PART IV

(COMPARISONS)
CHAPTER EIGHT

I. COMPARISONS WITHIN INDIA

The Early, Middle and Late Stone Age industries of Nalgonda are compared here with some of the areas within India and outside from the point of view of typology, technology and raw material. The stratigraphic correlation with a few selected regions in the Peninsular India has already been drawn earlier.

SOUTH INDIA

NAGARJUNAKONDA

Three kinds of raw material are used for three different industries: fine-grained quartzite for Lower Palaeolithic; fine-grained flinty chert for blade-scraper-burin industry; and silicious material, such as agate, chert and jasper for microliths. In Nalgonda, similar materials are used but chert is absent in the blade-scraper industry.

The Lower Palaeolithic of Nagarjunakonda contains the pebble-biface-flake tool elements which broadly agree with Nalgonda Early Stone Age tool assemblage. The pebble tool element forms a small group and the bifaces are in a marked majority and of wide variety in both the areas. The Abbevillian and the Acheulian

type of bifaces correspond to the Groups I and II of Nalgonda.

Most of the cleavers in both the areas are made on flakes obtained primarily by ‘side blow’ technique.

The 'Clacton' flakes correspond to the flakes with plain striking platform in the Nalgonda industry.

The flake tools of Levallois technique have no parallel in the Early Stone Age industry of Nalgonda. It is significant to note that these flake tools which have been assigned to the Middle Acheulian Stage are not associated with any other industry (in the Locality B). Further, the tool types include arrow-head, tanged points. There is no stratigraphic relationship either.

The microlithic industries of both the areas are essentially non-geometric in character. However, there are no almond-shaped points in Nalgonda. But basically in types and technique both the industries are similar.

Kapiga, 2

Five localities yielded 65 tools of the palaeolithic: pebble tools, crude Abbevillian bifaces and heavy Clacton flakes from Locality I; Abbevillian and Acheulian forms include proto-Levallois and Levallois flakes from the rest of the localities. But in Nalgonda, the pebble tools, crude and well finished bifaces occur together in all the sites. The Levallois flakes are absent in the industries of Nalgonda.

2. Sundararajan, op. cit., p.78.
Kurnool

The raw material used for the palaeolithic industries of the Nallamalais region is quartzite and occasionally indurated shale and quartz. In the Nallamalais, quartzite is used only for the Lower Palaeolithic industry and fine-grained materials like chert, jasper and slate are used for Middle and Upper Palaeolithic industries. The microlithic implements are made of shale, quartz and slate. Like the Nallamalais, in Nalgonda also quartzite is used. No cherty material is employed in Nalgonda Middle Stone Age industry, except the fine-grained quartzite.

The stone industries of Kurnool are comparable with their counterparts in Nalgonda as follows:

<table>
<thead>
<tr>
<th>Kurnool</th>
<th>Nalgonda</th>
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<tbody>
<tr>
<td>1. Lower Palaeolithic Stages I, II &amp; III</td>
<td>Early Stone Age Group I, II</td>
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<tr>
<td>2. Middle Palaeolithic</td>
<td>Middle Stone Age, Groups I and II</td>
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<td>3. Upper Palaeolithic</td>
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The range of tools represented in the Early Stone Age is more or less identical in both the areas in types and technique.

The significant outcomes of Isaac's study, subsequent to Cammiade
Burkitt⁴ and Soundararajan⁵, is that the pebble tools are found
in great number forming about 40%, when compared to the bifaces.
This feature is first brought to light in the Peninsular India.
These are found in constant association with bifaces, cleavers
and flakes that belong to a single culture. However, the number
of pebble tools in Nalgonda is less. The discoids noticed in
Nalgonda are not represented in Kurnool.

The Levallois flake tools found in the Middle Palaeolithic
of Kurnool are absent here. The bifaces continue in Kurnool but
they are not found in Nalgonda. The flake tools of 'unprepared
core' technique broadly compare with the flake tools of plain
flaking technique of Group I of the Middle Stone Age, and the
flake tools of 'prepared core' technique correspond with their
counterparts in the Group II. The fluted core technique that
yield blades is absent in Kurnool.

The Upper Palaeolithic which is present in Kurnool is not
represented in Nalgonda.

The microliths of Kurnool and Nalgonda are mainly obtained
by fluted core technique. The industries in both the areas are

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⁴ Cammiade, L.A., and Burkitt, M.C., "Fresh Light on the Stone
Ages in the South-East India", Antiquity, vol. IV, 1930,
pp. 327-339.

⁵ Soundararajan, K.V., "Stone Age Industries near Giddalur,
Kurnool District", Ancient India, no.8, 1962, pp. 64-92.
basically non-geometric in nature. Two geometric types present in Kurnool are the lunate and trapeze. It is the lunate alone that is represented in Nalgonda. Both the industries are unassociated with pottery and unstratified.

**Nellore**

Quartzite is used for pebble tools, bifaces, cleavers and other flake tools as in Nalgonda but quartz and chert are favoured for other smaller tools.

The pebble tools occur in small quantities as in Nalgonda. The cleavers of Nellore as that of Nalgonda are made on flakes primarily removed by Vaucl technique. The 'proto-Levallois' flakes appearing at Nellore are absent in Nalgonda.

The blades, awls and other flake tools have their parallels in the Middle Stone Age industry of Nalgonda. The diminutive bifaces and burins do not occur in Nalgonda.

**MALAPRABHA BASIN**

Fine-grained quartzite of Kaladgi series of various shades is the chief raw material employed for making tools. Besides, sandstone, oliv-schist, haematite-schist, hornblende-schist, granite, pegmatite and quartz are also favoured for making tools.


In Nalgonda, coarse to medium grained-quartzite of the Cuddapah series is favoured for the corresponding series of tools. All the rest of the materials used in the Malaprabha are also employed in Nalgonda in limited degrees except the granite and pegmatite.

The industry on the whole is considered as Acheulian. This industry technologically corresponds to the Group II of the Early Stone Age industry of Nalgonda. Excepting the small group of pebble tools there is no parallel Group I tools of Nalgonda in the Malaprabha basin. The Levalloisian technique is entirely absent in the Early Stone Age of Nalgonda. The flakes with wide angled plain platform and without retouch of the Malaprabha industry go well with those flakes of the Nalgonda Early Stone Age.

The tool types represented in Malaprabha are made on core and flake with several sub-types, cleavers of various types, pebble tools (choppers) discoids and flakes, their proportion in the collection being approximately in the same descending order. Besides, a burin or pseudo-burin type is also recognised. Most of these types along with their sub-types are strikingly similar to those represented in the Early Stone Age industry of Nalgonda. The burin type is not found in the stone industries of Nalgonda.

As far as the Early Stone Age industry is concerned both the

areas have quartzite as the chief raw material. Quartz is also used in both the areas. The microlithic man in Mysore exclusively preferred quartz and rock crystal. A single specimen is made on red jasper. But the choice of stones for making microliths of Nalgonda is wide which include quartzite, chert, lydianite, agate, quartz and crystal silice.

At least five principal tool types are present in Mysore:
(a) pebble tools, (b) bifaces, (c) cleavers, on core and flake, (d) beaked implements and (e) flake tools. All these correspond broadly with their counterparts in the Early Stone Age industry of Nalgonda.

Among the pebble tools, there are at least three varieties:
(i) bifacially worked pebbles which retain the original shape of the pebble, (ii) 'choppers' worked unifacially on split pebbles, and (iii) those that are worked all round the edge that can be graded as 'discs'. The first two varieties have their counterparts among the pebble tools of Nalgonda. The 'discs', on the other hand, are made of flakes in Nalgonda and none are found on pebbles.

The first two of the three types of bifaces consisting of (a) rostroconrate like tools and (b) a series of crudely made bifaces recalling 'Abbevillian' technique roughly correspond with our bifaces of the Group I; the third group, typical of Acheulian technique, goes well with our Group II bifaces. Cleavers on flakes are comparable to the cleavers of Nalgonda Early Stone Age
but none are made on core in our collection. The beaked tools have no parallel in Nalgonda. The flake tools with wide angle and plain platform go with the flake tools of Nalgonda but the flake tools in Mysore have much secondary work.

**Microlithic Industry**

The microlithic industry of Mysore consists of geometric and non-geometric forms. The characteristic tool of the series is the asymmetrical point with blunted back. The other tools are, triangle, lunate, 'petit tranche' or transverse arrow-head, burin, scrapers, flakes and parallel sided blades. There is no pottery.

