal again excavated the area during 1985-86, in the localities of Bamundiha (south of Dhankora Jor), Biribari (near the confluence of Gandheswari and Jhikuria) and Suabasa. Two caves were also noted namely, Jamthol (southwest of Susunia) and Bhaluksoda (in the northeast of Susunia hill) which yielded a number of animal remains and bone tools. The area was also surveyed by ZSI (in 1981, 1982, 1984 and 1985) for exploration of animal remains.

7. FINDINGS ON FAUNAL REMAINS

At least fifty no. of animal species of different groups are so far reported from different archaeological sites of the five districts of the study area. The list of the species is given in Table 2.

Table 2: List of animal species recovered from different archaeological sites of southwestern part of West Bengal

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
Phylum – Arthropoda					
Class - Crustacea Order- Decapoda	Fresh water crab	–	Wild	PRD	
Phylum - Mollusca					
Class – Gastropoda Order - Neogastropoda	Conch shell / Shankh	*Turbinella pyrum* Linn.	Wild	Sijua, Kansai Valley, Mongolkot	Distributed only in Indian Ocean
Phylum – Chordata Subphylum – Vertebrata					
Class – Osteichthyes Order- Siluroidea Family- Bagridae	Aor fish	*Mystus* sp.	Wild	Mongolkot, PRD, Baneswardanga	
	Katla fish	*Catla catla* (Hamilton)	Wild	PRD	
	Rita fish	*Rita* sp.	Wild	PRD	
Class - Osteichthyes Order- Cypriniformes Family- Cyprinidae	Indet. carps	–	Wild	Mongolkot, PRD	

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
Class - Osteichthyes	Other Indet. Teleostei fish	–	Wild	Bharatpur, Pokhorna	
Class - Reptilia Order- Testudines	Indian flap-shelled turtle	*Lissemys punctata punctata* Lacepede	Wild	Mongolkot, PRD	Widely distributed in river systems and other freshwaterbodies throughout Indian sub-continent
	Gangetic soft shelled turtle	*Aspideretes gangeticus* (Cuvier) [Older Syn. *Trionyx gangeticus*]	Wild	Bharatpur, Laljal	Indus , Ganga, Mahanadi, Narmada and Tapi river systems
	Narrow-headed soft shelled turtle	*Chitra indica* (Gray)	Wild	Mongolkot, Baneswardanga, Pokhorna, Hatikra,	Indus, Ganga, Krishna drainage, Godavari and Mahanadi rivers; outside India in Thailand and Malaya.
	Batagur / River terrapin	*Batagur baska* (Gray)	Wild	Biribari, Kansara, Saragdih (Susunia), Mongolkot, Baneswardanga	Only known from the large rivers and their estuaries of in the Sunderbans

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
					and Orissa; once abundant at the mouth of Hugli river, now exists only in small population in Sunderbans.
	Unidenti-fiable turtles	–	Wild	Pokhorna	–
Class - Reptilia Order- Crocodilia Family- Gavialidae	Gharial	*Gavialis gangeticus* (Gmelin)	Wild	Babladanga, Kansara, Saragdih (Susunia), PRD	Confined to Indus, Ganga, & Mahanadi river systems; once abundant, now endangered and restricted to few stretches of its former habitat, e.g. Chambal, Girwa, Rapti and Narayani rivers of Ganga river system.

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
Class -Aves Order- Galliformes	Indian fowl	*Gallus gallus murghi*	Wild / Domestic	PRD	Domestic fowl is decendant of Jungle fowl which is distributed in the forest areas of North India including West Bengal.
	–	*Gallus* sp.	–	Bharatpur, Baneswardanga,	–
	Pigeon	*Columba* sp.	Wild	Mongolkot	Throughout India
Class - Mammalia Order- Carnivora Family- Canidae	Pariah dog	*Canis familiaris* Linn.	Domestic	Bharatpur, Bahiri, Jamthol cave , Bhaluk Soda cave	Earliest domesticated species by ancient people c. 10000 B.P. in middle east; found throughout the world.
	Jackal	*Canis aurius* Linn.	Wild	PRD	Distributed throughout India ; Thriving population in rural and some semi urban areas of West Bengal,

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
	Wolf	*Canis lupus pallipes* Linn.	Wild	Belamu Pargo (Puruliya), Mahisdal	Western and peninsular India, trans Himalaya; Still reported from Southwestern parts of West Bengal with depleted population. It is the easternmost distributionof the species in Indian subcontinent.
	–	*Canis* sp.	–	Sijua(Kansai valley), Laljal	–
Class – Mammalia Order- Carnivora Family- Felidae	Lion	**Panthera cf. leo*	Wild	Susunia	Extinct
	Leopard	*Panthera pardus* Linn.	Wild	Jhikoria near Susunia, Baneswardanga	Threatened population in different forest areas of North Bengal (in South Bengal rarely reported).
	–	*Panthera* sp.	Wild	Gogra-Gandheswari riverbed, Mongolkot	–

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
	Fishing cat	*Prionailurus viverrina* (Bennett)	Wild	Baneswardanga	Abundant in South Bengal districts like Haora, Hugli.
	Jungle cat	*Felis chaus* Schr.	Wild	Mahisdal	Abundant in forest areas of West Bengal
Class – Mammalia Order- Carnivora Family- Hyaenidae	Spotted Hyaena	**Crocuta* sp.	Wild	Susunia	Extinct from subcontinent ; presnt distribution in Africa
Class – Mammalia Order- Rodentia	Unknown rodent	–	Wild	Pokhorna	–
Class – Mammalia Order- Rodentia Family- Muridae	Rat	*Rattus rattus* Linn.	Wild	Mongolkot, PRD	Availble throughout India
Class – Mammalia Order- Rodentia Family- Hystricidae	Indian Porcupine	*Hystrix indica* Kerr.	Wild	Laljal	Throughout India
	The Extinct Porcupine	**Hystrix crassidens*	Wild	Babladanga, Gogra, Susunia	Extinct
Class- Mammalia Order- Perissodactyla	Extinct Siwalik Equid	**Equus namadicus* Falc. & Caut.	Wild	Jhikoria, Gandheswari riverbed (Susunia)	Extinct in Pleistocene

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
Family-Equidae	Asiatic wild ass	**Equus onager khur* Lesson	Wild	Hatinal, Baltora, Kansara, Babladanga, Dhankora (Susunia)	Extinct from West Bengal; available only in Gujarat
	Horse	*Equus caballus* Linn.	Domestic	Gogra (Susunia), Bharatpur,	Domesticated in central Asia and East Europe in about 3500 B.C, later introduced to Indian subcontinent.
	–	*Equus* sp.	–	Jhikoria, Lapuria riverbed, Khayerbani, Dhankora, Jamsola (Susunia), Kotasur	–
Class – Mammalia Order-Artiodactyla Family-Cervidae	Spotted deer / Cheetal	*Axis axis* Erxl.	Wild	Baldiha,, Kansara, Tentulrakha, Babladanga, Dhankora , Biribari(Susunia), Bahiri, Bharatpur, Mahisdal	Abundant in forests throughout India except deserts, high altitudes and east to Assam.

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
	Hog deer	*Axis porcinus* Zimm.	Wild	Baneswardanga, Mongolkot, PRD	Terai and Duars from Uttaranchal to Assam, Mizoram and Manipur; in West Bengal found in North Bengal.
	–	*Axis* sp.	Wild	Baneswardanga, Mongolkot	–
	Swamp deer / Barasinga	**Cervus duvauceli* Cuvier	Wild	Khayerbani, Panch Simulia, Aduri, Dhankora riverbed, Gogra-Gandheswari riverbed, Bharatpur, Bahiri, Baneswardanga, Mongolkot, Mahisdal, PRD	In India distributed only in west Terai, Assam and central India; not present in West Bengal though reported from Sunderban area in recent past.
	Sambar	*Cervus unicolor* Kerr.	Wild	Babladanga, Gogra, Saragdih Bhaluk Sonda, (Susunia), Mahisdal	Forests throughout India except deserts, mangroves and high altitude.

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
	–	*Cervus* sp.	Wild	Bahiri, Baneswardanga, Jamthol cave, Bhaluk Sonda cave	–
Class Mammalia Order-Artiodactyla Family-Cervidae	Barking deer	*Muntiacus muntjak* Zimm.	Wild	Tentulrakha, Bhaluk Sonda, Bharatpur	Available in North Bengal forests
Class Mammalia Order-Artiodactyla Family-Camelidae	One humped camel	*Camelus dromedarius* Linn.	Domestic	Bharatpur	Domesticated in Middle East or locally domesticated from *Camelus sivalensis* of the Siwaliks, in about 5000 B.P.; in India mostly available and used in Rajasthan
Class Mammalia Order-Artiodactyla Family-Giraffidae	Giraffe	**Giraffa cf. camelopardalis* (Linn.)	Wild	Jamthol (Susunia)	Extinct from the subcontinent in Pleistocene; present distribution in Africa

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
Class Mammalia Order-Artiodactyla Family-Suidae	Indian boar / pig	*Sus scrofa cristatus* Wagner	Wild / Domestic	PRD, Bharatpur, Bahiri, Baneswardanga, Mongolkot, Mahisdal, Laljal, Kotasur, Pokhorna, Hatikra, Aduri, Jamsola(Susunia), Jamthol cave	Domesticated perhaps in Neolithic Period with the beginning of agriculture, earliest record traced back to 6500 B.C. in Near East. Wild boar still available in forests of southwestern West Bengal though endangered in population.
Class Mammalia Order-Artiodactyla Family-Bovidae : Caprinae	Goat	*Capra hircus aegagrus* Linn.	Domestic	Dhankora (Susunia), Bharatpur, Mahisdal, PRD, Hatikra, Jamthol cave	Available throughout India; Domesticated in Middle East in about 7000 B.C. though having affinity with some Indian wild forms.
Class Mammalia Order-Artiodactyla Family-Bovidae : Caprinac	Sheep	*Ovis orientalis vignei* Blyth	Domestic	Dhankora (Susunia), Bharatpur, Pokhorna	Available throughout India; Domesticated in Aralo-Caspian and

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
					Turkestan region, before agriculture was fully developed.
Class Mammalia Order-Artiodactyla Family-Bovidae	The Extinct Siwalik Antilope	**Miotragoceros cf. punjabicus* (Pilgrim)	–	Aduri (Susunia)	Extinct; Pleistocene mammal, reported from Siwalik Hills.
	Blackbuck	**Antilope cervicapra* (Linn.)	Wild	Beldanga, Aduri, Babladanga, Biribari , Metyala, Jamsola (Susunia)	Presently not available in West Bengal; found in western, south and central India.
	Nilgai	**Boselaphus tragocamelus* (Pallas)	Wild	Dhankora (Susunia), Bharatpur	Presently not in West Bengal; distributed throughout North India.
	The Extinct Siwalik Nilgai	**Boselaphus namadicus*	Wild	Babladanga, Pairasol, Biribari (Susunia),	Extinct in Pleistocene
	The Extinct Siwalik Cattle	**Bos namadicus* Falconer	Wild	Tentulrakha, Biribari, Ampahari, Jhikoria,	Extinct in Pleistocene

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
				Dhankora, Aduri, Susunia, Bharatpur	
	The Extinct Bengal Cattle	**Bos namadicus bengalensisi* Ghosh	Wild	Biribari(Susunia), Dhankoda, Susunia	Extinct in Pleistocene
	Indian humped cattle	*Bos indicus* Linn.	Domestic	Bharatpur, PRD, Baneswardanga, Mongolkot, Bahiri, Laljal, Kotasur, Hatikra, Bhaluk soda cave, Khayerbani, Dhankora riverbed, Lapuria, Aduri (Susunia)	Available throughout India
	–	*Bos* sp.		Gogra, Biribari, Murgathol, Jamsola (Susunia), Jamthol cave, Pokhorna, Hatikra	–
	Indian buffalo	*Bubalus bubalis* (Linn.)	Domestic / Wild	Kushbona, Khayerbani,	Wild Buffalo is now

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
				Dhankora, Metyala, Jhikoria, Biribari (Susunia), Bharatpur, Bahiri, Baneswardanga, Mongolkot, PRD, Kotasur, Hatikra	endangered animal found only in Assam and pockets Chhattisgarh but centuries ago was widely distributed in the Eastern India. Domestic Buffalo is domesticated within the subcontinent without much skeletal change except size.
		**Bubalus bubalis* var *palaendicus* Falc. & Caut.	Wild	Panchsimulia, Bankajor-Dhankora.	Extinct; reported from Siwaliks; ancestral form of domestic buffalo in the Indian subcontinent.
	Gaur / Indian bison	*Bos gaurus* H. Smith	Wild	Dhankora riverbed (Susunia), Bahiri	In West Bengal, confined to the forests of North Bengal, threatened animal

Systematic position	Common name	Scientific name	Wild / Domestic	Sites of occurrence in study area	Remarks
Class Mammalia Order-Proboscidea	Indian elephant	*Elephas maximus* Linn.	Wild/ Domestic	Mongolkot, Kotasur.	Wild population in North Bengal; migrated herd from adjacent Jharkhand state are regular visitor of Southwestern Bengal particularly Bankura and Medinipur districts. Domesticated in India(no change in domestication and breeds with wild animal) in Harappan time
	The Extinct Siwalik Elephant	**Palaeoloxodon* sp.	Wild	Beldanga, Kansara	Extinct in Pleistocene
* Extinct from West Bengal in Pleistocene or Holocene or recent					

8. A PROFILE OF ZOOARCHAEOLOGICAL REMAINS

The analysis of animal remains from the study area reveals at least one species of Crustacea: Arthropoda, one species of Mollusca, four species of Pisces, five species of Reptilia, two species of Aves and thirty species of Mammalia. These remains covered both fossilized forms of Late Caenozoic period as well as extant forms of prehistoric cultural phases. Late Pleistocene forms like, *Palaeoloxodon sp., Bubalus bubalis var palaendicus, Bos namadicus, Miotragocerus* c.f. *punjabensis, Boselaphus namadicus* etc. are all extinct. Animal species found in the remains of different cultural phases may be considered as component of local fauna of the area during the concerned cultural phase or concerned time span, which also point out to conditions of natural habitats of the respective time. Occurrence of some species in the remains posed paradoxical situations in occasions. Semifossilized remains of *Antilope cervicapra,* in abundance, in Susunia area indicate comparatively a drier environment in last phase of Pleistocene period. But in the same area ample remains of *Bubalus bubalis* were also recovered. This species requires swampy wet habitats for their survival and growth. Further, huge number of cattle bones and bones of different deer species (*Cervus duvauceli, Cervus unicolor, Muntiacus muntjak, Axis axis, Axis porcinus, etc.*) in the area are quite indicative of good green pastures. The above situations are therefore, suggestive of oscillation of climate and environment during Pleistocene and early Holocene. The geological age of the animal remains provide sufficient clues to the climatic variations in times. It also opened up a question whether the wild species were all permanent residents of the area or some are at least seasonal dwellers from nearby areas.

In some Chalcolithic sites, remains of a number of wild and domestic animals were recovered. The wild species available around habitations were necessarily hunted by the chalcolithic people for dietary need. Several of those species, viz., *Cervus duvauceli, Axis porcinus* are still seen in parts of West Bengal and other Indian states but not sighted in recent times in the study area. The available information and currently available forested tracts of nearby areas suggest occurrence of these species in good number in the study area in past and their current disappearance can be contributed to increased human population and consequential changes in natural habitats. Remains of some exogenous animals like, *Turbinella* sp. (Shank) depict transportation of this marine form from distant locations by ancient human folk for ornamental use or other purposes.

Relying upon the conditions of the skeletal remains (i.e., chopped, cut, burnt etc.) the utility of many animals as human food could be understood. Remains of freshwater crabs were found in Pandu Rajar Dhibi (kitchen miden?) indicating these as food items of humans which were also scavenged by carnivores like, dogs, jackals etc. Despite easy availability to past human folk freshwater mollusks were not evidently chosen as

dietary items. The fishes were obviously a part of human food as evidenced from remains of major carps like, Rohu, Katla, bagrid cat fishes of medium to large sizes. Different turtles viz., *Lissemys punctata punctata, Aspideretes gangeticus, Chitra indica, Batagur baska* seemed to add to the food delicacies of the past human folk. Skeletal remains of different deer species as well as domestic animals like, cattle, buffalo, goat, sheep, pigs were encountered in appreciable number. While the deers were used as food items the cattles were utilized also for transportation, raw material for bone tools, skin or fur for protective covering of the body (see Table3).

Expressing abundance/prevalence of animals in relative terms or quantitative comparisons of different species becomes not quite realistic for non-similarity of cultural patterns as well as mode of recovery of remains (i.e., excavated or chance findings), sample size etc. Therefore, descriptive method has also been adopted to depict the faunal composition, abundance, and utility and man-animal relationship during prehistoric human cultures.

Table 3 : Available animals (excluding extinct Pleistocene forms) in prehistoric cultural strata and their relationships to human in Southwestern West Bengal.

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Wild forms #				
Freshwater crab	Aquatic –lives in ponds, lakes and other freshwater bodies	Chalcolithic (?)	+	Food
Turbinella pyrum	Aquatic marine	–	+	Raw material for making ornaments etc; not local, carried from other seaside places
Mystus sp.	Aquatic freshwater	Early Chalcolithic	+	Food
Catla catla	Aquatic freshwater	Chalcolithic	+	Food

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Rita sp.	Aquatic freshwater	Chalcolithic	+	Food
Lissemys punctata punctata	Aquatic freshwater	Chalcolithic	+	Food
Aspideretes gangeticus [Trionyx gangeticus]	Aquatic freshwater , in rivers	Iron Age (?)	+	Food
Chitra indica	Aquatic freshwater	Early Historic	+	Food
Batagur baska	Aquatic freshwater or estuarine	Early Iron Age	+	Food
Gavialis gangeticus	River crocodile	Early Historic	+	Predator animal
Gallus gallus murghi	Lives in forests	Chalcolithic		Food
Canis aurius	Carnivore, scavanger animal, mainly nocturnal lives in packs, in forests and scrub jungles nearby human habitation. Feeds on small animals, rodents and birds	Chalcolithic	+	Predator , beneficiary by checking small pest animal population (like rats) in human habitation, but preys upon poultry or cattle in human habitation; associated to human habitation as scavenger animal, feeds on left over.

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Canis lupus pallipes	Carnivore, lives in packs in forested areas preys on smaller to medium sized animals	Not known	+	Predator animal
Panthera purdus Linn.	Carnivore, lives in high forests and grasslands prey son small or medium sized animals, capable of climbing trees	Late Chalcolithic	+	Predator animal
Prionailurus viverrina (Bennett)	Carnivore, lives in forests nearby waterbodies , mostly feeds on fishes catching directly from water	Not known	+	Predator animal
Felis chaus	Carnivore, lives in forests preys on smaller animals	Not known	+	Predator animal
Rattus rattus	Fossorial animal, easily found within human habitation, makes burrows and tunnels	Not known	+	Pest of grains *etc;* might be taken as food (?)
Hystrix indica Linn.	Fossorial and terrestrial animal	Not known	+	Food (meat), quill as raw material
Axis axis Erxl.	Forest and grasslands dwelling common deer, live in big herds.	Chalcolithic	+	Food (meat), raw material for bone tools, skin

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Axis porcinus Zimm.	Forest dwelling deer, solitary/herd (feeding)	Late Chalcolithic	+	Food (meat) , raw material for bone tools, skin
Cervus duvauceli Cuvier	Forest dwelling deer	Early / Late Chalcolithic; Early Iron Age	+	Food (meat), skin,
Muntiacus muntjak Zimm.	Forest dwelling; solitary or in pairs	Iron Age/ Early Historic	+	Food (meat), skin
Antilope cervicapra (Linn.)	Forest and grasslands dwelling, particularly dry arid areas; lives in herds	Palaeolithic (?)	+	Food (meat) , raw material for bone tools, skin
Boselaphus tragocamelus Pallas	India's largest antelope; though forest living this animal is major raider of crop and crop yield; lives in herds, male solitary	Palaeolithic (?)	++	Food (meat), might be killed to prevent crop damage
Bos gaurus H. Smith	Forest dwelling	Chalcolithic (?)	+	Occassionally hunted, might be strayed animal.
Sus scrofa cristatus Wagner	Forest/grassland dwelling;	Early Chalcolithic	++	Food (meat), fat

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Bubalus bubalis (Linn.)	Forest dwelling, prefers marshy wet areas	Palaeolithic (?)/ Early / Late Chalcolithic	++	Food (meat)
Domestic forms				
Gallus sp.		Chalcolithic / Early Historic	+	Food (meat)
Bos indicus Linn.	Most common cattle, feeds on grass and leaves and other vegetable matter	Early / Late Chalcolithic / Ferro-chalcolithic	+++	Food (meat and milk), ploughing, drift, transport, skin, dung as fertilizer, and other uses , bones as raw material for tools
Bubalus bubalis (Linn.)	Common cattle, feeds on grass and leaves and other vegetable matter	Early / Late Chalcolithic; / Ferro-chalcolithic	+++	Same as *Bos*
Capra hircus aegagrus Linn.	Kept in herd	Chalcolithic	++	Food (meat), skin
Ovis orientalis vignei Blyth	Kept in herd	Chalcolithic	++	Food (meat), wool
Sus scrofa cristatus	Kept in herd	Neolithic/ Chalcolithic/ Ferro-Chalcolithic	+++ / ++	Food (meat), fat

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Camelus dromedarius	Domestic camels found in arid areas of West India, adaptedfor desert environment can survive long without water.	Ferro-Chalcolithic/ Iron Age (?)	+	Drift, transport, meat used as food; this animal never was common in this area and definitely imported. ; its presence suggests communication and trade with people of Western India or more abroad like Middle East.
Equus caballus	Feeds on grass or grains; kept as pet;	Ferro-Chalcolithic/ Early Historic	+	Transport or riding ; introduced from western part of the country may be by traders; but rare occurrence suggests the use was not common those days
Canis familiaris	Kept with human as pet, feeds on meat or other food, completely associated with human society	Early Historic	+	Kept for guarding herd animals like goat or sheep as well as human from wild predator animals; helps in hunting

