



PRELIMINARY STUDY OF NON-BIFACE, NON-ACHEULIAN ASSEMBLAGE OF NARMADA, INDIA

Burhan Ahmad

Department of Archaeology , Deccan College P.G & R.I. Pune.

ABSTRACT

Many anomalies of Indian prehistory have been eliminated after watershed research in dating methods. The recent research has also put some arguments made about the dates of Indian prehistory not extending beyond 1mya to rest(Pappu,2011). However, some pertinent incongruities in the datum line do pose serious questions about the ones who have not been eliminated or filtered out. In this context, the present paper aims at explaining some clichés of the Lower Palaeolithic assemblages by using very basic tools of science i.e. observation and statistics involving morphology and metrical analysis derived from the data sets of two sites of Durkhadi and Samnapur located in the river basin of Narmada in Madhya Pradesh. These sites which were excavated in 1971 and 1989 respectively opened a new chapter in Indian Prehistory while their results were referred to in following researches for a continuum in chronology. They were termed as Mode 1 or Pre-Acheulian and Middle Palaeolithic respectively . Here, the use of the terms for these sites and earlier findings are looked into new perspectives adequately supported by data quantifying and analysis.



KEY WORDS: Preliminary Study , Indian prehistory , statistics involving morphology.

INTRODUCTION:

Archaeological investigations at Durkhadi nala started in early 1960s. However methodical excavation was carried out from 1971 onwards, the results of which were published as a PhD thesis by Armand in 1980. The assemblage was described as Pre Acheulian (Mode 1) on the basis of noticing a peculiar artefact described as 'Abbevillian' hand axe. Such an industry was never reported before in India. Even until now no industry like Durkhadi has ever been reported either from India or world so far. Although, claims were made about recovering Pre Acheulian and Oldwan components from Mahadeo Piparia termed as Madevian Industry (Khatri 1966; Khatri 1962). However, these claims were later on refuted (Supekar 1968; Sankalia 1974; Supekar 1985). Further investigations carried out in the area also disapproved of the claims for the stratigraphy had not been understood properly(Armand 1980). The excavation reports published since 1980s about Durkhadi and its adjoining areas, particularly about the geological formations and the techno-typology of artefacts recovered prompted to revisit the whole problem associated with Durkhadi. After the field investigation of the sites in 2012 & 2014 followed by laboratory analysis of the assemblage at Deccan College, different results were found that did not corroborate with the previous work. Armand's assemblage was studied at the Deccan College laboratory which created some doubts as soon as early investigations began, particularly about the type of technology and the condition of the artefacts in terms of abrasion, presence of cortex, artefact type, platform angle, condition of the platform, etc. is concerned. Most of the collection is on quartzite and in fresh condition where cores are less; flake are dominant. The

previous flakes are removed from the same platform from where the principal flake itself had been removed from the core/block with an angle of 90 degrees.

The next step was to correlate the laboratory analysis with the field observations. There was an incongruity between this assemblage and the other assemblages excavated or collected from the areas nearby and their geological contexts. The Durkhadi Nala site has a younger geological context with factors responsible for the formation processes. Our results are explained in the paper. The paper gives a fresh insight in the problem to establish certain important concepts about Durkhadi site as far as its Palaeolithic archaeology is concerned.

DURKHADI NALA

Previous Work:

Narmada has been serving as one of the largest natural laboratories for geologists and archaeologists alike. As far as prehistoric archaeology of Narmada near Durkhadi Nala and adjoining areas is concerned, an extensive and intensive exploration was carried out. The site of Durkhadi is close to Maheswar(or Maheshwar), in the Nimar District of Madhya Pradesh falling under the Narmada river system. This part of the Narmada does not have the thick alluvial sections usually seen in the Central Narmada around Hoshangabad. Nevertheless Quaternary sediments are well exposed in the gullies eroded by Narmada floods. The first investigation in this area was carried out by Sankalia who excavated at Maheswar and Navadatoli between 1952 and 1959 (Sankalia, Deo, and Ansari 1971; Sankalia, Subbarao, and Deo 1958). During the excavations of these Protohistoric and Early Historical sites, exploration for Palaeolithic sites was also undertaken. Further palaeolithic research was started by Khatri(1956); Sankalia, Deo, Ansari, Subbarao, Malik, Mehta and Trivedi(1957 and 1958); Joshi(1958); Sankalia and Subbarao(1958); Sankalia and Deo(1958) (Sankalia 1974); Armand(1971); Chauhan(2009) Sheila Mishra, Burhan Ahmad, Tosa Banta and Deepak Kumar(2012) and Sheila Mishra, Burhan Ahmad, Garima and Namrata(2014). The main contributions in this field work was discovering an abandoned village near Durkhadi that was known as Lakhangaon not mentioned by any of our predecessors. Second one is the key to understand the technology behind Durkhadi industry.



