great prehistoric interest, in the Kaimur ranges. From what can be gathered from the descriptions in the papers we can come to the conclusion that they belong to late Palæolithic times and not mediæval historical times as the writer was led to grope into. These are bound to shed much light on the late Magdalenian and later Azilian and Capsian cultures in India for the Vindhyan hills and Banda (which is near these caves) are recognised Azilian stations. It should be noted that Mr. Anderson showed to me a nice collection of white-keeled scrapers collected from the Reva which less finely finished belonged probably to Azilian times when they were revived than to early Aurignacian times. The three very rude and unsatisfactory outlines in J.R.A.S. facing page 89 are of the highest value to us as they represent hunting scenes with weapons which are unmistakable. The first shows the hunting of a stag with prominent horns which played so great a part in providing the Azilian hunter with his characteristic harpoons with a spear tipped with what may be considered the late Palæolithic modification of a Chatel-perron point. The second represents a man besides a leopard and curiously what the man holds in his hands has been suggested by Vincent Smith who communicated this paper to be a torch (!) though it and the weapon in the

hand of the third figure are unmistakable varieties of late Palæolithic harpoons The sketches in the paper are too rude to build any hypothesis upon but the three weapons are unmistakable and the writer of the paper has testified to the life-like portraiture of these groups, which occur in the caves now as inaccessible as forming veritable museums of prehistoric antiquities in the way of flint knives, cores, arrow-heads, celts, fragments of fossils and charred bone, etc., from which could be made a fine collection, sets from which might be sent to every museum in the world."[1] The paper in J.A.S.B. contains descriptions of cave-paintings of great prehistoric interest and as they have been recorded nowhere else I quote at some length the several notices. First comes the details of a Rhinoceros hunt in the Ghormangar cave of which fortunately a plate is given. "A group of six men have attacked the rhinoceros. One of these the animal has tossed in the air is comically like the drawings of people tossed.[2] A man wearing an unusally large head-plume[3] who is in the rear has tried to draw the animal off by plunging his spear into its hind quarters. In front of the enraged animal are two men, the lower of whom in an attitude highly indicative of action has

[1] J.R.A.S., 1899, p. 93.

[2] *Note.*—*Cf.* the similar fate of the man in the Singanpur hunting scene.

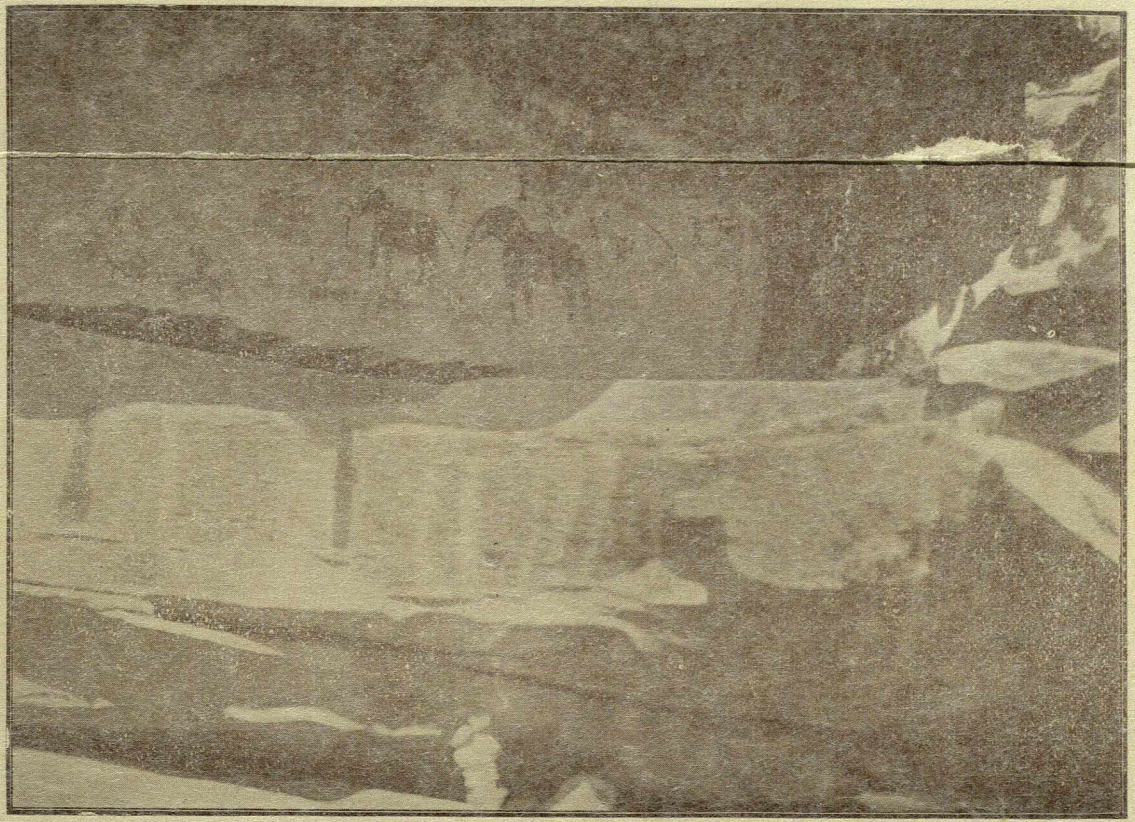
[3] *Note.*—Probably it is a mask.