The microlithic industry of Nalgonda does not give as many geometric forms as of Mysore and also there is no Nalgonda microlithic industry goes well with that of Mysore and both are unassociated with pottery. On the whole it may be noted that the Mysore microlithic industry is more advanced from technological stand point which contains more sophisticated tool types than that of Nalgonda industry.

**MAPPA**

The tools from the Boulder Conglomerate at Vadamaradai are divided into three groups based on patination and typology. The earliest is further sub-divided into two: (a) the Early Series and (b) Later Series. Among the Early Series are included heavily

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patinated (cortex) Abbevillian bifaces with pebble butt, crude and irregular flaking, technique corresponding to 'block-on-block'.

The Late Series contain bifaces of Early Acheulian type marked by step flaking; unfaceted, unretouched flakes. The second group has stained and unretouched flake tools; bifaces resembling Mid-Acheulian types are flatter and neater with more 'step' flaking; pear shaped and ovate forms being very common; flakes with more primary flaking but no faceted platform. The third group, without staining; bifaces marked by cylinder hammer technique that resemble 'upper' Acheul which comprises two types; ovates with 'step' flaking and a long pointed type with thick pebble butt; a few cleavers; thin unfaceted flakes, retouched at the edges.

This grouping of the tools has no bearing on stratigraphy. It is inferred that there is a typological evolution from the Earliest to the Latest Groups.

The bifaces of the Earliest Series of the Earliest Group correspond technologically to the bifaces of the Group I of the Early Stone Age industry of Nalgonda. The Late Series of the Earliest Group and the Second and the Third Groups correspond to Group II of the Early Stone Age Industry of Nalgonda. But the and pointed type with thick pebble butt that recalls the 'Micoquian' of France is lacking in our collection. However, such neat forms as ovates with flat step flaking do occur in Nalgonda.

The cleavers made on flakes of Veal technique are present
in the two areas. The feature of faceted platform on the flakes appearing at Attirampakkam is absent in Nalgonda.

The Middle Stone Age was also recognized in Madras by late Prof. Subbarao as recorded by Prof. Sankalia 10.

Microlithic Sites of Tirunelveli District 11

The terr sites yield microliths made on quartz and chert in more or less equal proportions. The tools are stained with red hydrated ferric oxide.

The industry includes both geometric and non-geometric forms. The geometric forms are made both on blades and flakes indiscriminately. Among the geometric type are present (a) lunate and (b) triangles. The non-geometric tools consist of (a) micro-burins, (b) bifacial points, (c) transversal arrow-heads, (d) chopping tools and hammer stones, (e) simple points, (f) asymmetrical points, (g) backed blades and several other edged tools. The bifacial points are done by pressure flaking technique.

In Nalgonda, besides chert, quartzite is equally favoured though quartz is not lacking.

Only a few lunates of geometric form occur at Nalgonda, but in Tirunelvelly the geometric tools are represented by two types. Among the non-geometric forms, the Nalgonda microlithic industry

has no bifacial points, transverse arrow-heads and chopping tools; but all the rest of the tool types are well represented. The pressure flaking technique is absent in Malgonda. All these technological features ascribe the Tinnevelly industry a high standard of tool making.

Both the industries are not associated with pottery.

**WESTERN INDIA**

**MAHARASHTRA : NEVASA**

**Early Palaeolithic**

The raw material in all cases is a fine-grained variety of basaltic rock. The tools seem to be made from chunks rather than pebbles.

Except the coarse grained materials like quartzite no finer varieties of rock have been used in the Early Stone Age industry of Malgonda. The other notable point of difference is that most of the tools are made on pebbles because of their availability in plenty in Malgonda.

The constituent tool types at Nevasa are (i) 'Handaxes', (ii) flakes, (iii) cores, (iv) hammerstones and chopping tools, (v) choppers and side scrapers, and (vi) miscellaneous unique forms. From technological point of view the industry has advanced facies; nevertheless, some forms do occur where no secondary working is done to reduce the ridges to bold flaking by block-on-block technique. The 'rostrocarinate' form and some of the pebble

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tools are some of the typical examples.

Almost all the types represented at Nevasa are present in the Early Stone Age industry of Nalgonda. Technologically, they correspond to our Groups I and II but the Group I is sparsely represented.

Middle Palaeolithic (Middle Stone Age) or Nevasian

Nevasa is the type-site of the Indian Middle Stone Age culture.

Fine-grained materials like chert, jasper, agate, chalcedony are used at Nevasa but the medium to fine-grained quartzite is chiefly used in Nalgonda. This shows that there is a switch over in the choice of the raw material from Early to Middle Palaeolithic at Nevasa, whereas there is a continuity in the use of it from Early to the Middle Stone Age industries at Nalgonda. This may be due to the paucity of fine-grained materials in the area.

At Nevasa, the 'free' flaking cylinder hammer technique is chiefly employed. A few flakes and cores show the knowledge of the faceted platform and pressure techniques.

In Nalgonda, the main stone technique is also that of 'plain flaking cylinder hammer'. 'Prepared core' technique is also widely used. The 'fluted core' technique for obtaining blades is

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also practised which is not found at Navasa. But there is no
evidence of 'faceted platform technique' at Nalgonda. The tools
are made, as at Navasa, on flakes and flake blades; but the blades
found in Nalgonda are not available at Navasa.

So far as the typology is concerned both the areas have much
in common. The regular tool types are 'scrapers', 'points',
'borders', 'flakes' and it is the first that occurs in majority
in both the areas ('scrapers' of Navasa are similar, from the shape
and character of the working edge, to the straight, convex and
concave edged tools of Nalgonda).

**Microlithic Industry**

Cliff sections along the rivers, Godavari and Pravara, right
from Nasik and Vite in the west, to Paithan in the east, in
Nasik and Ahmednagar Districts were covered during the last
aggradation phase with a loose kankana gravel. These abound in
microliths made principally on milky chalcedony and agate.
It is possible to distinguish these microliths from those of the
Chalcolithic period. The former includes short fluted and
irregular cores, lunates (some very large), small parallel-sided
and one edged blades, scrapers of several types, and a large
number of chips. On the whole, these are thicker than the blades

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etc. of the Chalcolithic facies.

The microlithic industry of Nalgonda compares closely with that of Maharashtra in typology and more or less the same types are represented in both the areas.

**BOMBAY AREA**

Colonel Todd mentions that the tools he discovered at Khandvili and other sites represent the Lower and Upper Palaeolithic and microlithic industries. The tools consist of rough tools and flakes that recall Clacton industry; an early form of rostrate handaxe; Chellean types; Late Acheulian types which include fine handaxes and a beak-shaped handaxe; a blade industry including cores, blades and scrapers, small handaxes; and polyhedral and angle burins.

Shri. Malik gives similar tool types but he failed to find the Lower Palaeolithic tools.

Recently, the area has been examined by Shri. Lai and again by Professors, Zeuner, Sankalia, Subbarao and others.

There is a marked disagreement by these later observers over the cultural (and stratigraphic) sequence given by Todd.

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The tool collection made by Sankalia contains (a) large and small cores with large and deep flake scars and corresponding, (b) flakes with large and prominent under surface and a diffused bulb, (c) cores with occasional parallel flake scars, (d) Levallois flakes removed from fully prepared cores, (e) scrapers, (f) points and borers, made on the above type of flakes or at times on the cores or nodules and (g) burin-like pieces.

The Palaeolithic complex of bifaces and cleavers is absent, nor there is true Upper Palaeolithic blade element. Typical burin-facet does not seem to be present inspite of the presence of the burin facet-like nodules. The cleaver-like tools technologically go along with other flake tools. Sankalia observes that "all these are made in the form and technique visible in what is now called.... Middle Stone Age from Maharashtra, Karnataka, Andhra ....".

All the tool types and cores except (d) and (e) groups listed by Sankalia compare very closely with their counterparts in the Groups I and II of the Nalgonda Middle Stone Age industry. There is no multifaceting of the platform of the flakes which feature is present in Bombay area. There are no burnins or burin-like pieces. In the matter of raw material the medium to fine-grained quartzite used in Nalgonda is entirely absent in Bombay area; instead, basalt, chert and jasper, which are locally available have been used.
Microlithic Industry

The microlithic industry of Bombay area is made out of jasper, jasper, etc., and it agrees well with Nalgonda microlithic industry in the choice of the raw material.