Species	Habit and Habitat	Cultural stratum (tentative)	Availability status of the remains in various sites*	Use / Relationship with man
Elephas maximus	Largest terrestrial herbivore, caught from wild or born in captivity	Early Historic	+	Pet, Drift, transport
* +++ (Very high) ; ++ (High); + (Less)				

Table 4: Relative occurrence/ availability of remains of different animal groups in the major Chalcolithic sites

Species	Available fragments	% of total remains
Site : Bharatpur, District Bardhaman		
Bos indicus	157	59.0 %
Bos namadicus	10	3.76 %
Bubalus bubalis	21	7.9 %
Ovis orientalis	4	1.5 %
Capra hircus	4	1.5 %
Sus scrofa	12	4.51 %
Boselaphus tragocamelus	21	7.9 %
Muntiacus muntjak	4	1.5 %
Cervus duvauceli	7	2.63 %
Axis axis	8	3.00 %
Camelus dromedarius	1	0.37 %
Equus caballus	3	1.13 %
Canis familiaris	1	0.37 %
Gallus sp.	1	0.37 %

Species	Available fragments	% of total remains
Trionyx gangeticus	1	0.37 %
Teleostei fish	11	4.14 %
Site : Baneswardanga, District Bardhaman		
Bos indicus	6	08.11 %
Bubalus bubalis	6	08.11 %
Sus scrofa	13	17.57 %
Cervus duvauceli,	5	06.75 %
Cervus sp.,	10	13.51 %
Axis porcinus	10	13.51 %
Axis sp.,	3	04.05 %
Panthera purdus	1	01.35 %
Felis viverrina	1	01.35 %
Gallus sp.	3	04.05 %
Batagur baska	2	02.70 %
Chitra indica	6	08.11 %
Mystus sp.,	2	02.70 %
Unidentified	6	08.11 %
Site : Pandu Rajar dhibi, District Bardhaman		
Bos indicus	11	15.49
Bubalus bubalis	6	8.45
Capra hircus	2	2.8
Sus scrofa	9	12.68
Cervus duvauceli	3	4.22
Axis porcinus	6	8.45

Species	Available fragments	% of total remains
Canis aureus	3	4.22
Rattus rattus	1	1.4
Gallus gallus	5	7.04
Gavialis gangeticus	1	1.40
Lissemys punctata	4	5.6
Mystus sp.	1	1.4
Rita sp.	1	1.4
Catla	1	1.4
Unidentified carps	16	22.5
Crab	1	1.4
Site : Mongolkot, District Bardhaman		
Bos indicus	11	22 %
Bubalus bubalis	2	04 %
Sus scrofa	9	18 %
Cervus duvauceli	1	02 %
Axis porcinus	4	08 %
Axis sp.	2	04 %
Rattus rattus	2	04 %
Elephas maximus	1	02 %
Panthera purdus	1	02 %
Chitra indica	2	04 %
Batagur baska	2	04 %
Lissemys punctata	1	02 %
Mystus sp.	1	02 %

Species	Available fragments	% of total remains
Unidentified fish	1	02 %
Unidentified bird	1	02 %
Unidentified deer	3	06 %
Turbinella pyrum	1	02 %
Unidentified	5	10 %
Site : Bahiri, District Birbhum		
Bos indicus	4	14.28
Bos gaurus	2	7.14
Bubalus bubalis	10	35.7
Sus scrofa	3	10.7
Cervus duvauceli	1	3.57
Cervus sp.,	1	3.57
Axis axis	1	3.57
Canis familiaris	1	3.57
Unidentified	5	17.85

9. DISCUSSION

The prehistoric studies are concerned primarily with the manmade artifacts and implements for arriving at an interpretation about the situation of the ancient periods by piecing together the findings of the past. The manmade tools, implements and associated objects are regarded as the fossilized testimonies of human behaviour by the investigators of the subject. The human civilization passed through successive stages of Palaeolithic, Mesolithic and Neolithic i.e. the Old, Middle and New Stone ages. In relation to the geological time scale, Palaeolithic belongs to Pleistocene period while the Mesolithic and Neolithic come under the Holocene period. In the context of West Bengal, the evidence of Palaeolithic culture has not been prevalent in the deltaic region of the state, but a few has been traced out in the rock formation of the Gondwana group located in the districts of West Medinipur, Bankura, Bardhaman and Birbhum.

V. Ball's (1865) pioneering work was supplemented later by Krishnaswamy (1960). Quite a good number of Palaeolithic tools and implements have been recovered from the adjoining Jharkhand and Orissa states by the workers like Beaching (1868), Ball (1865), Anderson (1917), Mitra (1927), Sinha (1951), Sen & Ghosh (1960), etc. All these depict the existence of a very old human culture of Pleistocene period in this territory.

Various tools belonging to Lower and Middle Palaeolithic recovered from the river systems of Kangsavati, Kumari, Jam, etc were referred to as the implements of series I & II by Chattopadhay (1992). Evidence of many palaeoliths from the hilly terrain of Belpahari and adjacent areas in Medinipur district was reported by Ghosh (1961). Later on, Sen et al (1963) reported evidence of various Paleolithic implements from the districts of Bankura. The western part of Puruliya district is a strip of rocky undulating land bearing lateritic deposits at places, between Ajay and Damodar rivers. Palaeolithic implements were reported in a coal field area of Ranigunj by Ball in 1867. A few were reported by Lal (1958) and by the Directorate of Archaeology, West Bengal (IAR, 1967).These sites lie either along the lateritic tract around the present township of Durgapur or along the foothill of Muktaichandi near Rupnarayanpur. The Directorate of Archaeology, West Bengal identified a few sites at Jibdharpur and Nalhati of the Birbhum district with Palaeolithic implements. Chattopadhyay (1992) could recover Palaeolithic artifacts in the lateritic tract near Ilambazar.

It has been apparent from the discovery of substantial palaeoliths from different sites that Palaeolithic culture or Stone age hunting gathering economy persisted in a large part of the state. Chakraborti (1998) even stated that there are many areas where palaeoliths and / or microliths are virtually impossible to escape. An idea of the stratigraphic sequences in which palaeoliths occur in river systems appear in five sections viz., (i) Subarnarekha section at Ghorapincha (ii) Tarafeni section in Medinipur (iii) Manjura nullah near Bankura Town (iv) Kumari at Pareshnath and (v) Gandheswari at Susunia, Bankura (Chattopadhay, 1992). A reconstruction of the Pleistocene climate through correlation of geomorphological phases recorded in different river systems has been far from satisfactory. Laterites of different grades, characteristic of different climatic situations were not found. Ghosh & Das (1966) however, postulated a successional history and stratigraphic sequence as follows: (i) Bedrock, mainly Archaean, (ii) Detrital laterite deposition and (iii) Alluvium. This stratigraphic sequence is apparent in the terrain of Chhotanagpur belt. Chattopadhay (1992) stated that in certain part of Bankura district a Pliocene- Pleistocene primary lateritic formation has been overlying the Archaean rock. A deposition of girt of Late Pleistocene has been observed in some areas termed as the Baltora formation. Dassarma et al (1982) recovered fossilized remains of a number of animals *viz., Bubalaus bubalis, Boselaphus namadicus, Antilope cervicapra, Cervus duvauceli, Palaeoloxodon sp., Hystrix crassidens etc. They (op.cit.)* considered these animal forms comparable to the Middle group in Narmada. This consideration led to assign the lower palaeoliths from river deposits to the Middle

Palaeocene period. This is however intriguing in terms of the period as most of the palaeoliths collected from open land and forested parts seem to be of the period of Baltora formation. Chattopadhay (1992) pointed out that the lateritic uplands of *dangas or tanrh* played a vital role in tracing the prehistoric sequences as well as prehistoric lithic assemblages of this part of Bengal. He *(loc. cit.)* stated that when the gravels were being laid, the Palaeolithic population has already arrived in this part of West Bengal. They lived mostly in the forested uplands and their cultural products were also not focused in the earlier layers of gravels. Later, they migrated to the river valleys and there has been no convincing evidence of stratigraphic separation of lower and middle palaeoliths in these valleys. The faunal remains as well as radio-carbon dating of the period, especially around Susunia hill of Bankura indicate that this gravel bed belongs to upper Pleistocene period with an age older than 40 000 B.C. The ancient human folk migrated towards river valleys around the beginning of the Middle Palaeolithic stage (Chattopadhay, 1992). On the basis of available clues the human antiquity in the southwestern West Bengal can be traced back to even 100,000 ybp (years before present). At the primary phase, the human folk inhabitated forested open air sites or dangas where freshwater and raw materials for tool making were available in plenty. Cutwood stumps and abundance of fossil woods points out to a good forested tract on these dangas that offered hunting-gathering activities of the ancient human folk.

Majority of the Palaeoliths in West Bengal belongs to lower Palaeolithic stage and maximum numbers of sites were discovered from Bankura district. In terms of total number of tools recovered Bankura surpassed other districts as well. Middle Palaeolithic culture is not separately identifiable in the entire state of West Bengal (Chattopadhay, 1992). Chattopadhay (loc.cit.) however, identified at least 16 sites where Middle Palaeolithic tools could be separately identified. Mohanpur Satbati in Medinipur district is one of the major sites in the state. It may be presumed that the human folk during this cultural stage moved towards the alluvial plains or moved out of the lateritic dangas for a temporary phase. Chronologically, the Middle Palaeolithic stage is marked by full fledged flake elements (Ray, R., 1991).

The Upper Palaeolithic culture has been designated as an industry comprising tools on flake and blade. The principal tool types are blades, scrapers, borers, points, lunates, choppers, etc. (Datta, 1991b). The chief raw materials of the tools were medium grained green quartzite (Agarwal, 1982). The Upper Palaeolithic sites in West Bengal are centered on Kattara in Medinipur district and fringe area of the state (Datta, 1985). Kattara is situated on the elevated left bank of a nullah that joins with a small stream which ultimately mingles with Tarafeni River. In West Bengal Upper Palaeolithic industry did not develop gradually from middle Palaeolithic industry but are the product of some specialized group of immigrant people (Datta, 1991a). Datta (1991a) commented that evidence of this culture strongly suggests it as migrant culture having some unique regional characters. Chattopadhay (1992) noted that the migration of the

Palaeolithic people occurred in search of games. Exact chronological horizon of the industry remains incomplete inconclusive however, it belongs to the closing past of Pleistocene (Datta, 1991a).

According to Chakrabarti (1998) a large number of microliths were recovered from places in western West Bengal but no site could be designated as one proper Mesolithic site as that yielded no more than several tool types. However, B.B. Lals (1958) work in Birbhanpur village of Bardhaman district poses certain doubt. Microliths on quartz, chert and chalcedony were recovered from both the surface in association with pottery and from beneath alluvial deposit without any pottery (Ghosh, 1961). Chakrabarti (1998) opined that the microlithic objects associated with sandy deposit on surface of the lateritic conglomerate indicate post-Pleistocene aridity while conglomerate indicates wet conditions. He also stated that microlithic situation in West Bengal poses cultural controversies and identifying microlithic surface findings as indicative of 'Mesolithic' stage may become an erroneous one. Human settlement and subsistent pattern of the concerned time period in the context of surface scatters need to be better understood so as to draw a clearer picture of the time depth of the hunting gathering economy of the past population.

The Neolithic culture may be regarded as one Stone Age culture associated with food production, along with practice of agriculture as well as animal husbandry. The Neolithic implements were mainly the axes, wedges, chisels, perforated tools, shouldered hoes, hammer stones, pounders, fabricators, etc. (Ghosh, 1961). In western part of West Bengal, namely, in the districts of Medinipur, Puruliya, Bankura, Bardhaman, Birbhum quite a good number of Neolithic artifacts have been recovered from places. Geologically, these districts are part of the Chhotanagpur plateau (Narain, 1979). According to Narain *(op.cit.)* location of the Neolithic spots revealed that the Neolithic people preferred high plateaus and terraces, above flood plain of the rivers for their dwellings. Chakrabarti (1998) stated that the Period I of Pandu Rajar Dhibi, Bardhaman, as the earliest agriculture settlement in West Bengal. According to him, Pandu Rajar Dhibi may be later than the beginning of occupation at Bharatpur, Bardhaman and Mahisdal in Birbhum. The radiocarbon dating of Bharatpur indicates the beginning of the second Millennium B.C. as the time of the culture. Though no definitive remains of animals are obtained, Mahisdal yielded a good quality of burnt rice indicating that rice was cultivated by the human folk. Krishnaswami (1960) traced the origin of the culture in Southeast Asia which entered India through Mayanmar (Burma).

Recognition of a Chalcolithic phase in the archaeology of Eastern India, according to Misra (1970), has been an important point. In large part, the Neolithic culture was succeeded by the NBP Ware culture leading to the emergence of urban consciousness, planned settlement, developed architecture, newer arts and bigger trades. These

demonstrate the existence of chalcolithic culture. Datta (2005) stated that by the middle of second Millennium B.C. the south western part of West Bengal (viz. the districts of Medinipur, Puruliya, Bankura, Bardhaman, Birbhum etc.) was colonized by chalcolithic agricultural communities. They are mostly located in the Damodar and the Ajoy Valley and a few in Chhotanagpur plateau (Nag, 1987). A number of sites (Table 1) have been excavated and several papers have come out on the cultural implements and communities [Dasgupta, 1965; Chakrabarti & Hasan, 1982; Ghosh, 1984; Ray, A., 1991; Ray & Mukherjee, 1992; Datta, 1981, 1989, 1990a & b, 1991a, b &c, 1995, 2001, *etc.*]. The sites are lying in two distinct geomorphological units viz., the laterite and the alluvium. The laterite belongs to the upper Lalgarh formation, which comprises redeposited boulder conglomerate sediments of the lower Lalgarh formation. The lateritic soil is less suitable for cultivation. The alluvium developed over the Lalgarh formation is a thick sequence of sand and sandy loam soils. The older sediments have been designated as the Sijua formation and the lower sediments as Daintikri formation in Kasai Basin by Ghosh & Majumder (1981). These soils are more suitable for cultivation.

We may take four important sites viz., Bharatpur, Mahisdal, Pandu Rajar Dhibi and Mongolkot for present discussion and these would enable to draw a profile of the cultural set up and subsistence pattern of the Chalcolithic folk.

Bharatpur is situated in the lateritic soil area of the western part of Bardhaman district at an elevation of 60-90 metre (above msl). The excavation of the site (1972-74) revealed two periods: Period I representing the Chalcolithic phase and Period II representing the introduction of Iron Age. The material culture includes microlithic tools, neolithic axes, bone tools, beads, copper objects Red and Black Ware potteries etc. Two hearths measuring 0.5 m in diameter and mud house floors were also found. Period I of Bharatpur is dated about 1500 B.C.

Mahisdal is also situated in the lateritic red soil area in the semiarid zone of Birbhum district. The excavation of the site (1964) revealed two cultural sequences similar to Bharatpur. The cultural implements of Period I represented microliths, copper objects, black and red potteries etc. A pit filled with carbonized rice grains was noted here.

Pandu Rajar Dhibi is one typical Chalcolithic site of West Bengal, situated on an old alluvial terrace on the bank of Ajoy River in Bardhaman district, at an elevation of 38-40 meter (above msl). The site was excavated during 1962-65 and in 1985. It has a settlement area of about 250m x 200m and a four period cultural sequence. Period I is premettalic Neolithic (according to Chakrabarti, 1998); Period II is Chalcolithic, Periods III and IV are Iron Age and Early Historic respectively (according to Datta, 2005). A silt deposition of about 70 cm. thickness between the Periods I & II was noticed. Both handmade and wheel made potteries of Grey and Red Ware were recovered from Period I with rice husk impressions in some potteries. Ground stone tools, microliths and bone tools have also been reported from this level. Period II of Pandu Rajar Dhibi

represents a true Chalcolithic culture presenting a much developed ceramic comprising black, red and polished wares. The bone implements were also varied comprising arrowheads, harpoons to daggers. Copper implements included rings, bangles, fish hook, etc. Iron appeared in the upper level of this Period. The use of iron increased much in the Period III with continuation of Black and red ware.

Mongolkot is another Chalcolithic site on an old alluvium terrace at the confluence of Ajoy and Kunnur rivers in Bardhaman district. The site was excavated during 1986-91 revealing a cultural deposit of 4.5 m thickness. It had a settlement area of about 300 x 200m. It demonstrated remarkable remains of village farming communities and presented a distinctive range of potteries. Mongolkot is also remarkable for almost absence of lithic tools and preponderance of various bone tools. The evidence of substantial increase of use of iron demonstrated a gradual techno cultural shift from Chalcolithic to Early Historic phase.

Dhavalikar (1997) pointed out that the Chalcolithic culture came to West Bengal from the contiguous Jharkhand State (erstwhile Bihar). Of the Chalcolithic sites of West Bengal, Pandu Rajar Dhibi showed some Neolithic traits. On the basis of radiocarbon dating of Pandu Rajar Dhibi and Mahisdal, the Bengal Chalcolithic has been assigned a time bracket from c.1500-600 B.C. by Possehl & Rissman (1992).

So far as the human settlement patterns of the Chalcolithic folk is concerned, Chakrabarti (1998) stated that no village plan could be recovered or a complete house shape could be known. He *(op.cit.)* presumed the houses made up of mud-plastered walls on bamboo structure, thatched sloping roofs, carefully prepared floors by mixture of mud and cowdung and hearths. The surroundings were enough wooded in which wild animals were quite common. Low lying lands used to be preferred for rice cultivation as they retain monsoonal water for a longer period. The villages were spaced by about 10-12 kms as apparent from the locations of many Chalcolithic sites in Bardhaman and Birbhum districts.

So far as the zooarchaeological aspect is concerned the animal remains recovered from the excavations at Bharatpur, Pandu Rajar Dhibi and Mongolkot were primarily worked out by Banerjee (1981), Ghosh, M. (1991) and Ghosh *et al* (1992b). These show the existence of various vertebrates (Fish, Reptiles, Birds and Mammals) as well as one marine mollusc (Vide Table 2).

Apart from cultivation of paddy, evidence of different cultivable plants has not been established in any report of excavation. In addition to the plant products the Chalcolithic people relied largely upon various animals for their protein diet. A wide range of domestic animal forms were recovered from various sites (see Table 2). Further, remains of a few species *viz.* Jungle Fowl, Jackal, Wild boar, four species of deer, Wild buffalo, Nilgai were found in a sizeable number. The situation indicates to a possible

wide natural distribution of these species in well vegetated and forested tracts in the areas under focus. The fowl may also be domesticated form of *Gallus gallus.* The domestic animal forms were either part of the human diet or added to the nutritional enrichment, or animal products were used otherwise for house decoration, and bone implements. The wild animals were hunted by the Chalcolithic folk mostly for their dietary demand. Sheep and goats were non-native domestic animal forms. These domestic forms were obviously introduced by humans, either by migrating folk or through trade practices. Existence of trade practice becomes apparent by the presence of shell of marine Conch *(Turbinella pyrum).* Chakrabarti (1998) pointed out that the collective picture of animal use stands almost for a timeless frame in the context of early West Bengal: varieties of fish, turtles, fowl and pigeon, deer, cattle, buffalo, pig, etc. Ghosh & Saha (1992) showed that specific type of bones, horns and antlers were used for preparation of specialized bone tools and implements.

The present account tried to portray a profile of successive stages of human cultures, manmade artifacts, available animal forms of the past (see Tables 1-17), their relevance to the past society and ecological set up in the past. The antiquity of human culture in the southwestern part of West Bengal was traced back to the early phase of Stone Age which evolved later through successive phases. Distinctive evidences of chronological succession of cultures at certain levels have however been marginal or less evident. In the early Stone Age period man relied upon hunting and collecting for their living. Various tools of this stage were used for different purposes, human economy and subsistence pattern remained basically similar through its expanse. Subsequently, during the Neolithic stage there has been a substantial change in economy and culture. With the lack of a clear-cut habitation site of Neolithic culture the process of change could not always be thoroughly understood. Various Chalcolithic sites could however, draw a much clearer picture of the human economy and ecological set up of the area during this phase of culture. Various fluvial processes might have brought down remains of older cultures to comparatively recent geological sediments that might have caused certain confusions about artifacts of human cultures. We have highlighted a framework putting in only the available details. A vast area is perhaps still out of knowledge. The gaps need to be looked into for perceiving a long and continuous thread of archaeological sequence.