Figure.1. Location of Durkhadi Nala and Areas surveyed

Geomorphology:

The Narmada represents a dendrite river basin near Maheswar, where tectonic activities have played the most significant role in shaping its drainage discharge as well as the discharges of its seasonal tributaries and brooks like Durkhadi(Chorley 1971,Tewari. et.al. 2001, Mishra 1985). Narmada dominates the drainage system and agriculture of Central India emerging at Amarkantak in the east and covering a

length of 1300 km from the source to the end of its discharge in the Arabian Sea in the west near Gulf of Cambay Gujarat, flowing through Madhya Pradesh and Gujarat. Narmada is one of the largest rivers in Indian sub continent and one of the two rivers that flow on the Deccan Trap from east to west direction, Tapi being the other one. Deccan trap is a basalt tableland either vesicular or compact on which Narmada flows over, having left evidences of enormous time periods about numerous records of geology, anthropology and archaeology for study. Its terraces contain records of various episodes of climatic changes as well as palaeoseismic activities. These terraces are formed by the cut and fill mechanism of the river(Dr. S.N. Rajaguru personal communications at Deccan College Sedimentary Laboratory). As any other older river, Narmada also has changed courses at various periods of time, evidence of which can be observed through palaeo-channels as well as the shift in the river bed at Maheswar at Ahilya bhai Holekar Palace where the River has shifted towards the palace from south to north exposing the columnar basalt near Duck's island(see below) The change in the course or behaviour of a river could be a result of either tectonic activities or because of some other factors like acute arid or heavy precipitation (Mishra 1982, 1985, 2007; Kale 1993, 1993; Rajaguru 1994) (Fig.1.).

The river energy of Narmada is tremendous as it discharges a voluminous water with great velocity from a deep and wide basin. The energy of a river is calculated in terms of potential energy which is converted into kinetic energy that modifies land more significantly than the volcanism or seismicity. The same is true for Narmada. It has changed its course due to seismicity but it has modified the land due its high potential energy, the principle behind the cut and fill terraces. These types of terraces are a puzzle to understand when the formation of stratigraphy of terraces along the rivers like Narmada are studied (Chamyal. et.al 1996). That is where we have tried to be careful in our analysis. Narmada has been changing its course, as is true near Maheshwar opposite Durkhadi Nala. Here Narmada is shifting from south to north i.e. away from Durkhadi Nala towards Holkar Castle of Ahilya Bhai. The reason behind the shift is more probably tectonic activity and the banking of the curve of Narmada where it has been depositing its load, thus forcing the river to leave its course and rub against the wall of Holkar Castle. The Durkhadi side of Narmada has been distancing away from the Narmada of today. It implies that the terraces from where Durkhadi is cutting Narmada were inside the channel of the river if not so much deep inside the main land. Another interpretation of the statement is that the traction load of the river and its previous activity i.e. depositing and re-depositing was more active on the southern side of the bank opposite Maheswar and very much in the vicinity of tributaries like Durkhadi, Kasrawad, Bota, etc.. A mighty river like Narmada would not have remained dormant for whole Pleistocene epoch and the load or deposit be laid untouched.

After surveying Durkhadi nala it was clear that the terraces of Narmada exposed by the nala provided a stratigraphy like this: On the basalt bed rock rests the horizon of cobbles and pebbles followed by angular as well as rounded gravel. On top of the gravel rests the overbank flood deposit containing sand, silt and mud of around 15-18m thick. In this thick deposit, sand lenses occur suggesting some calm climatic conditions. Over those lenses are calcrete layers and root casts. The sand quarry site at Lakhangaon clarifies a lot of doubts as such a lithology could not be older than late Pleistocene to Holocene. And importantly the sequence does match everywhere in the area as the team traversed not less than 100 km around Durkhadi nala area. The horizons change dramatically in terms of texture, colour and the content. Hence, the geomorphology of the basin suggests that neither the surface material is of primary context nor the artefacts are old enough to be categorized even in middle Pleistocene or in archaeological terminology- pre Acheulian or Acheulian.

As far as the human history is concerned, the river and its tributary all along its banks contain the evolutionary profile of numerous faunal and floral records whose dates go back to millions of years. We get a record of most of the Quaternary period particularly Pleistocene epoch which is more important for archaeology. Very likely, and as proven by the expeditions of geologists, palaeontologists and archaeologists. There is a considerable record of hominine activities contemplating with their behaviour in the frame work of evolution. (Misra 1965; Mishra1985; Rajaguru1994; Badam 2000; Chauhan 2010). The

table given below briefly presents the geomorphology of the area around Durkhadi that was observed by our team during the field work of 2012 and 2014 (Table.1.):

LITHO-STRATIGRAPHY OF DURKHADI AND THE SURROUNDING AREAS				
Locality	Elevation coordinates	& Composition layers/ units	of Artefacts and Remarks	
Sand quarry, Lakhangaon	158m N: 22° 09' 1.6" E: 75° 35' 45.2"	U I: 8m = sand & gravel U II: 8m = sand, gravel & pebbles U III: bed rock	No artefacts found.	
0.5 km East of Lakhangaon	146m N: 22° 09' 34.5" E: 75° 35' 55.9"	Same as above	Red gravel	
Bhore Singh Malvi Well Lakhangaon	167m N: 22° 09' 27.4" E: 75° 35' 45.1"	30m silt	Farming land.	
Lakhangaon Habitational patch	160m N: 22° 09' 23.2" E: 75° 35' 56.2"	25m Sand and silt	Pot sherd, bangle bits, microliths. This was a fisherman village and was abandoned after Ahiliya Bhai Holkar period according to the local information.	
Durkhadi Nala west bank, niche point II	165m N: 22° 09' 24.9" E: 75° 06' 5.2"	U I: silt U II: gravel, cobbles, boulders U III: bed rock	No artefacts found on the surface	
Durkhadi Nala east bank	157m N: 22° 09' 17.7" E: 75° 36' 11.2"	U I: 3m silt U II: calcrete gravel U III: consolidated reddish sand & transported nodules U IV: compact reddish sand, incipient calcrete U V: sand & consolidated root casts	No artefacts found on the surface. The sand with calcrete is similar to the sand at the quarry of Lakhangaon.	

