

South Orissa Prehistory—The First Record of Stone Age Tools

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INTRODUCTION

THE subcontinent of India has yielded large numbers of stone age sites and stone age artifacts. The distribution of sites covers almost the whole of India. The occurrence of stone age implements in Orissa was first reported by V. Ball in 1876. The four important tools of the early stone age facies that Ball recovered from Dhenkanal, Kudabaga, Harichandanpur and Kaliakata were publicized, but somehow or other these important discoveries did not inspire anyone to serious research. Systematic prehistoric research in Orissa began only when P. Acharya and E. C. Worman discovered the famous lower palaeolithic sites at Kuliana in Mayurbhanj, in 1939. Since then the state has been systematically and scientifically surveyed by Acharya, Bose and Sen (1948), and Mohapatra (1959, 1960, 1961).

From 1957 to 1959 Dr. G. C. Mohapatra made extensive investigations in the districts of Dhenkanal, Sundergarh, Sambalpur, Keonjhar and Mayurbhanj, covering an area of 16,000 square miles. These districts all lie to the north of the Mahanadi River, which divides Orissa into northern and southern halves. Mohapatra wanted to explore the whole of Orissa, but circumstances prevented his plans from materializing. However, such rivers as the Mahanadi, the Baitarani, the Brahmani, the Khadakei and the Burhabalanga, along with their numerous tributaries, have been thoroughly surveyed for pleistocene deposits containing stone age relics.

In spite of these efforts, the southern parts of Orissa remain completely unexplored. A century has passed since the first report of prehistoric tools in Orissa, but the prehistoric cultures of South Orissa are still unknown. It may be presumed that the peoples of this culture lived in almost all of the river valleys of Orissa. The author has begun a project of exploring river valleys and prehistoric sites in the vast area of South Orissa, comprising the districts of Ganjam, Bolangir, Kalahandi

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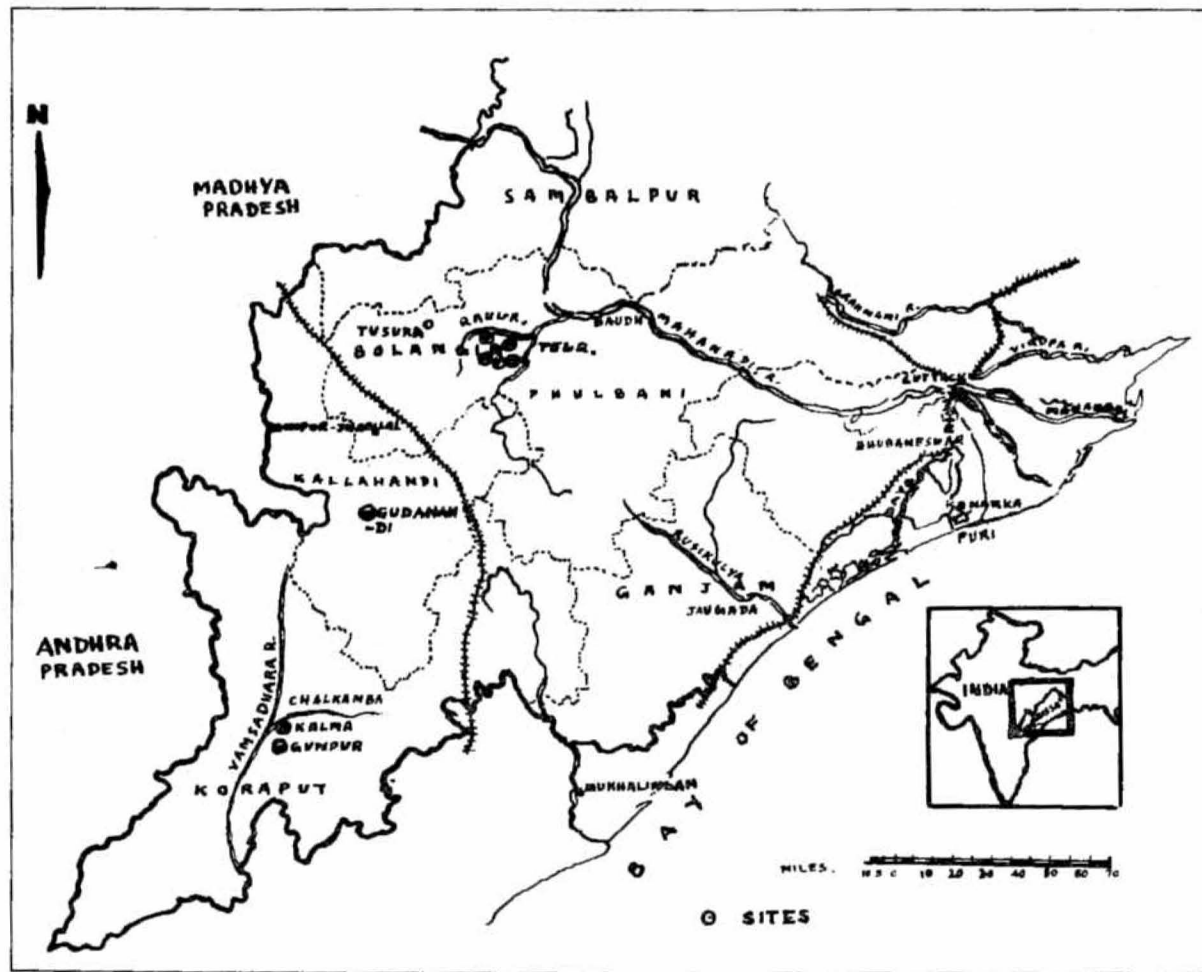