Table 5 : Animal Remains (Fossilized/Semifossilized) from Susunia, Bankura District, West Bengal

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
1	Jamthol, Susunia	*Giraffe camelopardalis* (Linn.)	Proximal end of the shaft of tibia	I
2	Jamthol	*Giraffe camelopardalis* (Linn.)	Distal end of left tibia	I
3	Jamthol	*Giraffe camelopardalis* (Linn.)	Fragment of distal end of right tibia	I
4	Susunia	*Bos namadicus* Falconer	Left ramus of mandible with 1st, 2nd and 3rd molar teeth	I
5	Aduri , Susunia	*Miotragoceros* cf. *punjabicus* (Pilgrim)	Fragment of left ramus of mandible with 1st, 2nd and 3rd premolar teeth	II
6	Jhikoria near Susunia	*Panthera purdus* (Linn.)	Fragment of left mandible with last molar tooth	IV
7	Dhankora	*Equus* sp.	Distal end of l tibia	II
8	Dhankora	*Equus* sp.	Upper right 2nd molar	II
9	Dhankora	*Equus* sp.	Upper right 2nd molar	I
10	Dhankora riverbed	*Bos namadicus* Falconer	Upper right 3rd molar	I
11	Dhankora stream	*Equus* sp.	Lower molar (charred)	I
12	Dhankora stream	*Equus* sp.	Right lower 3rd premolar with part of mandible	I
13	Lapuria - riverbed	*Equus* sp.	Upper left 2nd molar	II

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
14	Khayerbani, Susunia	*Equus* sp.	Right 1st lower premolar	II
15	Lapuria-riverbed	*Equus* sp.	Right lower 3rd premolar and 1st molar with mandible	II
16	Susunia	*Cervus duvauceli* Cuvier	Fragment of antler	II
17	Aduri	*Cervus duvauceli* Cuvier	Fragment of antler	
18	Khayerbani	*Cervus duvauceli* Cuvier	Proximal end of right metacarpal	II
19	Panchsiani	*Cervus duvauceli* Cuvier	Distal end of metacarpal	II
20	Aduri	*Cervus duvauceli* Cuvier radio-ulna	Broken shaft of right	II
21	Dhankora riverbed	*Cervus duvauceli* Cuvier	Broken shaft of right proximal end of tibia	I
22	Dhankora riverbed	*Cervus duvauceli* Cuvier	Broken shaft of radius	I
23	Dhankora	*Axis axis* Erxl.	Fragment of antler	
24	Dhankora	*Axis axis* Erxl.	Distal end of right metacarpal	
25	Aduri	*Sus scrofa* Linn.	Proximal end of left radius	II
26	Dhankora	*Sus scrofa* Linn.	Distal end of right metacarpal	I
27	Aduri	*Bos namadicus* Falconer	Left upper 1st molar	II
28	Aduri	*Bos namadicus* Falconer	Left upper premolar	II
29	Jamthol	*Bos namadicus* Falconer	Distal end with shaft of metatarsal	II
30	Dhankora	*Bos namadicus* Falconer	Upper right 3rd molar	I

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
31	Aduri	*Bos indicus* Linn.	Right astragalus	II
32	Lapuria	*Bos indicus* Linn.	Upper 2nd molar	II
33	Susunia riverbed	*Bos indicus* Linn.	Fragment of acetabulum of left pelvic girdle	I
34	Khayerbani riverbed	*Bos indicus* Linn.	Distal end of right metacarpal	II
35	Dhankora riverbed	*Bos indicus* Linn.	Fragment of proximal end of left radius with a portion of olecranon process of left ulna	I
36	Aduri	*Bos* sp	Fragment of right mandible with a molar teeth	II
37	Susunia	*Bos* sp	Distal end of metacarpal	II
38	Murgathol	*Bos* sp	Left upper 3rd molar	II
39	Murgathol	*Bos* sp	Right metacarpal without distal end	II
40	Murgathol	*Bos* sp	Lower left 2nd molar	II
41	Jamthol riverbed	*Bos* sp.	Distal end of tibia	I
42	Dhankora	*Bos* sp	Fragment of right mandible with 2nd and 3rd molar teeth	I
43	Dhankora	*Bos* sp.	Right lower 2nd molar	II
44	Aduri, Susunia	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Right upper 2nd molar	I
45	Bankajor-Dhankora	*Bubalus bubalis* var *palaendicus* Falc. & Caut	Left lower 3rd molar	II

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
46	Bankajor-Dhankora	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Fragment of right lower 3rd molar tooth	II
47	Panchsimulia	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Left metatarsal bone	II
48	Panchsimulia	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Metatarsal bone of left side	II
49	Aduri	*Bubalus bubalis* (Linn.)	Right astragalus	II
50	Susunia	*Bubalus bubalis* (Linn.)	Distal end of left humerus	I
51	Khayerbani	*Bubalus bubalis* (Linn.)	1st phalanx	II
52	Dhankora riverbed	*Bubalus bubalis* (Linn.)	Left lower 3rd molar	I
53	Dhankora riverbed	*Bubalus bubalis* (Linn.)	Right upper 3rd molar	I
54	Dhankora riverbed	*Bubalus bubalis* (Linn.)	Proximal end of ulna	I
55	Dhankora riverbed	*Bubalus bubalis* (Linn.)	Condylar portion of right mandible	I
56	Dhankora riverbed	*Bubalus bubalis* (Linn.)	Distal end of right metatarsal	II
57	Biribari	*Antilope cervicapra* (Linn.)	Fragment of right ramus of mandible with 1st, 2nd & 3rd molar	II
58	Aduri	*Antilope cervicapra* (Linn.)	Fragment of left ramus of mandible with 1st, 2nd & 3rd molar	II
59	Dhankora	*Antilope cervicapra* (Linn.)	Lower right 3rd premolar	I
60	Bankajor-Dhankora	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Lower right 3rd molar	II

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
61	Bankajor-Dhankora	*Bubalus bubalis* var. *palaendicus* Falc. & Caut.	Right astragalus	II
62	Dhankora stream	*Equus* sp.	Fragment of right scapula with median ridge	I
63	Dhankora stream	*Equus* sp.	Right upper 2nd molar tooth	II
64	Dhankora stream	*Equus* sp.	Upper right 2nd molar	I
65	Dhankora stream	*Equus* sp.	Broken distal end of left tibia	II
66	Dhankora stream	*Equus* sp.	Upper right 3rd premolar tooth	I
67	Biribari	*Cervus* sp.	Fragment of antler	II
68	Aduri – riverbed	*Cervus duvauceli* Cuvier	Proximal end of left tibia	II
69	Aduri – riverbed	*Cervus* sp.	Fragment of antler	II
70	Gogra	*Cervus* sp.	Lower left 2nd molar	V
71	Lapuria, Susunia	*Cervus* sp.	Antler	II
72	Gogra, Gandheswari riverbed	*Cervus duvauceli* Cuvier	Fragment of antler	IV
73	Gogra, Gandheswari riverbed	*Cervus duvauceli* Cuvier	Lower 3rd molar	IV
74	Sikoria Mouza, Gandheswari riverbed	*Bos* sp	Fragment of a rib	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
75	Jhikoria, northern side	*Bos* sp	Upper right 3rd molar	IV
76	Dhankora	*Bos* sp	Left upper 3rd molar	V
77	Dhankora riverbed, Gandheswari Mouza, opposite to Nodhi Mouza, 12 km from the camp	*Bos* sp	Left lower mandible with 1st , 2nd and 3rd molars and premolars	IV
78	Biribari, Gandheswari riverbed	*Bos* sp.	Lower right 2nd molar	IV
79	Biribari, Gandheswari riverbed	*Bos* sp.	Upper left 3rd molar	IV
80	Dhankora	*Bos* sp.	Left astragalus	III
81	Dhankora	*Bos* sp	Axis vertebra	III
82	Dhankora riverbed, Gidharia Mouza	*Bos* sp	Lower right incisor	IV
83	Dhankora	*Bubalus bubalis* (Linn.)	Proximal fragment of a rib	III
84	Dhankora	*Bubalus bubalis* (Linn.)	Fragment of a rib	III
85	Dhankora	*Bubalus bubalis* (Linn.)	Fragment of a rib	III
86	Dhankora	*Bubalus bubalis* (Linn.)	Left upper 3rd molar	III
87	Dhankora	*Bubalus bubalis* (Linn.)	Proximal end of right scapula with glenoid cavity	III

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
88	Dhankora riverbed	Sp. indet.	Right upper 3rd molar	V
89	Dhankora, Susunia	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Right 3rd upper molar	III
90	Dhankora	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Upper right 2nd molar	III
91	Kushbona, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Left astragalus	VI
92	Jhikoria, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Upper right 3rd molar	VI
93	Jhikoria, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Right 2nd lower molar	VI
94	Gogra, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Right 3rd lower molar	VI
95	Jhikoria, Gandheswari riverbed, near bridge	*Bubalus bubalis* (Linn.)	Left upper 1st molar	IV
96	Jhikoria, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Left upper 3rd molar	IV
97	Jhikoria Mouza, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Left upper 2nd molar	IV
98	Jhikoria, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Fragment of a shaft of radius	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
99	Jhikoria, Gandheswari riverbed		Proximal end fragment of calcaneum	IV
100	Jhikoria, Gandheswari riverbed, near bridge	*Bubalus bubalis* (Linn.)	Distal end fragment of a rib	IV
101	Jhikoria, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Proximal end of a rib	IV
102	Jhikoria, Gandheswari riverbed, near bridge	*Bubalus bubalis* (Linn.)	Distal end fragment of 1st phalanx	IV
103	Jhikoria, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Proximal end fragment of 1st phalanx	IV
104	Biribari, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Proximal end fragment of right mandible with sockets	IV
105	Metyala, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Right scaphocuboid	IV
106	Dhankora riverbed	*Bubalus bubalis* (Linn.)	Proximal fragment of olecranon part of right ulna	IV
107	Jhikoria Mouza, Gandheswari riverbed	*Bos indicus* Linn.	Right 3rd lower molar	VI
108	Gandheswari riverbed, Sikoria Mouza	*Bos namadicus* Falconer	Right 3rd lower molar	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
109	Dhankora riverbed	*Equus* sp.	Upper right broken 3rd premolar	
110	Dhankora	*Antilope cervicapra* (Linn.)	Left broken mandible with 1st (broken), 2nd and 3rd molar	III
111	Dhankora	*Antilope cervicapra* (Linn.)	Left maxilla with 1st , 2nd and 3rd molar	III
112	Dhankora	*Antilope cervicapra* (Linn.)	Fragment of mandible with 3rd molar (erupting) and broken 2nd molar	III
113	Dhankora	*Antilope cervicapra* (Linn.)	Right upper 2nd and 3rd molar	III
114	Dhankora	*Antilope cervicapra* (Linn.)	Broken right mandible	III
115	Dhankora riverbed	*Bos namadicus* Falconer	Lower right broken 2nd premolar	IV
116	Dhankora riverbed	*Bos namadicus* Falconer	Right 1st lower molar	IV
117	Dhankora riverbed	*Bos namadicus* Falconer	Right 3rd lower premolar	IV
118	Dhankora riverbed	*Bos namadicus* Falconer	Right 3rd lower molar	IV
119	Ampahari, Gandheswari riverbed	*Bos namadicus* Falconer	Right 2nd lower molar	IV
120	Southern side of Gand heswari riverbed, Gogra Mouja	*Bos* sp.	Left astragalus	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
121	Dhankora riverbed	*Equus* sp.	Lower right 3rd premolar	V
122	Biribari - riverbed	*Bubalus bubalis* (Linn.)	Broken right calcaneum	II
123	Dhankora	*Boselaphus tragocamelus* Pallas	Right 3rd upper molar	III
124	Dhankora	*Boselaphus tragocamelus* Pallas	Right 3rd upper premolar	III
125	Dhankora riverbed	*Boselaphus tragocamelus* Pallas	Right 3rd lower premolar and fragment of 1st molar	V
126	Gogra Pallas	*Boselaphus tragocamelus*		III
127	Jhikoria, Gandheswari riverbed, northern side of road, near bridge	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Left upper 2nd molar	IV
128	Jhikoria Mouza, Gandheswari riverbed	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Right 3rd upper molar	IV
129	Gogra, Susunia Hill	*Equus caballus* Linn.	Right 3rd upper molar	V
130	Gogra	*Equus caballus* Linn.	Right lower 2nd premolar	V
131	Dhankora	*Antilope cervicapra* (Linn.)	Right 1st and 2nd lower molar	III
132	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right 2nd lower molar	III
133	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar (erupting)	III

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
134	Dhankora	*Antilope cervicapra* (Linn.)	Right mandibular portion of with 2nd molar and fragment of 1st molar	III
135	Aduri	*Antilope cervicapra* (Linn.)	Fragment of right ramus of mandible with broken 1st, 2nd and 3rd molar	II
136	Dhankora riverbed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Fragment of antler	IV
137	Dhankora riverbed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Left upper 3rd molar	IV
138	Dhankora riverbed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	IV
139	Dhankora riverbed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Right upper 1st molar	IV
140	Dhankora riverbed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Left upper 2nd molar	IV
141	Dhankora riverbed, Nodhi Mouza		Right 2nd and 3rd lower molar with broken mandible	IV
142	Dhankora riverbed, Lapuria	*Antilope cervicapra* (Linn.)	Left upper 2nd molar	IV
143	Jhikoria, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
144	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Frogment of antler	VI
145	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	VI
146	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	VI
147	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Lower right 2nd molar	VI
148	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left upper 2nd molar	V
149	Dhankora	*Antilope cervicapra* (Linn.)	Distal end of metatarsal	III
150	Dhankora	*Antilope cervicapra* (Linn.)	Distal end of metatarsal	III
151	Dhankora	*Antilope cervicapra* (Linn.)	Proximal portion of right radius	III
152	Dhankora	*Antilope cervicapra* (Linn.)	Distal end of right humerus	III
153	Dhankora	*Antilope cervicapra* (Linn.)	Distal end of metacarpal broken	III
154	Dhankora	*Antilope cervicapra* (Linn.)	Distal end of right tibia	III
155	Dhankora	*Antilope cervicapra* (Linn.)	Thoracic vertebra broken	III
156	Dhankora	*Antilope cervicapra* (Linn.)	Lumber vertebra broken	III
157	Dhankora	*Antilope cervicapra* (Linn.)	Atlas vertebra	III
158	Dhankora	*Antilope cervicapra* (Linn.)	Left astragalus	III
159	Dhankora	*Antilope cervicapra* (Linn.)	Left astragalus	III
160	Dhankora	*Antilope cervicapra* (Linn.)	Two astragalus	III
161	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	III

Sl.	Locality	Taxonomic identity	Description of material	Source*
162	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	III
163	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	III
164	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	III
165	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	III
166	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	III
167	Dhankora	*Antilope cervicapra* (Linn.)	Upper right 3rd molar	III
168	Dhankora	*Antilope cervicapra* (Linn.)	Upper right 3rd molar	III
169	Dhankora	*Antilope cervicapra* (Linn.)	Upper right 3rd molar	III
170	Dhankora	*Antilope cervicapra* (Linn.)	Upper right 3rd molar erupting	III
171	Dhankora	*Antilope cervicapra* (Linn.)	Lower right 3rd molar	III
172	Dhankora	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	III
173	Dhankora	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	III
174	Dhankora	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	III
175	Dhankora	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	III
176	Dhankora	*Antilope cervicapra* (Linn.)	Fragment of rib	III
177	Dhankora	*Antilope cervicapra* (Linn.)	Second phalanx	III
178	Dhankora	*Antilope cervicapra* (Linn.)	Third phalanx	III
179	Dhankora	*Antilope cervicapra* (Linn.)	Second phalanx	III
180	Dhankora	*Antilope cervicapra* (Linn.)	Third phalanx	III
181	Dhankora	*Antilope cervicapra* (Linn.)	Horn core	III
182	Dhankora	*Antilope cervicapra* (Linn.)	Upper right 2nd molar	III
183	Dhankora	*Antilope cervicapra* (Linn.)	Right 2nd lower molar	III
184	Dhankora	*Antilope cervicapra* (Linn.)	Left 2nd lower molar	III
185	Dhankora	*Antilope cervicapra* (Linn.)	Left upper 3rd molar	III

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
186	Dhankora	*Antilope cervicapra* (Linn.)	Left upper 3rd molar	III
187	Dhankora	*Antilope cervicapra* (Linn.)	Left calcaneum	III
188	Dhankora	*Antilope cervicapra* (Linn.)	Broken right calcaneum	III
189	Dhankora	*Antilope cervicapra* (Linn.)	Broken left calcaneum	III
190	Dhankora	*Antilope cervicapra* (Linn.)	Right calcaneum broken	III
191	Dhankora	*Antilope cervicapra* (Linn.)	Distal end of left calcaneum	III
192	Dhankora	*Antilope cervicapra* (Linn.)	Fragment of antler	III
193	Dhankora	*Antilope cervicapra* (Linn.)	Fragment of antler	III
194	Jhikoria, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Upper right 2nd molar	IV
195	Dhankora	*Antilope cervicapra* (Linn.)	Lower right 2nd molar	V
196	Dhankora	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	V
197	Dhankora	*Antilope cervicapra* (Linn.)	Lower right 1st molar	V
198	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left upper 2nd molar	V
199	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Upper right 3rd molar	V
200	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right lower 3rd molar with mandible	IV
201	Dhankora	*Antilope cervicapra* (Linn.)	Right lower 2nd molar with mandible	IV
202	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	VI
203	Babladanga,	*Antilope cervicapra* (Linn.)	1st phalanx	VI
204	Dhankora riverbed	*Antilope cervicapra* (Linn.)	3rd phalanx	VI

Sl.	Locality	Taxonomic identity	Description of material	Source*
205	Babladanga,	*Antilope cervicapra* (Linn.)	Distal end of calcaneum	VI
206	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Fragment of antler	VI
207	Babladanga,	*Antilope cervicapra* (Linn.)	Right astragalus	VI
208	Gogra	*Antilope cervicapra* (Linn.)	Fragment of antler	V
209	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	II
210	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right 3rd premolar	I
211	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left lower 2nd and 3rd molar with broken mandible	IV
212	Dhankora riverbed, Nodhi Mouza	*Antilope cervicapra* (Linn.)	1st phalanx	IV
213	Dhankora riverbed, Nodhi Mouza	*Antilope cervicapra* (Linn.)	Left upper 3rd molar	IV
214	Dhankora riverbed, Nodhi Mouza	*Antilope cervicapra* (Linn.)	Right 3rd lower molar Broken	IV
215	Dhankora riverbed, Lapuria	*Antilope cervicapra* (Linn.)	Upper right 3rd molar	IV
216	Dhankora	*Antilope cervicapra* (Linn.)	Upper right 1st molar	V
217	Gogra , Gandheswari riverbed	*Antilope cervicapra* (Linn.))	Right 3rd lower molar with mandible	VI
218	Dhankora	*Antilope cervicapra* (Linn.)	Right 3rd lower molar	II

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
219	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right upper 2nd molar	VI
220	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	VI
221	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Right lower 3rd molar	VI
222	Babladanga, Dhankora riverbed	*Antilope cervicapra* (Linn.)	Left lower 2nd molar	VI
223	Dhankora	*Bubalus bubalis* var *palaendicus* Falc. & Caut.	Left mandible with 2nd, 3rd, 4th premolar and 1st , 2nd and 3rd molars	III
224	Dhankora riverbed, Nodhi	*Bos gaurus* H. Smith	Left upper second molar	IV
225	Aduri, Susunia	*Antilope cervicapra* Linn.	Fragment of mandible with left 2nd and 3rd molars	II
226	Gogra	*Equus caballus* Linn.	Lower right 2nd molar	V
227	Dhankora	*Equus caballus* Linn.	Fragment of mandible with premolar and 1st molar	II
228	Khayerbani	*Equus caballus* Linn.	Lower right 1st premolar	II
229	Jhikoria	*Equus caballus* Linn.	Lower right 2nd molar	IV
230	Jhikoria	*Equus caballus* Linn.	Distal end of left radius	IV
231	Jhikoria	*Equus caballus* Linn.	Left mandible with 2nd molar	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
232	Jhikoria	*Equus caballus* Linn.	Left mandible with 3rd premolar and 1st, 2nd & 3rd molar	IV
233	Dhankora	*Axis axis* Erxl.	Lower right 2nd molar	III
234	Dhankora	*Axis axis* Erxl.	Lower right 2nd molar	III
235	Dhankora	*Axis axis* Erxl.	Left mandible with 1st and 2nd molar	III
236	Gogra	*Cervus duvauceli* Cuvier	Fragment of antler	V
237	Gogra	*Cervus duvauceli* Cuvier	Fragment of antler	V
238	Gogra	*Cervus duvauceli* Cuvier	Proximal end of right metacarpal	V
239	Gogra	*Cervus duvauceli* Cuvier	Fragment of lumber vertebra	V
240	Gogra	*Cervus duvauceli* Cuvier	Fragment of antler	V
241	Gogra	*Cervus duvauceli* Cuvier	Fragment of antler	V
242	Gogra	*Cervus duvauceli* Cuvier	Fragment of antler	V
243	Gogra, Gandheswari riverbed	*Cervus duvauceli* Cuvier	Fragment of antler	V
244	Gogra	*Cervus duvauceli* Cuvier	Fragment of antler	V
245	Dhankora riverbed	*Capra hircus aegagrus* Linn.	Right upper 1st molar	III
246	Dhankora riverbed	*Capra hircus aegagrus* Linn.	Upper right 1st and 2nd molar	III
247	Gogra, Susunia	*Equus caballus* Linn.	Distal end of left radius	V
248	Dhankora	*Ovis* sp.	Shaft of right humerus	III
249	Dhankora	*Ovis* sp.	Fragment of axis vertebra	III

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
250	Dhankora, from riverbed	*Ovis* sp.	Right astragalus	I
251	Gogra	*Bos* sp.	Distal end fragment of left metacarpal	V
252	Aduri, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Distal end of left tibia	IV
253	Dhankora riverbed	*Ovis orientalis vignei* Blyth	Upper left 2nd and 3rd molar (broken)	V
254	Dhankora riverbed	*Ovis orientalis vignei* Blyth	Left lower 3rd molar	V
255	Dhankora riverbed	*Ovis orientalis vignei* Blyth	Right upper 1st and 2nd molar	V
256	Gogra, Gandheswari riverbed	*Panthera* sp.	Proximal end of left femur	V
257	Gogra	*Bos* sp.	Fragment of 1st phalanx	V
258	Dhankora	*Bos* sp.	1st coccygeal vertebra	III
259	Babladanga, Dhankora riverbed	*Bubalus bubalis* (Linn.)	Left lower 2nd premolar	VI
260	Jhikoria, Gandheswari riverbed, northern side of road, near bridge	*Equus* sp.	Lower right 2nd molar	IV
261	Aduri, Susunia	*Sus scrofa* Linn.	Proximal end of left radius	II
262	Babladanga , Dhankora riverbed	*Cervus unicolor* Kerr.	Fragment of antler	VI