Table.1. Litho-stratigraphy around Durkhadi, Field Season-2012-14

METHODOLOGY AND LITHIC ANALYSIS OF DURKHADI ARTEFACTS AND AREA:

Durkhadi (excavated in 1971 by J. Armand) assemblage, housed at Deccan College Pune, represents a variety of stone artefacts with no reduction sequence as far as the technology is concerned. Yet, there seems

to be a plan which is an integral part of the chain of preparation or reduction pertaining fabrication of the artefacts of the collection. The whole assemblage is anomalous and ambiguous with all other established prehistoric sites of India or the world. The design of fabrication is so indigenous that each artefact could be studied individually but at the same time it does not qualify to be labeled as prehistoric except a few of course. Still the above given statements could not answer or explain the question of categorizing Durkhadi as one the prehistoric sites of India with pre Acheulian artefacts. Therefore, it has always remained a rallying point whether Mode 1 existed in India, but very recently among Indian researchers it became a hot debate (Petraglia 1999). The probability of their occurrence is matter of time and space. Hence, the present paper is aimed at resolving the issue in a lucid and scientific method with common-sense approach. We would like to base our argument on simple but fundamental tenants of prehistoric archaeology.

Rocks are naturally occurring minerals formed of matter inside of the earth's surface in mantle as primary rocks or in lithosphere as secondary rocks. Depending upon the process of their formation and chemical bonding rocks are formed either into hard but not compact minerals or extremely hard and compact minerals. In homogeneous rocks atomic cohesiveness is far stronger than the heterogeneous rocks. Another property of a rock is the pattern of fracture: conchoidal or cleavage. These two properties, a good conchoidal fracture and homogeneity of a rock makes an ideal raw material for stone tool making. Best of the rocks with these properties is the crypto-crystalline of silica group like chalcedony, chert, etc. As far as Armand's collection is concerned the raw material is about 95% of quartzite. Quartzite is thermally metamorphosed siliceous sandstone of recrystallised quartz used in modern times for road Macadamizing and building material (Gribble, 1988). In prehistoric period the same material was used as a raw material for making tools (Mishra 1982, 1985). But at the same time it is of primeval importance for the researcher to establish whether an ideal material like quartzite has been quarried for the fabrication of prehistoric tools? This is the most important question of this research paper, for which comprehensive explaining model is being devised. Below a summary of Armand view and facts about his collection is given that will clarify some of the doubts pertaining Durkhadi as a lower Palaeolithic site.

During the Durkhadi excavation of 1971 eleven trenches were laid to recover artefacts and understand the stratigraphic profile of Narmada terraces in order to put a geological context in perspective. He recovered 650 artefacts from Durkhadi Nala, Kasrawad nala, Sahasrahada and Bota Nala. About 80% is from Durkhadi, followed by Kasrawad 15% and rest from other mentioned areas. It is noteworthy that among this collection only 16% is the excavated material and 84% is from them were surface collection. He formulated an attribute code containing 99 attributes for general study of stone tools not for the Durkhadi tools (Armand 1983, 35). the known lower palaeolithic list of artefacts according to Armand at that time were 43 and Durkhadi had a represented 29 types. He categorises his collection into "Fresh Group" and "Rolled Group" depending upon the preservation of the artefacts. He has left no page unturned of any geometry book for using all possible shapes and figures that could help in describing the shape of an artefact. Armand agrees that Durkhadi lithic industry is fresh, rough, artefacts have some cortical surface and retouching is almost absent or limited only to the active or prehension zone of some artefacts. He contemplated the terminology of Olduvai Gorge tools for Durkhadi industry without realising the geological context and more essentially the condition of his assemblage (Leakey 1971; 1973). He classified the industry into the Durkhadian and developed Durkhadian on account of rolled and fresh found artefacts, respectively, where percentage of handaxes increases in the fresh artefacts as compared to the rolled ones which has component of small sized tools. And that he grouped cores into prepared and unprepared on pebble and flake respectively as well as vice versa. For tools his categories are heavy duty tools (rolled), light duty (rolled), discoids, spheroids, scrappers (round, double edged, single side, hollow side, single end, etc.). He believed some tools according to the prehension zone were made for Durkhadi left handers (Armand 1983, 79-93).

The new study that came up just two years after Armand published his thesis as a book revamped all the terminologies used by Leakey (Toth 1985). And now with advanced techniques many myths about Olduvai tools have been filtered out. Even then the interpretation that was so laborious but of little use