The microlithic industry of Bombay area contains heavier tools like the mace-head or the digging weight, and choppers; besides, there is a pure geometric industry. Therefore, it is divided into earlier and later series. The other tool types include, obliquely or wholly blunted blades, lunates, triangles, trapezes, drills and various types of cores and scrapers.

In the microlithic industry of Nalgonda the entire group of heavy tools of earlier series of Bombay area is lacking. Among the geometric forms none other than the lunates are represented in the Nalgonda microliths. Thus the microlithic industry of Bombay area, technologically and typologically, seems to be richer than its counterparts in Nalgonda.

Gujarat

Investigations in the valleys of the Sabarmati, the Orsang and Karjan in Northern and Central Gujarat have brought to light two stone age industries.

In the Sabarmati area, tools of the Early Palaeolithic were

found from Warasra in the south to Gada near Khed Brahmesh in the north. The Kamar ala at Padhanali is a factory site. On the Oraan, the tools were found at Bahadarpur.

The tool types found at all these sites include (a) pebbles tools, (b) huge cores, (c) bifaces, (d) cleavers (a) flakes and (f) small discoidal cores, all occurring in the same lowest gravel horizon. Among these, 'inferior' and 'superior' tools corresponding to 'block-on-block' and 'cylinder-hammer' techniques have been recognized. Two varieties of flakes appear: (i) flakes with plain and wide angled striking platform and (ii) flakes with faceted striking platform.

Excepting the flakes with faceted striking platform flakes, and the discoidal cores, the rest of the tool types have their parallels in the Early Stone Age industry of Nalgonda and the tools of inferior and superior groups compare well with Groups I and II respectively.

A third group of tools come from the top of reddish silt horizon. These are, two bifaces and a cleaver all of which show definite improvement in workmanship. On the basis of this, supported by stratigraphy, a typological evolution has been suggested. This group of tools compares well with the neatly finished specimens in the Group II. However, no typological evolution supported by stratigraphy is recognised in Nalgonda at present.
The long Flake or blade made on Levallois technique from Orang has no parallel in Nalgonda.

*Middle Stone Age Sites from Kaira District*^21^*

Over thirty tools have been found in a fine gravel deposit on the Mohor river.

Out of these tools made on chert and agate there are a few fluted cores, which as Prof. Sankalia observes^22^; normally characterised, the later microlithic industry. Thus a shadow is cast on the assemblage. It may be a mixed assemblage and hence a comparative study is not advisable.

*Late Stone Age industry*

A striking difference between the microlithic industry of Gujarat and Nalgonda typologically is that the former is essentially geometric and the latter non-geometric in character. In spite of the geometric character of the microlithic industry of Gujarat, it is on the whole, coarse and crude, though the material is chert, agate, carnelian and occasionally quartz. On the other hand, though the microliths of Nalgonda are non-geometric in form, they are neat and well done which show careful and minute retouch despite the fact that some of the tools are also made on fine-

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^22^ Sankalia, *op. cit.*, 1962, p. 120.
Almost all the sites of the Lower Palaeolithic are confined to Eastern Rajputana. The evidence of these industries of the area comes from the valleys of the Chambal, Banas, Berech, Glamhiri and some of their smaller tributaries. The Middle Palaeolithic is well known from Western Rajputana from the valleys of Luni and its tributaries. The Mesolithic industries come from both the parts of Rajputana.

The Lower and Middle Palaeolithic and the Mesolithic of Mira's usage correspond to the Early, Middle and Late Stone Ages of Nalgonda respectively.

The Lower Palaeolithic

The raw material is medium to fine-grained quartzite which is available in plenty as river-worn pebbles. In the two valleys of Rajputana two industries are distinguished:

(i) a primitive Banas industry, and
(ii) an advanced Glamhiri industry.

The former comprises simple pebble tools, crude pebble handaxes and Acheulian handaxes, simple cleavers, the flakes and large thick cores. Flaking is bold and primitive, characterised by stone hammer technique; secondary flaking is rare. The implements are crude, thick and irregular.

In the Gambhiri industry the tools are more fully flaked, thinner and more symmetrical, which marks the extensive use of cylinder-hammer technique. Knowledge of the Levallois technique is also evident. Most of the tools, comprising of similar types as that of the Banas are made on flakes. 'Disc' type is an addition. The Baraoh and the Chambal industries are grouped with the Gambhiri industry.

In Rajputana and Nalgonda quartzite is the chief raw material though they are different in texture.

Technologically the Banas industry corresponds to the Group I of the Nalgonda Early Stone Age where the standard of tool technique is primitive and crude. The advanced Gambhiri industry, so far as the use of the cylinder hammer technique goes is comparable to the Group II of Nalgonda Early Stone Age industry. But the Levallois technique recognised in the Gambhiri is not so far seen in Nalgonda. The side-blow technique, employed for making cleavers on flakes in the Gambhiri is also noticed in Nalgonda. The Levallois flakes in the Gambhiri industry are, however, only three and smaller in size.

The tool types are much similar in both the areas. As in Rajputana, the 'disc' type occurs only in the Group II of Nalgonda industry.

In the North-East Rajputana are found, pebble tools,

handaxes and Levallois type flakes together in situ. These tools, except again the Levallois flakes, go with our Early Stone Age tools.

The Middle Palaeolithic

Chert is the most favoured material. In addition, silicified wood, sandstone, hardened slate and rarely quartzite also are used. But in Nalgonda the choice is almost exclusively confined to medium to fine-grained quartzite.

Four types of techniques, stone hammer, punch, soft cylinder hammer and prepared core, are employed as evident from the study of the cores and flakes.

The tool types comprise (i) bifaces of various types (ii) cleavers, (iii) scrapers, (iv) borers, (v) scraper-borers, (vi) points - unifacial and bifacial, (vii) flake knives and (viii) flakes.

The Middle Palaeolithic tools of Nalaputana on the flakes are comparatively larger than the flake tools of similar cultures in other areas.

Technologically, barring tortoise cores, the industries of Nalaputana and Nalgonda, are similar. Fluted core technique found in Nalgonda is not seen in Nalaputana.

With regard to size larger flakes of Nalaputana are comparable to the Group I of the Nalgonda Middle Stone Age industry.

The bifaces, cleavers and pressure flaked bifacial points
found in Rajaputana are absent in Nalgonda. The 'scraper-borers' and 'flake knives' of Rajaputana have their parallels among the multiple tool types of Nalgonda.

The Mesolithic

The outstanding features of this industry from Rajaputana are:

Chert is the most common material. Additionally, quartz, chalcedony, jasper, quartz, rock crystal, flint and fossil wood are also employed.

Fluted core technique is mainly practised to produce fine and slender blades (the number of cores is 140 in the total collection of 1240 artifacts).

The common tool type is 'scraper'. Other types are beaked and obliquely blunted blades, simple and tanged points and borers, besides unretouched flakes and cores. Finished specimens are, however, less. There are no geometric forms, nor there is pottery.

In Nalgonda chert as well as quartzite are mainly used unlike Rajaputana where chert alone is mainly depended upon.

Rajaputana is one of the few regions where fossil wood has been used. Considerable number of tools are patinated in Nalgonda as against a few tools with staining in Rajaputana.

Technologically, both the areas are similar where fluted core technique is mainly employed for the production of thin and slender blades.
Both the areas belong to pre-pottery phase and essentially non-geometric in character. But, five definite lunates of geometric form do occur in Nalgonda industry and their presence gives Nalgonda an air of technological advancement. The tanged points found in Rajputana are not noticed in Nalgonda and the burins found in the latter are not present in the former.

CENTRAL INDIA

NARMADA VALLEY

The Narmada valley was surveyed by De Terra and Paterson and a correlation of the stratigraphy, the tools and the fossil evidence was attempted by them. To the later observers, no clear stratigraphic picture was found as postulated by De Terra. Further work on the Narmada at Maheshwar and around Hoshangabad and Narasingpur by Prof. Sankalia has clearly proved that the sections given by De Terra are reconstructions based on careful observation. For, nowhere a complete stratigraphical sequence seems to have been preserved.