what appears to be a simple spear of hardened wood with two supplementary barbs levelled at the animal's breast." Cockburn while emphasising that these were of the Stone Age could not shake off the idea that paintings in India must be very late. "These spears I consider to have been made of wood and stone only," he writes in italics. It is not strange that it would be so as he was writing early in 1883 when Sautuola's discovery of Altamira cave paintings only five years ago had probably not been heard of in India and the question of Palæolithic art had to wait another 20 years to be fully understood and its possibility recognised even in Europe. He records another rhinoceros—scene which he first thought to be a boar-hunt scene painted near the village of Roup in Pergannah Burhur about three inches long. "There is a group of three men attacking a boar whose tusk is planted on the tip of his nose like the horn of a rhinoceros. Two of the men who are in advance wear short skirts (but the form of their lance heads is on too small a scale to be defined), attack, him from the rear where is the obliterated figure of a man on a large scale and the form of lance head he is using plainly indicates the chip spear." Similarly he records another rhinoceros-hunting scene from Harin Harna cave near Bidjeygarh. Another hunting scene of a man 'spearing a sambar with a weapon, is represented in

the Likunia rock-shelter.' "The last evidence we can have in support of the idea that the drawings above alluded to represent stone weapons is the fact that stone implements occur in abundance mingled with the identical material with which the drawings were executed." The descriptions are all the more disappointing for though the author notes that the rhinoceros does not now range in the locality or any place near the painting sites, the sketches given in the plates do not afford us any clue as to whether they represent the atalodine variety, especially the *Rhinoceros deccanensis* or *R. Karnuliensis* which though now extinct had a wide distribution in Pleistocene and Prehistoric India. (*Vide* Lydekker, Catalogue of the Pleistocene and Prehistorie Vertebrata of the Indian Museum.) Of a similar nature, though somewhat cruder, appear the drawing reported from the Banda district (which in noted for Azilian and early Neolithic finds) in J. A. S. B., 1907, p. 467 fl.

The motives of palæolithic art.

Before taking leave of this chapter, it is well to take note of the latest views as to the motives which led these men of so very early times to take to art. Was it for the satisfaction of some æsthetic tastes as in later times? Modern opinion seems to hold that these elaborate carving and paintings executed in places under exceptionally difficult circumstances such



Rock painting at Likhunia Dari (Mirzapore)
(By courtesy of the Curator, Lucknow Museum)

as in a kneeling posture or with the aid of light must have been connected with some form of crude faith. Recently Mr. Wennert of Spain has brought forth a brochure which is quoted with approval in 'L' Anthropologie, 1916, pp. 117-120, by Breuil, the greatest living authority on Palæolithic art that probably ancestors were represented either realistically or conventionally for some cult of ancestor-worship. The conditions of Palæolithic discoveries in several caves of Europe oblige one to admit the existence of animistic and magic beliefs even at that early period. "So in the Upper Palæolithic times we have but magic represented by art thus:—the human hands mutilated of fingers (rites) the animals pierced by dart (magic of hunting), the females in gestation (magic of reproduction), the masked dances (magic of chase), the generative organs (magic of reproduction), the animals struck with darts (magic of arms), etc. To the same ideas belong the employment of ochre, the cups cut in the skulls and the corpses in crouched positions. Considering the primitive ideas and taking note of the racial movements at that early epoch one ought to admit that there existed at that period certainly a great variety of religious manifestations founded on the veneration of ancestors (manes) of animals and totemic ideas." Mr. Capitan has also shown that the quaternary designs especially in France