could provide any better method of classification of tools. As the researches following Durkhadi did not use the methods prescribed by Armand (Paddayya 1985; Mishra 2007, 2009). Hence, it is the time to have a fresh look at the Durkhadi industry too in wake of recent studies in the area (Chauhan 2010, Mishra and Burhan 2012). Various scholars neither want to count Durkhadi in Pre-Acheulian sites nor they want to count out the site as non Pre-Acheulian. They refer it but still have doubt to remove Durkhadi from Lower Palaeolithic list of Indian Prehistory. It was quite amusing that the technology behind the Durkhadi complex and its interpretation could come up so interestingly. There should be no doubt that Durkhadi collection of course has some percentage of tools particularly the surface collection from Kasrawad nala. Pre Acheulian or Oldwan tools are prepared with the technique of block-on-block and direct percussion as far as the non-bifaces are concerned. The sequence used to prepare such tools is called as the centripetal reduction sequence or centripetal flaking method (Toth 1985, Schick and Toth 2006). Whereas the present interpretation is that the assemblage largely consists of large flakes with cortical platforms with one previous flake scar from the same platform. This pattern of flaking is very unlike the Acheulian where cortical platforms are virtually absent even in the rare cases of complete dorsal cortex. The direction of previous flake removals is also usually different from the blow which detached the flake. The technology employed at Durkhadi therefore did not match any Palaeolithic technology—either Acheulian or Middle Palaeolithic. A few cores however matched quartzite cores from the Upper Palaeolithic horizons at Mehtakheri and a few microliths are also part of the assemblage. The condition of the assemblage is also abraded but not weathered consistent with its young context. All these preliminary observations made us wonder if the Durkhadi industry was Palaeolithic or related to some modern flaking activity. We visited Mehtakheri and river sections between the confluence of the Choral river and the bridge over the Narmada river. In this stretch a very large gravel bar, rich in cobble and boulder sized quartzite clasts is present which is being exploited for building blocks. Some of these cobbles and boulders are trimmed before transporting them from the gravel bar. Examination of the products of this trimming revealed a close similarity to the Durkhadi assemblage excavated by Armand. the original location of Armand's trenches could be identified. Our main discovery is the presence of a habitation mound related to a site known by local people as "Lakhangaon" although they do not know when it was abandoned. Remains of a small Hanuman temple show the outer limit of the village. Pottery and roof tiles indicate a Late Mediaeval/Early Modern age for the site (Fig.2.). This site is just on the bank of the Durkhadi nala close to the area from which Armand collected and excavated the stone tool assemblage. We therefore conclude that the Durkhadi assemblage is not only not Pre-Acheulian but is the debitage from exploitation of the gravel exposure by the Lakhangaon villagers for building material a few hundred years ago. It is not part of the Indian Palaeolithic (Mishra and Burhan 2011-2012).



LABORATORY ANALYSIS OF DURKHADI INDUSTRY:

In the lithic laboratory of Deccan College after analysis of Durkhadi collection has yield results which are surprising yet, not out of the box. Our analysis included metric analysis(see Figs.) and comparison with other assemblages like Mehtakheri, Moregaon, Bori, Lalitpur, Jonk. The results have been surprising but very much agreeable to the hypothesis that was formulated. It became clear that Durkhadi industry is not Lower Palaeolithic. Its anomalous characteristics pertaining morphometric analysis that included abrasion grade, freshness i.e. almost no weathering, striking platform and angle(Fig.3. and Fig.4.), condition of the striking platform, number of cores versus number of flakes and debitage.

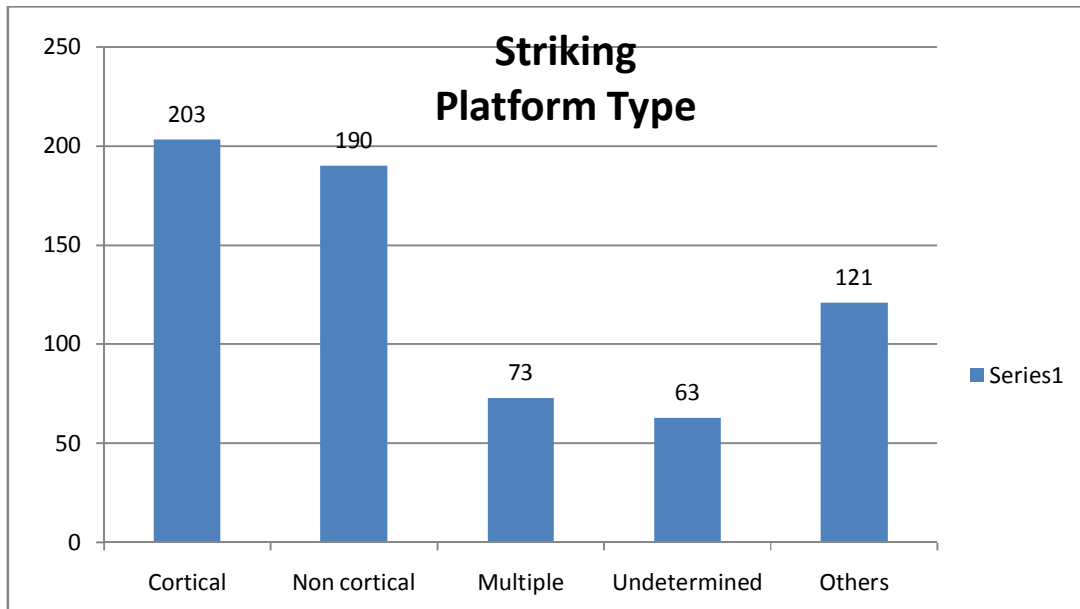


Figure 3. Frequencies of Cortical vs. Non-cortical Platforms

The striking platform if combined with value "multiple" in the majority of the artefacts is cortical which suggest that the aim of flaking was not centripetal flaking as is found in pre Acheulian complexes of the world.

