

Pleistocene Environment of the Chambal Valley

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Abstract: The Chambal River Ancient Name “Charmanvati” is an important River in India. The Chambal is the life line of Madhya Pradesh & Rajasthan. Chambal river is rising on Janapava Hills in Indore District (M.P.) , Chambal river is total Course as 961 K.M. several Tributaries Join the Chambal and Chambal take shape major River Valley , Chambal meeting Yumana river in Phanchade is Etawa district in (U.P.). The total drainage area of Chambal is 1,43,209 sq.km. In the present research paper Studies of Pleistocene environment is the base of stratigraphy of Chambal his tributaries, gravels deposit, prehistoric culture, faunal material, Rock painting of animals, animal fossils, Ostrich egg shells. 42 Ostrich egg shell sites discovered in all over India & 31 ostrich shell sites situated in the Chambal River Valley

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INTRODUCTION

The Chambal river ancient “*Charmanvati*”¹ is an important River in India. After Rising from the hills of Janapava (884 AMSL) in the Tahsil Mahu of Indore district, It covers variety of landforms in Indore, Dhar, Ujjain, Mandsaur, Neemach Districts of Madhya Pradesh. Kota, Sawai Madhopur, Dholpur Districts of Rajasthan. It forms boundary between Kota, Sawai Madhopur, Dholpur of Rajasthan and Mandsaur, Sheopur, Morena of Madhya Pradesh. It also forms boundary between Etawah U.P. & Bhind M.P.. The river is joined by several tributaries like Chamala, Kshipra, Bamani, Ganjali, Mej, Alania, Retam, Shivana, Kali Sindh, Parvati, Chhoti Kali Sindh, Seep, Banas, Kuno etc. After meeting with the tributaries the river Chambal takes shape of major river Valley. From its birth, it covers 961 km. before meeting with the river Yamuna at Phanchada in district Etawah U.P. The total drainage area of the Chambal river valley is 1,43,209 sq. km.

The Chambal river valley can be divided into two physiographic units: Hills and plateaus and Alluvial plains.

The hills rising sometime 1250 AMSL contain varieties of rocks. The geological formation of the area is Archaeans, Aravallis, Cudappah, Vindhyan, Deccan trap, Laterite & Alluvium.² These hill Ranges have given birth to the minor & major rivers of the area. These rivers have developed alluvial plains. The Soil of the valley is Black soil, Brown soil, Pale brown soil/ nourish scrub type of vegetation in which varieties of games roam freely In Coppen’s scheme, the region falls in warm semi arid climatic zone. An average rainfall of the valley is 450-880mm. per.

annum, The December is the coldest month, the temperature dropping down to 2°C while, the June is the hottest month in the year, temperature rising upto 45°C.

In the present paper the animal fossils and Ostrich egg shell discoveries have been studied for the deductions of Pleistocene environment. As many as 31 sites have discovered in the Chambal contenting animal fossils and ostrich egg shell. The details of the sites are mentioned in the Table No. 1

Table 1: Site wise distribution of ostrich egg shell and animal fossils sites in Chambal river valley