naturlly lead one to assume that masks or ceremonial accoutrements were worn in those times.[1] As for the sociological and psychological needs that produced the stylised and schematic figures, Durkheim states: "It is in the Australian societies that we must seek the origins of these representations. Although the Australian may show himself sufficiently capable of imitating the forms of things in a rudimentary way, sacred representations generally seem to show no ambitions in this line : they consist essentially in geometrical designs drawn upon the churinga, the nurtunja, rocks, the ground, or the human body. They are either straight or curved lines, painted in different ways and the whole having only a conventional meaning. The connection between the figure and the thing represented is so remote and indirect that it cannot be seen, except when it is pointed out. Only the members of the clan can say what meaning is attached to such and such combinations of lines. Men and women are generally represented by semicircles and animals by whole circles or spirals, the tracks of men or animals by lines of points."[2]

[1] *Vide* L'Anthropologie, 1914, pp. 106-113. The use of masks has been conclusively established by the discovery of the masked human figure in Trais Freres (*Vide* Man Dec. 1921 p. 183 and Jan. 1922 p. 3.

[2] Durkheim, Elementary Forms of Religious Life, tr. Swain, pp. 126-127.

CHAPTER IX.

The Neolithic Types in India.

Celts.

The most common of Neolithic forms are polished celts. This name has been given to hatchets, adzes and chisels of stone. It has got no reference to Keltic people but is merely the English form of the *Lat.* Celtis or Celtes—a chisel. It has been suggested that there may originally have been some connection between the *Lat.* Celtis and the Welsh Celt, a flint, but this is merely accidental. The Welsh proverb says that there are three hard things in the world—maen-celt (a flint stone), steel and miser's heart. The general form of stone celts is well known, being usually that of more or less flat blades approaching an oval in section with the sides more or less straight and one end broader and also sharper than the other. They have been divided into three classes by Evans, *viz.* (1) those merely chipped out in a more or less careful manner and not ground or polished ; (2) those which after being fashioned by chipping have been ground or polished at the edge only ; (3)

those which are more or less ground or polished not only at the edge but over the whole surface. There is a curious wide-spread belief all over the world amongst savage (uneducated) people that the celts were thunder weapons. In the West of England people still hold that the thunder axes they find, once fell from the sky. In J. A. S. B., 1909, there is an article by Coggin Brown showing how these celts are sold in Yunnan (Western China) for medicinal purposes. In most parts of Europe, Asia, Africa and America these celts are looked upon with a great deal of awe and regarded as lightning weapons.

These were used hafted in various manners. The earliest handles seemed to have been made of horn into which the narrower end was inserted. But more commonly wood was used in the early neolithic site of Robenhausen. We find blades often inclined towards the handle. Often we find an intermediate socket of staghorn used with the celt when inserted into the handle. Sometimes also similar tools were used in the hand without intervention of any haft. The forms of polished celts are many. Sometimes as in the earliest forms they show facet at the edge but more often they are thin and highly finished with flat sides and oblique edge. They are generally triangular in section but rectangular and oval sections are also not unknown.

Some forms are sharp at both ends. They were used chiefly for cutting down timber and for scooping canoes out of the trunks of forest trees; for dressing posts, for huts, for grubbing up roots and killing animals for foods, for preparing fire-wood for scraping the flesh from bone when eating and for various other purposes in the domestic arts. But they were also employed as weapons of offence and defence and sometimes for mining in chalk in pursuit of stones and probably also for religious purposes. (*Vide* Evans, Ancient Stone Implements of Great Britain and Ireland.)

