

ADAPTATION PATTERNS DURING THE LATE STONE AGE IN BASTAR DISTRICT,  
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Microlithic industries constitute the most well-represented phase of the Stone Age in India. They occur in stratified as well as surface contexts. In number, the surface occurrences exceed the stratified sites, although the information obtained from the former generally tends to be meagre and insignificant when compared to that gleaned from excavations such as Bhimbetka and Adamgarh in Madhya Pradesh (Misra et al. 1977; Joshi 1978), Bagor in Rajasthan (Misra 1973), and Sarai Nahar Rai and Mahadaha in Uttar Pradesh (Sharma 1973; Sharma et al. 1980).

To add to the disadvantages of shallow surface stations the acidic soil conditions in a majority of areas do not allow organic remains to be preserved, and this greatly hinders the process of interpreting prehistoric subsistence patterns. In recent years, however, a number of studies of surface sites (e.g. Jacobson 1980; Murty 1981) have demonstrated their potential for providing valuable insights into the past.

The discovery of 49 microlithic assemblages in east-central Bastar, the southernmost district of Madhya Pradesh, has provided another opportunity to understand the significance of such sites.

SALIENT FEATURES OF THE BASTAR MICROLITHIC INDUSTRY

1. The study area covers 107.52 sq. km. around the Chitrakot Falls, along the Indravati river. The sizes of the sites range from over 20,000 sq. m. down to 25 sq. m. or less.
2. All the sites are located within one kilometre of perennial sources of water, that is, along the Indravati river and the major streams draining into it. It is interesting to note that the settlements of the Kuruk fishermen who now inhabit this area are contiguous with the Stone Age sites.
3. Over 90% of the Bastar industry consists of chipped waste such as flakes, cores, worked and unworked pebbles, and chips. The blades can be divided into two categories, namely retouched and unretouched pieces. The former comprise crescents, blades blunted on one straight edge, points, triangles, and a few obliquely truncated and penknife blades. Among blades as a whole, however, about 55-60% are simple, unretouched, parallel-sided bladelets. Scrapers only constitute 0.3% of the assemblages, and burins and borers are conspicuously absent.