Sr. No.	Site	District and State	Geo-Coordinates	River or Nala	Sr. Main River Valley
1.	Nagada	Ujjain (M.P.)	23° 27.0'N, 75° 35.0' E	Chambal	Chambal
2.	Dangawada	Ujjain (M.P.)	23° 25.0'N, 75° 35.0' E	Chambal	Chambal
3.	Rajota	Ujjain (M.P.)	23° 10.0'N, 75° 29.0' E	A small nala joining Chambal	Chambal
4.	Badanagar	Ujjain (M.P.)	23° 03.0'N, 75° 23.0' E	Chamla	Chambal
5.	Near Badanagar	Ujjain (M.P.)	23° 06.0'N, 75° 20.0' E	Utavali ka nala	Chambal
6.	Bheru Pachlana	Ujjain (M.P.)	23° 13.0'N, 75° 20.2' E	A nala joining Chamala	Chambal
7.	Runija	Ujjain (M.P.)	23° 09.0'N, 75° 16.2' E	A nala joining Chamala	Chambal
8.	Chandresal	Kota (Rajasthan)	25° 12.0'N, 75° 57.0' E	Chandaloi	Chambal
9.	Pipalda (Chandresal-IV)	Kota (Rajasthan)	25° 12.5'N, 75° 58.2' E	Chandaloi	Chambal
10.	Badikhedali	Kota (Rajasthan)	25° 13.2'N, 75° 57.3' E	Chandaloi	Chambal
11.	Lakheri	Bundi (Rajasthan)	25° 37.0'N, 76° 10.0' E	Maze	Chambal
12.	Pahadgad	Morena (M.P.)	26° 13.3'N, 77° 40.0' E	Saun	Chambal
13.	Banykhedi (Aslaoda)	Ujjain (M.P.)	23° 13.3'N, 75° 37.2' E	A nala joining Gambhiri	Gambhira
14.	Palayatha	Kota (Rajasthan)	25° 11.5'N, 76° 15.0' E	Kalisindh	Kalisindh
15.	Khajurna	Kota (Rajasthan)	25° 07.0'N, 76° 18.0' E	A nala joining Kalisindh	Kalisindh
16.	Pagaria-Awar	Jhalawad (Rajasthan)	24° 12.0'N, 75° 52.0' E	Ahu	Kalisindh
17.	Nandi Kheda	Jhalawad (Rajasthan)	24° 31.7'N, 76° 04.0' E	Ahu	Kalisindh
18.	Osarna	Mandasor (M.P.)	24° 31.8'N, 75° 51.0' E	A nala joining Ahu	Kalisindh
19.	Bhanpura	Mandasor (M.P.)	24° 31.0'N, 75° 45.0' E	Rewa	Kalisindh
20.	Garoth	Mandasor (M.P.)	24° 17.7'N, 75° 40.5' E	Garoth nala	Kalisindh
21.	Bhansoda	Mandasor (M.P.)	24° 27.1'N, 75° 47.3' E	A nala joining Rewa	Kalisindh
22.	Ramnagar	Mandasor (M.P.)	24° 27.4'N, 75° 46.8' E	A nala joining Rewa	Kalisindh
23.	Kherkhedi	Mandasor (M.P.)	24° 28.0'N, 75° 45.8' E	A nala joining Rewa	Kalisindh
24.	1 km south of Chechat	Jhalawad (Rajasthan)	24° 46.0'N, 75° 53.0' E	A nala joining Amjhar	Kalisindh
25.	Kalyanpura (Nimbaheda)	Chittodgarh (Rajasthan)	24° 37.0'N, 74° 42.0' E	Kadmali	Gambhiri
26.	3 km west of kekadi	Ajmer (Rajasthan)	26° 00.0'N, 75° 05.0' E	A nala joining Banas	Banas
27.	Janjali naka	Guna (M.P.)	24° 22.0'N, 77° 08.0' E	Janjali nala	Parvati
28.	Ruthiai	Guna (M.P.)	24° 22.78'N, 77° 11.11' E	Chepot	Parvati
29.	Lotkhedi	Mandasor (M.P.)	24° 30.0'N, 75° 45.0' E	A nala joining Rewa	Kalisindh
30.	Bundi	Bundi (Rajasthan)		Nagali River	Nagali
31.	Mohammadpura	Guna (M.P.)		Parvati	Parvati

Stratigraphy

The Chambal and its tributary Parvati have preserved rich blanket of alluvium: Older alluvium and younger alluvium. The Older alluvium has also persevered good wealth of cultures as well gravel evidences. The Chambal River has exhibited a rich cultural material of Lower Palaeolithic and Middle Palaeolithic cultures respectively in the Boulder conglomerate and Sandy Pebbly gravel *instu*, while at Parvati river the Middle Palaeolithic culture has been located from Sandy Pebbly gravel associated with animal fossils of *Bos Namadicus*. A 14 m. thick deposit is located at Mohammadpura. At the base is a gravel of 5.00m. thick, resting over the *bed rock* near Mohammadpura village on the right bank of river Parvati, a km. east of the bridge on A-B. road.³ This gravel is composed of rounded and sub-rounded Pebbles of Quartzite, Shale, Chert, Chalcedony and some angular Pebbles, lateritic pellets and Kankar nodules of various sizes. The gravel is overlain by 9 m. younger alluvium of brown yellow and black shades soil. The alluvium is traversed by kankar nodules of various sizes.

The upper portion of the alluvium is sandy in nature and due to rain water the cuttings over the gravel is visible, The sandy nature of the alluvium and formation of the gullies have resulted the formation ravines in the lower Chambal valley. (Fig. 3)

Another important gravel is located at Chandresal in Kota district of Rajasthan.⁴ The gravel resting over the bed rock is about 8 m. in thickness yielded ostrich egg shell pieces. (fig. no. 4) At the height of 6.5 m. from the River, these species of ostrich egg shells are found from calcareous yellow deposit. Kankar is dominated in this gravel. The Pebbles have suffered some amount of rolling which indicate that they have been brought by the river from other places and have got deposited in this gravel, The gravel spreading over the river bed is result of cutting of the gravel due to turbulent floods occurring time to time.