Fig. 1 Distribution map of Stone Age sites in South Orissa.

Koraput and Phulbani (Fig. 1). More specifically, he proposes to survey the banks of the main rivers, such as the Vamshadhara, the Tel, the Hati, the Kolab, the Risikulya and part of the Mahanadi, for pleistocene remains.

This work was initiated with a small grant from the University Grants Commission, New Delhi, and also from the Department of Anthropology, Utkal University, Bhubaneswar. At the present time surface exploration work has been completed in the major districts. It has been possible to locate prehistoric tools in two districts, Bolangir and Koraput (Tripathy 1967a).

GEOLOGY

Orissa, situated in the northeastern section of the Indian peninsula, is an extensive plateau sloping gently into a coastal plain along the Bay of Bengal. Physiographically, Orissa comprises two distinct regions, the northern plateau and the Eastern Ghats. These regions are separated by the Mahanadi, which flows east-west through the plateau.

The following are the main geological features represented in Orissa, arranged in order, youngest to oldest:

1. Recent—alluvium, windblown sand, etc.
2. Pleistocene—raised beaches, older alluvium, laterite (in part).

In 1866 the first Indian palaeolithic implement was reported by Bruce Foote from a laterite pit at Pallavaram in Madras. The formation of laterites is also very important in Orissa because of their toolbearing evidence (Ghosh 1966). Palaeoliths have been found in sites either in the river sections or in the laterite pits.

Orissa has a variety of rock of different ages. On the south side of the Mahanadi, the distribution of strata is as follows: (1) Alluvium; (2) Gondwana; (3) Cuddapah; (4) Precambrian.

The rest of the terrain has khandalite, granite, charnockite, and quartzite as important rocks, of which the last is suitable for tools. There are occasional basalt eruptions. In certain areas, therefore, tools of basalt cannot be ruled out. Chert is an important raw material for the tools of the middle and late stone ages. Veins of chert, bedded chert and quartz are also found in most localities, and the use of such raw materials for preparation of tools by prehistoric man can certainly be expected. But the younger sediments of sandstone, shale limestone and Cuddapah or Gondwana, which show a spatial distribution in these localities, are not at all worth considering as a raw material for the production of implements.