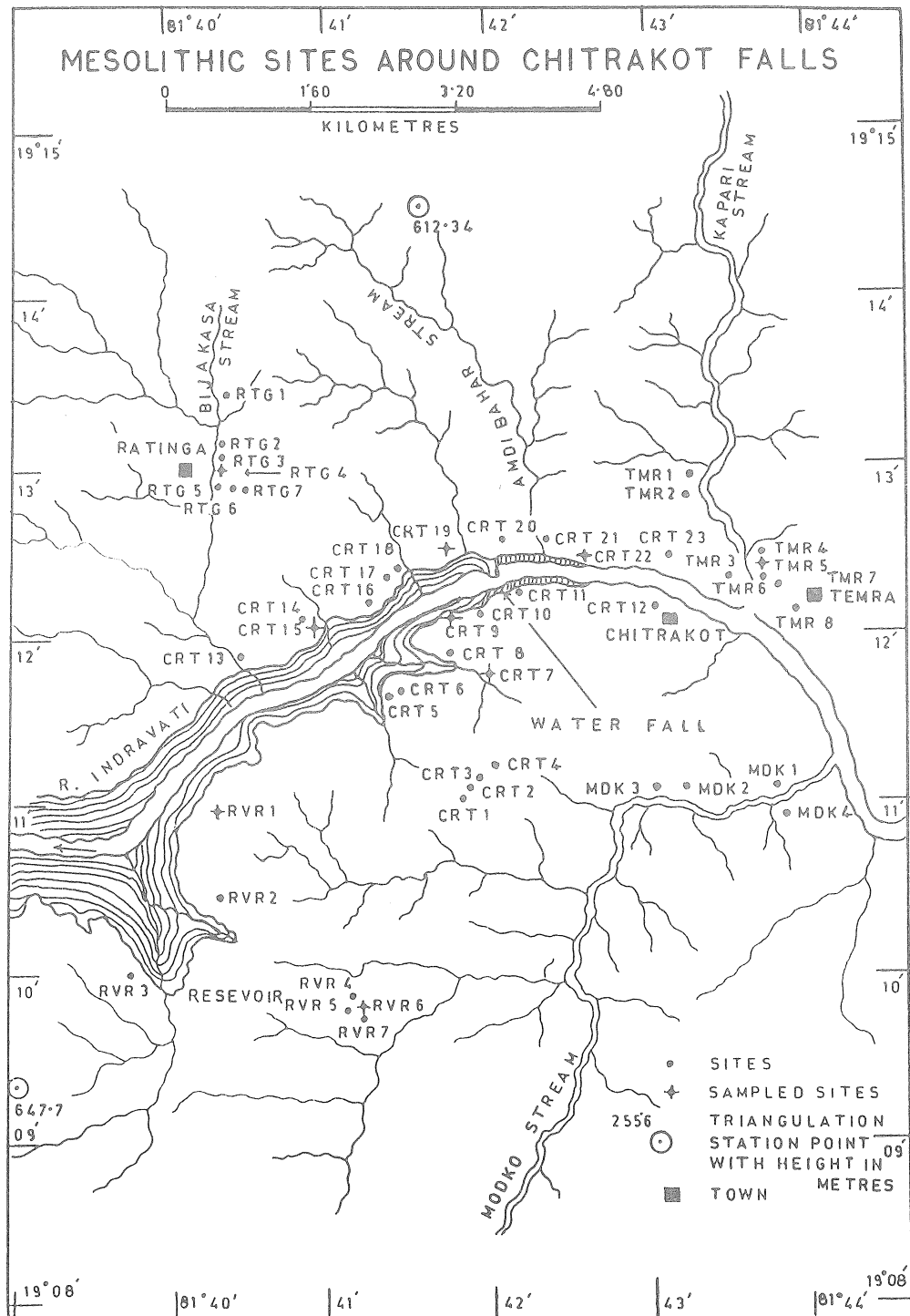


Figure 1. Mesolithic Sites around Chitrakot Falls.

4. Quartz is the predominant raw material used, while chert, quartzite, and chalcedony are represented in smaller quantities.
5. On typological grounds, as well as from the absences of pottery, metal objects, or any other features associated with early farming communities, the industry around Chitrakot has been ascribed to the Mesolithic, although it is difficult to say whether it belongs to an earlier or later phase of this period.

#### THE ENVIRONMENT

In this study, a survey of the environment has played a key role in helping to identify the factors that might have determined land use and the patterns of settlement in the past. The plateau topography is formed by the horizontally disposed, resistant quartzites and sandstones which occur as a capping over the older Archaean metamorphics. The quartzitic sandstones are interbedded with shales that have generally been eroded away where exposed at the surface.

Wherever the basal sandstone has been exposed the artifacts are generally concentrated in clusters in rocky depressions, although on the isolated exposures of shale they occur in fairly even scatters. On the sites examined so far the depth of soil varies from 10-40 cm., and microliths occur both on and below the surface. However, stream and river sections in this particular area are devoid of artifacts.

The courses of major streams are controlled by fracture lines and they form deep gorges before they join the Indravati river. By far the steepest and widest gorge has been cut by the Indravati itself as it plunges off the North-Eastern Plateau to form a magnificent horseshoe waterfall at Chitrakot. The height of the waterfall is 28.5 metres and the immense pool that it forms is 183 metres wide.

In terms of the richness of the biome there are no other ecozones in the Indravati valley that parallel the Chitrakot Falls and the gorge, for here one can find over 35 species of wild edible plants and a variety of animal life. The river contains 43 species of fish of which at least 13 have been identified at Chitrakot.

The vegetation is of mixed deciduous type, although certain species are found only along the watercourses. For example, edible plants like the 'chiur' grass (*Cryptocoryne retrospiralis*) grow in great profusion in the gorge throughout the dry season.

From the point of view of the availability of lithic raw material the sandbars in the gorge are one of the main sources. A few kilometres further upstream, on the northern bank near the

village of Temra, large nodules of chert lie embedded within the shale, and in numerous places they have been exposed by erosion.

With regard to the accessibility of food and water, sites generally overlook spots where the sides of the gorge have crumbled to form a natural stairway to the sandbars, and they also occur along streams at places where they can be easily crossed but which are free from overflowing during the monsoon. When viewed in the light of these facts, it is hardly surprising to find that well-worn footpaths traverse the open-air stations and are regularly used by the villagers.

#### METHODS OF STUDYING THE SITES

The main aim of this research project was to find an explanation for the high density of sites in this area, especially along the watercourses, and to try to explain the predominance of flaked waste or debitage. The process of investigation involved selecting 9 sites (CRT-7, CRT-9, CRT-15, CRT-19, CRT-22, RTG-4, RVR-1, RVR-6, TMR-5) which were considered representative of the different environments in the study area. The selected sites were first mapped, and it was noted that the artifacts occurred either in discrete clusters or in more diffuse scatters over the soil. On each site, about 25% of the clusters were then chosen at random and sampled.

The total number of clusters thus sampled was 239, and they had an average size of 1.20 sq. m. It was observed that in 65% of the clusters the soil cover was 2 cm. or more in depth, enough to support a scanty grass cover that would have reduced the degree of displacement of the artifacts.

#### MAIN RESULTS OF THE STUDY

In the initial stages of the study, two facts helped to disprove the hypothesis that the sites were essentially factory or workshop stations.