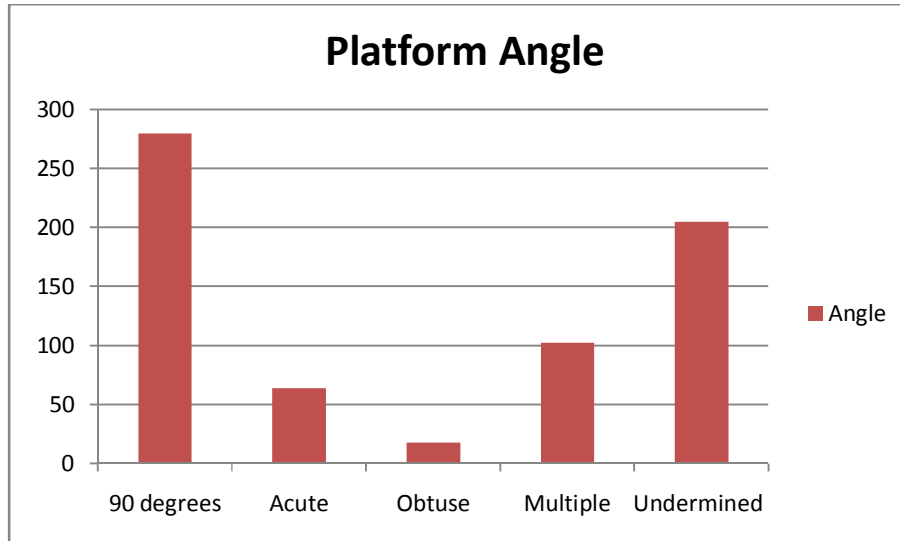


Figure.4. Frequencies of Platform angles to differentiate between Acheulian and non-Acheulian flake

If the design of flaking is 90 Degrees in an assemblage that should not be considered to have the characteristic of a prehistoric tool. Because there is no hominine that can have the power to break a cobble of more than 2kg at 90 Degrees with a naturally occurring mineral except diamond which shows hardness of 10 on Moh's Scale. But such an evidence has not been recorded anywhere either in India or anywhere in the world. More than 275% Durkhadi artefacts exhibit striking angle of 90 Degrees while as only 30% show obtuse angled striking platform. Hence, the striking angles also suggest that the most of the artefacts are cannot be classified in Acheulian, not to speak of Pre-Acheulian.

The theory employed to explain the technology of Durkhadi is based on the concept of Chaîne Opératoire (Bar Yosef, Ofer Van Peer, Philip 2009; Ambrose 2001). The concept was borrowed from taphonomic study in palaeontology. This procedure of studying the whole process of reduction from quarrying to finishing of tool was extremely important for explaining Durkhadi industry. Survey an area of Narmada from Mandelshwar to Sahasradhara with span of 5km from each bank of Narmada gave us chance to collect information that was provided the most correct explanation for Durkhadi industry. The answer is Durkhadi industry is not Palaeolithic, first on the basis of geology and after visiting the Barwa and many other place where we found people quarrying the boulders and cobbles on the banks of Narmada on trucks. Before loading them into the vehicles the boulders and cobbles were trimmed into square and rectangular blocks. The banks present a place of clusters where debitage, flakes and some in situ rounded cobbles were found together. All of a sudden we could realize after observing the whole process from starting point i.e. quarrying of raw material to the final shape of a block, a stone brick. All the phases were studied and it was found that the lithic litter is present in Armand Durkhadi Industry. The morphology as well as the measurements show that this practice of breaking cobbles of quartzite which faces less weathering than the basalt were in vogue since last three centuries all along the banks of Narmada. The clusters are the best example of Chaîne Opératoire. Each flake, debitage and piece were same to Durkhadi Industry. To be assured of our model of explanation the samples collected from the quarry site was compared with Armand's collection. The result was not surprising, as the key to understand the technology of Durkhadi was found. The common features which became the fundamentals of our discovery are:

- 1. Cortical platform:** Both Barwa quarry as well as the Durkhadi assemblage represent marginal cortex that has never been reported from any site in or around the world.
- The abrasion is almost absent in the Durkhadi collection which is the case with Barwa quarry site trimmed flakes.(Figs.5-6)

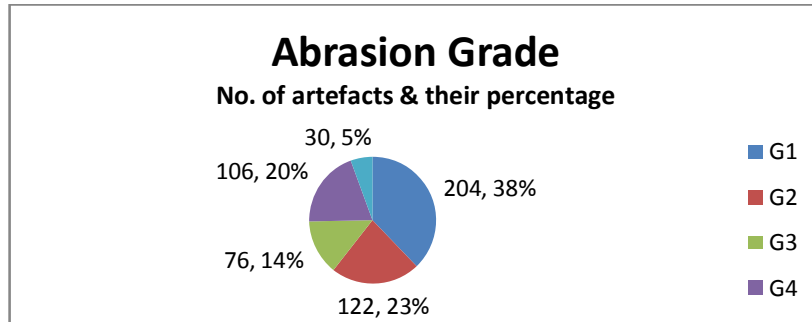


Figure.5. The abrasion grade G1 and G2 exhibit low attrition which is an indication of fresh artefacts. G4 and G5 exhibit extreme rolling and attrition. Hence , Durkhadi assemblage is a modern human activity.

Abrasion Grade for Durkhadi Artefacts			
Abrasion grade	Art. prototype Ref.	Condition	Remarks
1	00561	Artefact looks fresh and flake borders are prominent	No remarkable abrasion
2	00596	Flake ridges are less flattened	Very less abrasion
3	00253	Flake ridges are flattened	Less abrasion
4	00308	Rolled	Abraded
5	00251	Extremely rolled	Rolled

Figure.6. Description of abrasion used as a criteria.