Culture

The Chambal river valley is important as the valley has preserved cultural and faunal material *insitu*. The Middle Paleolithic culture associated with Pleistocene fauna is found from the Sandy Pebbly Gravel on the Parvati river, a major tributary of the Chambal. The Middle Paleolithic tools fashioned on silica family minerals i.e. Chert, Jasper, Chalcedony, Agate, and Quartz. The tools are collected from the stratified gravel as well as from the loose gravel spread over the bed of the river. The tool kit consists of 'Simple Artifacts' (14) and Shaped tools. (8) (side scraper 4, convex scraper 2 and single sided boron 2).⁵

The Evidences of ostrich egg shell are the maximum in Chambal valley in the whole of India and are found with the Upper Paleolithic tools at Ramnagar (24°27.4'N, 75°46.8'E) on Chambal river.⁶ But the details are not available. It is interesting to note here that on Tapi valley at Patne, Maharashtra the tools associated with ostrich egg shell have been found in stratified context. The Upper Palaeolithic industry associated with the ostrich egg shell may be compared with those of Upper Palaeolithic industry of Patne.⁷ The Upper Palaeolithic Industry in the neighboring area is made on chert and other silica family minerals.

Faunal Material

The Sandy Pebbly gravel at Mohammadpura has yielded animal Fossils of *Bos Namadicus* associated with Middle Paleolithic tools. (fig. 5). The fossil collection consists of pelvic girdle, stragalus, phalanges, centrotrochle, scapula, metacarpal, molar and other unidentifiable fragments. A Jaw of *Bos* and Vertebrae are also present in the Collection.⁸

The ostrich egg shell pieces have been found on the tributaries of the Chambal and also the main river, (fig. no. 6) No where the complete egg shell is reported so far, but ostrich egg shell pieces having

carving and design have been reported from the Upper Palaeolithic level at Patne.⁹ These fossilized egg shell belongs to *Struthio cf. S. asiaticus*.

Rock Painting

Since the ostrich egg shell associated with Upper Palaeolithic culture are found from many sites. It is interesting to note here that painting of ostrich have been discovered and reported from the rock shelters at “*Rasadia*” in Mandsaur district on Chambal River.¹⁰ Such painting also are found in the neighboring area on the Betwa valley. It is worth mentioning here that the ostrich egg shell have not been found from any site at Mesolithic level through out India. Whereas ostrich painting made on the cave and rock shelter during Mesolithic period at Firangi and Kathotia are discovered (fig. no. 7,8,9) Further explorations and excavation might throw light on the survival of the ostrich during the Mesolithic period.¹¹

Pleistocene Environment

Vedenburg¹² after study of long profiles of major rivers of India has postulated that Indian subcontinent has experienced tectonic disturbance in the Quaternary period due to which Indian Peninsula has anticlinal warping to NNE-SSW. Heron¹³ is also of the same opinion regarding Chambal valley and Rajasthan. The Chambal river and its tributaries have piled up a thick blanket of alluvium throughout its stretch. The basal rock at many places is exposed. The rivers at many places have cut into the bedrock and have developed ravines throughout its middle and lower course. At many places, the river has developed entrenched meanders.¹⁴ These physical features do indicate the disturbances during Pleistocene period.

The Chambal and its tributaries have preserved gravel deposits and two sets of gravels have been discovered on the Chambal and its tributaries. The Boulder Conglomerate yielded Lower Palaeolithic tools and Sandy Pebbly gravel yielded Middle Paleolithic tools. Over these gravels, a thick alluvial deposits is concentrated. They are Kankary white and yellow soil, reddish, blackish, yellow, brown colored soil deposits. The kankary yellowish deposit is rich in ostrich egg shell evidences, while sandy pebbly gravel has yielded Middle Palaeolithic industry in association with animal fossil of *Bos Namadicus*. The Boulder conglomerate is basal gravel on the Chambal river and is 1 to 1.5 m. thick at different places while sandy pebbly gravel is discovered on the major tributaries of the Chambal and is 5.0 m. thick and has yielded Middle Palaeolithic tools. This gravel is also traversed with the kankar nodules which are indicative of flooded streams exposed in wet climate while presence of kankar do indicate the arid spells in Pleistocene period. The Chambal river and its tributaries have also developed thick blanket of alluvium of silty and sandy nature. During rainy season these deposits are cut due to flow of rain water and caused erosion and formation of deep gullies. They are deep sometimes up to 30 m. from top and are popularly known as ravines of the Chambal.