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
263	Gogra, Gandheswari riverbed	*Cervus unicolor* Kerr.	Left lower 2nd molar	V
264	Dhankora	*Axis axis* Erxl.	Fragment of antler	III
265	Bankajor, Susunia	*Axis axis* Erxl.	Fragment of antler	II
266	Dhankora	*Axis axis* Erxl.	Left upper 1st and 2nd molar with mandible	III
267	Dhankora	*Axis axis* Erxl.	Fragment of antler	III
268	Bankajor, Dhankora stream	*Axis axis* Erxl.	Fragment of antler	II
269	Dhankora	*Axis axis* Erxl.	Distal end of right metacarpal	II
270	Dhankora	*Axis axis* Erxl.	Antler	III
271	Babladanga, Dhankora riverbed	*Axis axis* Erxl.	Upper right 3rd molar	VI
272	Dhankora	*Axis axis* Erxl.	Right lower 2nd molar	III
273	Dhankora	*Axis axis* Erxl.	Right lower 2nd molar	III
274	Dhankora	*Bubalus bubalis* (Linn.)	Right lower 3rd molar broken	III
275	Metyala, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Fragment of antler	IV
276	Dhankora river bed, northwest of Babladanga	*Antilope cervicapra* (Linn.)	Left lower 3rd molar	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
277	Dhankora river bed, northwest of Babladanga	*Antilope cervicapra* (Linn.)	Fragment of atlas vertebra	IV
278	Dhankora river bed, northwest of Babladanga	*Antilope cervicapra* (Linn.)	1st phalanx	IV
279	Metyala, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Right lower 2nd molar	IV
280	Dhankora river bed, northwest of Babladanga	*Antilope cervicapra* (Linn.)	1st phalanx	IV
281	Dhankora river bed, northwest of Babladanga	*Antilope cervicapra* (Linn.)	Left lower 2nd molar	IV
282	Dhankora river bed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Right lower 3rd molar	IV
283	Dhankora river bed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Fragment of antler (sign of charring)	IV
284	Dhankora river bed, northeast of Babladanga	*Antilope cervicapra* (Linn.)	Broken fragment of left astragalus	IV
285	Metyala, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Fragment of pelvic girdle with acetabulum	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
286	Metyala, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Fragment of antler	IV
287	Sikoria mouja, Gandheswari river bed	sp. indet.	Fragment of lower molar	IV
288	Sikoria mouja, Gandheswari river bed	sp. indet.	Fragment of lower molar	IV
289	Sikoria mouja, Gandheswari river bed	sp. indet.	Fragment of teeth	IV
290	Sikoria mouja, Gandheswari river bed	sp. indet.	Fragment of metacarpal	IV
291	Dhankora river bed, Nodhi mouja	sp. indet.	Fragment of radius with broken ulna fused	IV
292	Jhikoria, Gandheswari riverbed, northern side of road near bridge	*Capra*(?) sp.	1st and 2nd lower premolars	IV
293	Dhankora	*Sus* sp.	Erupting molar of young	V
294	Dhankora	*Bos* sp.	Fragment of humerus	III
295	Dhankora	*Canis* (?) sp.	Metacarpals of carnivore (clumped)	III
296	Dhankora	*Ovis* sp.	Fragments of metacarpal)	III
297	Dhankora	Cervidae?	Proximal fragment of scapula with glenoid cavity	III

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
298	Dhankora	*Ovis* sp.	Proximal fragment of metatarsal	III
299	Dhankora	*Ovis* sp.	Astragalus with other bone fragments	III
300	Dhankora	sp. indet.	Fragment of scapula with glenoid cavity	III
301	Kushbona, Gandheswari riverbed	sp. indet.	Astragalus	VI
302	Kushbona, Gandheswari riverbed	sp. indet.	Upper molar with portion of skull	VI
303	Kushbona, Gandheswari riverbed	*Equus* sp.	Premolar	VI
304	Kushbona, Gandheswari riverbed	*Equus* sp.	Lower molar	VI
305	Kushbona, Gandheswari riverbed	sp. indet.	Broken head of humerus	VI
306	Dhankora riverbed, Babladanga	sp. indet.	Axis vertebra	VI
307	Dhankora riverbed, Babladanga	*Antilope cervicapra* (Linn.)	Fragment of antler	VI
308	Dhankora riverbed, Babladanga	sp. indet.	Fragment of rib	VI
309	Dhankora riverbed, Babladanga	sp. indet.	Fragment of metacarpal	VI

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
310	Dhankora riverbed, Babladanga	sp. indet.	Fragment of metatarsal	VI
311	Gidhoria, Dhankora riverbed	sp. indet.	Lower left 3rd molar	VI
312	Gidhoria, Dhankora riverbed	sp. indet.	Lower 1st molar	VI
313	Gidhoria, Dhankora riverbed	sp. indet.	Lower molar	VI
314	Gidhoria, Dhankora riverbed	sp. indet.	1st phalanx	VI
315	Gidhoria, Dhankora riverbed	sp. indet.	Lower 1st molar	VI
316	Gidhoria, Dhankora riverbed	sp. indet.	Lower left 3rd molar	VI
317	Gidhoria, Dhankora riverbed	sp. indet.	Lower 3rd molar	VI
318	Gidhoria, Dhankora riverbed	sp. indet.	Axis vertebra	VI
319	Gidhoria, Dhankora riverbed	sp. indet.	Fragment of ulna (semilunar arch portion)	VI
320	Biribari, Gandheswari riverbed	sp. indet.	Lower 3rd molar	VI

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
321	Biribari, Gandheswari riverbed	Bovid	Fragment of molar	VI
322	Biribari, Gandheswari riverbed	sp. indet.	Fragment of lower molar	VI
323	Biribari, Gandheswari riverbed	sp. indet.	Upper premolar	VI
324	Biribari, Gandheswari riverbed	sp. indet.	Fragment of metatarsal	VI
325	Biribari, Gandheswari riverbed	*Bubalus bubalis* (Linn.)	Large cuneiform	VI
326	Biribari, Gandheswari riverbed	Bovid	Fragment of rib	VI
327	Gogra, Gandheswari riverbed	sp. indet.	Fragments of limb bone (3 examples)	V
328	Bamandiha	sp. indet.	Fragment of molar teeth	IV
329	Gogra	sp. indet.	Fragment of rib	V
330	Haribhanga, close to the hill of Susunia	sp. indet.	Two fossilized cervical vertebrae (clumped)	II
331	Haribhanga, close to the hill of Susunia	sp. indet.	Body of a vertebra	II
332	Aduri, Susunia	*Antilope cervicapra* (Linn.)	Two molar teeth	II
333	Dhankora, Susunia	sp. indet.	Molar teeth (2 examples)	I

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
334	Jamthol, Susunia	sp. indet.	Fragment of shaft of radius	I
335	Dhankora riverbed	*Antilope cervicapra* (Linn.)	Fragment of antler	IV
336	Dhankora riverbed, Nodhi mouja	*Antilope cervicapra* (Linn.)	Fragment of antler	IV
337	Metyala, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Upper left 3rd molar (erupting)	IV
338	Metyala, Gandheswari riverbed	*Antilope cervicapra* (Linn.)	Lower right 3rd molar with mandible	IV
339	Dhankora	*Antilope cervicapra* (Linn.)	Fragment of antler	IV
340	Jhikoria, Gandheswari riverbed	*Bos* sp.	Proximal end of right metatarsal	IV
341	Gogra, Gandheswari riverbed	*Cervus duvauceli* Cuvier	Fragment of antler	IV
342	Gogra, Gandheswari riverbed	*Cervus duvauceli* Cuvier	Fragment of antler	IV
343	Gogra, Gandheswari riverbed	*Cervus duvauceli* Cuvier	Fragment of antler	IV
344	Babladanga, Dhankora riverbed	sp. indet.	Astragalus	VI
345	Babladanga, Dhankora riverbed	sp. indet.	Fragment of metatarsal	VI

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
346	Babladanga, Dhankora riverbed	sp. indet.	Broken cervical vertebra (sign of charring)	VI
347	Babladanga, Dhankora riverbed	sp. indet.	Distal end of metacarpal	VI
348	Babladanga, Dhankora riverbed	sp. indet.	Scaphocuboid	VI
349	Babladanga, Dhankora riverbed	sp. indet.	Astragalus(charred)	VI
350	Babladanga, Dhankora riverbed	sp. indet.	Astragalus	VI
351	Babladanga, Dhankora riverbed	sp. indet.	2nd phalanx (3nos.)	VI
352	Gogra, Gandheswari riverbed	sp. indet.	Fragments of vertebra (6 pieces) charred	VI
353	Gogra, Gandheswari riverbed	sp. indet.	Fragment of ramus of mandible (sign of charring)	VI
354	Jhikoria, Gandheswari riverbed	sp. indet.	Fragment of rib	VI
355	Jhikoria, Gandheswari riverbed	sp. indet.	Fragment of rib	VI
356	Jhikoria, Gandheswari riverbed	sp. indet.	Upper premolar	VI
357	Jhikoria, Gandheswari riverbed	sp. indet.	Fragment of 1st phalanx	VI

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
358	Jhikoria, Gandheswari riverbed	sp. indet.	Fragment of humerus	VI
359	Babladanga, Dhankora riverbed	*Capra* sp.	Fragment of mandible with 3rd premolar and 1st molar	VI
360	Babladanga, Dhankora riverbed	*Capra* sp.	1st lower molar	VI
361	Babladanga, Dhankora riverbed	sp. indet.	Fragment of mandible with 1st and 2nd molar and remnants of premolar roots	VI
362	Babladanga, Dhankora riverbed	sp. indet.	Lower molar	VI
363	Babladanga, Dhankora riverbed	sp. indet.	Fragment of molar	VI
364	Babladanga, Dhankora riverbed	sp. indet.	Fragment of lower molar	VI
365	Babladanga, Dhankora riverbed	sp. indet.	Fragment of lower molar	VI
366	Jhikoria, Gandheswari riverbed	*Equus namadicus* Falc. & Caut.	Right mandible with 2nd, 3rd and 4th premolars and 1st and 2nd molars	IV
367	Jhikoria, Gandheswari riverbed	*Equus namadicus* Falc. & Caut.	Right 3rd molar teeth with mandible	IV
368	Jhikoria, Gandheswari riverbed	*Equus namadicus* Falc. & Caut.	Broken mandible with four incisors	IV
369	Gidhoria	sp. indet.	Fragment of rib	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
370	Metela, Gandheswari riverbed	sp. indet. 3rd molar with portion of mandible	Lower left 2nd and	VI
371	Metela, Gandheswari riverbed	sp. indet.	Fragment of upper molar	VI
372	Metela, Gandheswari riverbed	bovid	Fragment of upper molar	VI
373	Biribari, Gandheswari riverbed	sp. indet.	Fragment of horizontal ramus of mandible with a portion of diastema	IV
374	Jhikoria, Gandheswari riverbed	sp. indet.	Hinge portion of mandible (charred)	IV
375	Jhikoria, Gandheswari riverbed	sp. indet.	Body of a vertebra	IV
376	Dhankora	sp. indet.	Lower 2nd and 3rd molar Broken	III
377	Dhankora riverbed, Gidhoria Mouja	sp. indet.	Fragment of a rib	IV
378	Aduri	*Antilope cervicapra* (Linn.)	Left lower 1st molar	II
379	Dhankora, Susunia	sp. indet.	Fragment of shaft of tibia	III
380	Dhankora	sp. indet.	Fragment of tooth	III
381	Dhankora	sp. indet.	3rd lower molar	III
382	Dhankora limb bone	sp. indet.	Fragment of shaft of	III
383	Dhankora	sp. indet.	Fragment of rib	III
384	Dhankora	sp. indet.	1st, 2nd and 3rd molar	IV

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
385	Nodhi mouja metatarsal	*Ovis*(?) sp.	Distal end fragment of	IV
386	Gogra	*Capra*(?) sp.	One premolar, one molar and one fragment of molar	
387	Gogra	Bovid	Fragment of upper molar	
388	Gogra	Bovid	Lower molar	
389	Gogra	Bovid	Fragment of molar	
390	Dhankora	Bovid	Fragment of mandibles (5 pieces)	III
391	Jhikoria, Gandheswari riverbed	Bovid	Fragment of mandible with 2nd and 3rd molar	VI
392	Jhikoria, Gandheswari riverbed	Sp. indet.	Fragment of metatarsal	VI
393	Jhikoria, Gandheswari riverbed	Sp. indet.	Fragment of metapodial bone	VI
394	Gidhoria, Dhankora riverbed	Bovid	Proximal fragment of sacrum (mineralized, heavy in weight	VI
395	Dhankora	sp. indet.	Small fragments Limb bone in clumped condition , adhered by soil (whitish and brittle)	III

*Collected during following surveys : I –Directorate of Archaeology, Govt. of West Bengal, 1966; II - Directorate of Archaeology, Govt. of West Bengal, 1969; III – Zoological Survey of India, 1981; IV - Zoological Survey of India, 1982; V - Zoological Survey of India, 1984; VI -Zoological Survey of India, 1985; VII - Directorate of Archaeology, Govt. of West Bengal, 1986; VIII – University of Calcutta, 1993.

Table 6 : Animal Remains (Prehistoric) from Susunia, Bankura District, West Bengal

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
1	Dhankora Jor, BNK	*Bos* sp.	Upper right 2nd molar	VII
2	Dhankora Jor, BNK	*Bos* sp.	Lower left 3rd premolar	VII
3	Dhankora Jor, BNK	*Bos* sp.	Lower left 2nd molar	VII
4	Dhankora Jor, BNK	*Bos* sp.	Lower left 2nd molar	VII
5	Dhankora Jor, BNK	sp. indet.	Lower left 3rd molar	VII
6	Dhankora Jor, BNK	sp. indet.	Lower left 2nd molar	VII
7	Dhankora Jor, BNK	sp. indet.	Broken radius	VII
8	Dhankora Jor, BNK	*Bubalus bubalis* (Linn.)	Broken spine of thoracic vertebra	VII
9	Dhankora Jor, BNK	sp. indet.	Proximal fragment of right tibia	VII
10	Biribari	*Axis axis* Erxl.	Broken piece of shaft bone	VII
11	Biribari	*Axis axis* Erxl.	Proximal end portion of right metacarpal	VII
12	Biribari	*Ovis* sp.	Distal end fragment of femur	VII
13	Biribari	*Bos namadicus bengalensis* Ghosh	Broken piece of lower 2nd molar	VII
14	Biribari	*Axis axis* Erxl.	Distal end portion of tibia of right pes	VII
15	Biribari	*Bos* sp.	Lower molar (damaged)	VII

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
16	Biribari	*Bos* sp.	Molas tooth (damaged)	VII
17	Bankajor, Jamsola, Susunia	*Antilope cervicapra* (Linn.)	Proximal end of left metatarsal with a portion of shaft	VIII
18	Bankajor, Jamsola, Susunia	*Sus* sp.	Fragment of shaft of radius	VIII
19	Bankajor, Jamsola, Susunia	*Sus* sp.	Left metacarpal	VIII
20	Bankajor, Jamsola, Susunia	*Sus* sp.	Distal end of right radius	VIII
21	Bankajor, Jamsola, Susunia	*Bos* sp.	Distal fragment of left femur with supracondylar fossa of Bovine	VIII
22	Bankajor, Jamsola, Susunia	*Antilope cervicapra* (Linn.)	Fragment of right maxilla with 2nd premolar, 3rd premolar and 1st molar	VIII
23	Bankajor, Jamsola, Susunia	*Equus* sp	Proximal end of metacarpal	VIII
24	Bankajor, Jamsola, Susunia	*Sus* sp.	Proximal fragment of left radius	VIII
25	Bankajor, Jamsola, Susunia	*Sus* sp.	Distal end of right radius	VIII

Sl.	Locality	Taxonomic identity	Description of material	Source*
26	Siulibona, Susunia	*Boselaphus tragocamelus* Pallas	Fragment of distal end of left radius	II
27	Bhaluk Sonda Cave, Susunia	*Canis familiaris* Linn.	Right lower jaw with canine, 1st and 2nd and 4th premolar and 1st and 2nd molar teeth	I
28	Bhaluk Sonda Cave, Susunia	*Canis familiaris* Linn.	Thoracic vertebra	I
29	Bhaluk Sonda Cave, Susunia	*Canis familiaris* Linn.	Broken lumber vertebra	I
30	Bhaluk Sonda Cave, Susunia	*Canis familiaris* Linn.	Right humerus medial condyle surface and proximal area of shaft are scraped out	I
31	Bhaluk Sonda Cave, Susunia	*Cervus* sp.	Right astragalus	I
32	Bhaluk Sonda Cave, Susunia	*Canis familiaris* Linn.	Right tibia (sign of scraping)	I
33	Bhaluk Sonda Cave, Susunia	*Canis familiaris* Linn.	Proximal portion of broken shaft of left humerus	I
34	Bhaluk Sonda Cave, Susunia	*Cervus* sp.	Left scaphocuboid	I
35	Bhaluk Sonda Cave, Susunia	*Cervus* sp.	Damaged shaft of metatarsal	I
	Bhaluk Sonda Cave, Susunia	*Bos indicus* Linn.	Broken piece of right metatarsal (sign of charring and cut/ scraping mark)	I

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
36	Bhaluk Sonda Cave, Susunia	*Cervus* sp.	Tympanic bulla of young specimen	I
37	Bhaluk Sonda Cave, Susunia	*Bos indicus* Linn.	Left broken lower jaw with 1st and 2nd and 3rd premolar and 1st and 2nd molar teeth of juvenile	I
38	Jamthol Cave, Susunia	*Canis familiaris*	Complete left tibia	
39	Jamthol Cave, Susunia	*Capra* sp.	Left tibia without proximal epiphysis	VII
40	Jamthol Cave, Susunia	*Sus scrofa* Linn.	Right maxillary portion with 2nd, 3rd, 4th premolar and 1st molar of juvenile	VII
41	Jamthol Cave, Susunia	*Canis familiaris* Linn.	Thoracic vertebra	VII
42	Jamthol Cave, Susunia	*Sus scrofa cristatus* Wagner	Broken shaft of left tibia	VII
43	Jamthol Cave, Susunia	*Capra* sp.	Broken right scapula with glenoid cavity	VII
44	Jamthol Cave, Susunia	*Capra* sp.	Broken ileum with a portion of acetabulum and pit for medial head of rectus femoris of right pelvic girdle	VII
45	Jamthol Cave, Susunia	*Canis* sp.	Broken right mandible of young (two embedded premolar)	VII
46	Jamthol Cave, Susunia	*Capra* sp.	Broken right radius	VII

Sl. No.	Locality	Taxonomic identity	Description of material	Source*
47	Jamthol Cave, Susunia	*Sus scrofa cristatus* Wagner	Fragment of right mandible	VII
48	Jamthol Cave, Susunia	*Sus scrofa* Linn.	Fragment of frontal bone of skull with right orbit portion	VII
49	Jamthol Cave, Susunia	*Sus scrofa* Linn.	Broken lower jaw with 1st incisor, 2nd 3rd and 4th premolar and 1st molar teeth in the both ramii (juvenile, 4th premolar trilobed)	VII
50	Jamthol Cave, Susunia	*Bos* sp.	Bovine molar	VII
51	Jamthol Cave, Susunia	*Capra* sp.	Pubis of left pelvic girdle	VII
52	Jamthol Cave, Susunia	*Homo sapiens* Linn.	Shaft bone of right humerus of human child	VII
53	Jamthol Cave, Susunia	*Capra* sp.	Broken ileum with a portion of acetabulum and pit for medial head of rectus femoris of left pelvic girdle	VII
54	Jamthol Cave, Susunia	*Canis familiaris* Linn.	Cervical vertebra	VII

*Collected during following surveys : I –Directorate of Archaeology, Govt. of West Bengal, 1966; II - Directorate of Archaeology, Govt. of West Bengal, 1969; III – Zoological Survey of India, 1981; IV - Zoological Survey of India, 1982; V - Zoological Survey of India, 1984; VI -Zoological Survey of India, 1985; VII - Directorate of Archaeology, Govt. of West Bengal, 1986; VIII – University of Calcutta, 1993.