1. In the first place, the sites located along the gorge and those near Temra (the two principal sources of quartz and chert, respectively) do not have higher percentages of debitage than those situated farther away from these two sources. Moreover, the greater proximity of some assemblages to these sources has not resulted in a predominance of either quartz or chert.

2. Secondly, there are no microliths or any habitation evidence in the caves and rock shelters around Michanar, 15 km to the south of Chitrakot. This suggests that the principal area of habitation during the Mesolithic is likely to have been close to the river. The locations and sizes of the sites, therefore, seem to have

depended more upon the opportunities for exploitation available in the different ecozones along the river valley than upon the occurrences of lithic raw materials.

3. One of the most interesting facts that has emerged from the typological analysis concerns the dichotomy in the types of blades. Although, when considered collectively, there are larger numbers of plain or unretouched blades than retouched, the former apparently did not serve as blanks that were meant to be worked to the required dimensions. In fact, the unretouched blades appear to be a distinct class of tool since most of them are made of chert, while the majority of the retouched blades are made of quartz. Variations in breakage patterns also reveal differences between these two subtypes, for 67.56% of the retouched blades are broken at the proximal or bulbar end, whereas 56.38% of the simple microliths are snapped off at the distal end.

Perhaps this can be attributed not only to the types of stone used, but also to distinctive methods of hafting and to the various functions that these implements were meant to serve. For example, crescentic blades, penknives, triangles, points and blunted-back blades may have served as tips and barbs for projectiles such as arrows, spears and harpoons. Simple, parallel-sided bladelets on the other hand could have been multi-purpose tools that were meant to be utilized largely on a living site or in its immediate environs.

Interestingly enough, neither length, breadth or thickness appear to be distinguishing factors between the two types of blades, though the ones on chert tend to be longer and wider by a slender margin of only 1 or 2 mm. This is because the mean dimensions of chert pebbles exceed those of quartz by a few millimetres. The average lengths, breadths and thicknesses of blades in general are 1.6 to 1.4 cm., 0.6 cm. and 0.3 cm. respectively.

4. Moreover, quantitative relationships and distribution patterns indicate that all the lithic components in sites, from blades to cores, flakes and chips, tend to occupy different areas. These different areal frequencies seem to form interrelated patterns which may have been controlled by well-established social traditions that probably continued for a considerable period of time, as indicated by data from test-pits. It is common to find higher concentrations of chips in the parts of sites that overlook or are nearest to watercourses. Pebbles tend to be inversely proportionate to chips, as are blades to cores.

5. On the bases of artifact frequencies, distribution patterns, the varying distances of sites from water, and the differences in the ratios of blades to blade scars on cores, it has been possible to make an arbitrary division of the sampled sites into two groups.

The locales in Group I (CRT-7, CRT-15, RVR-1, RVR-6) are situated between 200 and 980 metres from water and they contain higher percentages of retouched blades, although the simple blades predominate on all the sites. The retouched pieces are scattered in the parts of the sites that are farthest from water, while the blade cores occur at the nearer ends. These sites are characterized by a higher number of chips and a greater use of quartz. Another distinctive feature is that there are more blades than the numbers of blade scars on cores.

In contrast, the assemblages of Group II (RTG-4, CRT-9, CRT-22, TMR-5) are located only 35-110 metres from water, and are exceptionally rich in all types of tools as well as in debitage. This group of sites has yielded most of the scrapers. Moreover, the number of blade scars exceeds that of blades, thereby suggesting that the assemblages concerned not only reflect intensive knapping activities and those associated with the repair and maintenance of tools made of stone and other materials, but also mark the locales that were most convenient for undertaking activities like fishing, hunting, and the collection of plants.

Although it is difficult to ascertain which group of sites was more closely associated with the 'living' activities of a family or a band of people, it appears that the dominant features of these two types of sites are combined in CRT-19 (Cooper 1983), which is one of the largest open-air stations, covering an area of 18,660 sq. m., and overlooking the Chitrakot Falls. Sections 'C' and 'F' on this site are the only areas that are directly accessible to the sandbars in the gorge, and they contain a higher proportion of blade scars in relation to the number of blades. In addition, they provide clear evidence of the transportation of lithic raw material to the site, and the conveyance of the finished artifacts to the gorge. It is also from these two zones that pebbles and nodules were transferred to other areas on the site, especially chosen for the manufacture and use of certain tools. Thus, there is a striking resemblance between the sites of Group II and sections 'C' and 'F' on CRT-19.

On the basis of the occurrence of retouched blades and the marked increase in small chips, the western part of CRT-19 may be compared with the Group I sites, though it is not possible to discern further similarities as the latter exhibit a smaller degree of uniformity in intra-site distribution patterns than do the assemblages of Group II.