The tributary of Chambal namely Parvati river is important. The Sandy Pebbly gravel on this river has given the evidences of *Bos Namadicus* in association of Middle Paleolithic tools. Such evidences have also been discovered in the neighbouring areas of Son and Narmada,¹⁵ where *Bos Namadicus* fossils are found with other fossils like *Equus Namadicus*, *susnamadicus*, *Elephas hysudricus*, *Hexaprotodon namadicus*, *Stegodon ganesa*, *stegodon insignis* and *verities of cervus*.

Such evidences do indicate the faunal wealth in the forest of neighbouring area. The Chambal river at present preserve scrub type of vegetation and smaller games. The long tree forests are absent, The vegetation at the hills is very less but during late Pleistocene period the area must have sufficient rain with thick vegetation and rich fauna. The study of Gurdip Singh¹⁶ is also of the same opinion that till the beginning of the Holocene, this area had sufficient rain with thick vegetation and rich fauna. At

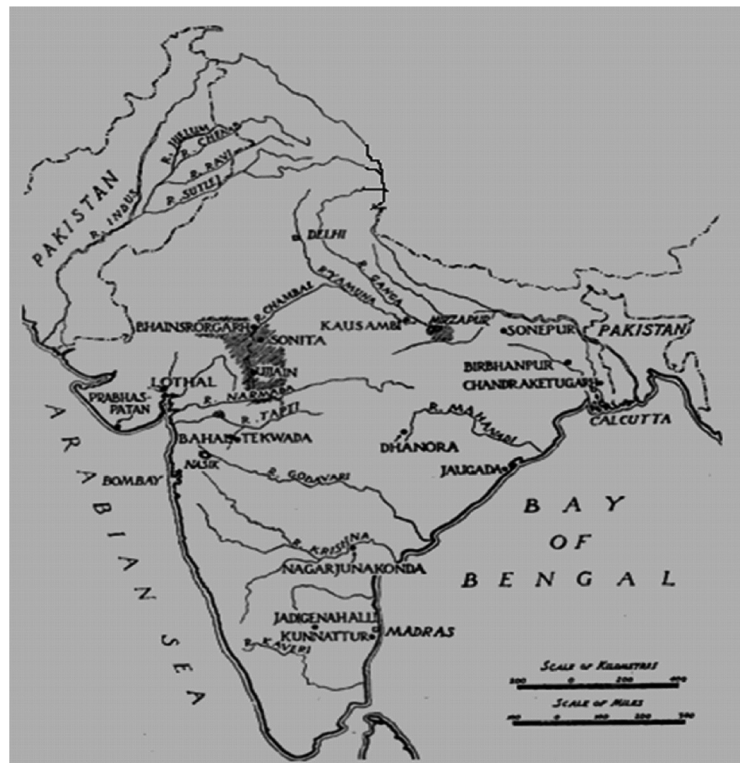
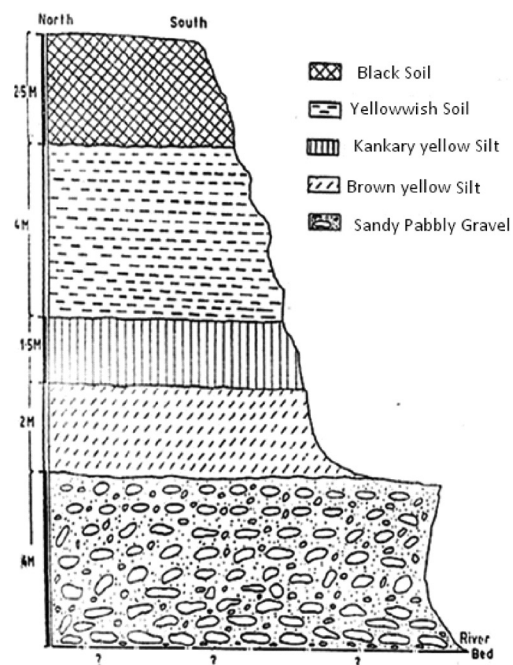