- Both Durkhadi and Barwa have sliced flaking technique, where the previous flake and the principal flake have been removed from same platform with an angle of 90 degrees give it a shape of a slice. This technique produces flakes so similar to tools and we have given them the name of "fool's tools".
- While observing the Barwa quarry cluster of trimmed and half trimmed cobbles, another important feature that was in agreement to our hypothesis about Durkhadi was the prominent and pronouncing concentric, deep ripple marks present on both the cobbles of Barwa and artefacts of Durkhadi.
- The striking platforms of both Barwa quarry trimmed cobbles and the Durkhadi artefacts bear whitish mark so easily visible that as if a small explosion had taken place exactly on the spot of hit. For such a deep concentric pronouncing ripple marks and the whitish mark exactly on the striking platform could only form on such an extremely hard mineral like quartzite with strong ionic chemical bonds is due to the use of iron or steel hammer. The same was experienced at Barwa where the workers told us that they used iron hammers weighing between 3-5kg. (Fig.7)

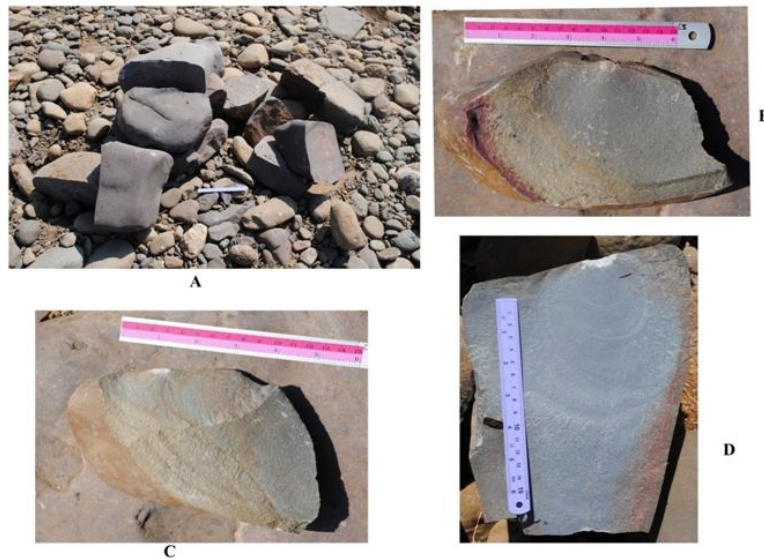


Figure.7. Barwa modern quarry flakes exhibit same flaking pattern as Durkhadi assemblage of 1980.

(A) cluster of building material quarry on the bank of Narmada at Barwa, Madhya Pradesh. It exhibits the whole chain of fabrication where boulders and cobbles are trimmed to square and rectangular blocks for building material. (B) a sliced flake struck from the boulders shown in A. (C) "fools- tool" another similar flake with marginal cortex opposite to a very sharp but brittle edge resembling a tool. a previous flake and the principal flake is removed from the same platform at an angle of 90 degrees. (D) the concentric deep and pronounced ripple marks on the boulder made by iron hammer of 3-5 kg. Some of the Armand's artefacts who weigh more than 400g also exhibit the same deep marks. Another noteworthy aspect of the flakes is the whitish mark exactly on the striking platform, as if a small explosion happened when the flake was removed. Such features are present when a mineral like quartzite is hit by an extremely hard hammer like iron or steel.

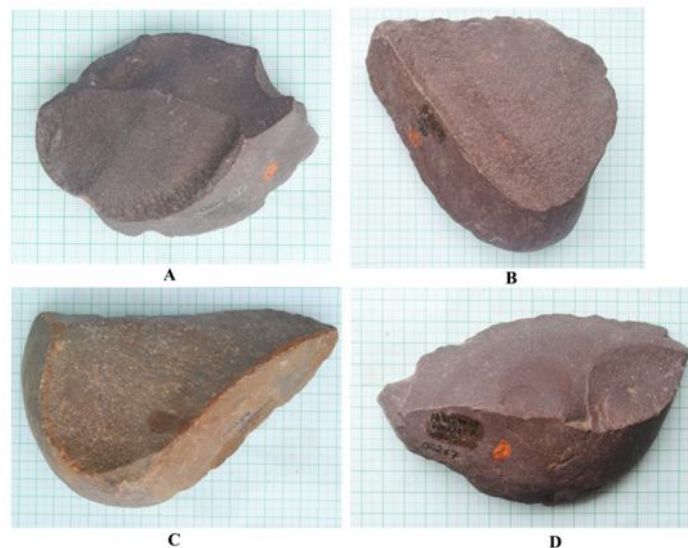


Figure.8. The sliced flake technology of Durkhadi resembles the modern stone quarry at Barwa

These are the specimen A,B,C&D from Armand's Durkhadi Collection which could be compared directly with the specimen of the figure which shows Barwa cluster. The specimen represent the marginal cortex opposite to the sharp edge, almost no abrasion, no weathering and pronouncing deep concentric ripple marks and the whitish mark made due to use of very heavy hammer.(Fig.8.)

MATERIAL USED IN LABORATORY:

DSLR camera Nikon D3000 for sharp and detailed photos could taken for recording and A4 size graph paper that provides an overall comprehensive scale that helps to measure an artefact easily and accurately.

DISCUSSION AND CONCLUSION:

Durkhadi collection is a mixed bag with huge number of lithic litter of modern times, with some components of upper palaeolithic cores, scrappers? For Armand all the surface samples were prehistoric artefacts, but very less did he considered the condition and context of his collection. The site of Durkhadi was described as pre-Acheulian by him for the reasons that it shapes were confused with polygons, spheroids and discoids, etc of developed Olduwan. Such assessment cannot be considered true for any assemblage without the prior knowledge of exact use of tools, their fabrication(Schick and Toth 1994; Johnson 1978) and site formation process as is evident from the above explanations and discovery(Mishra 1999, 2008).