It must be noted that the two types of sites recognized so far are not typical of or confined to a particular ecozone, but are scattered throughout the study area. This implies that two sites which may occur close together in one locale but at varying distances from water could differ in terms of frequencies and the

distributions of artifacts. However, although such stations may represent different activities, they could nevertheless have served a combined function relating to the exploitation of certain resources as well as to other activities typical of a base camp. In other words, a particular set of opportunities for exploitation is not necessarily associated with just one site but may have entailed the allocation of vital functions to two or more stations within one locale. Therefore, these sites were probably used simultaneously for different purposes, depending upon the resources to be exploited and the time of year.

It is also possible that the ecozones that provided abundant food resources were inhabited for a greater part of the year, while others supported only transient encampments. A tendency towards a greater reliance upon aquatic resources undoubtedly led to increased sedentism and the development of a specialized economy that was best suited to a riverine environment.

The site of CRT-19, which comprises the distinctive aspects of the two groups mentioned above, has a unique location near the waterfall with its diverse food resources. The clusters of smaller stations along the streams, on the other hand, represent an adaptation to a different set of circumstances which required a network of separate but interdependent encampments.

The complex arrangement of sites and their contents suggests the existence of highly efficient subsistence strategies that availed of the rich biomass and made long-term settlement in the region possible. As the sandbars and the major pools in the Indravati river are flooded during the monsoon, and hunting is rendered difficult because of the dense undergrowth, large aggregations of people were probably compelled to break up into smaller groups and take to fishing along the smaller streams with the aid of traps and weirs. Plant foods and edible fungi may have also attracted forays into the forests away from the river. On the whole, therefore, conditions in this area were such that human habitations tended to be concentrated along the watercourses rather than elsewhere. Social organization must have been flexible enough to minimise territoriality and to permit bands to congregate and co-operate with each other with relative freedom.

#### THE KURUKS

A study of modern Kuruk fishermen, who are a sub-caste of the Maria Gonds, demonstrates the potential of this area to support fairly large groups. The juxtaposition of the prehistoric sites with the houses of the fishermen and the continuation of traditional fishing and collecting methods of extracting food, in spite of the introduction of agriculture, provided an excellent insight into the subsistence strategies which might have been used by the makers of

the microliths. The extent to which the dwindling forests still supply the tribal people with building materials, fuel, plant foods, and medicinal plants is indeed remarkable.

An examination of 48 catches from and around the great pool formed by the Chitrakot waterfall revealed not only the diversity of aquatic fauna but the size ranges of various fishes and the wide variety of fishing tackle and gear that are specially adapted to the catching of different species - from small crustaceans to the Rita buechanani that attains a length of well over one metre. In fact, one can observe at least three different methods of fishing being employed here in one afternoon. It is small wonder then that the largest sites are located here and that microliths cover extensive areas at points along streams where weirs are usually built today.

The dry summer months mark the peak of the fishing and hunting season. As most of the large game has now been decimated, hunting with the bow and arrow as well as with sticks and nets is restricted to smaller mammals and birds. The latter, along with fish, constitute the chief sources of protein in the diet of the fisherfolk. And although much of their sustenance is obtained from cultivated grains and cereals, the local population is hardly affected by crop failure as the gorge still preserves some forest cover and thereby offers abundant plant foods. In spite of the fact that the current system of subsistence and the species exploited cannot be expected to be exactly similar to those of the past, it is noteworthy that many foraging techniques practised today in this region are depicted in rock paintings in the caves and shelters around Bhimbetka in Raisen district of Madhya Pradesh (Mathpal 1978). Some of this rock art is ascribed to the Mesolithic and indicates the widespread use of several hunting, fishing and gathering methods that still play an important part in the rural economy, not only in Bastar but in many other regions of the Indian peninsula where the environment is less disturbed by the encroachment of agriculture.

Amongst the Kuruks, sexual differences in the division of labour are not too marked and work tends to be divided according to the physical capacity of an individual. For example, strenuous tasks such as the manufacture and use of large fishing nets and hunting are generally undertaken by young men, though women and children are also permitted to catch fish, albeit the smaller ones. The collection of plant foods is mainly the responsibility of the women. However, during periods when certain plants are available in great abundance, entire families will participate in gathering them.

The Stone Age knappers apparently belonged to a large population unit comprising groups and bands that enjoyed a wide scope for intercommunication and the freedom to migrate and settle



in the places of their choice. In due course, as a result of population pressure, the adoption of farming, and the need to exercise territorial rights, the freedom of movement was curtailed and the opportunities for intermixture among groups gradually decreased. The Kuruks can no doubt trace some of their ancestry to these early settlers, though a direct line of descent cannot be established because of the fluid structure of society that has prevailed in the past and which has allowed a continuance of local migrations until fairly recently.

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