Table 7 : Animal Remains from Bharatpur Archaeological Site, Bardhaman District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
1	*Bos indicus* Linn.	2nd phalanx	-	Pit no.1 sealed by (1)	G6Qd
2	*Boselaphus tragocamelus* Pallas	Distal end of right radius	-	Pit no.1 sealed by (1)	G6Qd3
3	*Boselaphus tragocamelus* Pallas	Left astragalus	-	Pit no.1 sealed by (1)	G6Qd3
4	*Boselaphus tragocamelus* Pallas	Fragment of left pelvic girdle with acetabulum	-	Pit no.1 sealed by (1)	G6Qd3
5	*Bos indicus* Linn.	Horn core	0.15m	(1)	G6Qd1
6	*Bos indicus* Linn.	Fragments of ribs	0.15m	(1)	G6Qd1
7	*Bos indicus* Linn.	Upper left 3rd molar	0.25m	(1)	G6Qd3
8	*Bos indicus* Linn.	Upper left 2nd molar	0.25m	(1)	G6Qd3
9	*Bos indicus* Linn.	Upper left 1st molar	0.25m	(1)	G6Qd3
10	*Bos indicus* Linn.	Broken distal end of the metacarpal	0.25m	(1)	G6Qd3
11	*Bubalus bubalis* (Linn.)	Upper 1st premolar (milk teeth)	-	(1)	G6Qd4
12	*Bubalus bubalis* (Linn.)	Upper left 1st premolar	-	(2)	G6Qd4
13	*Bubalus bubalis* (Linn.)	Broken cuneiform	-	(2)	G6Qd4
14	*Bubalus bubalis* (Linn.)	Fragment of left mandible with condyle	-	(2)	G6Qd4
15	*Ovis orientalis vignei* Blyth	Upper left 2nd molar	-	(2)	G6Qd4
16	*Bos indicus* Linn.	Proximal end of metatarsal	0.45m	(2)	G6Qd3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
17	*Boselaphus tragocamelus* Pallas	Left astragalus	0.45m	(2+3)	G6Qd3
18	*Bos indicus* Linn.	Fragment of rib	0.80m	(2+3)	G6Qd3
19	*Equus caballus* Linn.	Distal end of metatarsal	0.56m	(4+5)	G6Qd4
20	*Equus caballus* Linn. (Pony type)	Fragment of proximal end of tibia	0.80m	(2+3)	G6Qd3
21	*Bos indicus* Linn.	Lower right 2nd premolar	0.83m	(4+5)	G6Qd1
22	*Bos indicus* Linn.	Distal end of right metacarpal	0.83m	(3)	G6Qd1
23	*Bos indicus* Linn.	Left lunate	0.83m	(3)	G6Qd1
24	*Bos indicus* Linn.	Fragment of mandible	0.83m	(3)	G6Qd1
25	*Bos indicus* Linn.	1st phalanx	0.83m	(3)	G6Qd1
26	*Bos indicus* Linn.	Incisor tooth	0.83m	(3)	G6Qd1
27	*Bubalus bubalis* (Linn.)	Fragment of mandible	0.83m	(3)	G6Qd1
28	*Sus scrofa* Linn.	Upper right 3rd molar	0.83m	(3)	G6Qd1
29	*Camelus dromedarius* Linn.	Upper 1st premolar	0.83m	(3)	G6Qd1
30	Teleosteii fish	Body of the vertebra	0.83m	(3)	G6Qd1
31	*Bos indicus* Linn.	Left distal end of radius	0.78m	(3+4)	G6Qd3
32	*Bos indicus* Linn.	1st phalanx	0.78m	(3+4)	G6Qd3
33	*Bubalus bubalis* (Linn.)	Fragment of rib	0.78m	(3+4)	G6Qd3
34	Teleosteii fish	Body of the vertebra	1.00m	(3+4)	G6Qd1
35	*Bos indicus* Linn.	Fragment of rib	1.00m	(3+4)	G6Qd1
36	*Bos indicus* Linn.	Fragment of scapula	1.00m	(3+4)	G6Qd1
37	*Bubalus bubalis* (Linn.)	Proximal end of right radius	1.00m	(3+4)	G6Qd1

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
38	*Bos indicus* Linn.	2nd phalanx	1.00m	(3+4)	G6Qd3
39	*Bos indicus* Linn.	Upper 1st molar	0.58m	(4)	G6Qd3
40	*Bos indicus* Linn.	Fragment of ribs (2 nos.)	0.58m	(4)	G6Qd3
41	*Boselaphus tragocamelus* Pallas	Right astragalus	0.58m	(4)	G6Qd3
42	*Bubalus bubalis* (Linn.)	Fragment of mandible with broken coronoid process and condyle	0.58m	(4)	G6Qd3
43	*Ovis orientalis vignei* Blyth	Distal end of left humerus	0.58m	(4)	G6Qd3
44	Teleosteii fish	Body of the vertebra	0.58m	(4)	G6Qd4
45	*Bos indicus* Linn.	Fragment of pelvic girdle	0.80m-0.72m	(4)	G6Qd4
46	*Bos indicus* Linn.	Left cuneiform	0.80m-0.72m	(4)	G6Qd4
47	*Boselaphus tragocamelus* Pallas	Proximal part of right calcaneum	0.80m-0.72m	(4)	G6Qd4
48	*Bos indicus* Linn.	1st phalanx	0.80m-0.72m	(4)	G6Qd4
49	*Bos indicus* Linn.	Fragment of right calcaneum	0.80m-0.72m	(4)	G6Qd4
50	*Bos indicus* Linn.	Fragment of rib	0.80m-0.72m	(4)	G6Qd4
51	*Bos indicus* Linn.	3rd phalanx	0.80m-0.72m	(4)	G6Qd4
52	*Bos indicus* Linn.	Broken 2nd phalanx	0.80m-0.72m	(4)	G6Qd4
53	*Bos indicus* Linn.	Fragment of right ileum with acetabulum	1.10m	(4)	G6Qd4
54	*Bos indicus* Linn.	Fragment of acetabulum of pelvic girdle	1.10m	(4)	G6Qd1

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
55	*Bos indicus* Linn.	1st phalanx	1.10m	(4)	G6Qd1
56	*Bubalus bubalis* (Linn.)	Proximal end portion of right ulna	1.10m	(4)	G6Qd1
57	*Bos indicus* Linn.	Fragment of rib	1.20m	(4)	G6Qd2
58	*Bos indicus* Linn.	1st phalanx	1.20m	(4)	G6Qd2
59	*Bubalus bubalis* (Linn.)	Upper right 1st premolar	1.20m	(4)	G6Qd2
60	*Axis axis* Erxl.	Fragment of antler	1.20m	(4)	G6Qd2
61	*Equus caballus* (PONY)	Proximal portion of left tibia	1.30m	(4)	G6Qd1
62	*Bos indicus* Linn.	Right trapezoid and magnum	1.30m	(4)	G6Qd1
63	*Bos indicus* Linn.	Fragment of shaft of tibia	0.78m	(4+5)	G6Qd4
64	*Bos indicus* Linn.	Fragment of rib	0.78m	(4+5)	G6Qd4
65	*Bos indicus* Linn.	Incisor tooth	0.75m	(4+5)	G6Qd4
66	*Boselaphus tragocamelus* Pallas	Distal end of left humerus	0.78m	(4+5)	G6Qd4
67	*Boselaphus tragocamelus* Pallas	Broken distal end of left radius	0.78m	(4+5)	G6Qd4
68	*Bubalus bubalis* (Linn.)	Fragment of ramus of mandible	0.76m	(4+5)	G6Qd4
69	*Canis familiaris* Linn	Fragment of ulna	0.80m	(4+5)	G6Qd3
70	*Axis axis* Erxl.	Fragment of antler	0.80m	(4+5)	G6Qd3
71	*Axis axis* Erxl.	Fragment of antler	0.80m	(4+5)	G6Qd3
72	*Cervus duvauceli* Cuvier	Ist phalanx	0.80m	(4+5)	G6Qd3
73	*Cervus duvauceli* Cuvier	Ist phalanx of young one	0.80m	(4+5)	G6Qd3
74	*Muntiacus muntjack* Zimm.	Right calcaneum	0.80m	(4+5)	G6Qd3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
75	*Muntiacus muntjack* Zimm.	Proximal end of metatarsal	1.00-0.95m	(5)	G6Qd4
76	*Muntiacus muntjack* Zimm.	Fragment of the proximal end of left radius	0.80m	(4+5)	G6Qd3
77	*Sus scrofa* Linn.	Shaft of femur	0.80m	(4+5)	G6Qd3
78	*Sus scrofa* Linn.	Fragment of shaft of tibia	0.80m	(4+5)	G6Qd3
79	*Sus scrofa* Linn.	Cuneiform	0.80m	(4+5)	G6Qd3
80	*Sus scrofa* Linn.	Scapho-cuboid	0.80m	(4+5)	G6Qd3
81	*Bos indicus* Linn.	Fragment of ribs (2 nos.)	0.80m	(4+5)	G6Qd3
82	*Bos indicus* Linn.	Scapho-cuboid	1.00-0.95m	(5)	G6Qd4
83	*Bos indicus* Linn.	2nd phalanx	0.80m	(4+5)	G6Qd3
84	*Bos indicus* Linn.	Fragment of shaft of right tibia (with cut mark)	0.80m	(4+5)	G6Qd3
85	*Bos indicus* Linn.	2nd premolar of upper jaw	0.80m	(4+5)	G6Qd3
86	*Bos indicus* Linn.	Fragment of distal end of shaft of humerus	0.80m	(4+5)	G6Qd3
87	*Bos indicus* Linn.	Left trapezoid magnum	1.00-0.95m	(5)	G6Qd4
88	*Bos indicus* Linn.	Fragment of shaft of humerus	0.80m	(4+5)	G6Qd3
89	*Bos indicus* Linn.	Proximal end of shaft of metatarsal	0.80m	(4+5)	G6Qd3
90	*Bos indicus* Linn.	Fragment of distal end of calcaneum	0.80m	(4+5)	G6Qd3
91	*Bos indicus* Linn. with shaft	Distal end of metatarsal	0.80m	(4+5)	G6Qd3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
92	*Bos indicus* Linn.	Fragment of maxilla of left side with portion of infra orbital foramen and facial tuberosity	0.80m	(4+5)	G6Qd3
93	*Bos indicus* Linn.	Deciduous molar teeth of upper jaw	0.80m	(4+5)	G6Qd3
94	*Bos indicus* Linn.	Fragment of scapula	0.80m	(4+5)	G6Qd3
95	*Bos indicus* Linn.	2nd upper molar tooth	0.80m	(4+5)	G6Qd3
96	*Bos indicus* Linn.	Condylar portion of lower jaw	0.80m	(4+5)	G6Qd3
97	*Bos indicus* Linn.	Broken shaft of tibia	0.80m	(4+5)	G6Qd3
98	*Bos indicus* Linn.	1st molar of the upper jaw	0.80m	(4+5)	G6Qd3
99	*Bos indicus* Linn.	Lower 1st molar	0.80m	(4+5)	G6Qd3
100	*Bos indicus* Linn.	Sixth cervical vertebrae	1.20m	(4+5)	G6Qd1
101	*Bos namadicus* Falconer	Fragment of rib	1.20m	(4+5)	G6Qd1
102	*Bos namadicus* Falconer	Fragment of condyle of rib	1.20m	(4+5)	G6Qd1
103	*Bos namadicus* Falconer	Proximal portion of ulna	1.20m	(6)	G6Qd2
104	*Bos*(?) *namadicus* Falconer	Right astragalus	1.20m	(4+5)	G6Qd1
105	Teleosteii fish	Body of the vertebra (3)	1.00-0.95m	(5)	G6Qd4
106	*Sus scrofa cristatus*	Distal end of left tibia	1.00-0.95m	(5)	G6Qd4
107	*Bos indicus* Linn.	Fragment of ribs (5)	1.00-0.95m	(5)	G6Qd4

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
108	*Bos indicus* Linn.	Accessory carpal bone	1.00-0.95m	(5)	G6Qd4
109	*Bos indicus* Linn.	1st upper molar tooth	1.00-0.95m	(5)	G6Qd4
110	*Bos indicus* Linn.	1st phalanges (2)	1.13m	(5)	G6Qd2
111	*Bos indicus* Linn.	Broken 1st phalanx	1.13m	(5)	G6Qd2
112	*Bos indicus* Linn.	2nd phalanx	1.13m	(5)	G6Qd2
113	*Bos indicus* Linn.	Fragment of mandible	1.13m	(5)	G6Qd2
114	*Bos indicus* Linn.	Fragment of pubis of pelvic girdle	1.13m	(5)	G6Qd2
115	*Bos indicus* Linn.	Incisor	1.13m	(5)	G6Qd2
116	*Boselaphus tragocamelus* Pallas	Broken left astragalus	1.13m	(5)	G6Qd2
117	*Boselaphus tragocamelus* Pallas	Right astragalus	1.13m	(5)	G6Qd2
118	*Boselaphus tragocamelus* Pallas	Fragment of proximal end of right tibia	1.13m	(5)	G6Qd2
119	*Cervus duvauceli* Cuvier	Proximal end of left calcaneum	1.26m	(5)	G6Qd1
120	*Bos indicus* Linn.	Vertebral spine	1.26m	(5)	G6Qd1
121	*Bos indicus* Linn.	Fragment of ribs (2)	1.26m	(5)	G6Qd1
122	*Bubalus bubalis* (Linn.)	Broken premaxilla (skull)	1.26m	(5)	G6Qd1
123	*Bos indicus* Linn.	Fragment of pelvic girdle (only acetabulum)	1.30m	(5)	G6Qd2
124	*Bos indicus* Linn.	Body of the vertebra	1.30m	(5)	G6Qd2
125	*Bos indicus* Linn.	Fragment of pelvic girdle with acetabulum	1.30m	(5)	G6Qd2
126	*Bos indicus* Linn.	Right trapezoid magnum (2)	1.30m	(5)	G6Qd2

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
127	*Bos indicus* Linn.	Second phalanx	1.30m	(5)	G6Qd2
128	*Boselaphus tragocamelus* Pallas	Fragment of rib	1.30m	(5)	G6Qd2
129	*Boselaphus tragocamelus* Pallas	Upper 2nd molar	1.30m	(5)	G6Qd2
130	*Axis axis* Erxl.	Fragment of proximal end of metatarsal	1.30m	(5)	G6Qd2
131	*Axis axis* Erxl.	Proximal end of metacarpal	1.30m	(5)	G6Qd2
132	*Bos indicus* Linn.	Fragment of left ileum of pelvic girdle	0.80m	(6)	G6Qd3
133	*Bos indicus* Linn.	Fragment of the body of the vertebra (2)	0.80m	(6)	G6Qd3
134	*Bos indicus* Linn.	Fragment of shaft of humerus	0.80m	(6)	G6Qd3
135	*Cervus duvauceli* Cuvier	2nd phalanx	0.95m	(6)	G6Qd3
136	*Axis axis* Erxl.	Proximal end of right metacarpal	0.95m	(6)	G6Qd3
137	*Sus scrofa* Linn.	Left astragalus	0.95m	(6)	G6Qd3
138	*Bos indicus* Linn.	2nd phalanx	0.95m	(6)	G6Qd3
139	*Bos indicus* Linn.	Fragment of mandible with fossa	0.95m	(6)	G6Qd3
140	*Bos indicus* Linn.	Fragment of shaft of humerus	0.95m	(6)	G6Qd3
141	*Bos indicus* Linn.	Upper right 1st molar	0.95m	(6)	G6Qd3
142	*Bos indicus* Linn.	Upper right 2nd premolar	0.95m	(6)	G6Qd3
143	*Bos indicus* Linn.	Distal end of left humerus	0.95m	(6)	G6Qd3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
144	*Boselaphus tragocamelus* Pallas	Fragment of rib	0.95m	(6)	G6Qd3
145	*Boselaphus tragocamelus* Pallas	Broken axis vertebra	0.95m	(6)	G6Qd3
146	*Boselaphus tragocamelus* Pallas	Body of lumber vertebra	0.95m	(6)	G6Qd3
147	*Boselaphus tragocamelus* Pallas	Cervical vertebra	0.95m	(6)	G6Qd3
148	*Boselaphus tragocamelus* Pallas	Broken cervical vertebra	0.95m	(6)	G6Qd3
149	*Boselaphus tragocamelus* Pallas	Proximal end of shaft of left metacarpal	0.95m	(6)	G6Qd3
150	Teleosteii fish	Body of the vertebra (10)	1.05m	(6)	G6Qd4
151	*Trionyx gangeticus* Cuvier	Fragment of carapace	1.05m	(6)	G6Qd4
152	*Capra hircus* Linn.	Proximal end of scapula	1.05m	(6)	G6Qd4
153	*Bos indicus* Linn.	Incisor (2)	1.05m	(6)	G6Qd4
154	*Bos indicus* Linn.	Upper 2nd premolar	1.05m	(6)	G6Qd4
155	*Bos indicus* Linn.	Upper 3rd premolar	1.05m	(6)	G6Qd4
156	*Bos indicus* Linn.	1st phalanx	1.05m	(6)	G6Qd4
157	*Bos indicus* Linn.	2nd phalanx	1.05m		G6Qd4
158	*Bos indicus* Linn.	Fragment of rib	1.05m	(6)	G6Qd4
159	*Bos indicus* Linn.	Caudal vertebra	1.05m	(6)	G6Qd4
160	*Bubalus bubalis* (Linn.)	Broken spinous process of vertebra	1.05m	(6)	G6Qd4
161	*Bubalus bubalis* (Linn.)	Fragment of rib	1.05m	(6)	G6Qd4
162	Teleosteii fish	Vertebra (17 ex.)	1.19m	(6)	G6Qd4
163	*Muntiacus muntjak* Zimm.	Proximal fragment of radius	1.19m	(6)	G6Qd4

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
164	*Bos indicus* Linn.	Incisor (young one)	1.19m	(6)	G6Qd4
165	*Bos indicus* Linn.	Broken spinous process of vertebra	1.19m	(6)	G6Qd4
166	*Bos indicus* Linn.	Proximal end of ulna	1.19m	(6)	G6Qd4
167	*Bos indicus* Linn.	Right cuneiform	1.20m	(6)	G6Qd2
168	*Bos indicus* Linn.	Fragment of rib	1.20m	(6)	G6Qd2
169	*Boselaphus tragocamelus* Pallas	Left calcaneum	1.20m	(6)	G6Qd2
170	*Bos indicus* Linn.	Fragment of rib	1.30m	(6)	G6Qd2
171	*Bos indicus* Linn.	Right scapho-cuboid	1.30m	(6)	G6Qd2
172	*Bos indicus* Linn.	Fragment of ulna with processus aneonaeus	1.52m	(6)	G6Qd1
173	*Bos indicus* Linn.	Broken thoracic vertebra	1.52m	(6)	G6Qd1
174	*Bos indicus* Linn.	Broken trapezoid magnum	1.52m	(6)	G6Qd1
175	*Bos indicus* Linn.	2nd phalanx	1.52m	(6)	G6Qd1
176	*Cervus duvauceli* Cuvier	Right calcaneum	1.69m	(6)	G6Qd1
177	*Cervus duvauceli* Cuvier	3rd phalanx (hoof)	1.69m	(6)	G6Qd1
178	*Bos indicus* Linn. metatarsal	Distal end of left	1.69m	(6)	G6Qd1
179	*Bubalus bubalis* (Linn.)	Lower 3rd premolar	1.69m	(6)	G6Qd1
180	*Bubalus bubalis* (Linn.)	Upper 2nd molar & lower incisor	1.69m	(6)	G6Qd1
181	Teleosteii fish	Body of the vertebra	1.27m	(7)	G6Qd4
182	Teleosteii fish	Fragment of ribs	1.27m	(7)	G6Qd4
183	*Axis axis* Erxl.	Fragment of antler	-	(13)	C3Qd2

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
184	*Cervus duvauceli* Cuvier	1st phalanx	3.70m	(13)	C3Qd2
185	*Capra hircus* Linn.	Fragment of ileum of pelvic girdle (charred)	1.27m	(7)	G6Qd4
186	*Capra hircus* Linn.	Fragment of ribs	1.27m	(7)	G6Qd4
187	*Bos indicus* Linn.	Fragment of cervical vertebra	1.27m	(7)	G6Qd4
188	*Bos indicus* Linn.	Distal fragment of left humerus	1.27m	(7)	G6Qd4
189	*Bos indicus* Linn.	Fragment of spinous process of cervical vertebra	1.27m	(7)	G6Qd4
190	*Bos indicus* Linn.	Inter vertebral disc	1.27m	(7)	G6Qd4
191	*Bos indicus* Linn.	Fragment of the body of cervical vertebra (7th)	1.27m	(7)	G6Qd4
192	*Bos indicus* Linn.	Fragment of proximal end of right radius	1.27m	(7)	G6Qd4
193	*Bos indicus* Linn.	Fragment of shaft of tibia	1.27m	(7)	G6Qd4
194	*Bos indicus* Linn.	Fragment of the arch and articular process of vertebra	1.27m	(7)	G6Qd4
195	*Bubalus bubalis* (Linn.)	Fragment of the shaft of left tibia	1.27m	(7)	G6Qd4
196	*Bubalus bubalis* (Linn.)	Fragment of condyle of left mandible	1.27m	(7)	G6Qd4
197	Teleosteii fish	Broken mandibular portion (2)	1.65m	(7)	G6Qd2
198	Teleosteii fish	Body of the vertebra	1.65m	(7)	G6Qd2

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
199	*Sus scrofa* Linn.	Fragment of proximal end of left ulna with processus aneonaeus and semilunar notch	1.65m	(7)	G6Qd2
200	*Sus scrofa* Linn.	Fragment of proximal end of left femur	1.65m	(7)	G6Qd2
201	*Bos indicus* Linn.	Fragment of rib	1.65m	(7)	G6Qd2
202	*Bos indicus* Linn.	Broken 1st phalanx	1.65m	(7)	G6Qd2
203	*Bos indicus* Linn.	Proximal fragment of metacarpal	1.65m	(7)	G6Qd2
204	*Bos indicus* Linn.	Distal fragment of metacarpal	1.65m	(7)	G6Qd2
205	*Bos indicus* Linn.	Fragment of mandible with lower 2nd premolar	1.65m	(7)	G6Qd2
206	*Bos indicus* Linn.	Right scaphoid	1.65m	(7)	G6Qd2
207	*Bos indicus* Linn.	Lower 2nd molar	1.65m	(7)	G6Qd2
208	*Bos indicus* Linn.	Fragment of mandible	1.65m	(7)	G6Qd2
209	*Boselaphus trago camelus* Pallas	Proximal portion of metacarpal	1.65m	(7)	G6Qd2
210	*Bubalus bubalis* (Linn.)	Proximal fragment of left scapula	1.65m	(7)	G6Qd2
211	*Sus scrofa* Linn.	Right upper maxilla with 4th premolar and 1st & 2nd molar	1.40m	(7)+(8)	G6Qd3
212	*Sus scrofa* Linn.	Upper 3rd molar	1.40m	(7)+(8)	G6Qd3
213	*Sus scrofa* Linn.	Lower 3rd molar	1.40m	(7)+(8)	G6Qd3
214	*Bos indicus* Linn.	Lower 1st, 2nd and 3rd molar	1.40m	(7)+(8)	G6Qd3
215	*Bos indicus* Linn.	Upper 1st premolar	1.40m	(7)+(8)	G6Qd3
216	*Bos indicus* Linn.	1st phalanx	1.40m	(7)+(8)	G6Qd3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
217	*Bos indicus* Linn.	1st phalanx	1.40m	(7)+(8)	G6Qd3
218	*Bos indicus* Linn.	Distal end of metacarpal	1.40m	(7)+(8)	G6Qd3
219	*Bos indicus* Linn.	Broken right ileum of pelvic girdle	1.40m	(7)+(8)	G6Qd3
220	*Bos*(?) *namadicus* Falconer	Fragment of cervical vertebra	1.40m	(7)+(8)	G6Qd3
221	*Bos namadicus* Falconer	Right scaphoid	1.40m	(7)+(8)	G6Qd3
222	*Bos namadicus* Falconer	Right lunate	1.40m	(7)+(8)	G6Qd3
223	*Bos namadicus* Falconer	Right calcaneum	1.40m	(7)+(8)	G6Qd3
224	*Bos namadicus* Falconer	Broken 1st phalanx	1.40m	(7)+(8)	G6Qd3
225	*Bubalus bubalis* (Linn.)	Broken condylar portion of mandible (2)	1.40m	(7)+(8)	G6Qd3
226	*Bubalus bubalis* (Linn.)	2nd phalanges (2)	1.40m	(7)+(8)	G6Qd3
227	*Bos indicus* Linn.	Broken proximal end of metatarsal	1.50m	(8)	G6Qd2
228	*Bos indicus* Linn.	Broken body of the right calcaneum	1.50m	(8)	G6Qd2
229	*Bos indicus* Linn.	Fragment of shaft of humerus	1.50m	(8)	G6Qd2
230	*Bos indicus* Linn.	Lunate	1.60m	(8)	G6Qd2
231	*Bos indicus* Linn.	Lower 2nd molar	1.60m	(8)	G6Qd2
232	*Bos indicus* Linn.	Broken 1st phalanx	1.60m	(8)	G6Qd2
233	*Bos indicus* Linn.	Distal end of right humerus	1.60m	(8)	G6Qd2
234	*Bos indicus* Linn.	Distal end of metacarpal	1.60m	(8)	G6Qd2