The following stratigraphic and archaeological sequence on the Narmada has been proposed by Sankalia:

27. Sankalia, op. cit., pp. 52 and 286.
I. (a) Basal Gravel - Clastonian Flakes and Acheulian Handaxes.
   (b) Reddish Concretionary Silt.
II. (a) Pebble Gravel - Acheulian Handaxes.
    (b) Brown Silt.
III. (a) Chalcedony Gravel—Middle Stone Age Tools.
     (b) Light Grey Silt.
IV. Black Soil - Microliths as at Adamgarh.
V. Chalcolithic Blade Industry.

The archaeological record of the Narmada valley agrees with that of Nalgonda excepting the chalcolithic Blade industry.

Typologically the Claston flakes and the Acheulian bifaces compare with the simple and large flakes and bifaces of the Group I; the Acheulian bifaces which include ovates have their counterparts in the Group II of the Early Stone Age industry.

The pebble tools found by Dr. Khatri can be compared with the similar types in Nalgonda but they form an integral part of the biface cleaver industry.

The Middle Stone Age tools, containing mostly of scrapers and points, are similar to those of Nalgonda. The Levallois flakes found in the Narmada are not present here.

Dr. U.V. Joshi carried out the survey of Damoh district, besides Bhilga and Sagar in Madhya Pradesh. In the valleys of Sonar, Kopr and Bara a number of sites have been discovered, bringing into light the tools of the Early, Middle and Late Stone Age industries.

As in Nalgonda, quartzite is used in this area for the Early Stone Age industry. The chief source for the raw material is the water worn pebbles.

The Early Stone Age industries in both the areas are strikingly similar in typology and technology. The Damoh industry is divided into two sets of tools; the former belonging to the Abbevillian to Early Acheulian stages and the latter corresponding to the mid-Acheulian technique. The tools with crude workmanship of Abbevillian stage of the first set of tools of Damoh area are comparable to the Group I tools of the Nalgonda Early Stone Age. The early Acheulian stage of tools of the first set together with the Middle Acheulian type of tools of the second set of Damoh are comparable to the Group II of the Nalgonda industry.

The tool types of Damoh area are (i) handaxes, (ii) ovates, (iii) cleavers, (iv) scrapers, (v) flakes, (vi) cores and core choppers. Except the scraper type all other types occur in

Nalgonda industry and the discoids in the Group II of Nalgonda are not available in Damoh area. The bifaces in Nalgonda have more forms than those of Damoh area. The 'handaxes' made on 'pebble flakes' which are mostly unifacial, worked only on the front, the under surface being a plain primary flaking surface, go well with the 'unifaces' of the Nalgonda industry.

The cleavers classified into five groups in Damoh have their counterparts in the cleavers of Nalgonda.

The pointed pebble tools have no exact parallel in Nalgonda.

Middle Stone Age

Brown or reddish-brown chert is the chief raw material used except in a few cases which are made on chalcedony. It is only the fine-grained quartzite used in Nalgonda.

The flakes and flake blades predominate in Damoh area. These are obtained by prepared core technique. Blades form 15 per cent of the total collection. Some of the tools are also made on flat nodules.

This industry of Damoh area corresponds to the Group II of the Middle Stone Age industry of Nalgonda which shows almost the same technological features, but the blades only form a small fraction and there is not much retouch on them either.

Damoh industry is divided into (i) scrapers, (ii) tools with point, (iii) blades, (iv) flakes, (v) nodules and (vi) cores and core scrapers. Except the last type all the others have exact parallels in the Nalgonda industry.
Microlithic Industry

The microlithic industry is reported from a single site of Navagaja near Banoh town; the collection consists of a few flakes and fluted cores made on chalcedony and it can be compared to our microlithic industry.

EASTERN INDIA

ORISSA

Dr. Mohapatra carried out investigations into the prehistoric archaeology of Orissa in the Districts of Mayurbhanj, Keonjhar, Henkanal, Sundargarh and Sambalpur and found out the artifacts of the Early, Middle and Late Stone Ages.

Early Stone Age

Medium-grained brown quartzite is the common raw material and in Nalgonda it is also quartzite, but coarse and medium-grained variety.

The tools are classified into three stages, inferring that every subsequent stage marks technological development over the preceding one. It is purely an arbitrary classification without any bearing on stratigraphy whatsoever, as all the implements of the Early Stone Age come from the same basal gravel horizon. The constituent tool types are (i) handaxes, (ii) cleavers, (iii) scrapers, (iv) points (v) flakes, (vi) discoids, (vii) irregularly flaked bifaces, (viii) irregularly flaked pebbles and (ix) cores.

Typo-Technologically the artifacts of Stage I of Orissa correspond to the Group I of Nalgonda, the Stage II and III are comparable with the Group II tools.

The pebble tools are conspicuous by their absence in the collection of Mohapatra, but they have been mentioned as one of the constituent tool types by Prof. N. Bose and Shri. D. Sen. It appears that what were previously called as choppers of Sohan type have been classified as 'Irregularly Flaked Pebbles' by Mohapatra. However, the pebble tools form a definite tool type in Nalgonda.

The tools showing mediocre skill (Stage II) predominates in Orissa, whereas the crude and the well finished ones are present more or less in some proportion in Nalgonda.

In both the areas, the 'Biface' type forms a majority. As many as 14 shapes appear among the bifaces in Orissa and nearly similar shapes occur at Nalgonda. The pear-shaped biface is the most frequent in its occurrence in both the areas.

Middle Stone Age

In the use of raw material for this industry there is a marked change from the Early Stone Age in Orissa whereas there is a continuity from Early to Middle Stone Age with some modifications at Nalgonda. Fine-grained chert, jasper, opal, chalcedony and fine-grained quartzite are used for making tools in Orissa. Medium and fine-grained quartzite varieties are used at Nalgonda.
In Orissa the technique is of 'plain flaking soft cylinder hammer' for obtaining flakes, on which a majority of the tools are made. The wide use of prepared core and fluted core techniques are evident at Nalgonda thus qualifying for higher technological standards than its counterpart in Orissa.

In the matter of retouch, it is rare in both the areas.

**Late Stone Age**

The raw materials used for the microliths are same as the Middle Stone Age in Orissa: Chert, Jasper, Opal and Quartzite. But in Nalgonda, apart from the continued use of fine-grained quartzite, chert, quartz, crystal silica and lydianite are also favoured for making microliths.

In Orissa as well as in Nalgonda fluted core technique is mainly practised for getting blades. There is no preparation of the platform of the cores in Orissa and it is present in Nalgonda.

The industry in Orissa, represented by 45 specimens in total, is generally crude and non-geometric in form and not associated with pottery.

Technologically and typologically the microlithic industry of Nalgonda is fairly advanced and it also contains a few geometric tools (lunates) which the Orissa industry lacks.

**BIRBHANPUR (Microlithic Industry)**

The microlithic industry is regarded as pre-pottery in Age 31.

and essentially non-geometric in character, the chief raw material being quartz.

Crystal, chert, chalcedony, quartzite and fossil-wood are also favoured at Birbhanpur.

The method of obtaining flakes and blades are by free flaking and pressure flaking. The microlithic tool types consist of (i) irregular, freely flaked cores, (ii) fluted cores, (iii) blades, (iv) lunates, (v) triangles, (vi) trapezes, (vii) points, (viii) borers, (ix) scrapers and (x) burins.

The microlithic industry of Nalgonda typo-technologically compares very closely with that of Birbhanpur. The raw material used chiefly is chert and fine-grained quartzite.

The triangle and trapeze from Birbhanpur mentioned as doubtful, are really essential in their form. The microlithic industry of Nalgonda is also non-geometric in character though a few lunates appear, and unassociated with pottery.

NORTH INDIA

BUNDUKHAN32

The Early Palaeolithic and the Later Palaeolithic of Shri N. Singh’s usage correspond to the Early and Middle Stone industries of Nalgonda.

The Early Palaeolithic

The chief sources of raw material are Bundelkhand granites and Vindyan sandstones for the making of tools. This is the only area where perhaps granite is widely used as the raw material for similar industries. But in Nalgonda it is the quartzite that has been mostly used though sandstone is also favoured to some extent.

The tools are made mostly on large flakes, detached from the boulders by prepared core technique. No such preparation of the blocks was felt necessary in Nalgonda since most of the tools are made on pebbles which were the chief source for the Early Stone Age man.

The industries of both the areas have similar tool types and there are present both ill made and well finished tools. Singh observes that some of the extremely well finished specimens showing delicate and fine retouch in the Bundelkhand industry are unparalleled in any other collection of Indian Early Stone Age.

The Later Palaeolithic

Chert is the chief raw material.