Figure 1: Chambal River valley in the map of India

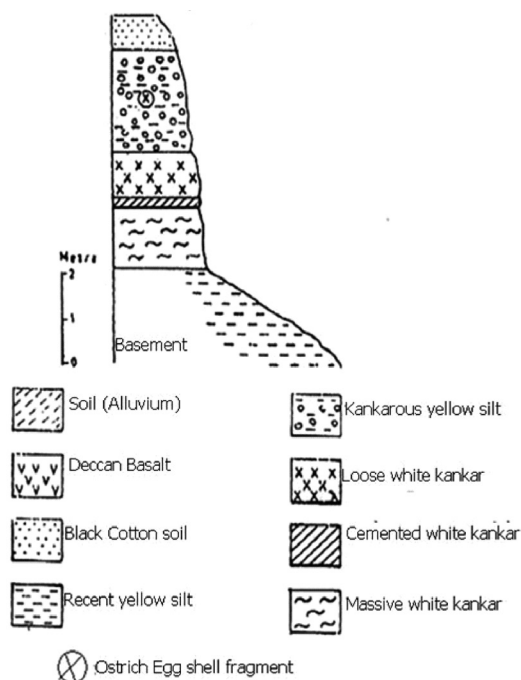


Figure 2: Geographical location of chambal river vally, satellite image



Stratigraphical gravel deposit at Parvati River,
Mohammadpura, Guna

Figure 3



Gravel deposit lithounits exposed at ostrich egg shell,
Cahndrasal (district Kota, Rajasthan)

Figure 4

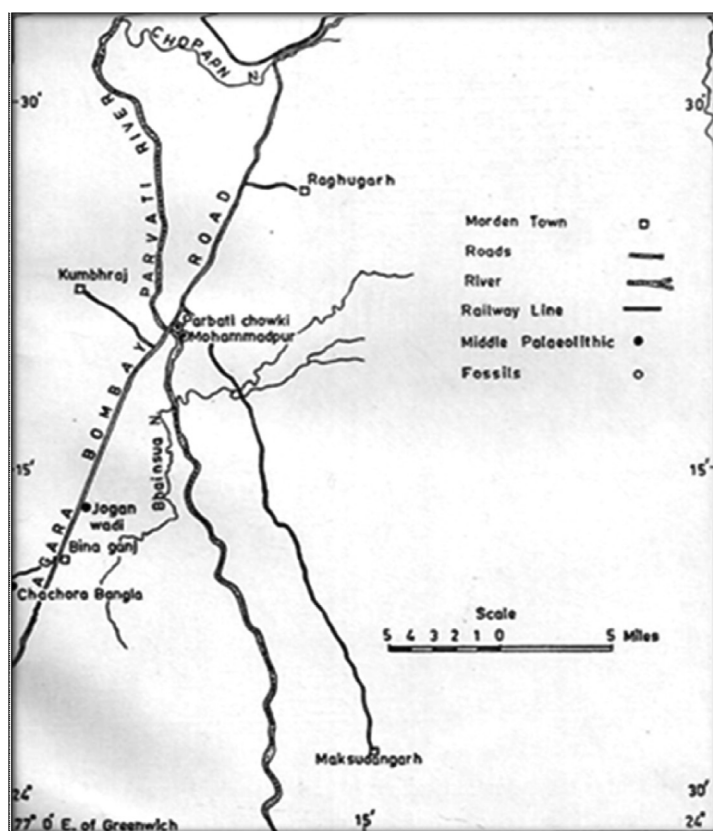


Figure 5: In plementiferous & fossiliferous site, Mohammadpura, District Guna (Madhya Pradesh)