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
235	*Bos indicus* Linn.	Fragment of ribs (2)	1.60m	(8)	G6Qd2
236	Teleosteii fish	Broken body of the vertebra	2.90m	(9)	C3Qd2
237	*Ovis orientalis vignei* Blyth	Distal end of humerus (left)	2.90m	(9)	C3Qd2
238	*Bos indicus* Linn.	Broken cervical vertebrae(4)	2.90m	(9)	C3Qd2
239	*Bos indicus* Linn.	Broken right astragalus	2.90m	(9)	C3Qd2
240	*Bos indicus* Linn.	1st phalanx(2)	3.35-2.90m	(9)	C3Qd2
241	*Bos indicus* Linn.	2nd phalanx(2)	3.35-2.90m	(9)	C3Qd2
242	*Bos indicus* Linn.	Distal end of right tibia	3.35-2.90m	(9)	C3Qd2
243	*Bos indicus* Linn.	Distal end of metatarsal	3.35-2.90m	(9)	C3Qd2
244	*Bos indicus* Linn.	3rd phalanx(2)	3.35-2.90m	(9)	C3Qd2
245	*Bos indicus* Linn.	2nd phalanx	-	(10)	C3Qd2
246	*Bos indicus* Linn.	Fragments of ribs	-	(10)	C3Qd2
247	*Bos indicus* Linn.	Fragment of anterior end of right mandible	-	(10)	C3Qd2
248	*Bos indicus* Linn.	Upper right premolar	-	(10)	C3Qd2
249	*Bos indicus* Linn.	Proximal end of metacarpal	-	(10)	C3Qd2
250	*Ovis orientalis vignei* Blyth	Lower right 3rd molar	-	(10)	C3Qd2
251	*Gallus* sp.	Distal end of humerus	3.90m	(10)	C3Qd2
252	*Bos indicus* Linn.	Fragment of calcaneum	3.90m	(11)	C3Qd2

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
253	*Bos indicus* Linn.	Upper 1st premolar	4.00-3.04m	(11)	C3Qd2
254	*Bos indicus* Linn.	Upper 2nd premolar	4.00-3.04m	(12)	C3Qd2
255	*Bos indicus* Linn.	Upper 1st molar	4.00-3.04m	(12)	C3Qd2
256	*Bos indicus* Linn.	Distal end of shaft of humerus	4.00-3.04m	(12)	C3Qd2
257	*Bos indicus* Linn.	Body of lumber vertebra	4.00-3.04m	(12)	C3Qd2
258	*Bos indicus* Linn.	Upper 1st premolar	4.00-3.04m	(12)	C3Qd2
259	*Bos indicus* Linn.	Fragment of mandible	4.00-3.04m	(12)	C3Qd2
260	*Bos*(?) *namadicus* Falconer	3rd phalanx (hoof)	4.00-3.04m	(12)	C3Qd2
261	*Capra hircus* linn.	Mandible with 2nd and 3rd premolar	4.00-3.04m	(12)	C3Qd2
262	*Axis axis* Erxl.	Distal end of radius	3.60m	(13)	C3Qd2
263	*Bos indicus* Linn.	Fragment of right mandible with 2nd and 3rd premolar	3.70m	(13)	C3Qd2
264	*Bos indicus* Linn.	Right mandible with 3rd , 2nd and 1st molar	3.70m	(13)	C3Qd2
265	*Bos indicus* Linn.	Proximal end of left scapula with glenoid cavity	3.70m	(13)	C3Qd2
266	*Bos indicus* Linn.	Lower 2nd molar	3.70m	(1)	C3Qd2
267	*Homo sapiens* Linn	Fragment of pelvic girdle (3)	0.25m	(1)	G6Qd3
268	*Homo sapiens* Linn	Broken metacarpals and metatarsals (8)	0.25m	(1)	G6Qd3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus
269	*Homo sapiens* Linn	Clavicle (collar bone)	0.25m	(1)	G6Qd3
270	*Homo sapiens* Linn	Astragalus	0.25m	(1)	G6Qd3
271	*Homo sapiens* Linn	Patella (2)	0.25m	(1)	G6Qd3
272	*Homo sapiens* Linn	Body of vertebra (3)	0.25m	(1)	G6Qd3
273	*Homo sapiens* Linn	Carpal bone	0.25m	(1)	G6Qd3
274	*Homo sapiens* Linn	Distal end of humerus	0.25m	(1)	G6Qd3
275	*Homo sapiens* Linn	Broken ribs fragments (7)	0.25m	(1)	G6Qd3
276	*Homo sapiens* Linn	Calcaneum	0.25m	(1)	G6Qd3
277	*Homo sapiens* Linn	Premaxilla with incisor	0.25m	(1)	G6Qd3
278	*Homo sapiens* Linn	Calcaneum	4.45m	(13)	C3Qd2
279	*Homo sapiens* Linn	Broken body of the vertebrae	4.45m	(13)	C3Qd2
280	*Homo sapiens* Linn	Fragments of ribs	4.47m	(13)	C3Qd2
281	*Homo sapiens* Linn	Broken metacarpals and metatarsals	4.45m	(13)	C3Qd2
282	*Homo sapiens* Linn	Fragment of pelvic girdle	4.47m	(13)	C3Qd2
283	*Homo sapiens* Linn	Carpal bone	4.47m	(13)	C3Qd2
284	*Homo sapiens* Linn	Astragalus	4.45m	(13)	C3Qd2
285	*Homo sapiens* Linn	Fragments of maxilla with 3rd molar	4.47m	(13)	C3Qd2

Table 8 : Animal Remains from Mongolkot Archaeological Site, Bardhaman District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus / Trench
1	*Bubalus bubalis* (Linn.)	Upper right 2nd premolar	1.85 mt	(3)	C'6
2	*Sus scrofa cristatus* Wagner	Fragment of right mandible with 4th premolar(trilobed) young	Pottery pit 1.14 mt	(2)	I x 3
3	*Axis porcinus* Zimm.	A broken tip of antler (tine)	2.04 mt	(3)	C'6
4	*Sus scrofa cristatus* Wagner	Upper left 1st incisor	2.04 mt	(3)	C'6
5	*Bos* sp.	Spinal portion of upper scapula	2.10 B.S.	(4)	I x 3
6	*Bos* sp.	Stylohyoid bone	2.01 mt	(3)	C'6
7	Sp. indet.	Fragment of limb bone	2.01 mt	(3)	C'6
8	*Sus scrofa cristatus* Wagner	Fragment of molar	1.08 mt	(3)	I x 3
9	Sp. indet.	Fragment of long bone	1.87 mt	(3)	C'6
10	*Bos* sp.	Proximal fragment of right radius	1.42 mt	(3)	C'6
11	*Axis porcinus* Zimm.	Apical portion of left antler (cut mark at base)	2.11 mt	(4)	I x 3
12	*Bos* sp.	Broken shaft of right humerus of young calf	5.28 x 2.12-0.24	(1)	C'6
13	*Axis porcinus* Zimm.	Broken right mandible with 1st to 3rd premolar and 1st molar of subadult	2.00 mt	(3)	I x 3
14	*Cervus duvauceli* Cuvier	Distal fragment of left radius with ulnar portion	2.25 mt	(4)	I x 3
15	*Chitra indica* (Gray)	Fragment of hypoplastron	2.05 mt	(4)	I x 3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus / Trench
16	*Lissemys punctata punctata* (Bonnaterre)	A fragment of hypoplastron	2.05 mt	(4)	I x 3
17	*Sus scrofa cristatus* Wagner	Fragment of left scapula (adult)	2.05 mt	(4)	I x 3
18	*Axis porcinus* Zimm.	Erupting antler with pedicel of left side	1.55 mt	(2)	I x 3
19	*Rattus rattus* Linn.	Mandible with incisor	-	-	-
20	*Rattus rattus* Linn.	Two isolated upper incisors	-	-	-
21	*Bos* sp.	Fragment of distal end of left tibia	2.23-1.98 mt	-	C'6
22	*Axis sp.*	Broken left calcaneum	1.72 mt	(2A) pit	I x 3
23	*Turbinella pyrum* (Linn.)	Broken columellar fold	0.67 mt 3rd Quad.	(3)	C'6
24	*Sus* sp.	Fragment of molar	2.05 mt	(3)	I x 3
25	*Batagur baska* Gray	Fragment of hypoplastron	2.08 mt Western slope	(3)	I x 3
26	*Sus scrofa cristatus* Wagner	Distal fragment of left humerus with chopping mark	1.81 mt B.S.	(3)	C'6
27	*Bos* sp.	Distal condylar portion of left humerus			
28	*Sus scrofa* Linn.	Broken lower right canine	1.58 mt Below surface	(3)	C'6

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus / Trench
29	*Bos* sp.	A fragment of rib	1.00 mt	(3)	C'6
30	*Bos* sp.	Broken fragment of a lower molar (cresentic island)	1.30 mt B.S.	(3)	C'6
31	*Sus scrofa cristatus* Wagner	Apical portion of left lower canine		(3)	C'6
32	*Bos* sp.	Broken head of femur with sharp cut mark	0.67 mt 3rd Quad	(3)	C'6
33	Sp. indet.	Distal phalanx or claw of some gallinaceous bird	2.20 mt B.S.	(3)	I x 3
34	*Axis sp.*	Head of right humerus	1.22 mt	(2) Pottery pit	I x 3
35	*Bos* sp.	Fragment of rib	1.22 mt	(2) Pottery pit	I x 3
36	*Bos* sp.	Incisor tooth	H x 2-Ix 2 2.19x 4.79-2.03 mt	(4)	I x 3
37	*Sus* sp.	Broken anterior premolar	2.10 mt B.S.	(4)	C'6
38	*Batagur baska* Gray	Three fragments of plastron	-	-	-
39	*Panthera* (?) sp.	Fragment of the shaft of a humerus	1.33 mt	(3)	C'6
40	*Bubalus bubalis* (Linn.)	Broken 1st phalanx of foreleg (of a large beast)	2.00 mt	(3)	I x 3
41	*Chitra indica* (Gray)	Fragment of carapace	2.00 mt	(3)	I x 3

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Depth	Layer	locus / Trench
42	Bony fish (sp. indet.)	Operculum of fish	-	-	-
43	*Mystus* sp.	Broken left pectoral spine	2.00 mt	(3)	I x 3
44	*Elephas maximus*	Fragment of molar tooth			
45	Deer (sp. indet.)	Fragment of antler with base (with chopping mark)	-	-	-
46	Deer (sp. indet.)	Fragment of antler (with chopping mark)	-	-	-
47	Deer(sp. indet.)	Fragment of antler (shredded)	-	-	-
48	sp. indet.	Fragment of vertebra	-	-	-
49	sp. indet.	Fragment of astragalus	-	-	-
50	sp. indet.	Fragment of limb bone	-	-	-

Table 9 : Animal Remains from Baneswardanga Rchaeological Site, Bardhaman Dist., West Bengal

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data		
				Depth	Layer	Period
1	*Sus scrofa cristatus* Wagner	Distal portion of right tibia	BND I	2.30m	(6)	Pd III
2	sp. indet.	Broken portion of cervid molar	BND I	2.30m	(6)	Pd III
3	*Sus scrofa cristatus* Wagner	Distal fragment of right humerus	BND I	4.30m	(9)	Pd I
4	Sp. indet.	Broken piece of bovine long bone (chopped)	BND I	1.26m	(7)	Pd IV
5	*Chitra indica* (Gray)	Fragment of plastron	BND I	1.26m	(7)	Pd IV
6	*Axis porcinus* Zimm.	Broken apical portion of antler	BND I	3.50m	(8)	Pd II
7	sp. indet.	Fragment of cervid molar	BND I	2.32m	(7)	Pd III
8	*Sus scrofa cristatus* Wagner	Fragment of left ramus of mandible with body and 3rd, 4th premolar and 1st and 2nd molar	BND I	1.82m	(4)	Pd III
9	Cervid deer	A fragment of rib of young	BND I	1.82m	(4)	Pd III
10	*Batagur baska* (Gray)	Fragment of plastron	BND I	1.82m	(4)	Pd III
11	*Bubalus bubalis* (Linn.)	Broken spinous process of 1st thoracic vertebra	BND I	3.40m	(8)	Pd II

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data		
				Depth	Layer	Period
12	*Cervus* sp.	Distal portion of left femur (near trochlea) with chopping mark	BND I	3.32m	(8)	Pd II
13	*Chitra indica* (Gray)	Fragment of hypoplastron	BND I	3.32m	(8)	Pd II
14	*Axis porcinus* Zimm.	Broken left astragalus	BND I	3.32m	(8)	Pd II
15	*Chitra indica* (Gray)	Fragment of plastron	BND I	2.54m	(6)	Pd III
16	*Cervus* sp.	Proximal fragment of left metatarsal	BND I	3.32m	(9)	Pd II
17	*Chitra indica* (Gray)	Fragment of carapace	BND I	3.20m	(9)	Pd III
18	sp. indet.	Fragment of long	BND I	1.26m	(7)	Pd IV
19	sp. indet.	Fragment of bovid molar	BND I	2.14m	(6)	Pd III
20	*Cervus duvauceli* Cuvier	Upper left 2nd molar	BND I	2.78m	(6A)	Pd III
21	*Sus scrofa cristatus* Wagner	Fragment of left olecranon process	BND I	3.44m	(8)	Pd II
22	*Cervus* sp.	Finely sawed basal portion of cervid antler (sawing mark)	BND I	2.67m		Pd III
23	*Axis porcinus* Zimm.	Upper left 1st molar	BND I	2.80m	(6A)	Pd III
24	*Axis porcinus* Zimm.	Apical fragment of tine	BND I	2.52m	(8)	Pd III
25	*Chitra indica* (Gray)	Fragment of plastron	BND I	2.35m	(6)	Pd III
26	*Bubalus bubalis* (Linn.)	Broken femoral head	BND I	4.3m	(3)	Pd IV

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data		
				Depth	Layer	Period
27	*Bos indicus* Linn.	Broken right metatarsal	BND II	1.34m	(6)	Pd IV
28	*Cervus duvauceli* Cuvier	Fragment of right mandible 2nd, 3rd premolar (milk) and 1st and 2nd molarwith a portion of erupting 3rd molar	BND II	4.54m	(9)	Pd I
29	*Cervus* sp.	Distal condylar portion of left humerus	BND II	4.69m	(9)	Pd I
30	*Mystus* sp.	Pectoral spine with condylar portion	BND II	4.69m	(9)	Pd I
31	*Bos indicus* Linn.	Broken right calcaneum	BND II	5.00m	Pit /9c	Pd I
32	*Bos indicus* Linn.	Broken shaft of left tibia	BND II	3.00m	(4A)	Pd III
33	*Bos indicus* Linn.	Portion of condyle of right metatarsal	BND II	2.96m	(6)	Pd III
34	*Axis porcinus* Zimm.	Broken right astragalus	BND II	2.96m	(6)	Pd III
34A	*Panthera purdus* Linn.	Aportion of the r ight malar bone adjacent to the zygomatic process (young)	BND II	3.30m	(7)	Pd II
35	*Axis porcinus* Zimm.	Fragment of left ramus of mandible and 1st and 3rd premolars	BND II	3.30m	(7)	Pd II

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data		
				Depth	Layer	Period
36	*Sus scrofa* Linn.	Fragment of shaft of femur	BND II	3.87m	(7B)	Pd I
37	*Axis* sp.	Upper left 2nd molar	BND II	3.52m	(7)	Pd II
38	*Axis porcinus* Zimm.	Fragment ofleft maxilla with 2nd and 3rd premolarss, cut medially by sharp instrument	BND II	3.52m	(7)	Pd II
39	*Gallus* sp.	Broken right scapula	BND II	4.45m	(9)	Pd I
40	*Cervus duvauceli* Cuvier	Fragment of distal shaft of left femur with supra condyloid	BND II	4.60m	(9)	Pd I
41	*Axis sp.*	Fragment of the body of lumber vertebra	BND II	4.60m	(9)	Pd I
42	*Cervus duvauceli* Cuvier	Fragment of medial shaft of right femur	BND II	3.00m	(4A)	Pd III
43	sp. indet.	Fragment of bovine humerus	BND II	4.42m	(9)	Pd I
44	*Cervus* sp.	Fragment of medial shaft of right radius	BND II	0.85m	(2)	Pd IV
45	*Mystus* sp.	Left pectoral spine with condylar portion	BND II	4.15m	(8)	Pd II
46	*Cervus duvauceli* Cuvier	2nd phalanx	BND II	3.50m	(8)	Pd II
47	*Axis sp.*	Broken 5th cervical vertebra	BND II	2.92m	(6)	Pd III

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data		
				Depth	Layer	Period
48	*Sus scrofa* Linn.	Upper right 1st incisor	BND II	3.60m	(7)	Pd II
49	sp. indet.	Cervid molar	BND II	2.96m	(6)	Pd III
50	*Sus scrofa* Linn.	Broken incisor	BND II	2.96m	(6)	Pd III
51	*Batagur baska* (Gray)	Fragment of plastron	BND II	2.96m	(6)	Pd III
52	*Axis porcinus* Zimm	Broken upper left 3rd molar	BND II	3.61m	(7)	Pd II
53	*Gallus* sp.	Broken ulnar bone	BND II	1.32m	(2D)	Pd IV
54	sp. indet.	Isolated broken molars of suid and bovid	BND II	3.15m	(6)	Pd III
55	*Axis porcinus* Zimm.	Lower left 3rd premolar	BND II	3.50m	(7)	Pd II
56	*Gallus* sp.	Tibio-tarsal of right side	BND III	4.42m	(7)	Pd II
57	*Bubalus bubalis* (Linn.)	Lower left 2nd incisor	BND III	5.06m	(9C)	Pd I
58	*Sus scrofa* Linn.	Fragment of left maxillary portion with 2nd and 3rd molar	BND IV	3.60m	(9)	Pd II
59	sp. indet.	Portion of the tuberosity of bovine tibia	ND IV	4.52m	(9)	Peg I
60	sp. indet.	Broken incisor of cervid	BND IV	2.38m	(5A)	Pd I
61	*Axis porcinus* Zimm.	Upper left 1st molar	BND IV	2.38m	(5A)	Pd I
62	*Bubalus bubalis* (Linn.)	Upper right 3rd molar	BND IV	4.80m	(9D)	pegI

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data		
				Depth	Layer	Period
63	*Bos indicus* Linn.	Fragment of zygomatic process of temporal bone	BND IV	4.80m	(9D)	pegI
64	*Chitra indica* (Gray)	Fragment of plastron	BND IV	4.80m	(9D)	pegI
65	sp. indet.	Chopped shaft of tibia of pig	BND IV	4.80m	(9D)	pegI
66	*Sus scrofa* Linn.	Broken incisor	BND IV	4.80m	(9D)	pegI
67	*Bos indicus* Linn.	Fragment of lower jaw	BND IV	4.80m	(9D)	pegI
68	sp. indet.	A cervid molar	BND IV	4.80m	(9D)	pegI
69	*Prionaiurus viverrina* Bennett	Lower canine tooth	BND IV			
70	sp. indet.	Fragment of a molar of some herbivorous Artiodactyle	BND IV	Surface collection.		
71	*Sus scrofa* Linn.	Fragment of thoracic rib with the portion of tubercle and neck	BND IV	Surface collection		
72	*Bubalus bubalis* (Linn.)	Broken right femoral head	BND IV	Surface collection		
73	*Bubalus bubalis* (Linn.)	Fragment of the distal shaft of right humerus	BND IV	Surface collection		