Frosted platform, indirect percussion or punch technique, pressure flaking, fluted core are the techniques employed.

The tool assemblage includes small, neatly finished handaxes, cleavers and the other retouched flake tools.

From the point of view of raw material Bundelkhand differs from
Nalgonda, for it is chert in the former and quartzite in the latter.

Both the areas have similar techniques but the faceted platform and pressure flaking techniques are conspicuous by their absence in Nalgonda industry.

The Bandelkhand industry is marked by large sized flake tools when compared to the similar industries of the other areas in India. In this respect similar feature is noticed in the Group I of Nalgonda Middle Stone Age wherein the flakes are larger than the diminutive flake tools of Group II.

The bifaces and cleavers found in Bandelkhand are entirely absent in Nalgonda. The rest of the tool types from both the areas, from the point of view of shape of the working edge, are identical.

**SINGRAULI BASIN**

A mixed industry made of coarse grained, gray and brown quartzite comes from the lower gravel horizon of the Nigand, the Bichi nala and other rivers in the Singrauli basin.

The tool types include, (a) chopper-chopping tools on pebbles, (b) proto-handaxes, (c) handaxes of both crude and well finished type, (d) cleavers, (e) cores and core scrapers, (f) Levallois

flakes, (g) proto-Levallois flakes and (h) miscellaneous Clacton flakes.

The bifaces are in majority.

The writers observe that the Singrauli lithic industry represents an essentially Abbeville-Achælian (bifacial) core industry and is influenced by the Sohan (Levallois) flaking technique and the 'Chopper-chopping' tool complex.

From the point of view of raw material, technology and tool types, the Nalgonda Early Stone Age industry is similar to that of the Singrauli basin. But the Nalgonda industry falls short of the 'Levallois' or proto-Levallois type of flakes which technological element gives the Singrauli basin a certain measure of higher technological attainment.

The view that the biface industry is influenced by the Sohan type of choppers and chopping tools cannot be held valid in the light of the results obtained by recent studies in various parts of the country. The chopper-chopping tools, on the other hand, forms part of the biface culture.

\textit{THIS POTENTIAL REGION\textsuperscript{14}}

The following sequence of prehistoric cultures based on stratigraphy in the Indus and Soan basins was established starting from the Middle Pleistocene to Upper Pleistocene times.

Soan of the middle Pleistocene

A. Pre-Soan

The tool types are flakes and pebble tools made on quartzite. The flakes are big and the plain striking platforms are at high angles. No intentional retouch is in evidence except the battering marks. The pebble tools are small and simple unilateral nucleates.

B. The Lower Soan

The Soan type tools are by far the most common (convex-blades and nucleates) Flat-bases are a few. Cores and flakes make nearly half of the group. The flakes are with utilisation marks but no significant retouch.

C. Middle Soan A

The tool types are cores, Soan type tools and core flake element as a whole is the most numerous. The tools are still fairly large and heavy. Flakes with low angled platform and simple faceting. Rough step flaking seems to be the only method of refining working edge outlines.

D. Middle Soan B

Soan type tools, cores and flakes form this group. The Soan element is distinctly dominant. Retouch on flakes is still poor.

Soan of the upper Pleistocene

A. Upper Soan A

It contains one third flakes, a third cores and a third Soan
type tools. Core-cum-tools are present. Tortoise core is the prominent feature. The majority of the flakes have cortical high angled platforms, squat, sub-triangular or sub-circular in shape. These are typically from the un faceted tortoise cores. Sometimes the retouch of the platform from the reverse surface is present.

Types of working edges are convex, end and side. Retouch is not very common. There is little step flaking.

B. Upper Sloan B

Core flake element is more dominant and in size the tools of this group are smaller than those of Upper Sloan 'A' and the Sloan type tools still occur. Faceted cores are a marked feature. Faceted flakes with low angled platforms increase in number.

Retouch is not widely developed.

Working edges are convex, nose, point, notch and double notch with point and 'S' twist.

Sloan of the final Pleistocene

The Final Sloan

The tool types of both the industries of Pindigheb and Chakpathan show the same types of Sloan tools, cores and flakes.

The Clactonian Intrusion

A. Upper Clacton (Punjab) A and B

The tool types are cores and flakes without Sloan type assemblage which suggests new industrial tradition of intrusive character during phase U₂. Many of the cores are like the
Mousterian-like disc cores. Flakes suggest the preponderance of faceted cores and convergent preparations. Retouch is mostly confined to the working of these small notches and points.

**Upper Achaulian Clacton**

From Chak Sighu, near Chausntra, from Potwar loess of phase U$_2$ comes a small assemblage of unworn artifacts, bouchers, cores and flakes.

**The Stellenbosch Inversion**

At site 14, Chak Sighu, from the basal cemented gravel below the redeposited loess was discovered a group of bouchers accompanied by cleavers, cores and flakes, but no Soan type artifacts. The earlier group is heavily worn and the later faintly worn.

**Middle Stellenbosch**

Worn bouchers and cleavers have been found only at the other sites in the India and Soan basins, at Gariala, site 1, and Balwal, site 10. Balwal specimen was found in a gravel corresponding to the cemented gravel of chak sighu.

The Soan type tools, the flakes with plain and high angled platforms and showing no retouch are typologically comparable to their counterparts in the Nalgonda Early Stone Age. The oblate, nucleate and flat-based type of pebble tools occurring in the Soan valley have their exact parallels in Nalgonda. There are certain significant variations. In the Potwar Region the Soan type tools continue to appear right from the Pre-Soan to the
Final Scan, but the pebble tools occur only in the Early Stone Age, and disappear latter at Nalgonda. The flakes all through were obtained by plain flaking technique at Nalgonda. There is no faceting of the platforms as is the case in the Potwar region.

Nowhere flakes and cores appear exclusively of pebble tools as found in the Upper Glaceton of the Potwar. Nor the biface-cleaver industry exists independently at Nalgonda. All the tool types, pebble tools, biface-cleaver types and flakes appear in constant association in the Early Stone Age of Nalgonda unlike that of the Potwar region.
CHAPTER NINE

COMPARISONS OUTSIDE INDIA

EARLY STONE AGE

China

The excavations at Choukoutien in the Sinanthropus site, Locality H, Localities 13 and 15 brought to light implements ranging from the oldest to latest forms.

The Sinanthropus Industry

It is assigned in age to the Middle Pleistocene and on archaeological grounds correlated to Abbevillian. This is distinguished from any known one by: (1) vein quartz being the most popular raw material and 'bipolar' technique; (2) chert and other silicified material, fashioned by direct hammering process and sandstone pebbles flaked by anvil process. The implements were classified into several groups among which three are important — (1) the pointed implements; (2) the scraping tools having one or more cutting edges and (3) choppers which are heavy with blunt edges. This industry is characterised by abundant utilisation of flakes without secondary work which when present is mostly irregular and no definite types could be recognised.

Sandstone is the only common raw material used in both the industries of Nalgonda and Sinanthropous sites.

The direct hammering and anvil processes employed in Sinanthropous sites are also used in Nalgonda Early Stone Age industry. But the bipolar technique is not in evidence at Nalgonda. The choppers with blunt edges compare well with the pebble tools of Nalgonda. But there are no pointed and scraping tools in the Early Stone Age of Nalgonda.

The Tingtsun Industry

This industry is located in the Tingtsun village in Hsiangfen district in north China and is found in fluviatile deposits along the bank of the river Fenho. It is dated to later Pleistocene.

The artifacts of Tingtsun man and the associated mammalian fossils are all found on a lower terrace about 10 m above the present Fenho river.

The industry consists of larger and rough artifacts with irregular secondary work, and chiefly of scrapers and choppers. The trilateral point is the characteristic tool type. It cannot be compared with the European Palaeolithic culture but might be correlated with Mousterian of Europe by geological age.

These tool types do not occur in the Nalgonda Early Stone Age. Nor the trilateral point, characteristic of Tingtsun industry, figures in any stone industries of Nalgonda.
The Pleistocene river terraces in the upper Irrawaddy of which five have been recognised (T₁ to T₅) provide a basis for the geological dating of the Anyathian industries. The earliest examples of this culture occur in the 'Laterite Gravel' and in the T₁ gravels. The culture appears to have persisted practically unchanged until the end of the Pleistocene period.

The Anyathian industries were made almost entirely on pebbles of two kinds of rock: silicified tuff and fossil wood, the latter of which influenced the shape of many of the Anyathian implements.