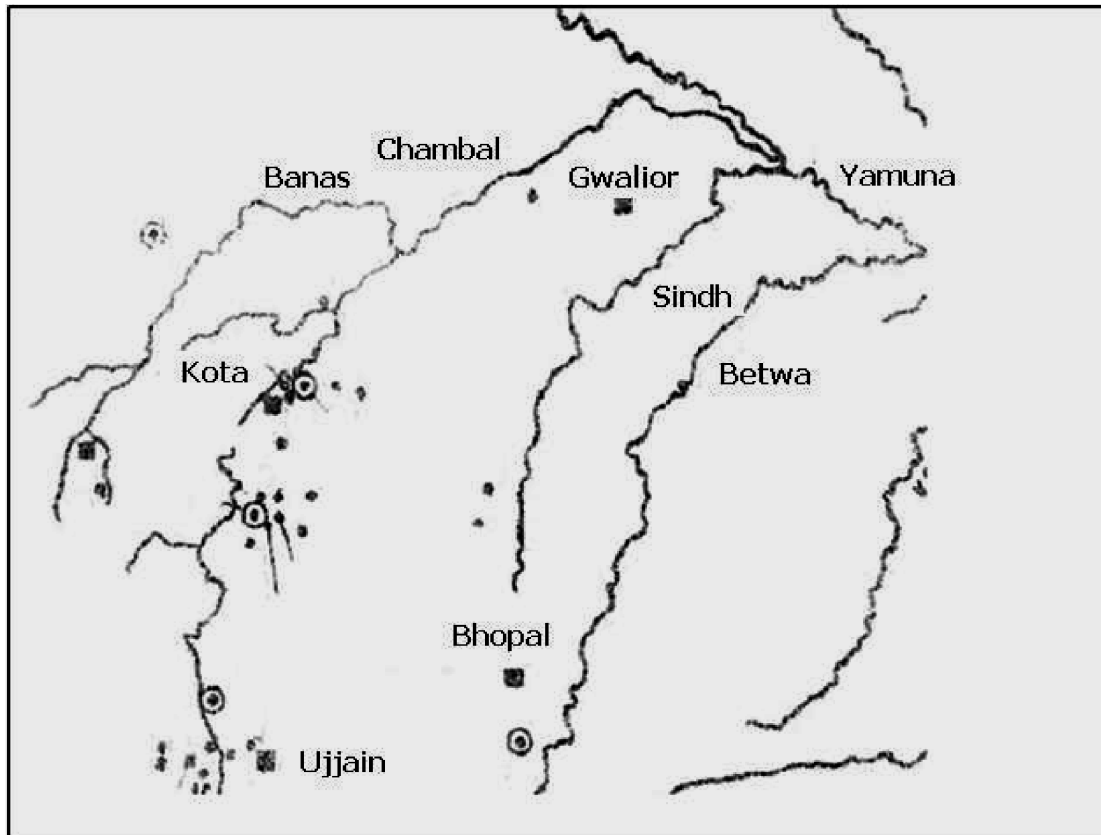


Figure 6: Ostrich Egg Shell Sites in Chambal River Valley, India

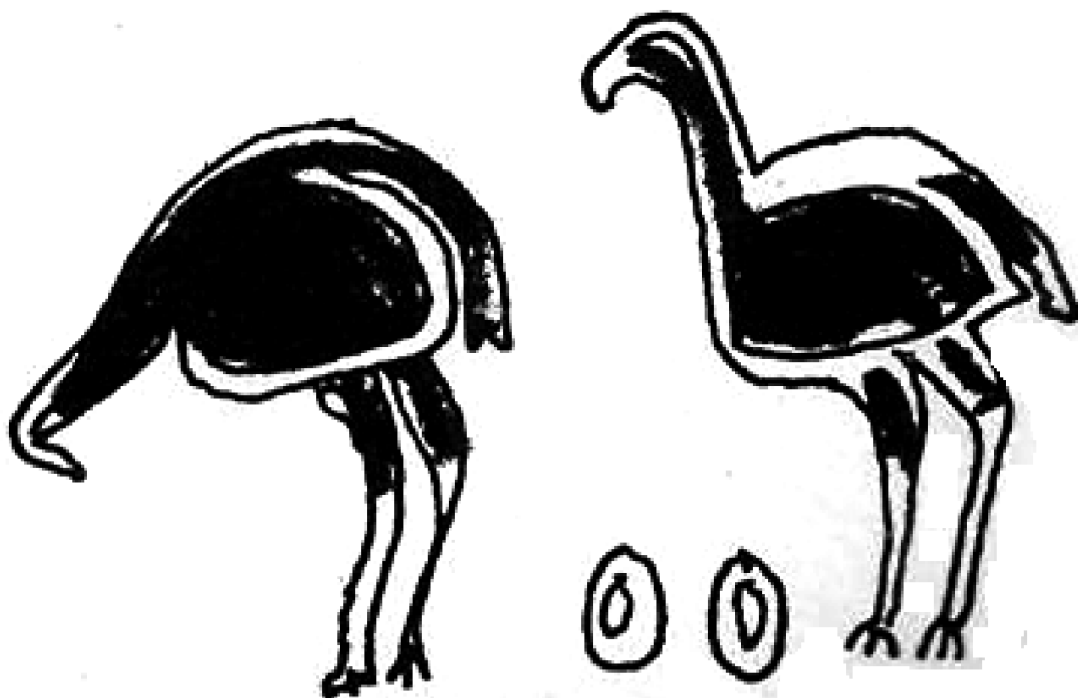


Figure 7: Rasadiya, District Mandsaur (Madhya Pradesh)



Figure 8: Kathotiya, District Sehore (Madhya Pradesh)