Table 10 : Animal Remains from Bahiri Archaeological Site, Birbhum District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data	
				Depth	Layer
1	*Bubalus bubalis* (Linn.)	Distal end portion of the shaft of right humerus	BHR V	1.65-1.80m	(5)
2	*Bos indicus* Linn.	Proximal end of left metatarsal without distal condyle	BHR V	1.45-1.75m	(4)
3	*Bubalus bubalis* (Linn.)	1st phalanx	BHR IV	1.28-1.35m	(5)
4	*Bos indicus* Linn.	Fragment of left pubis	BHRVII	2.40-2.60m	(7)
5	*Bubalus bubalis* (Linn.)	Fragment of the blade of left scapula	BHR IV	1.85-1.95m	(3)
6	*Bubalus bubalis* (Linn.)	Apical portion of left mandible	BHR IV	2.05-2.35m	(4)
7	*Bubalus bubalis* (Linn.)	Proximal fragment of left ulna with olecranon process	BHR IV	1.55-1.65m	(3)
8	*Bubalus bubalis* (Linn.)	Right upper 2nd premolar	BHR III	1.12m	(3)
9	*Bubalus bubalis* (Linn.)	Left metacarpal without distal condyle	BHRVII	1.90-2.20m	(7)
10	*Bubalus bubalis* (Linn.)	Apical portion of right mandible	BHR IV	2.05-2.35m	(4)
11	*Bos indicus* Linn.	Right astragalus	BHR I	50-55cm	(4)
12	*Bos indicus* Linn.	Distal end of right scapula	BHR IV	2.05-2.25m	(4)
13	*Bubalus bubalis* (Linn.)	Left humerus	BHR IV	1.85-1.95m	(3)
14	*Cervus duvauceli* Cuvier	1st and 2nd molar of	BHR VII	1.55-1.75m	(4)

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data	
				Depth	Layer
15	*Bubalus bubalis* (Linn.)	Left lower mandible with 3rd premolar, 1st and 2nd molar of a runt	BHR III	1.12m	(3)
16	*Bos gaurus* H. Smith	Fragment of atlas vertebra with alar foramen (left portion)	BHR IV	2.05-2.55m	(4)
17	*Bos gaurus* H. Smith	Fragment of head of left femur	BHR IV	1.65-1.85m	(3)
18	*Sus scrofa* Linn.	Portion of left mandible with 3rd molar	BHR IV	2.05-2.25m	(4)
19	*Sus scrofa* Linn.	Broken left femur of young	BHR II	0.80-1.30m	(3)
20	*Sus scrofa* Linn.	Body with a portion of right ramus of mandible with 2nd, 3rd incisors and 3rd premolar tooth	BHR II	2.10-2.35m	(5)
21	*Canis familiaris* Linn.	Right ramus of mandible with 4th premolar and carnassial tooth	BHR III	1.55-1.65m	(3)
22	*Cervus sp.*	Upper right 1st molar	BHR II	50-5cm	(4)
23	*Axis axis* Erxl.	Fragment of right mandible with 2nd and 3rd premolar and 1st to 3rd molar teeth	BHR IV	1.10-1.25m	(2)
24	sp. indet.	Bovine molar (broken)	BHR II	2.10-2.35m	(5)
25	sp. indet.	Tooth (broken)	BHR II	1.75-1.85m	(4)
26	sp. indet.	Fragment of skull	BHR IV	2.05-2.35m	(4)
27	sp. indet.	Fragment of skull	BHR IV	2.05-2.35m	(4)
28	sp. indet.	Premolar tooth	-	-	-

Table 11 : Animal Remains from Pandu Rajar Dhibi Archaeological Site, Bardhaman District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Trench	Layer	locus / Depth
1	Freshwater crab	Calcified tibia with claw	B	(1,2)	-
2	*Catla* sp.	Opercular bone	B	(6)	1.09m
3	Carps [sp. indet.]	A rib with broken distal end	B	(7)	1.10m
4	Carps [sp. indet.]	Broken ribs	B	(7)	1.38m
5	Carps [sp. indet.]	Rib	A	(6)	-
6	Carps [sp. indet.]	Broken ribs	B	(7)	BIII+ .57x1.37 -1.95m
7	Carps [sp. indet.]	Pectoral bone and ribs of large carps	A	Ash pit	1.60m
8	Carps [sp. indet.]	Girdle bones and ribs	A	Ash pits (4)	2.22m
9	Carps [sp. indet.]	Ribs	B	(6)	BIII+ .30x2.70 -1.22m
10	Carps [sp. indet.]	Charred ribs and girdle bones	A	Ash pits (6)	-
11	*Rita* sp.	Proatlas	A	(5)	AII+0.44x 2.55-1.13
12	*Mystus* sp.	Condylar portion of right pectoral spine	B	(5)	1.25m
13	*Lissemys punctata punctata* (Bonnaterre)	Fragment of plastron	B	(6)	BI+0.25x 1.92-1.31
14	*Lissemys punctata punctata* (Bonnaterre)	Fragment of plastron	B	(6)	BII+0.41x 103-0.82

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Trench	Layer	locus / Depth
15	*Lissemys punctata punctata* (Bonnaterre)	Fragment of plastron (likely used as a sharp tool)	B	(10)	1.90
16	*Lissemys punctata punctata* (Bonnaterre)	Fragment of carapace	A	Ash pit	1.60
17	*Gavialis gangeticus* (Gmelin)	Dorsal scute	B	(1)	-
18	*Gallus gallus murghi* Rob. & Kloss	Distal condylar bone of left tibia with cut mark		Ash pit	1.70m
19	*Gallus gallus murghi* Rob. & Kloss	Oblique process of sternal bone (charred and broken)	A	(8)	1.90
20	*Gallus gallus murghi* Rob. & Kloss	Broken coronoid bone	A	(6)	-
21	*Gallus gallus murghi* Rob. & Kloss	Broken shaft bone	A	(10)	-
22	*Gallus gallus murghi* Rob. & Kloss	Broken right scapula	B	(7)	-
23	*Canis aurius indicus* Linn.	5th metatarsal of left pes	A	(3)	AI+0.45x 3.90-0.48
24	*Canis aurius indicus* Linn.	Upper left canine	A	(8)	III+0.25x 0.60-1.50
25	*Canis aurius indicus* Linn.	Occipital portion of skull with condyles	A	Ash pit	1.60
26	*Sus scrofa cristatus* Wagner	Piece of mandibular bone of left side with 3rd premolar	B	(3)	

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Trench	Layer	locus / Depth
27	*Sus scrofa cristatus* Wagner	Damaged body of mandible with broken incisors	B	(2A) Burning place	0.20cm
28	*Sus scrofa cristatus* Wagner	Broken zygomatic arch of right side	B	(7)	-
29	*Sus scrofa cristatus* Wagner	Broken fragment of maxilla of right side with 3rd & 4th premolars	A	(7)	AO+0.47x 2.54-1.29
30	*Sus scrofa cristatus* Wagner	Broken fragment of zygomatic bone	B	(10)	2.40m
31	*Sus scrofa cristatus* Wagner	Upper right 1st molar	A	(10)	-
32	*Sus scrofa cristatus* Wagner	Fragment of frontal bone with supraorbital foramen	B	(10)	2.15m
33	*Sus scrofa cristatus* Wagner	Broken lower 3rd premolar	B	(6)	BIII+.30x 2.70-1.22m
34	*Sus scrofa cristatus* Wagner	4th metatarsal of left pes	C	(9)	C+D+ MX1.40x 2.55m-2.55m
35	*Axis porcinus* Zimm.	Disc of thoracic vertebra	B	(7)	1.23m
36	*Axis porcinus* Zimm.	Glenoid portion of scapula (charred)	B	(8)	-
37	*Axis porcinus* Zimm.	Glenoid portion of scapula of right side	B	(8)	-
38	*Axis porcinus* Zimm.	Two fragments of ribs	A	Layer after (11) Ash pit	4.12m Mother soil,

Sl. No.	Taxonomic identity	Description of specimen	Excavation data		
			Trench	Layer	locus / Depth
39	*Axis porcinus* Zimm.	2nd upper right molar with a portion of maxilla	C	Layer 1 pit	2.97m
40	*Cervus duvauceli* Cuvier	Distal fragment of right tibia	A	-	I+0.40x 0.38-0.41
41	*Cervus duvauceli* Cuvier	Fragment of ramus of mandible (charred)	A	(8)	III+0.25x 0.60-1.50
42	*Cervus duvauceli* Cuvier	Rib charred	A	Ash pit	-
43	*Bubalus bubalis* (Linn.)	Damaged upper 3rd molar	B	(5)	-
44	*Bubalus bubalis* (Linn.)	Fragment of a rib	B	(6)	-
45	*Bubalus bubalis* (Linn.)	Fragment of thoracic rib	B	(8)	1.27m
46	*Bubalus bubalis* (Linn.)	Broken scapula	A	(6)	AIII+0.00x 2.20-1.40
47	*Bubalus bubalis* (Linn.)	Upper 1st molar	B	(7)	IV+0.43x 1.33-1.65m
48	*Bubalus bubalis* (Linn.)	Bone point made out of horncore (polished)	C	(9)	DM x 1.40m x 2.55m
49	*Bos indicus* Linn.	Broken 3rd thoracic rib	A	(5)	I+0.45x 0.65-1.15
50	*Bos indicus* Linn.	Broken thoracic rib	B	(6)	IIIx 1.30-0.68
51	*Bos indicus* Linn.	Upper left 2nd molar	B	(6)	Locus BI+ 0.25x1.92-1.31

Sl.	Taxonomic	Description	Excavation data		
			Trench	Layer	locus / Depth
52	*Bos indicus* Linn.	Upper left 3rd molar	B	(6)	Peg IV 0.78x 1.47x1.02
53	*Bos indicus* Linn.	Proximal fragment of thoracic rib	B	(6)	1m from surface
54	*Bos indicus* Linn.	Upper right 3rd molar	A	(8)	AIII+ 0.88x 1.19-1.10
55	*Bos indicus* Linn.	Shaft bone of metatarsal	C	(3)	I+0.28x 1.53x0.50
56	*Bos indicus* Linn.	Upper right 2nd molar of sub adult	A	(9)	AII+0.63 x 1.66-1.70m
57	*Bos indicus* Linn.	Fragment of lower 3rd molar	B	(10)	II- 2.00m
58	*Bos indicus* Linn.	Condylar fragment of left humerus	A	Ash pit	-
59	*Bos indicus* Linn.	Distal end of metatarsal	B	(14)	3.25m
60	*Capra hircus aegagrus* Linn.	Broken olecranon process of right ulna	B	(14)	-
61	*Capra hircus aegagrus* Linn.	Broken shaft of right humerus	C	(8)	-
62	*Rattus sp.*	Lower incisor	A	-	PegII- 0.65m

Table 12 : Animal Remains from Hatikra Archaeological Site, Birbhum District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data	
				Locus	Depth
1	*Chitra indica* (Gray)	Fragment of hypoplastron	HTR-4	TR-41, Qd-I	68cm
2	*Bos indicus* Linn.	Left lower 1st and 2nd molar	HTR-1	TR-8, Qd-III	17cm
3	*Bos indicus* Linn.	Broken lower 1st molar of juvenile	HTR-2	TR-B1 Qd-1	-
4	*Bos indicus* Linn.	Head of right femur	HTR-2	TR- B1 Qd-2	68 cm
5	*Bos indicus* Linn.	Fragment of the shaft of femur	HTR-2	TR- B1 Qd-2	68 cm
6	*Bos indicus* Linn.	Fragment of the proximal part of the mandible	HTR-4	-	70 cm
7	*Bos indicus* Linn.	Fragment of rib with chopped mark	HTR-4	TR- A1 Qd-I	1.32m
8	*Bos indicus* Linn.	Fragment of rib	HTR-4	TR- A1 Qd-I	1.57m
9	*Bos indicus* Linn.	Fragment of rib	HTR-4	TR- A1 Qd-I	1.39m
10	*Bos indicus* Linn.	Fragment of tooth	HTR-4	TR- B1Qd-III	30 cm
11	*Bos indicus* Linn.	Fragment of rib	HTR-4	TR-A1 Qd-I	1.35m
12	*Bos indicus* Linn.	Proximal end of 1st phalanx	HTR-4	TR- A1 Qd-I	1.35m
13	*Bos indicus* Linn.	Lower 1st and 2nd molar	HTR-4	TR- A1 Qd-I	1.53m
14	*Bos indicus* Linn.	Proximal portion of left metatarsal	HTR-4	TR- B1 Qd-III	-
15	*Bos* sp.	Fragment of tooth	HTR-4	TR-XA1 Qd-1	1. 05m
16	*Bos* sp.	Distal end of shaft metatarsal with chopped mark	HTR-2	TR- B1 Qd-1	1.10m

Sl. No.	Taxonomic identity	Description of specimen	Locality	Excavation data	
				Locus	Depth
17	*Bubalus bubalis* (Linn.)	Right lower 2nd premolar	HTR-2	TR- B1, Qd-IV	30cm
18	*Bubalus bubalis* (Linn.)	Condylar portion metacarpal	HTR-2	TR- B1, Qd-IV	30cm
19	*Bubalus bubalis* (Linn.)	Condylar portion with coronoid process of mandible	HTR-4	TR- XA1 Qd-1	1.35m
20	*Bubalus bubalis* (Linn.)	Proximal fragment of shaft of tibia with distal end	HTR-4	TR- XA1	1.05m
21	*Bubalus bubalis* (Linn.)	Proximal portion of shaft of femur	HTR-4	TR- A1 Qd-1	-
22	*Capra hircus aegagrus* Linn.	Fragment of rib (chopped from the middle)	HTR-4	TT, TR- A1	30cm
23	Bovid (sp. indet.)	Fragment of humerus (chopped from the base) of Bovid	HTR-2	TR-B1 Qd-1	65cm
24	Bovid (sp. indet.)	Fragment of shaft of limb bone (chopping mark on the side and at middle)	HTR-2	TR- B1 Qd-1	59cm
25	Bovid (sp. indet.)	Fragment of limb bone	HTR-4	TT	90cm
26	Bovid (sp. indet.)	Fragment of shaft of limb bone (chopped on the side)	HTR-4	TT- A1 Qd-1	1.43-1.57m
27	Bovid (sp. indet.)	Fragment of limb bone	HTR-4	TR- A1 Qd-1	69cm
28	Bovid (sp. indet.)	Fragment of tooth	HTR-4	TR- A1 Qd-1	2.30m
29	*Sus scrofa cristatus* Wagner	Right astragalus	HTR-4	TR- A1 Qd-1	1.32m

Table 13 : Animal Remains From Kotasur Archaeological Site, Birbhum District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen
1	*Bos indicus* Linn.	Left mandible with 4th milk premolar and 1st molar
2	*Bos indicus* Linn.	Distal fragment of left humerus
3	*Bos indicus* Linn.	Distal end fragment of radio-ulna with condylar portion chopped off
4	*Bos indicus* Linn.	Right radio-ulna without distal end
5	*Bos indicus* Linn.	Fragment of condylar portion of right radius
6	*Bos indicus* Linn.	Fragments of left metatarsal
7	*Bos indicus* Linn.	Left metatarsal without proximal end
8	*Bubalus bubalis* (Linn.)	Left upper 2nd molar
9	*Sus scrofa* Linn.	Broken right mandible with 3rd premolar and 1st and 2nd molar
10	*Equus* sp.	Right lower 2nd premolar
11	*Elephas maximus*Linn.	Lower left 3rd molar

Table 14 : Animal Remains From Laljal Cave, Paschim Medinipur District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen
1	*Aspideretes gangeticus*	Fragments of plastron (4 pieces)
2	*Hystrix indica* Kerr.	A tail quill (perforated at one side at broader end, may be tool)
3	*Canis* sp.	Lower right 3rd incisor
4	*Canis* sp.	upper right canine
5	*Canis* sp.	Upper right 2nd premolar
6	*Canis* sp.	Lower left 4th premolar (carnassial)
7	*Canis* sp.	Upper right 1st molar (carnassial)
8	*Canis* sp.	Upper left canine
9	*Sus scrofa cristatus* Wagner	Upper 2nd molar of young one (damaged)
10	*Bos indicus* Linn.	Lower left premolar
11	sp. indet.	Upper left molar
12	sp. indet.	Upper left premolar

Table 15 : Animal Remains From Miscellaneous Sites Of Puruliya And Paschim Medinipur Districts., West Bengal

Sl. No.	Species name	Description of the specimen	Locality	Excavation data
1	*Canis Lupus pallipes* Linn.	Right femoral shaft	Belamu Pargo, Puruliya	Surface collection
2	*Muntiacus muntjak* Zimm.	Proximal end of metacarpal	SW entrance, Belamu Cave, Puruliya	
3	*Bos* sp.	Upper right molar	Sijua, Kansai Valley, Medinipur	Trench III Layer (5) Depth 1.50m
4	*Bos* sp.	Right lower 3rd molar	Sijua, Kansai Valley, Medinipur	-
5	sp. indet.	Fragment of vertebra	Sijua, Kansai Valley, Medinipur	-
6	*Turbinella pyrum* (Linn.)	Fragment of shell (Ornamental and finely designed bangle)	Sijua, Kansai Valley, Medinipur	Trench III Layer (5) Depth 1.50m
7	*Canis* sp.	Left tibia (broken)	Sijua, Kansai Valley, Medinipur	-
8	*Canis familiaris* Linn.	Left humerus without distal and proximal end	Sijua, Kansai Valley, Medinipur	-
9	*Capra* sp.	Left ulna (proximal end broken)	Sijua, Kansai Valley	-
10	*Canis* sp	Left ulna without ends	Sijua, Kansai Valley, Medinipur	-

Sl. No.	Species name	Description of the specimen	Locality	Excavation data
11	sp. undet	Left upper 1st molar	Kattara, Medinipur	-
12	sp. undet	Left upper 2nd molar	Kattara, Medinipur	-
13	sp. undet	Left upper 3rd molar	Kattara, Med inipur	-
14	sp. undet	Left lower 2nd premolar	Kattara, Medinipur	-
15	sp. indet.	Crescentic portion of a bovine molar	Tahala, Medinipur	-
16	*Antilope cervicapra* (Linn.)	Lower jaw fragment with broken 3rd molar (fossilized)	Beldanga, Medinipur	-
17	*Elephas maximus* Linn.	Root fragment of a molar tooth	Jamtholgora, Medinipur	-

Table 16 : Animal Remains From Pokhorna, Bankura District, West Bengal

Sl. No.	Excavation data			Taxonomic identity	Description of specimen
	Trench	Layer	locus		
1	A′ 1	(2)	0.3m	*Sus scrofa* Linn.	Canine tooth
2	A′ 1	(2)		sp. indet.	Small bone fragment
3	A′ 1	(3)	0.6 m	Bovid	Bovine lower incisor tooth
4	A′ 1	(3)	83 cm	Bovid	Bovine upper 3rd premolar
5	A′ 1	(3)	83 cm	*Sus scrofa* Linn.	Premolar tooth
6	A′ 1	(3)	83 cm	sp. indet.	Head portion of a rib
7	A′ 1	(3)	83 cm	Bovid	1st premolar tooth of lower jaw
8	A′ 1	(3)	83 cm	sp. indet.	Fragment of rib
9	A′ 1	(3)	-	*Sus scrofa* Linn.	Lower incisor tooth
10	A′ 1	(3)	-	Unidentified turtle	Two fragments of plastron
11	B′ 1	(5)	1.75 m	Teleost fish	Body of a vertebra of teleost fish
12	B′ 1	(5)	1.75 m	Rodent	Right femur bone (of small rat like animal)
13	B′ 1	(3)	0.51 m	*Sus scrofa* Linn.	Lower incisor tooth
14	B′ 1	(4)	1.30 m	Rodent	Upper incisor tooth of small rodent
15	B′ 1	(3)	0.47 m	Bovid	Bovine lower incisor tooth
16	B′ 1	(2)	45 cm	*Sus* scrofa Linn.	Molar tooth (broken half)
17	B′ 1	(5)	2.3 m	sp. undet	Bone fragment
18	B′ 1	(5)	2.3 m	sp. undet	Bone fragment
19	B′ 1	(5)	2.3 m	sp. undet	Fragment of rib
20	B′ 1	(5)	2.3 m	sp. undet	Fragment of rib
21	B′ 1	(5)	2.3 m	sp. undet	Bone fragment
22	B′ 1	(5)		Teleost fish	Two fragments of spines of fish

Sl.	Excavation data			Taxonomic	Description
	Trench	Layer	locus		
23	B′ 1	(5)		sp. undet	Head portion of a broken rib
24	B′ 1	(4)	90 cm	Unidentified turtle	Fragment of plastron
25	B′ 1	(4)	90 cm	Unidentified turtle	Two fragments of plastron
26	B′ 1	(4) Floor	-	sp. undet	Middle portion of shaft of limb bone
27	B′ 1	(4) Floor	-	*Bos* sp.	Metatarsal bone
28	B′ 1	(4) Floor	-	*Chitra indica*	Fragment of carapace
29	B′ 1	(4) Floor	-	*Ovis* sp	Left metacarpal
30	B′ 1	(4) Floor	-	*Chitra indica*	Fragment of carapace
31	B′ 1	(4) Floor	-	*Bos* sp.	Head of femur bone
32	B′ 1	(4) Floor	-	sp. indet.	Fragment of limb bone shaft
33	B′ 1	(4) Floor	-	sp. undet	Fragment of rib
34	B′ 1	(4) Floor	-	*Bos* sp	Broken metatarsal of younger specimen
35	B′ 1	(4) Floor	-	sp. undet	Fragment of shaft of limb bone
36	-	-	-	*Sus scrofa* Linn.	Left ramus of mandible with damaged incisor, canine, 1st, 2nd and 3rd molar
37	-	-	-	Carp.(Sp. undet)	Operculum(two pieces)
38	-	-	-	*Sus* scrofa Linn.	Left upper 3rd molar
39	-	-	-	*Bubalus bubalis* (Linn.)	Right lower 3rd molar
40	-	-	-	*Aspideretes gangeticus*	Fragments of Plastron (4 pieces)
41	-	-	-	*Lissemys punctata*	Fragment of plastron
42	-	-	-	*Aspideretes gangeticus*	Fragment of carapace (three pieces)

Table 17: Animal Remains From Dhuliapur, Paschim Medinipur District, West Bengal

Sl. No.	Taxonomic identity	Description of specimen
1	*Bubalus bubalis* (Linn.)	Left radius with distal portion damaged
2	*Antilope cervicapra* (Linn.).	Fragment of the ramus of the mandible with broken 2nd and 3rd molar
3	*Antilope cervicapra* (Linn.)	Broken horizontal ramus of right mandible with 2nd and 3rd molar
4	*Antilope cervicapra* (Linn.)	Fragment of the ramus of the mandible with 1st molar
5	*Antilope cervicapra* (Linn.)	Condylar fragment of vertical ramus of right mandible
6	*Antilope cervicapra* (Linn.)	Fragment of right maxilla with 1st and 2nd molar
7	*Antilope cervicapra* (Linn.)	Fragment of the ramus of the left mandible with 1st and 2nd molar
8	*Antilope cervicapra* (Linn.)	Fragment of the ramus of the left mandible with 1st molar
9	*Axis* sp.	Fragment of right scapula with portion of spine, glenoid cavity, and coracoid
10	*Antilope cervicapra* (Linn.)	Broken piece of left maxilla with 1st to 3rd molar
11	sp. undet	A piece of shaft bone (made or used as a point)
12	sp. undet	Fragment of rib (may be Perissodactyle)
13	*Bubalus bubalis* (Linn.)	Fragment of proximal end of left radius
14	*Bubalus bubalis* (Linn.)	Broken portion of skull
15	sp. undet	2nd thoracic vertebra
16	*Axis* sp.	Fragment of the ramus of the left mandible
17	sp. undet	Proximal portion of 1st phalanx
18	sp. undet	1st phalanx
19	*Boselaphus tragocamelus* Pallas	Damaged right radius

10. SUMMARY

The southwestern part of West Bengal state is a rolling upland with moderate hills and the land surface presents alternate ridges and depressions. The districts of Puruliya, Bankura, West Medinipur, Bardhaman and Birbhum come under this region. This tract of land is the oldest rock formation of the state and constitutes an extension of the Chhotanagpur Plateau. This area, traversed by a number of rivers and their tributaries originating mostly from Chhotanagpur Plateau, possesses evidences of very old human cultures dating back to Palaeolithic time. Successive cultural phases like Mesolithic, Neolithic, chalcolithic and Protohistoric have also been recorded from several places withinn the area. Despite archaeological records, history of human cultures and sporadic finds of animal remains no comprehensive zooarchaeological study was made earlier. This area seemed to be heavily forested with rich wild fauna in long past. These forests were gradually denuded with increased human population and growing agriculture through ages. Since 1865 a number of archaelogical explorations were carried out tilll recent times in the area which resulted in the discovery of a number of sites of zooarchaeological importance. These sites are featured here and faunal remains from them are studied and listed. The relevance of the fauna in the life and economy of the past human folk are assessed. The faunal assemblage also pointed out the conditions of natural habitats in different periods of the cultures. Availability of different animals, at time gaps, especially in Susunia Hills of Bankura district, point out to climatic variations and environmental situations during Pleistocene and Early Holocene periods. It is also presumed that several animals were perhaps seasonal dwellers in search of foodand convenience in the study area. Still a gap of knowledge about the animal communities of the past and their relationships with the human exists in this part of West Bengal. These aspects need to be more carefully looked into.