RIVER SYSTEMS

For 88 of its 173 miles, the Vamshadhara river flows through the district of Koraput (Fig. 1). The river serves for some distance as the boundary between the district of Ganjam in Orissa and the Srikakulam district of Andhra Pradesh. Rising in the extreme north of the Tahasil of Bissamcuttack, it has small tributaries, but the main channel widens at Gudari, flows past Gunupur, and empties into the sea at Srikakulam.

The Tel, a river in the Bolangir district, rises in the northwestern part of Kalahandi district and empties into the Mahanadi near the town of Sonapur. For

about half of its length it forms the boundary between the states of Kalahandi and Panda, and through the rest of its course forms the boundary between the states of Sonepur and Baudh. Its chief tributaries are the Hati, the Sunder, the Raul and the Suktel.

The rivers are fed mainly by rainwater. They carry a comparatively small volume of water: many of the small ones flow sluggishly or dry up in places.

SELECTION OF AREA

Information received early in the project suggested that prehistoric sites might be located in and around Gunupur in the district of Koraput, Orissa. In addition, some areas in the district of Bolangir appeared promising for prehistoric work after a small number of prehistoric tools was picked up by a research officer of the Tribal Research Bureau, Government of Orissa, while he was working among the Desia Khonds. Accordingly, the author surveyed a large area in the districts of Koraput and Bolangir during 1967 and 1968, and located several prehistoric sites with a large number of prehistoric implements and mammalian fossils. The main aim of the present study is to report the results of field explorations in different sites of South Orissa in order to study the stratigraphy and typology of prehistoric tools.

SITES AND STRATIGRAPHY

An occurrence of prehistoric tools in South Orissa was first located in 1966. At this writing a total of 7 implement-bearing sites have been located in the districts of Koraput and Bolangir. The sites are situated in the valleys of two main rivers with their several tributaries. The distribution of sites is summarized in Table 1.

TABLE 1. PREHISTORIC SITES REPORTED AND EXPLORED IN SOUTH ORISSA

DISTRICT	RIVER	EARLY STONE AGE	MIDDLE STONE AGE	LATE STONE AGE	POLISHED STONE TOOLS
Ganjam	Risikulya	—	—	—	Jaugarh (reported)
Koraput	Vamshadhara		Kalma		
	Sana nai (tributary)	—	Chalkamba	—	—
Bolangir	Tel	—	Bhuanpara	—	Kharligarh
	Raul		Madabhati		(Tripathy 1967b)
			Ratakhandi		
			Khalarkalan		
			Sandi sara		
			(explored by author)		

Out of the seven sites listed in Table 1, only two have yielded tools from the stratified horizons. The rest of the sites from which tools have been collected were in either dried-up river beds or fields. The details of the sites visited are given below.

*Koraput**Kalma (stone age site)*

Kalma is a small village located four miles from the town of Gunupur. It is on the right bank of the river Vamshadhara. Tools of the middle stone age were found in the bed of a tributary known as Sana nai. The site lies in the south-southeast of Kalma. The implements are very near a prominent hill containing quartz veins and khandalites. The cultivated fields around the site are covered with brown and black clayey soil apparently deposited by river floods. The small number of implements collected from the site consists of scrapers, blades, points (flake-blades) and some unclassified implements made on various kinds of silica materials such as chert (fine grained), jasper, and chalcedony.

The fossil site

The fossil site is very near the village of Kalma, on the right bank of the Vamshadhara. The site yielded various types of mammalian fossils consisting of molars, premolars, incisors, and a large number of long and short bones. The teeth probably belonged to horse and wild buffalo. The cusp pattern is clearly visible and shows a distinctive feature. The incisor roots are elongated and the molar roots are short. The long bones collected probably belong to the thigh region of the leg, but it is very difficult to identify them properly due to heavy fossilization.

*Bolangir**Kharligarh*

The site is nearly seven miles from Jamut, two miles from Bhuanpada, and nearly fifteen miles from Tusura, a small town in the district of Bolangir. It is located on the right bank of the river Raul, which is an important tributary of the Tel. The site is reported to be historic, as a large amount of evidence has been accumulated from the area. The site has three to four mounds of red silt and kankars, and the height is approximately 40 to 50 feet. A cliff section has been exposed which shows a layer of bedrock, red silt and the mound containing pebbles and other pieces of rock. A small number of middle palaeolithic implements, some made on chert and some on jasper, was obtained from the river bed.