The stone selected for the celts in India is in the case of polished ones, diorite, of varying degrees of fineness in some cases nearly approaching prophyry. A perfectly distinct type roughly chipped is of a hard black basalt. As a rule while those of the one class are thick and show an ovate section, the basalt celts are comparatively flat. The basalt weathers differently from the diorite. In rare instances celts of polished sandstone have occurred.

Rough-hewn celts of basalt may be divided into three types: (*a*) heart-shaped or cordate, rather an uncommon type, the edge alone highly polished and so much rounded as to be almost semi-circular. In many cases inequalities of the chipping have been partly removed, but in no case has the implement itself been entirely

polished, (*b*) Lanceolate, long and comparatively narrow and coming to a point at the end, resembling the arrow-heads termed leaf-shaped in European collection. The side edges have the appearance of being serrated owing to flakes having been taken off, on alternate sides. (*c*) Very flat and almost triangular in shape.[1]

Hammer stones.

"Grooved hammer and axes are perhaps the rarest of numerous neolithic stone implements recorded from Eastern Asia. Only one specimen of this type appears to have been described from India. It was found by J. A. Cockburn together with a number of other stones under a sacred tree, 37 miles south-west of Allahabad at Alwara. In form it somewhat resembles a modern hammer, being flat at the ends, and slightly carved on the upper surface. A groove of 50 inches in width and 5 inches in depth has been carefully carried round the centre. The base has been hollowed out in equal care in a gouge-like form to the depth of about of an inch. The whole arrangement suggests that the hammer was attached by ligature to a wooden or withy handle, the ligature being kept in its place by the upper groove, while the lower groove held the hammer in position on the rounded haft.[2] Mr. Cockburn

[1] J. A. S. B., pp. 228-29.

[2] J. Coggin Brown, Grooved Stone Hammers from Assam, etc., J. A. S. B., 1914, p. 107.

has pointed out certain minute marks especially on the lower groove, which suggest the possibility of metal implement having been used in the fashioning of the hammer and it may be that this implement belongs to the transition stage from stone to metal. These implements may be counted among the best known relics of the aborigines and specially in the rural districts of the older states of America they are very frequent. Amerindian stone tomahawks are familiar objects. In general they can be defined as wedges encircled by a groove usually nearer the butt than the edge. The grooves served for the reception of a withe of proper length which was bent round the stone-head till both ends met when they were firmly bound together by ligatures of hide or someother materials.

Another kind of hammer stone from India was also collected from Allahabad. It is a cubical mass of basalt measuring 2·50 inches each way. On each of its six sides is a hole of depression about one inch in diameter and ·25 in depth. The implements fit conveniently into the hand, the depression affording a hole for the fingers and suggesting its use as a many-sided hammer, the faces of which were changed from time to time when the pit became inconveniently deep for use.

Another kind is seen in a flat red quartzite pebble, measuring 4·25 inches by 3 inches by 1·75

inches. The two ends are slightly flattened and the upper and lower sides exhibit a double groove or notch for the purpose of securing it to a wooden handle. On the upper and lower surface double cup marks or depressions which are not easily accounted for but may have been meant for hammering, appear.

Another kind of curious implement is a wrought piece of basalt 3·50 inches by 3 inches. It bears the appearance of having been split into two either by accident or by design. A deep but narrow groove runs through the centre. Mr. Cockburn considers it a type of implement resembling the single Bolas or modern slung shot, and supposes the groove to have been intended for the reception of a thong. Mr. Cockburn found a third figure at Kalinjar bearing in his hand an implement which he considers resembles that now described. At the back of the stone is a small but curious depression hardly large enough to have been produced by hammering.

Another type very well known in Europe is a mace-end or ring-stone. It is sometimes made of quartzite and has got a central hole. On either surface towards the centre it narrows in the manner characteristic of the working of the implement of this description found both in India and in Europe. Many examples of this type are to be found figured by Evans and others in their works on 'Stone Implements.' Perfect

specimens in some numbers have been found by Mr. Cockburn and Rivett Carnac, beside a large number of fragments. The perfect specimens are generally found under trees, deposited there together with celts, but numerous fragments have been picked up at the base of hills on the Kaimur plateau or in ravines together with fragments of celts and flint chips and other indications which usually mark the sites of ancient encampments. Large round pebbles with the drilling of the central hole in a more or less imperfect state have also been found in considerable numbers indicating that the process was troublesome and lengthy. Some exhibit a deep cup mark or depression on either side, others on one side only. They closely resemble the hammer stones found in Europe and America and figured in the various works on the subject. In many of these cases it seems doubtful whether it was intended to perforate the stone, which fitted conveniently enough into the hand as a hammer.