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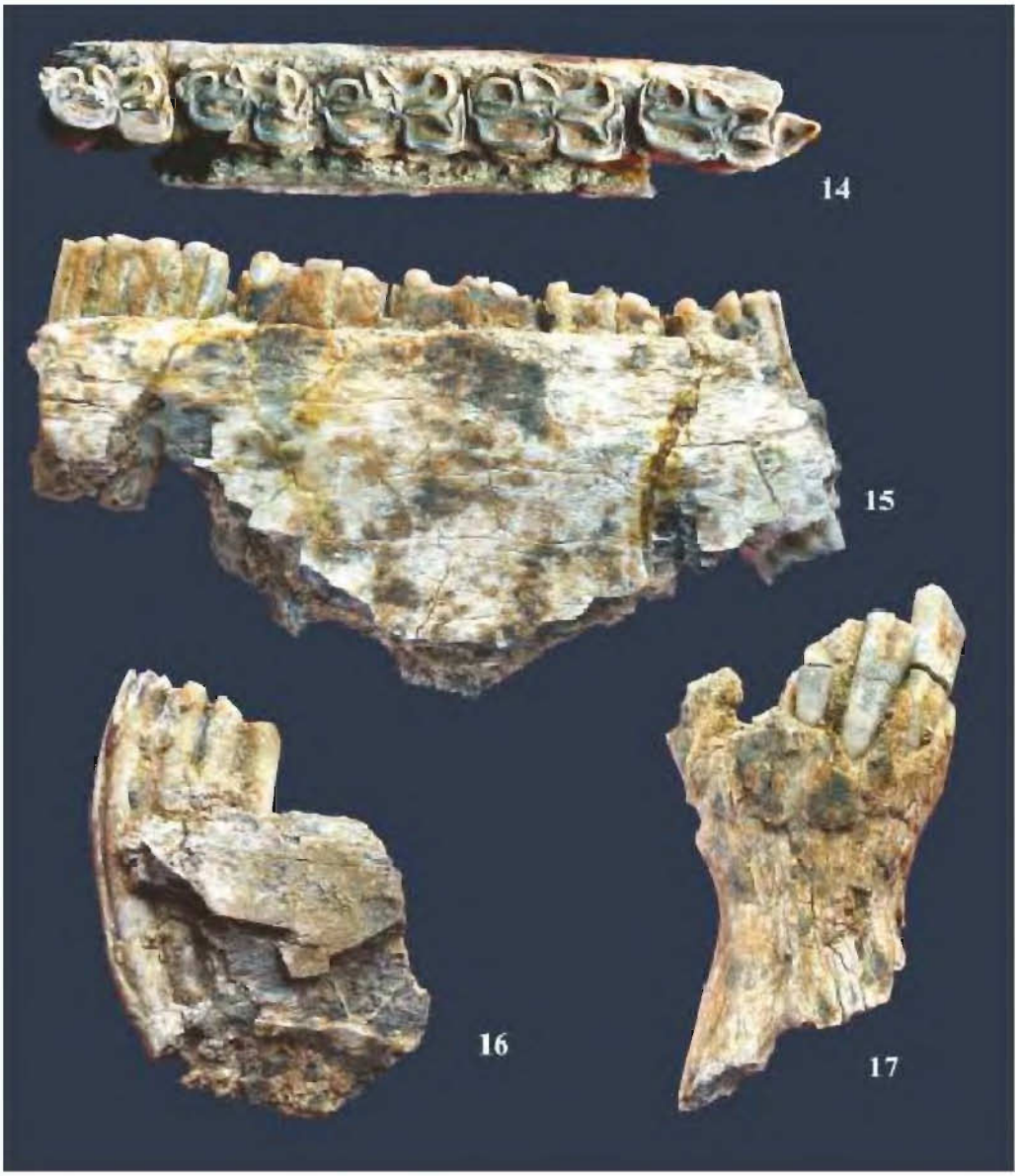
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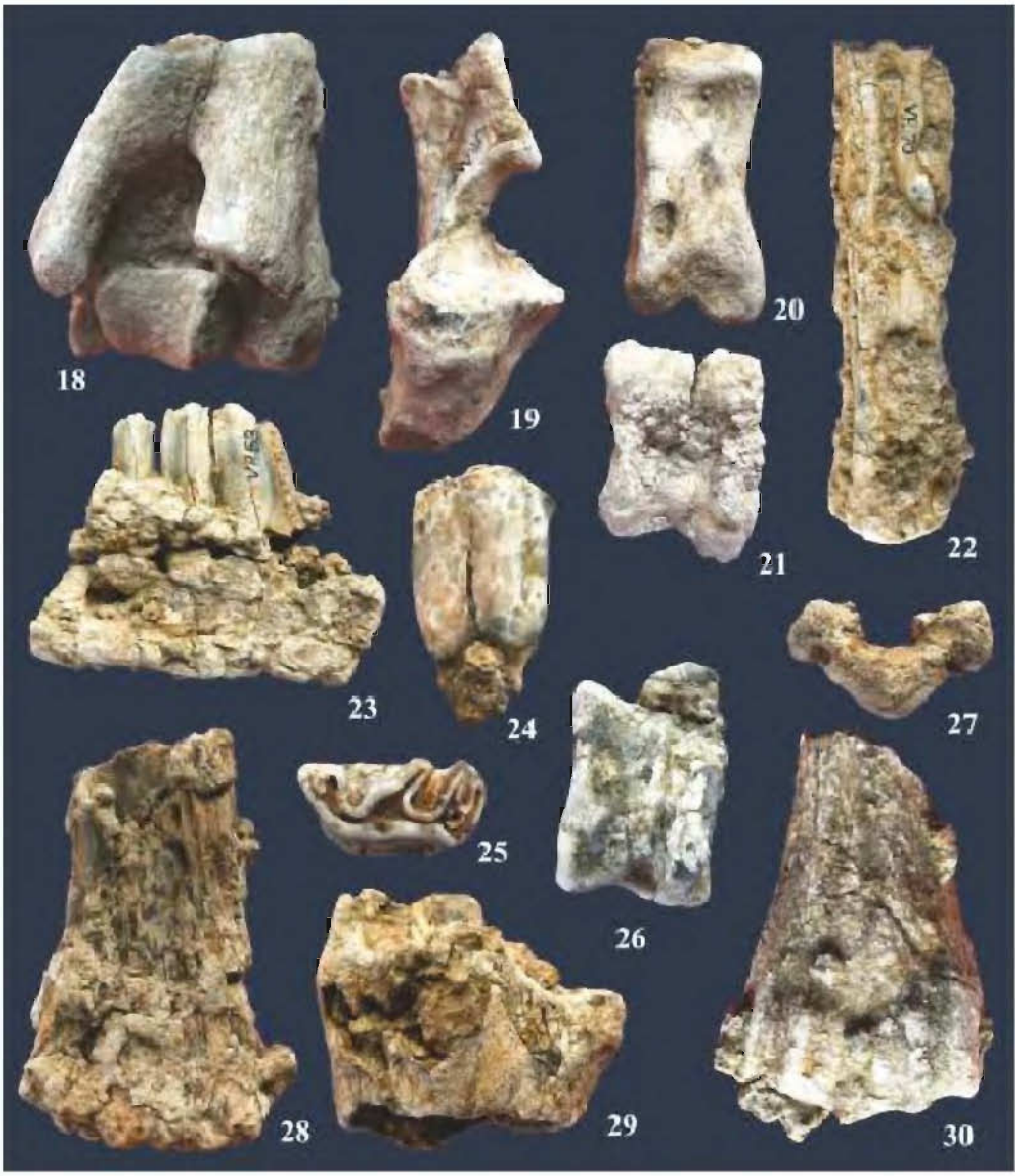
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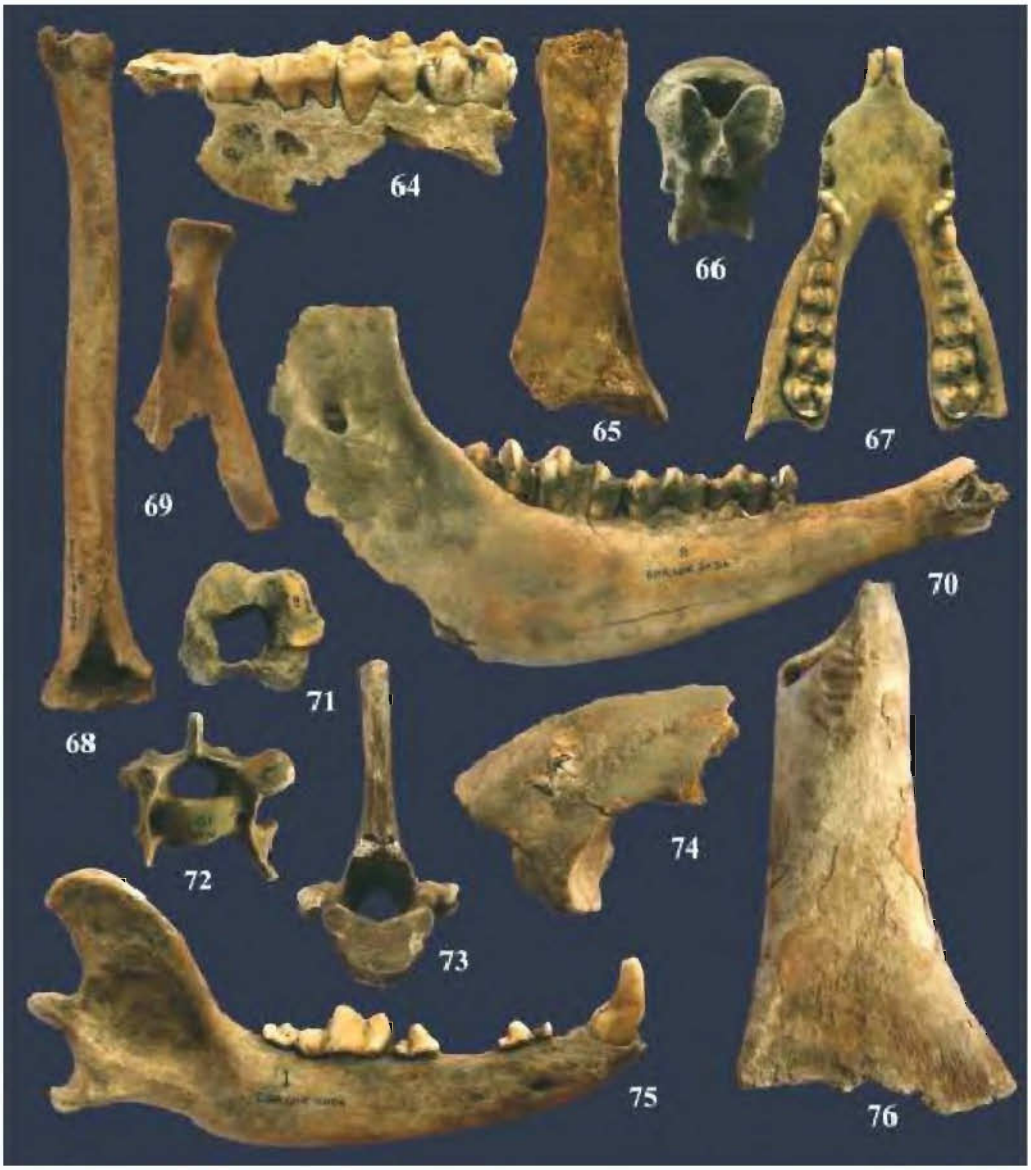
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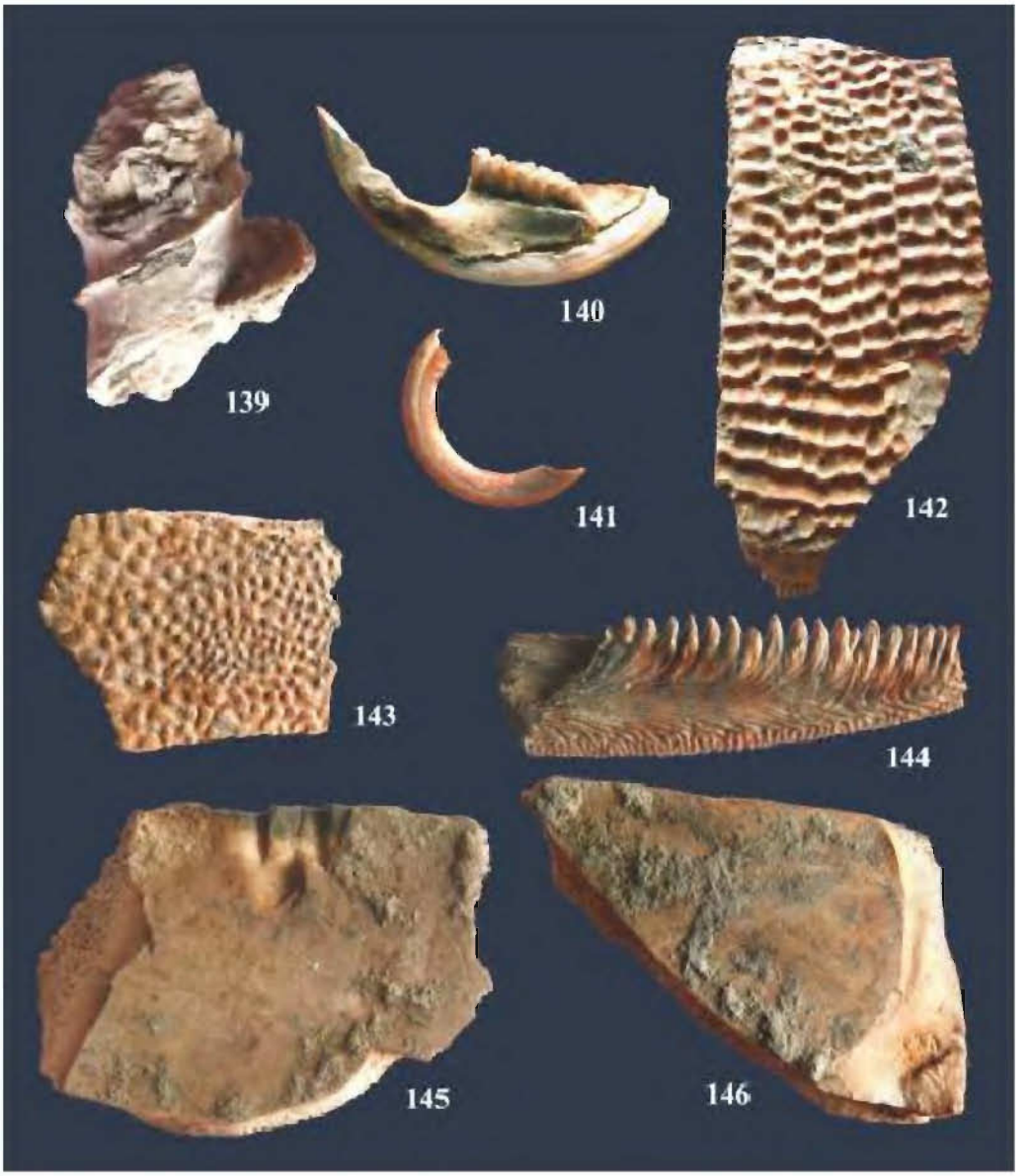
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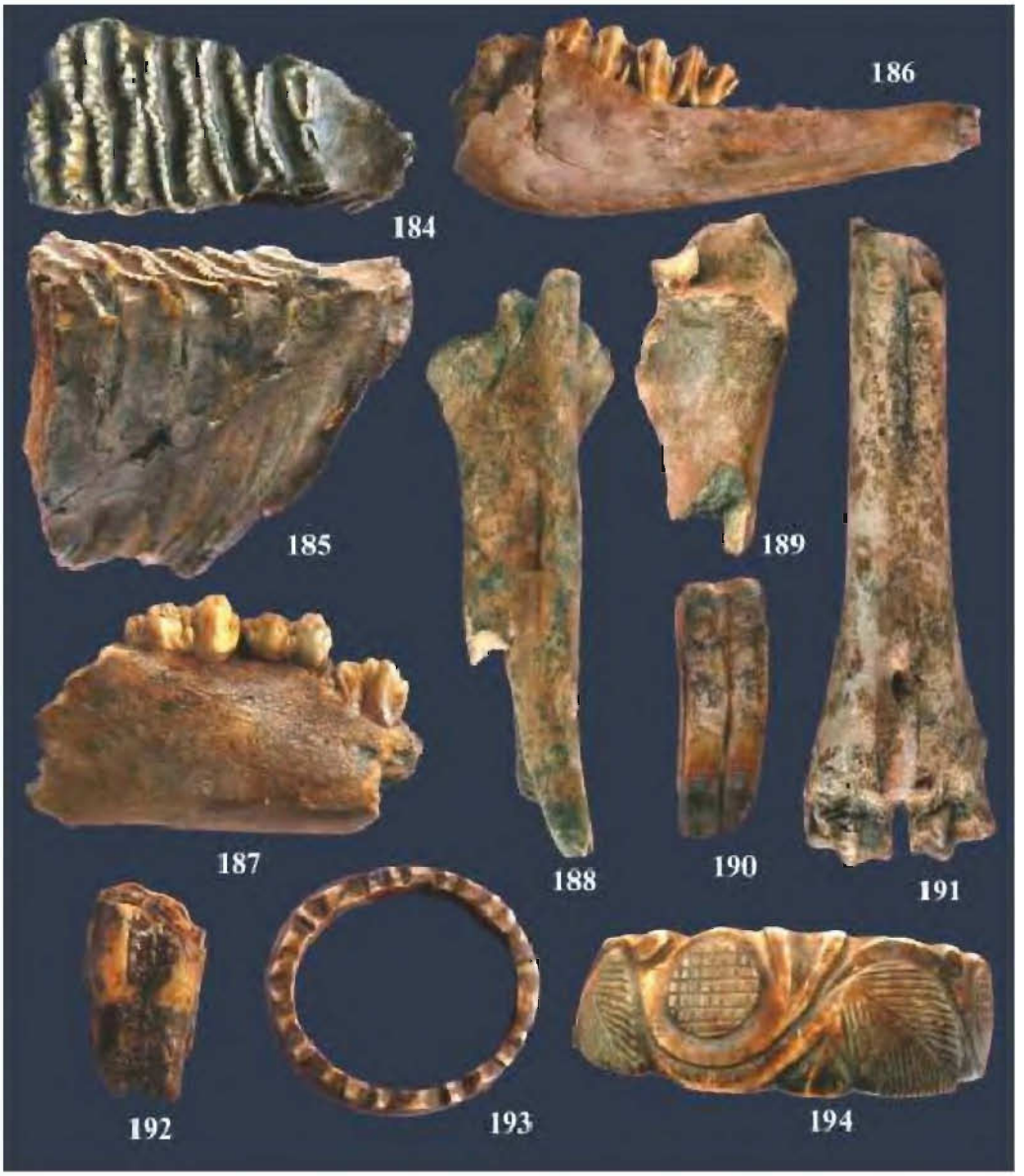
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