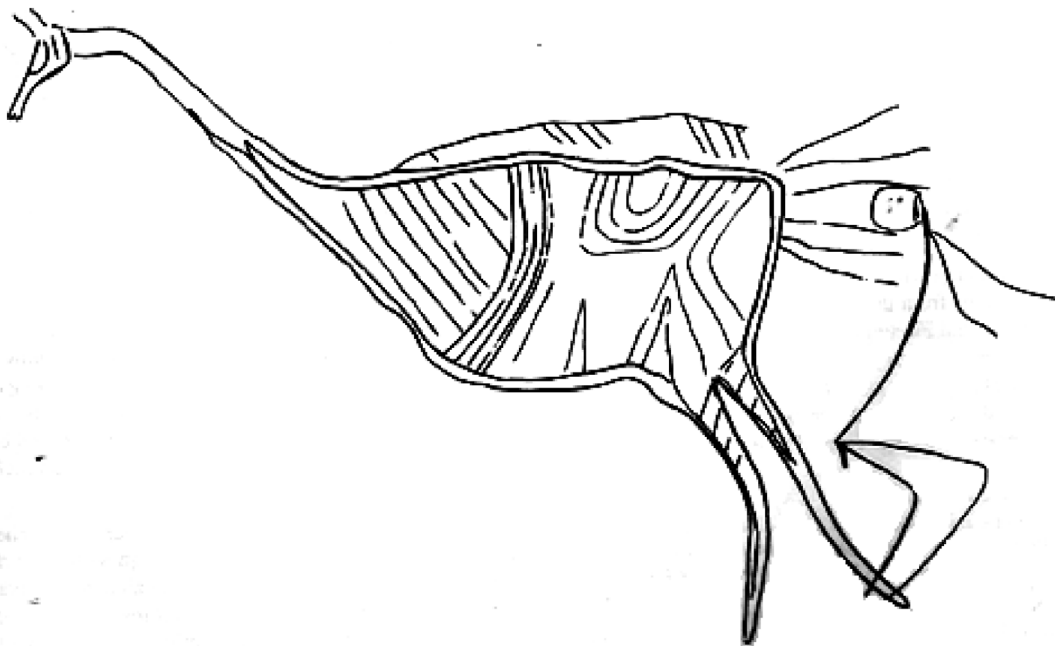


Figure 9: Firengi, District Sehore (Madhya Pradesh)

kalpi, on the the Yamuna river an excavation is conducted by U.P. state Archaeology Org. under the Direction of Dr. Rakesh Tiwari.¹⁷At kalpi on Yamuna river has given an interesting evidence of fossils of elephant, water horse and water cat in the association with Middle Palaeolithic tools. The gravel is overlain by 12 ft. younger alluvium, This evidence is also an indication of thick forest and rich water bodies in the Yamuna valley and the Chambal. The environment is also congenial for abode of early man.

Narayan Vyas of the A.S.I. have mentioned the discovery of fossils of peacock at Kota, Rajasthan on the Chambal.¹⁸This is also suggestive of rich flora and fauna in the Chambal valley.

The ostrich egg shell pieces have been found as many as 30 sites on the Chambal, its tributaries throughout stretch. The evidences come from open air sites and also from the stratified locations. Many of these Pieces have been dated as old as 39800 years B.P. The ostrich egg shell also indicate of rich flora and fauna in the valley. The Chambal valley as well as the Betwa valley are rich in rock art evidences. In Chambal valley, Ostrich painting is located at **Rasadia** district Mandsaur and Kathotia and Firangi, district Sehore on Betwa valley, indicate a long range of survival of ostrich from Upper Palaeolithic to Mesolithic. It is also worth mentioning that ostrich egg shells have not found on any open air Mesolithic site as well as Mesolithic deposits from any where in India.

Thus, it can be concluded that the Chambal river and its tributaries flowed through thick forest zone as is indicated by of the fossils of *Bos Namadicus* and Ostrich egg shells. The valley must have been thickly forested. In the forested hills, varieties of animals as well as ostrich were living. Such vegetation cover is destroyed due to climatic change. The Son, Narmada, Yamuna have preserved gravels associated with animals fossils, these forest evidence indicate that the environment in the Chambal valley and surrounding areas was favorable, for early man to live and perform various activities. After piecing together the evidences of the Chambal valley do indicate the Savannah type of forest and rich water bodies in the Chambal and surrounding areas.

The ostrich egg shell pieces having engraved design is discovered from a site Patne (Maharashtra) in stratified context with the Upper Palaeolithic tools. This Ostrich evidence is dated to 25000 B.P.. The egg shell of Patne also indicate environment of neighbouring area where the human cultures evolved and developed. The engraved design on the Ostrich egg shell and bead making indicate the beginning of art forms on one hand & dating the Ostrich egg shell on the other.