Madabhathi

The site, nearly one and a half miles from Kharligarh and a half a mile southeast of Bhuanpada, is located on the left bank of the river Raul. This site is opposite the village of Khaarkalan, located on the right bank. The cliff section exposed shows at water level a four-foot deposit of small and large gravel. At the top appears a layer of red silt measuring approximately 15 feet in thickness. No tool could be obtained from this section, but it was possible to collect some cores from the paddy above the surface soil.

Ratakhandi

The site is nearly two and a half miles from Bhuanpada, the confluence of the Raul and Tel rivers. Here a section has been examined which shows coarse gravel

cemented above the water level. Above this there is a layer of small gravel approximately one foot thick which is overlain by a ten-foot layer of red silt at the top. Tools of the middle stone age were found in the layer of fine gravel.

Sandi sara

The site is four miles from Jamut and a half mile from the main bank of the Tel. The site is located on the left bank and has an east-west orientation. Examination of the river sections proved that at some places small prehistoric implements occur.

Bhuanpada

Bhuanpada is five miles east of Tusura. The village is bounded by the river Tel on its western and northern sides at a distance of four miles and one mile respectively. It is bounded by the river Raul on its southeastern and western fringes at a distance of two miles beyond the historic site of Kharligarh. The name Bhuanpada suggests that originally it was inhabited by the Bhuyans, a tribe of the Mundari group. The locality is very important from the point of view of prehistory.

RAW MATERIAL

Analyzing the raw materials, cores and middle stone age tools of different sites of Orissa, one finds that those who engaged in this industry generally made use of fine grained rocks. Chert, jasper, and fine grained quartzite, the chief raw materials, were used for the manufacture of these stone age implements.

TERMINOLOGY

Unfortunately, the choice of a suitable nomenclature for the different lithic cultures of the Indian subcontinent presents a problem.

From the first discovery of palaeolithic implements in India until the mid-twentieth century, terminologies used in Indian prehistory were very much influenced by the European context. Now, however, Indian prehistorians seem to be divided into two groups on the question of terminology. One group still adheres to European terms like Palaeolithic, Mesolithic, and Neolithic. According to this group, the palaeolithic cultures of India can be divided into lower, middle and late Stone Age.

1. The hand-axe, cleaver and pebble chopper-chopping tool traditions of India undoubtedly started during the Middle Pleistocene. Throughout India they occur in a more or less similar stratigraphic context, coarse gravel and secondary laterite. This phase is known as the early Stone Age.

2. The early Stone Age comes to an end with the introduction of flake tools of similar dimensions. This phase, with a majority of flake and blade implements which present a definite culture trend in technique, typology, and raw materials, is known as the middle Stone Age.

3. A large number of small tools (microliths) seem to have succeeded the flake tools. They present us with a different typology, technique, and stratigraphy. The small tools are included in the late Stone Age. This culture in all probability belongs to the Holocene. Although the subdivisions of the Pleistocene are more or less

arbitrary, the threefold terminology of the palaeolithic culture—early Stone Age, middle Stone Age and late Stone Age—is used in this paper. But for clarity, the stone age industries have been strictly classified on typo-technological grounds into chopper-biface element and flake element, as they are found to occur in different stratigraphic contexts. These two cultural elements are succeeded, however, by flake blade elements.

STRATIGRAPHY AND TECHNIQUE OF MANUFACTURE

Stratigraphically the tools occur in a layer of fine gravel above a layer of clay or red silt. There are some sites like Kalma and Ratakhendi where the tools of middle stone age cultures occur in a clear stratigraphical context. In general, the tools are made on small flakes.

The common marginal retouches always occur and the tools provide a natural sharp edge or tip. The large number of tools do not show much weathering or rolling, and they look almost unworn. The tool-types include scrapers, borers, burins, points, utilized flakes, cores and nodules, etc.