In the history of Indian Lower Paleolithic research Durkhadi had been described as a Pre-Acheulian or Mode 1 site excavated by Armand for his PhD thesis in 1971. His interpretations shaped the whole lower Paleolithic research in India afterwards so much so that Durkhadi got petrified into a concept that could not be wrong or replaceable. One should bear in mind that remarkable changes have occurred since 1971 and what was only a concept(Lithic Analysis of Acheulian Period) has become a branch of archaeology. Describing an assemblage needs some basic parameters of classification and analysis. But if an idea or for that matter an archaeological assemblage has been dogmatized to an extent of an unshakeable concept makes it hard to rectify. No matter how jaundiced a concept is, it is a little hard to but not impossible to eliminate the cliché. That is what this paper is aimed to deal with and hopefully has been successful to remove the cliché. The final result of this paper is that Durkhadi from now on must not be categorized as a Lower Palaeolithic site of India. However, the component from Kasrod nala do provide some very important clues that are considered to be essential for further research in that area.

ACKNOWLEDGEMENTS:

The authors would like to thank Prof Rajaguru, Tosa Bant, Deepak Kumar and Arif Biglari for their suggestions in the field, about the subject and the help they extended whenever we needed.

REFERENCES

- Ambrose, S. H.2001.Paleolithic Technology and Human Evolution. Science 219, 1748-1753.
- Armand, J.1980. The Middle Pleistocene Pebble Tool Site of Durkadi in Central India. Paleorient 5, 105-44.
- Armand,J.1980. A Pre Acheulian Occupational Site on the Ancient Banks of the Narbada River, West Nimad district Central India. PhD Thesis submitted to the University of Poona.
- Armand, Jorge.1983. Archaeological excavations in Durkadi Nala : an early palaeolithic pebble- tool workshop in Central India. Munshiram Manoharlal Publishers New Delhi.
- Armand, J..1985. The Emergence of Handaxe Tradition in Asia, with special reference to India. Misra, V.N.Bellwood, P. Recent Advances in Indo-Pacific Prehistory. Oxford - IBH New Delhi, 3-8.
- Badam, G.L.2000.Journal of the Palaeontological Society of India. vol.45, 1-24.
- Bar Yosef, Ofer Van Peer, Philip.2009. The Chaîne Opératoire Approach in Middle Paleolithic Archaeology. Current Anthropology. Vol. 50(1). 103-131

-
- Chamyal, I.S., et.al.1996.Sedimentology of the Narmada alluvial fan, western India. *Sedimentology Geology* 107(1997) , 263-279. *Quaternary International*, Elsevier.
- Chauhan, Parth R.2010. The Indian Subcontinent and 'Out of Africa I'. Ed. Fleagle,John G. Shea, John J. Grine, Frederick E. Baden, Andrea L. Leakey, Richard E. Out of Africa I. Springer Netherlands.145-164.s
- Chorley, R.J.1969, 1971.The drainage Basin As the Fundamental Geomorphology Unit in Introduction to Fluvial Processes. Ed. R.J Chorley. Methuen & Co LTD London, 30-50.
- Chorley, R.J.1969, 1971.The Role of Water In Rock Disintegration in Introduction to Fluvial Processes. Ed. R.J Chorley. Methuen & Co LTD London, 53-69.
- Gaillard, C. Mishra, S. 2001. The Lower Palaeolithic in South Asia. Semah, F.Falgueres, C. Grimaund-Herve, D. Semah, A-M. Origin of Settlements and Chronology of the Paleolithic Cultures in SE Asia Semenanjung and Paris 73-92.
- Gaillard, C. et.al.2010. Lower and Early Middle Pleistocene Acheulian in the Indian Sub- Continent. *Quaternary International* Vol.223-224, 234-241.
- Gaillard, Claire. et.al.2010. Reply: Do not confuse large cutting tool types. *Quaternary International* 223-224, 245-247.
- Graham, John.1988. Collection and Analysis of Field Data in Maurice Tucker Ed. Techniques in Sedimentology. Blackwell Scientific Publications. London. 5-62.
- Gribble, C.D.1988. Rutley's Elements of Mineralogy. First Indian Reprint 1991, 27 Edition CBS Publishers and Distributors, Delhi-32. 179, 118-144.
- Hsu,K.J.1989.Physical Principles of Sedimentology. Springer-Verlag Berlin. 1-66.
- Johnson, L. Lewis.1978. A History of Flint-Knapping Experimentation, 1838-1976 [and Comments and Reply]. *Current Anthropology*. The University of Chicago Press on behalf of Wenner-Gren Foundation for Anthropological Research Vol.19,2. 337- 372.
- Kale, V.S, et.al.1993. Prehistoric Flood Deposits on the Choral River, Central Narmada Basin, India. *Current Science* 65, 11; 877-8.
- Kale, V.S.1993. Flood Geomorphology of the Indian Peninsular Rivers. *Journal of Applied Hydrology* 6, 49-55.
- Leakey, M.D.1971. Olduvai Gorge: Excavations in beds I & II 1960- 1963. Cambridge. Cambridge University Press.
- Leakey, Mary D.1976. The Early Stone Industries of Olduvai Gorge. Clark, J. Desmond
- Isaac, Glynn. UISPP IX, Colloque V "Les Plus Anciennes Industries en Afrique. Nice. 24-41.
- Michael J. Shott.2003. Chaîne Operatoire and Reduction Sequence. *Chaîne Operatoire and Reduction Sequence*. Vol. 28(2). 95-105.
- Mishra, Sheila. 1982. On the Effects of Basalt Weathering on the Distribution of Lower Palaeolithic Sites in the Deccan Bulletin of the Deccan College Postgraduate and Research Institute 41, 107-115.
- Mishra, Sheila.1985.Early Man and Environment in Western Madhya Pradesh. PhD Dissertation Pune: Pune University, 2-68.
- Mishra, Sheila.1992.The Age of the Acheulian in India : New Evidence. *Current Anthropology* 33,325-328.
- Mishra, Sheila.1994.The South Asian Lower Palaeolithic. *Man and Environment* 19, 1-2. 57-72.
- Mishra, Sheila.1995. Chronology of the Indian Stone Age : the Impact of the Recent Absolute and Relative Dating Attempts. *Man and Environment* Vol. 2 (20). 11-16.
- Mishra, Sheila.1995. Earliest Acheulian Industry from Peninsular India. *Current Anthropology* Vol.36 (5). 847-851.
- Mishra, Sheila. 1999. Developing an Indian Stone Age Chronology. Eds. Murray,Tim.Time and Archaeology. Routledge London and New York. 80-88.
- Mishra, Sheila.2007. The Indian Lower Palaeolithic. *Bulletin of the Deccan College Postgraduate and Research Institute* 66-67. 47-94.
- Mishra, Sheila.2008. The Lower Palaeolithic: A Review of Recent Findings. *Man and Environment* 1 Vol.33, 14-29.
-