Four fundamental categories of stone implements occur in the Anyathian chopper - shopping tool complex: chopper - shopping tools, hand-axes, proto-handaxes.

The first two tool types have their counterparts in Nalgonda but the latter two do not appear. The pebble tools drop from the industries succeeding the Early Stone Age. Whereas in Nalgonda the pebble tools form an integral part of the biface-cleaver complex, the Anyathian occurs in Burma as the dominant or the only tool element.

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JAVA

The Lower Palaeolithic or the Patjitarian industry of Java consists of a series of large, massive and crudely worked stone tools made of silicified tuff of dark colour and of fossil wood. The industry forms part of the great chopper-chopping tool complex of South and Eastern Asia.

The technique employed in working the Patjitarian tools is essentially monofacial. The flake tools which seldom exhibit either a bulb of percussion or a striking platform outnumber the pebble tools by far. But the Patjitarian is also characterised by a great number of massive tools like choppers, chopping tools, hand-axes, proto-hand axes, peculiar cleavers, a low percentage of bifaces and the absence of true Levallois flakes. There were ovates, round and almond forms and elongated thick-butted shapes, some of them showing 's' twisted cutting edges.

In Nalgonda mainly quartzite is used for making tools and the silicified tuff or fossil-wood were not employed.

Almost all types of the Patjitarian industry are represented in the Nalgonda Early Stone Age. But the notable difference is

5. Van Heekeren, op. cit., p. 33.
that in Nalgonda the bifaces outnumber the rest of the tool types including pebble tools unlike the Patjitanian industry. Though the bifaces include ovates, no 'S' twist form is available in Nalgonda. The proto-handaxes go well with our irregularly flaked bifaces.

WESTERN ASIA

The earliest human industry comes from the Levant. It is purely a flake industry, unmixed of bifaces and Levallois technique. The industry is called Tabunian, after the cave of et-Tabun on Mount Carmel. In Nalgonda neither the flakes occur exclusively of bifaces and other types nor the simple flakes that are present are comparable with the Tabunian industry.

A late Acheulian industry was found immediately overlying Tabunian in the cave of Qumr Qatafa in the Judian desert. It includes ovate and lanceolate forms of handaxes, points, sidescrapers and Levallois flakes. From level F of et-Tabun the handaxes formed one-third of the total yield and are mostly pear-shaped. Other tools are scrapers, rough burins, choppers and discos. Qumr Qatafa assemblage from level E2 was similar to that of et-Tabun.

A rich Acheulian assemblage was found in the level E of et-Tabun. It has been called variously as Acheulian-Mousterian.

Micoquian and final Acheulian. It comprises abundant handaxes, scrapers, points, burins, choppers, Chatelperronian and Acheulian points and flakes and blades with nibbled retouch.

The well finished bifaces of Group II in the Early Stone Age industry of Nalgonda go well with those that come from level F of st-Tabun at Mount Carmel and the pear-shaped bifaces are also more common in Nalgonda. The choppers and discs also have their counterparts in Nalgonda but no Levallois technique is in evidence.

The Acheulean-Mousterian or Micoquian industry of level B of st-Tabun has no comparison with that in Nalgonda.

NORTHERN AFRICA

ALGERIA

The evidence for the earliest artifacts in Northern Africa comes from Ain Hanech near St. Arnaud in Algeria along with a supposedly Villafranchian fauna. The tools comprise polygonal nodules of very compact limestone from which sizable flakes have been removed over the greater part of their surface. These nodules or cores tend to assume a more or less globular shape. But the fact the tool-making man occupied Algeria in the Pleistocene times is yet to be proved. In any case, such cores are lacking in the Nalgonda stone industries.

Lake Karar, in the Gran Province, belonging to the early Middle Pleistocene age has yielded numerous handaxes made mostly of water-worn quartzite pebbles. They range in type from carefully finished elongated lanceolate shapes. In addition 'D' - shaped cleavers, heart-shaped specimens are present. Flake tools are also present that include small points and scrapers.

Typologically the artifacts of the Lake Karar compare well with the Group II of Nalgonda Early Stone Age industry. However, the points and scrapers made on small flakes are not seen in Nalgonda.

At Sidi Zin in Northern Tunisia four cultural layers have been distinguished. The first layer yields well finished lanceolate handaxes made on limestone. Flint and quartzite are also used for the manufacture of small and thick trimmed flake tools. These flakes are of simpler kind. A large number of flattened river pebbles are coarsely trimmed into massive scraping or chopping edges.

The second cultural horizon is represented by unifacial handaxes. Bifaces are unknown but the cleavers made in the same technique as of unifacial handaxes and small flake tools also occur.

The artifacts of the third cultural stage are similar to those of the first horizon.

8. Ibid., p. 103.
In the final cultural horizon the prepared core flaking technique appears for the first time. A few crude bifaces persist.

The tool types of the first three cultural horizons have close parallels in the Early Stone Age industry of Nalgonda. The prepared core technique appearing in the fourth horizon is unknown in the Early Stone Age of Nalgonda.

**CasaBlanca** (Northern Morocco)⁹

One of the finest Lower Palaeolithic sequences of this region is that of the Sidi Abderrarham quarry. At the base is an archaic handaxe industry comprising elongated pear-shaped and irregular handaxes as well as 'U' shaped cleavers (of the First Interglacial date). The second industry includes handaxes, cleavers and large flakes (of the Second Glacial). The third industry (probably of the Third Glacial stage) comprises handaxes of cordiform to oval outline.

Pursely on typological grounds the Sidi Abderrarham has bifaces, cleavers and flakes along with their varied shapes correspond to those of Nalgonda. The irregular handaxes go well with the 'irregularly flaked bifaces' in our industry.

**EgypT** (Nile Valley)¹⁰

Two gravel terraces and associated rock platforms assignable to a Lower Palaeolithic age have been recognised in

the Nile Valley. Terrace I of 100 - foot contains the implements of the old and the developed Challean forms. Coarse flake industry of the Glactamian type also occurs. The lower terrace of 50 feet contains in its gravel, the older forms derived from the higher terrace and the Acheulian implements.

The Challean and Acheulian forms including coarse flake industry correspond to our Groups I and II implements of Early Stone Age but in Malgonda both crude and well made biface appear together without any stratigraphic difference unlike those of Egypt.

EAST AFRICA

TANZANIA: OLDOVAI GORGE

The earliest human activity of proven authenticity in the world comes from Olduvai Bed I which is characterised by pebble tools, called 'Oldowan' culture. The tools consist of choppers, chopping tools and some flakes made on chert, quartz, quartzite or lava that are spheroidal or cuboid in form. No biface industry appears in Bed I.

The Beds II and III of Olduvai are marked by the Abbeville-Acheulian industries but the Oldowan artifacts still persist. Five evolutionary stages in Bed II, one in Stage III and five in Bed IV are distinguished. The raw material used is quartz, quartzite and lava.

Bifaces of stages 1 to 3 characterize the 'block-on-block' technique, the tools of which are crude and simple and mostly worked at the tip and retain the thick butt. The tool type is rostro-carinate or beak-shaped implement.

The stages 4 and 5 are transitional between Acheulian and Abbevillian in typology and mark the introduction of cylinder hammer technique and improved workmanship over the preceding stages.

In stage 6 of the Bed III the cleaver makes its first appearance as well as the stone balls of 'bolas' type. The bifaces display a very developed form of the cylinder hammer technique.

The stage 7 of Bed IV is distinguished by high proportion of large, very well-made bifaces that are usually wider in proportion to their length than the earlier ones. Cleavers are fairly common and are of convergent type.

Stage 8 consists of characteristic 'S' twist ovates and 'V' shaped cleavers. The tools of stage 9 are similar to those of stage 7; besides, Levallois technique appears.

In Nalgonda there is no stratigraphic difference between the pebble tools and the biface-cleaver group and all these occur together in the same basal gravel. Nor there is typological evolution of the 'biface' industry supported by stratigraphy in Nalgonda.
The raw material used in Nalgonda is chiefly quartzite and only one or two specimens are made on quartz.

The Oldowan industry closely corresponds typologically to the pebble tools in Nalgonda.

The Acheulean bifaces of the Stages 1 to 3 of Olduvai are comparable from technological standpoint to their counterparts in the Group I of Nalgonda Early Stone Age industry.