TYPOLOGICAL CLASSIFICATION

On the basis of typological characteristics, the total collection of 118 implements has been classified into the main tool types listed in Table 2.

TABLE 2. TYPOLOGICAL CLASSIFICATION OF IMPLEMENTS

LOCALITY	REGULAR TOOL TYPE	FLAKES	NODULES	BLADES	REJECTS	TOTAL
Kalma (Koraput)	14	6	5	10	9	44
%	31·82	13·63	11·36	22·72	20·46	99·99
Bolangir	28	13	11	12	10	74
%	37·83	17·58	14·86	16·21	13·51	99·99
South Orissa	42	19	16	22	19	118
%	34·82	15·62	13·11	19·46	16·98	99·99

Nearly all of the tools seem to have served only two purposes: scraping (scrapers) and piercing (points and borers). A few large scrapers served the purpose of cutting and hacking, but their number in the present collection of tools is very small. Presented below are typo-technological descriptions of a small number of tools included under "regular tool type." The abbreviations used denote the following localities: G.P (Gunupur), K (Kharligarh), R (Ratakhendi), and M (Madabhati). Specimens described here are shown in figures 2 and 3.

Scraper

There are two main types of scrapers in the present collection, namely the scraper and the point-shaped scraper.

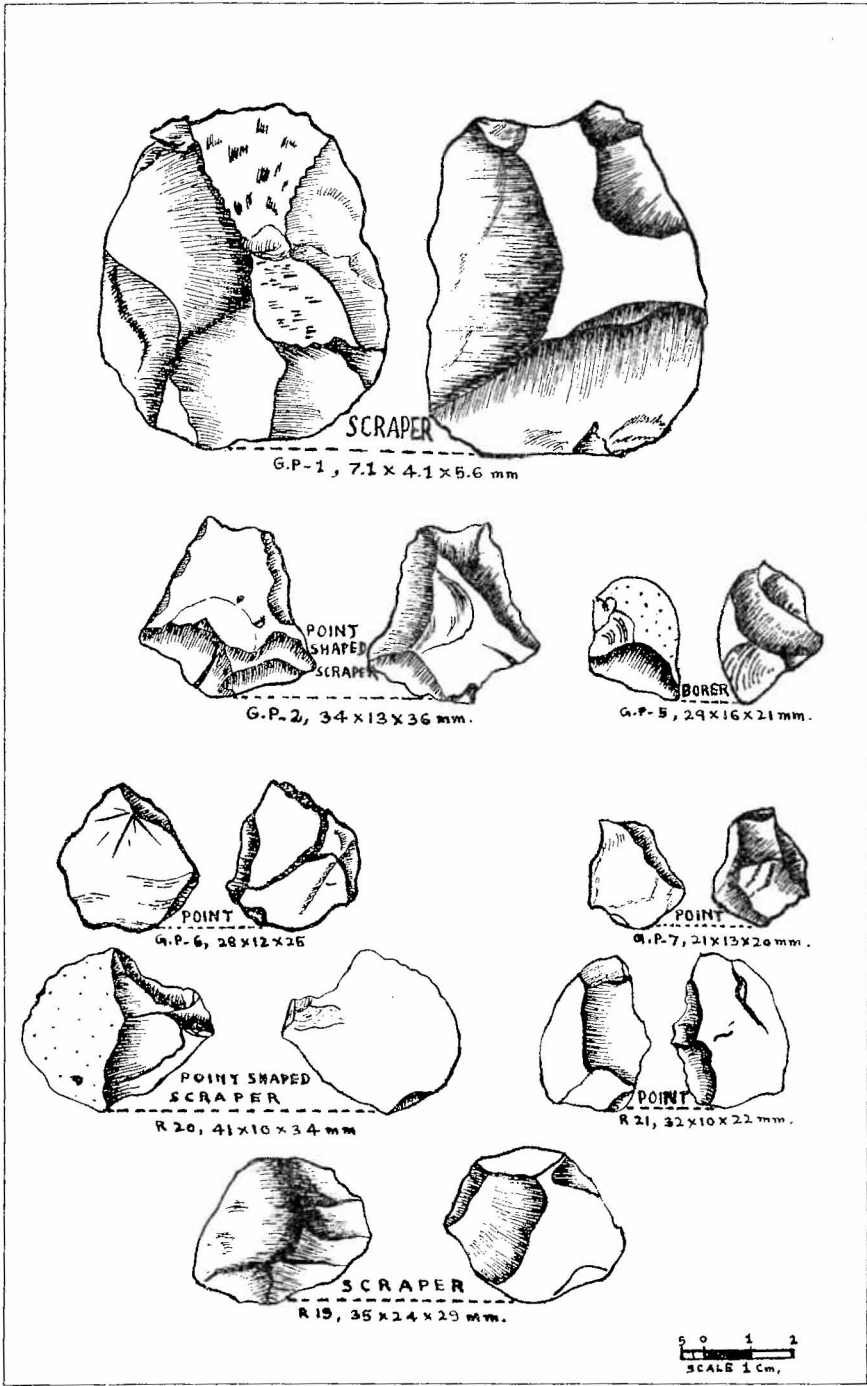


Fig. 2 Stone Age tools from South Orissa.