-
- Mishra, Sheila. et.al. 2008. Behavioral Implications of Early Acheulian Technology: An Indian Perspective. (Abstract) Paleoanthropology Society Meeting. Vancouver, Canada
- Mishra, Sheila.2009. Excavations at the Early Acheulian site of Morgaon, Maharashtra (2000- 2007). Eds. Paddayya, K.et.al. Research Trends in South Recent Asian Archaeology Deccan College Postgraduate and Research Institute, Pune, India, 121-137.
- Mishra, Sheila.2011. Review of Out of Africa I: The First Hominin Colonization of Eurasia, edited by Fleagle, J.G., J.J. Shea, F.E. Grine, A.L. Baden, and R.E. Leak PaleoAnthropology 2011.
- Mishra, Sheila and Ahmad, Burhan.2011-2012. IAR Report, in press.
- Misra, V.N.1962. Problems of Terminology in Indian Prehistory. Eastern Anthropologists 2, Vol.15, 113-124.
- Misra, V.N.& Mate, M.S.1965. Indian Prehistory: 1964. Deccan College Poona
- Misra, V.N.1990. Further Research in the Narmada Valley. Eds.Ghosh, N.C. Chakrabarti, S. Adaptation and Other Essays. Viswa Bharati Research Publication Shantiniketan, 53-60.
- Paddayya, K.1985. The Acheulian Culture of Hunsgi Valley. Misra, V.N. Bellwood, P. Recent Advances in Indo-Pacific Prehistory Oxford - IBH New Delhi, 59-64.
- Pappu, S., Gunnell, Y., Akhilesh, K., Braucher, R., Taieb, M., Demory, F., and Thouveny, N. 2011. Early Pleistocene Presence of Acheulian Hominins in South India. *Science* 331: 1596–1600.
- Petraglia, Michael, D.LaPorta, Philip, Paddayya, K.1999. The First Acheulian Quarry in India: Stone Tool manufacture, Biface morphology and Behaviours. Journal of Archaeological Research 55, 41-70.
- Rajaguru, S.N.,et.al. 1994. A Fresh Look at the Quaternary Lithostratigraphy of a Part of the Central Narmada Valley, Narsinghpur District, M.P. Eds.Dikshit, K.R. Kale,V.S.
- Kaul, M.N. India Geomorphological Diversity. Rawat Publishers. 435- 452.
- Sankalia, H.D. 1974. Prehistory and Protohistory of India and Pakistan. II Edition. Deccan College Poona.
- Schick, Kathy D. Clark, J.D. 1994. The Movius Line Reconsidered Perspectives on the Earlier Paleolithic of Eastern Asia. In Corruccini, R.S.Ciochon, R.L. (Eds.) Integrated paths to the past:Palaeoanthropological advances. Prentice Hall. 569-596.
- Schick, Kathy D. and Toth, Nicholas.2006.An Overview of the Oldowan Industrial Complex: the sites and the nature of their evidence. In Toth, Nicholas and Schick, Kathy D (Eds.) *The Oldowan:Case Studies into the earliest Stone Age*. Bloomington Stone Age Institute Press.3-34.
- Sellet, Frederic.1997. Chaine operatoire: the concept and its application. Lithics. Vol.18 (1&2). 108-112.
- Shipton, Ceri. Petraglia, Michael D. Paddayya, K.2009. Stone tool experiments and reduction methods at the Acheulean site of Isampur Quarry, India. *Antiquity* 83, 769-785.
- Tewari, H.C.et al. 2001.A tectonic model of the Narmada region. *Current Science*, Vol.80, No.7., 873-878.
- Toth, N.1985. The Oldowan Reassessed: A Close Look at Early Stone Artifacts. Journal of Archaeological Science. Vol. 12. 101-120.
- Toth, N. Schick, Kathy D.2007. Overview of Paleolithic Archeology. Handbook of Paleoanthropology. Springer. 1943-1962.