Stages 4 to 9 of Olduvai bifaces including cleavers go well with the bifaces and cleavers of Group II of Nalgonda, which are marked by the introduction and subsequent mastery of cylinder hammer technique. However, cleavers appear in Nalgonda in the Group I that are crude in form and finish.

'Bolas' appearing at Olduvai are not at all represented in Nalgonda stone industries.

No Levantine element is found in Nalgonda which appears in stage 9 of Olduvai biface sequence.

Tools represented in stages 10 and 11 of Olduvai have no parallel in Nalgonda.

SOUTH AFRICA

Pre-Stellenbosch and Oldowan

In the northern areas of South Africa have been found tools of the Oldowan type. In the Vaal basin the Oldowan type of tools are found mixed with Acheulean bifaces of Stellenbosch I.

The Oldowan type of South African pebble tools compare with their counterparts in Nalgonda which are of spherical and oval form which are also found mixed with the bifaces.

**The Stellenbosch Industry**

The industry characterises the Abbevillian and Acheulian types. Five stages are distinguished on the basis of the method employed for detaching large flakes out of which the biface or cleaver was to be fashioned. Stage I of the Stellenbosch Clacton-Abbevillian industry corresponds closely to the bifaces of Group I of Nalgonda.

Stage II of the Stellenbosch is characteristic of the Lower Acheulian.

In Stages III to V a new technique comprising faceted platform of proto-Levalloisian (or Victoria West) type appears besides Clactonian or block-on-block technique. These three stages are called South African Acheulian.

The South African Acheulian broadly agrees in typology with the bifaces of Group II of Nalgonda. But it differs, in particular, from Nalgonda Early Stone Age industry in technique where in the latter proto-Levallois type of primary flakes are absent.
Lower Palaeolithic

The earliest flint industry in France is the Abbevillian, found in situ in the 45-m terrace of the Somme at Abbeville in the Somme valley. This is the most primitive phase of the Chelles-Acheul biface tradition in which the flaking is by free-swinging stone technique and therefore appears very coarse. Similar coarse-looking industry is also called as Challean after the type locality Chelles-sur-Marne in France.

In the succeeding biface culture seven individual stages were recognised in the Somme Valley based on typology and stratigraphy. But outside Somme valley, in Europe typologically only three sub-divisions are distinguishable: Lower, Middle and Upper Acheulian. The Levalloisian flaking technique makes its appearance towards the end of Mindel-Riss times and influenced the Acheulian facies.

The Abbevillian and Acheulian facies correspond typologically to Groups I and II bifaces and cleavers of Nalgonda. But in Nalgonda no such stratigraphic distinction is available and all the crude and neatly finished specimens occur together in association with pebble tools which were not found in Western Europe. The Levalloisian technique is not at all in evidence in Nalgonda.

A flake industry called 'Clastonian' found occurring in the Swancombe gravels in Kent and Clacton-on-Sea in Essex. The flakes

are thick with wide and plain striking platforms. Similar flake tools also occur along with the Abbevillian and early Acheulian facies of Europe.

A separate 'Clacton' type industry does not exist in Nalgonda. But the big and simple flakes that occur along with other types in the Early Stone Age are also obtained by 'plain flaking' technique of the 'Clactonian' type. However, no elaborate marginal retouch on the flakes is seen.

**MIDDLE STONE AGE**

**EUROPE**

**Levalloisian**

'Levalloisian' is named after Levallois-Perret, a suburb of Paris. It represents a technique of preparation of the core and striking platform before detachment of the flake and this was practised by various Palaeolithic groups of Acheulian, Mousterian and other cultures.

The Levallois technique, as has been observed earlier is unknown both in the Early and Middle Stone Age cultures of Nalgonda. The prepared core technique practised for the production of flakes and flake-blades in the Middle Stone Age is not coupled with the multifaceted striking platform which is also an essential feature of the Levalloisian technique.

14 Oakley, *op. cit.*, p. 298.
'Mousterian' takes its name from the Mouster near Peyzac in the Dordogne in France. Industries of the Mousterian complex can be classified on the basis of three criteria: whether they include bifaces; whether utilised flakes were mainly struck from discordal cores of the typical Mousterian technique or mainly from Levallois technique and on the frequency of flakes with faceted platforms.

'Typical Mousterian' is an industry without bifaces or with a few. More than 45 per cent of flakes show faceted butts and more than 25 per cent were struck in the Levalloisian method. The discordal core exhibits careful trimming around its edges as well as a series of centrally directed flakes. Its essential tool types are points and side-scrapers and a wide variety of utilised flakes.

In Nalgonda neither the discordal core nor the Levalloisian techniques are present. The bifaces completely drop from the Middle Stone Age culture. Thus the Mousterian complex as a whole has no parallel in Nalgonda.

'Tayacian' is called after Tayac, a commune near Les Eyzies. The same gravel pit is the type-site of both Micoquian and Tayacian. Tayacian industries consist of small, rather thick flake tools (and associated cores) with abruptly trimmed margins. They occur

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15. Ibid., 144.
16. Ibid., p. 229.
typically in the levels below and one level above the layer with
Micoquian (upper Acheulian) handaxes in the gravel at La Micoque.
In the earliest phases, Tayacian flakes (like the Clactonian)
were struck without any preparation of the core, but in the
later layer there is evidence of some preparation.

The Tayacian industry technologically corresponds to the
Group I artifacts of Nalgonda Middle Stone Age in which the flakes
were also struck by plain flaking technique. But unlike the
Tayacian the Middle Stone Age industry does not associate with
any horizon yielding bifaces.

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The Paressmith industries of Africa consist of small bifaces
and cleavers, numerous stone balls and many tools made from flakes
of prepared core and Levalloisian technique.

At present the East African Paressmith is regarded as
directly derived from Levalloisian and Acheulian. On the other
hand, in South-Africa the evidence suggests that the Paressmith
is a direct derivative of the later stages of the specialized
South African Acheulian which had already developed the 'prepared
core' technique.

East African Paressmith with its Acheulian and Levalloisian
elements has no parallel in Nalgonda.

The flake tools of the Group II in the Middle Stone Age of Nal-
gonda that have been removed by 'prepared core' technique may be

compared with their counterparts in the South African Foresmith which also shows similar technique. But the Acheulian facies found in the South African Foresmith are absent in Malgonda.

Sangoan

The tool assemblage of the African Early and Middle Sangoan consists of:

1) Large crude picks and crude handaxes reminiscent of the Early Chellean or Abbevillian.
2) Much more carefully made handaxes of the Acheulian.
3) Large discordal scrapers.
4) Small proportion of lanceolate handaxes and actual lance-heads.
5) The use of an evolved form of the 'prepared core' technique which yield triangular points and also parallel-sided blade flakes.

The evolution of Abbeville-Acheul culture into the Sangoan seems to have taken place in Africa though the later in general is cruder than the true Acheul facies. The Sangoan industry is a transitional phase between the Stellenboch and the Middle Stone Age of South Africa.

In Malgonda no such transitional phase is recognised between the Early and Middle Stone Age industries.

However, purely on typo-technological grounds the large and crude picks and crude bifaces of Sangoan may be compared to the Group I bifaces in the Early Stone Age of Malgonda.

18. Ibid.
The bifaces of Acheulian facies and lance-heads of the Sangoan have no parallel in Nalgonda. But the large discordal scrapers of the Sangoan correspond closely to those in the Group II of the Early Stone Age of Nalgonda.

The prepared core technique which yielded triangular points and also parallel sided blade flakes in the Sangoan very closely correspond to its counterparts in the Middle Stone Age industry of Nalgonda.

The Upper Sangoan has no parallel in the stone industries of Nalgonda.

Pseudo-Stillbay

The pseudo-Stillbay is regarded as essentially Levalloisian, a local culture that is geologically contemporary with the East African Fauresmith and Early Levalloisian.

The Pseudo-Stillbay along with its tool types hardly has any similarity in the Nalgonda industries which lack Levalloisian elements.

Proto-Stillbay and Kenya Stillbay

Both these industries evolve directly out of the developed Levalloisian. End-scrapers and bifacially trimmed points are the tool types. The technique and the bifacial tool type of these two industries are absent in the Middle Stone Age industry of Nalgonda.