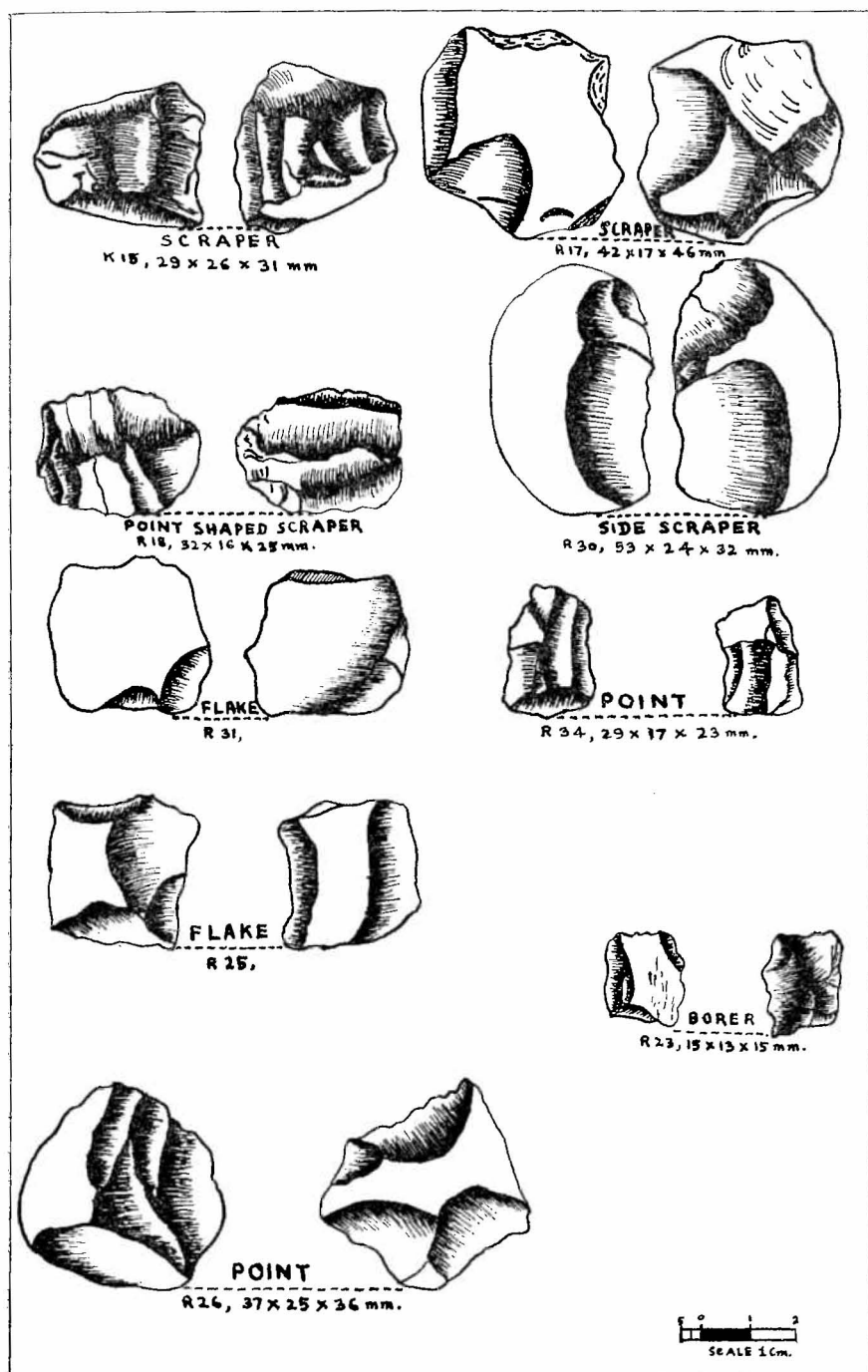


Fig. 3 Stone Age tools from South Orissa.

G.P-1 (Scraper)

71 × 41 × 56 mm, red jasper, both surfaces flaked, cutting end showing beautiful retouches done from ventral surface, butt end blunt, marks of use and battering, unpatinated, moderate weathering.

Point-shaped Scraper

The scrapers in this group have a sharp cutting end resembling that of a point. The main requirement of a point is a fashioned tip.

G.P-2

34 × 13 × 36 mm, red jasper, upper surface showing a portion of cortex, thick unworked tip, slightly rolled.

K-15

29 × 26 × 31 mm, jasper, roughly triangular, thick tip resembling that of a borer, slightly trimmed by some vertical strokes dealt from top and sides from both surfaces, unworn. Perhaps this is an unfashioned borer which was definitely intended to serve as a scraper.

R-18

32 × 16 × 25 mm, black chert and dark brown in color, cutting end sharp, thick blunt tip, tool possibly used as crude borer or point, straight scraping edge throughout, slightly rolled.

R-20

41 × 10 × 34 mm, red jasper, colored dark due to weathering, obverse surface slightly concave, reverse surface with patch of original cortex, retouched only on both edges from the flake surface, tip resembling that of a borer, slightly rolled.

Point

Among the regular tool types, points stand next in number to the scrapers. The sides of some specimens show indentations resulting from use rather than from intentional retouching. The secondary trimming is mostly marginal, and retouch is confined to the edge and top only. A majority of the specimens