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Plate IA : Animal fossils, Mohammadpura, Guna



Plate IB: Animal fossils, Mohammadpura, Guna

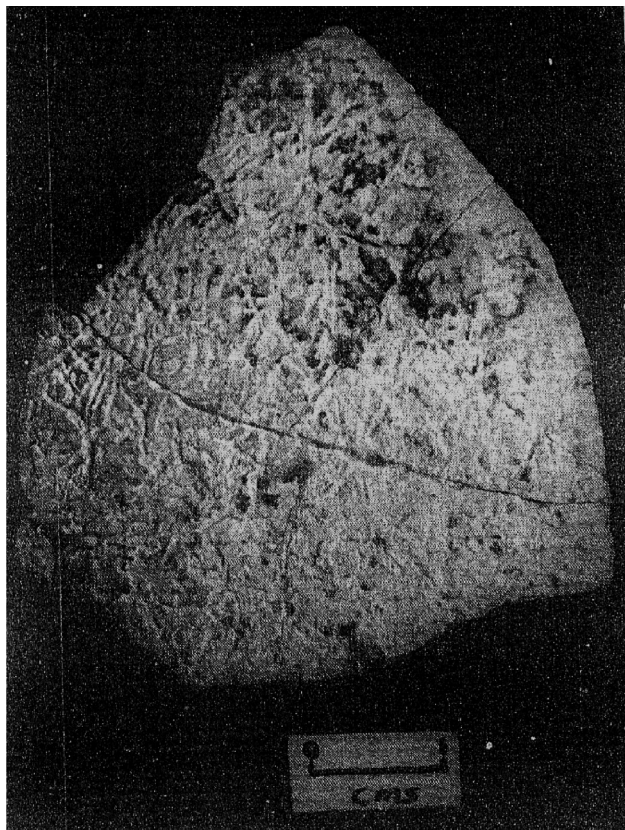


Plate IA : Engraved ostrich egg shell piece, Ramnagar, Mandsaur

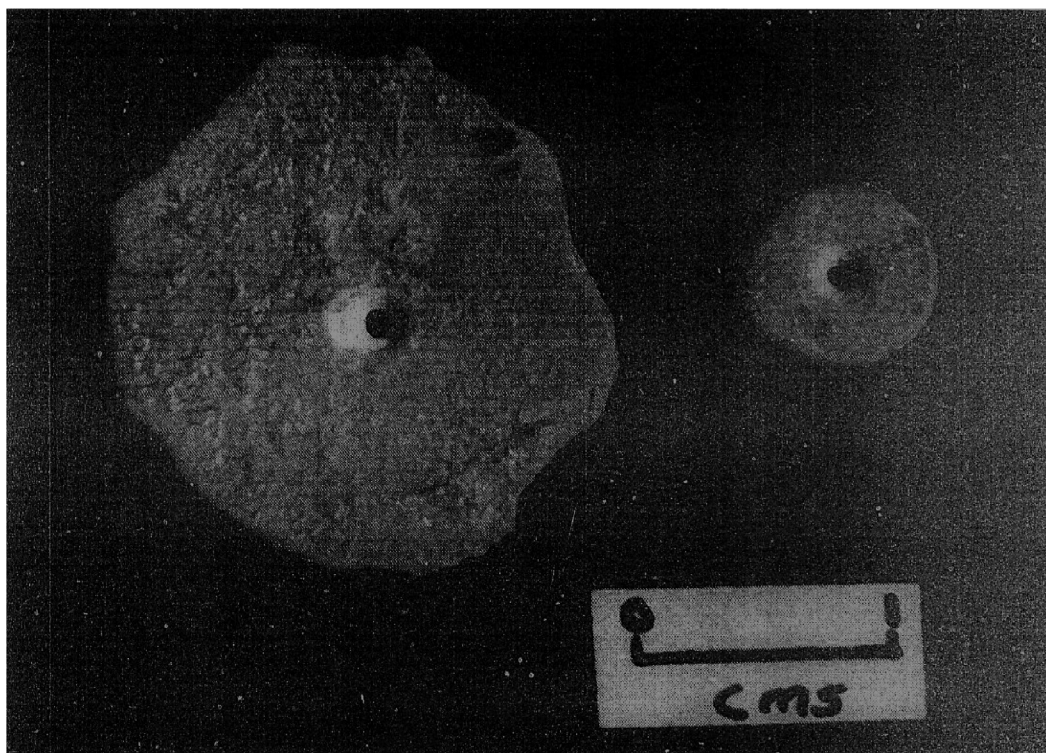


Plate IIB: Replicated bead on ostrich egg shell piece Chandresal, Base of Girraj Kumar 1990