19. Ibid.
20. Ibid.
**NORTH AFRICA**

**Egypt**

In the 9 m terrace in the Nile Valley of the Middle and Upper Egypt in situ were found fine handaxes with a somewhat rudimentary technique of Levalloisian for the production of large flake tools. In the industries of the 34 m terrace on the other hand was found developed Levallois technique and the handaxes completely disappeared. In later stages, up to the end of the dated Pleistocene succession, the Levalloisian technique wholly dominates the development of tool industries in Egypt.

In Nalgonda Middle Stone Age industries, the biface tools and the Levalloisian technique are conspicuous by their absence and hence no comparison is available.

**Aterian**

The Aterian culture of Africa is characterized by the presence of tanged points and spear blades up to nine inches long, in addition to side and end-scrappers and a high proportion of Levallois cores.

The technique and tool types of the Aterian are far from similar to the Middle Stone Age industry of Nalgonda. Tanged point with inverse retouch is absent in Nalgonda and the Levallois technique is also not in evidence.

22. Ibid., pp. 177–189.
From the deposit of Ch'ing-Shui Erosion stage which followed the reddish clay and could possibly be correlated with the third interglacial of the Himalayas palaeolithic implements have been discovered in the Ordos area and in the Fenho Valley in Shahe. The human industries from these deposits indicate considerable advances over those of the choukoutian tradition. While the predominant technological traditions of the pebble and Glacian flake types remained, the various types of tools included pick-like implements, polygonal scrapers and stone balls, as well as points, scrapers, choppers and chopping tools. The techniques were more refined, and the number of bifacially flaked core implements increased. The striking platforms and the cores were sometimes prepared before striking. There were some finely made parallel-sided flakes which may be foreshadowing the appearance of blades during the next geological stage.

Considering these industries as a whole it can be fairly said that there is no parallel in the Nalgonda stone tool industries. The pebble tools and bifaces drop from the industries succeeding the Early Stone Age. There is no evidence of faceted striking platforms of the flakes prior to their detachment from the core.

The Loessic stage, probably of the Fourth Glacial stage of the

23, Chang Kwang Chih., op. cit., p. 32.
Himalayas constitutes the blade industries which were not found in Nalonda.

JAVA

The Sangiran Flake Industry

The Sangiran industry of Java comprises flakes made of shining brown and yellow chalcedony and red jasper. Scrapers, ogival points, some borers, core scrapers and crude blades are the tool types.

Haeckel observes that the Sangiran industry on the whole presents a well developed flake assemblage with a small increment of blades. Most of the flake tools have their striking platforms at a high angle to the long axis of the object and display a well pronounced bulb of percussion and retouches as a result of use.

The Sangiran is strikingly similar to the diminutive flake tools of Group II of Nalonda Middle Stone Age in typology and technique. But the raw material is quartzite in Nalonda.

LATE STONE AGE

WEST ASIA

In the West Asia or the Near East a basic change in man's way of life occurred during the Mesolithic Stage, probably in response to ecological conditions. A long succession of cultures.

24. Van Haeckel, op. cit., p. 43.
Garrod, & Bates, op. cit.,
Oakley, op. cit., p. 171.
developed from the blade culture complex and led to the production of microlithic industries which included flint sickle blades with 'corn-glores' indicating that in this region people at this stage of culture had invented equipment to reap cereal grasses, leading to Neolithic culture. This important Neolithic culture has been called 'Natifian' on Mount Carmel.

The Natufians lived mainly in rock-shelters and on adjoining hill-side terraces. They were living to a large extent by fishing and hunting but they had begun to reap presumably the wild emmer wheat. The microlithic tools of the Natufian included both geometric and non-geometric forms.

The microlithic industry of Nalgonda was not derived from the blade-culture complex as was in the case of the Natufian, but evolved from the flake industries of the Middle Stone Age. The non-geometric microlithic forms may be broadly compared with their counterparts in the Natufian industries. Nothing beyond the microlithic industry which constitutes the Late Stone Age of Nalgonda is known at present.

NORTH AFRICA

EGYPT (Helwan)

The extensive flint industry found at Helwan south of Cairo, is generally classed as Mesolithic for it shows clear affinities with the Natufian of Palestine. The Helwan industry includes 'crescents' or narrow lunates, with backs blunted by retouch from
both sides (Helvian retouch) together with other microliths and small blades and tanged arrow-heads with characteristically notched bases.

The Helvian industry shows broad typological similarity with the Nalgonda microlithic industry excluding the tanged arrow-head which is absent in the latter.

**SOUTH AFRICA**

**Smithfield**

The Smithfield culture is associated with pottery and includes polished stones of rudimentary character. The perforated balls or digging stones form an essential feature of the Smithfield. None of these are represented in the Nalgonda Late Stone Age industry. However, the circular end-scrapers and thumb-nail end-scrapers may be roughly compared with the discordal and convex-edged flake tools of the Late Stone Age of Nalgonda. But on the whole the Smithfield facies of the South African Late Stone Age has very little in common with the Late Stone Age industry of Nalgonda.

**Wilton**

The Wilton follows right after the Smithfield. The tool types consist of crescents, simple or double, segments of circles and trapezes, thumb-nail end-scrapers, horse-shoe shaped end-scrapers and small end-scrapers on the ends of blades. In addition, the Wilton comprises little angle burins or terminal burins, backed

27. Ibid.
bladelettes, bladelettes with an oblique truncature and irregular and notched bladelettes. These tools are of small size and were fashioned from pygmy cores with the aid of hammer-stones and the cores have no faceted butts.

Grooved stones, palettes, stone rings, mile-stones as well as digging stones are of regular occurrence in Wilton sites. Polished stones are present though rare.

A coarse pebble industry also exists.

Pottery, that is rare in the Smithfield industries developed in the Wilton culture.

The Wilton stands in great variance with the Nalgonda Late Stone Age industry. The latter is not associated with pottery and essentially non-geometric in character. Polished stone artifacts do not figure in the Nalgonda Late Stone Age. However, the scrapers, all types of burins, backed bladelettes and notched bladelettes of the Wilton have their counterparts in the Nalgonda Late Stone Age. The cores are of small size in both the industries but the fluted cores in Nalgonda show faceted platforms.

EAST AFRICA

The Kenya Wilton or the Uganda Wilton

This industry is comparable with the South African Wilton. The artifacts present the same characteristics of the Wilton: scarcity

of large sized implements, abundance of lunates, thumb-nail and-scrapers triangles and trapezes. Pottery is present.

A comparative study of the Nalgonda Late Stone Age industry has been made above with the South African Wilton and needs no repetition.

EUROPE

The microlithic industries of the Mesolithic period of Europe were essentially based on upper Palaeolithic traditions but adapted to new and rapidly changing environments. The Mesolithic stage of culture may be defined as the continuation of hunting, fishing and food-gathering economy into the post-Pleistocene (Holocene times) and it was terminated by the beginning of farming economy.

In Western Europe, the 'Savvanerian' and its derivative, the 'Tardinosian', were largely confined to sandy country or hinterland; the tool types included mainly of micro-burin and trapezes respectively. The 'Halemonian' and Agilian were confined to forest environments. Flaked core-heads and picks in flint are invariably present in Maglemsonian industries, usually in association with simple microliths and points with blunted bases; while at peat-bog sites barbed points in bone and antler and wooden objects are commonly preserved. The Agilian industries included

pebbles ornamented with symbolic dots of red ocher. Dogs were
domesticated at this stage.

The hafted stone axe-head as the trenchet-axe was invented by
Mesolithic people in the newly forested regions for felling trees
and the working of wood.

Unlike the Mesolithic of Europe, the Late Stone Age of
Nalgonda was not based on the Upper Palaeolithic traditions, but
succeeded by the Middle Stone Age culture.

Though the non-geometric forms broadly agree with their counter-
parts in the Mesolithic, there is no other evidence to draw any
parallel with it.

JAVA 30

Here three different industries of the Mesolithic have been
recognised (1) the Hoabinhian Pebble tool assemblage (2) the
Sampung Bone culture and (3) Telean and alluvial flake and blade
industries.

The Hoabinhian industry, characteristic of the pebble tool
type and the bone tools of Sampung are not at all represented
in the microlithic industry of Nalgonda.

Telean is a mixed culture displaying two elements;
(a) the Proto-Telean with the tanged elements and (b) the
northern element with barbed stone implements. The most important

feature was the great abundance of true microliths, such as battered back points, trapezes, crescents and triangular blades.

Considering all these features of the Toalean culture, it can be said that it does not correspond to the microlithic industry of Nalgonda.