are made on end flakes, and very few side flakes are used. On some specimens the attempt to reduce the thickness of the base is marked. Moreover, some points were made from thick flakes, and in these cases the tip was shaped by means of retouch, but the sides were left untrimmed. Technological descriptions of some typical points are given below.

G.P-6

28 × 12 × 25 mm, chert, triangular end flake, central ridge on upper surface, plain platform and diffused bulb, edge and tip retouched from upper surface, thick unworked base, slightly rolled.

G.P-7

21 × 13 × 20 mm, red jasper, broad, thick and sharp tip, thin base, all flakes removed from surface to reduce thickness of body of implement, unworn.

R-21

32 × 10 × 22 mm, made on chert, implement broad and triangular, thin end flake, marginal retouches up to tip, broad, thin and sharp tip, thick base, unworn.

Borer

Borers are comparatively very few in number. Some typical borers are described below.

G.P-5

29 × 16 × 21 mm, red jasper, roughly triangular, upper surface flaked, only one end retouched from both surfaces, unnaturally pointed thick and blunt borer tip fashioned by removing two flakes from upper surface, unworn.

R-23

15 × 13 × 15 mm, black chert, roughly triangular, retouched on both edges mainly from upper surface, tip pointed and sharp, slightly rolled.

Flakes

Flakes and a few flake tools form 15.62% of the total collection. A majority of the flakes which are not included under "regular tool type" also show signs of use and may have been used as tools. Hence the culture may be called "flake tool."

Nodules

Nodules form 13.11% of the total collection. They are usually small, and the cortex covers more than half of the total area. Almost all the type tools have been made on suitable nodules.

Rejects

Rejects never show any mark of use or core for trimming. Possibly they are the waste products of this industry. Waste flakes and chips occur abundantly on the surface near chert and jasper outcrops. However, the author has carefully avoided collecting flakes and chips from them, because physical inspection alone reveals little difference between modern and prehistoric chips.

DISCUSSION

Apart from bringing to light stone age industries previously unknown in South Orissa, the author's fieldwork has broadened the sphere of investigation regarding the middle stone age industries of Orissa in general. Mohapatra has located twenty-nine middle stone age sites in the Sundergarh, Dhenkanal, Mayurbhanj and Keonjhar districts. The sites have been located in the valleys of the Brahmani, the Khadkei

and the Baitarani and their several tributaries. No fossil or any other positive evidence for dating was found from the horizons yielding tools.

On the basis of technological similarities among implements, South Orissa does not show much deviation from North Orissa. In India this culture is called by various names like series II, Middle Palaeolithic (Indian middle Stone Age of Subbarao 1958) and Nevasian, etc., but they all show basically uniform characteristics, with little or no regional variation. The tools are characterized by medium sized flakes which are prepared mostly out of fine-grained siliceous rocks, and show very little affinity with the hand-axe-cleaver industry of early Stone Age. The industry is further characterized by unprepared platform flakes. The tools of the industry usually occur in the fine gravels (gravel-11) in the cliff sections of rivers. Scrapers, points, blades and flakes are the main tool types of this industry. The tools were manufactured by the cylinder hammer and pressure flaking techniques.

As the industry is closely similar to the Nevasian, the middle stone age culture of South Orissa may be relatively dated to the upper Pleistocene period. The Nevasian has been dated on the basis of palaeontological evidence discovered at Kaligaon, Nevasa and Narmada valley (Sankalia et al. 1960). It was mentioned earlier that no fossil evidence has been obtained from North Orissa, but the discovery of fossilized mammalian remains from South Orissa may add positive evidence for dating the culture in the area as soon as the collected materials have been examined chemically. However, the approximate date of this industry of middle Stone Age of South Orissa, as in North Orissa, may be assigned to the period to which all other middle stone age industries of India belong, i.e., the upper Pleistocene, purely on the basis of typological and technological similarities.

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REFERENCES

- BALL, V.
1876 On stone implements found in the tributary states of Orissa. *Proc. Asiat. Soc. Beng.*, pp. 122-123.
- BOSE, N. K., and D. SEN
1948 *Excavations in Mayurbhanj*. Calcutta: Calcutta University.
- GHOSH, A. K.
1966 Implementiferous laterite in Eastern India. In *Studies in Prehistory: Robert Bruce Foote Memorial Volume*, edited by D. Sen and A. K. Ghosh, pp. 149-162. Calcutta: Firma K. L. Mukhopadhyay.

MOHAPATRA, G. C.

- 1959 Middle Stone Age industries of Orissa. *J. Palaeont. Soc. India* IV:35-50.
- 1960 *The Stone Age Cultures of Orissa*. Poona University Dissertation Series. Poona.
- 1961 Jasper and raw material for Stone Age artifacts. *Eastern India* 41(1):55-59.

SANKALIA, H. D., S. B. DEO, Z. D. ANSARI, and S. EHRHARDT

- 1960 *From History to Prehistory at Nevasa*. Poona.

SUBBARAO, B.

- 1958 *The Personality of India*. Baroda: M. S. University of Baroda.

TRIPATHY, K. C.

- 1967a Report on exploration of prehistoric sites along the Vamshadhara, Koraput, Orissa, Prakruti. *Utkal University Journal* (science) 4(1):55-59.
- 1967b Type-technology of Mayurbhanj neoliths, Orissa Prakruti. *Utkal University Journal* (science) 4:61-70.