Four-sided blocks of diorite ground to a rough point at the end bear all the appearance of having been used as picks or holes and are well adapted for grubbling out roots or digging out holes. According to Rivett Carnac this implement may have been used in a rude state of culture. The fact of the point being unsymmetrical and the right side exhibiting a greater

amount of the wear than the left favours this idea.

Long, tapering, well rounded pieces of diorite measuring 9½ inches in length are sometimes met with. It bears from top to base the marks of the chipping by which it has been worked into its present state. The implement has all the appearance of having been used as a pestle for pounding grain or other substances. It may possibly have been used as a stone club like those of the Merai of New Zealanders but is rather short for such a purpose.

CHAPTER X.

The Neolithic Settlements.

Neolithic India shows us three phases: (1) from Banda and Murpha come the earliest Campignian and Robenhausian stages of India; (2) the Bellary is an instance of a long-enduring mid-Neolithic phase passing straight off into the Early Iron Age; (3) Chota Nagpur and Assam with their highly polished and shouldered celts bespeak of chalcolithic times when copper, bronze or iron was being used side by side with neoliths which were becoming symbolic objects of veneration.

A Neolithic factory site.

The men of the Old Stone Age have been seen to evince a preference for the tract of India from the Kistna to the Palar river but the Neolithic cultures spread far into the north. Neoliths are reported in large numbers from the Salem, Madura and Bellary districts and this was undoubtedly the centre of Neolithic as Cuddapah was of the Early and Mid-Palæolithic culture. In 1872 the discovery of the north and the Kapgallu Neolithic remains by Fraser brought out the existence of the most extensive polished stone culture in that part of the Bellary district. All sorts of Neolithic weapons and implements were found in abundance. Only from Kapgallu alone 180 celts were recovered. The north-east slope of the hill was apparently a

Neolithic factory-site and the largest manufacturing industry of polished stones in India flourished there. The diorite trap dykes which traverse the hill furnished the workers with an inexhaustible supply of excellent material of two sorts, the coarse black diorite and a fine-grained pale greenish grey to a drab type which occured in lenticular masses. In a rock-surface just on the edge of the south-east terrace was found five or six well-polished grooves. They were 7 to 8 inches long and 1 to $1\frac{1}{4}$ inches deep, apparently worn by grinding the celts to a sharp edge. All these grooves lay parallel to each other within an area of less than 20 inches square.

Bellary in the Rāmāyana.

No less than 77 prehistoric sites were discovered near that place and in the outlying tracts and there is no doubt that a large and extensive civilisation flourished there. The people, though they still adhered to the primitive forms of life offered stubborn resistance to invading races from the North with higher cultures. The cinder mounds in the contiguous districts retain unmistakable traces of big encampments and huge conflagrations and there was most probably a tussle between some bringer of Northern culture with the equatorial tribes flourishing with their older type of civilisation. Thus on the road from Bellary to Dharwar rocks a remarkable mound consisting of slaggy cinders full 50 ft.

high and 400 ft. in circumference is met with and local tradition assigns it to the cremation of a Rākshasa Hirimba by name who was killed by Bhima, one of the five Pāndavas of the Mahābhārata epic. From the Rāmāyana we find that Rāma had a tussle here with the "monkey"-king (?) Bāli and allied himself with his brother Sugriva and the description plainly indicates the existence of an organised state of a primitive neolithic tribe dwelling in rocks and forests in Kiskindhyā (the modern Bellary district). Vālmiki indeed, writing in much later times, could not quite seize the import of the old legends that he was utilising and also could not distinctly differentiate between the different stages of culture. As it is, a cursory glance over the particular part of the Rāmāyana would convince one that a numerous band of forest-dwelling tribes abiding in arboreal and rocky recesses and yet hunting the wild deer and tigers and possessing rock-fortresses are but meant (*vide* Rāmāyana, Kishkindhyā Kānda, Canto II, Slokas 10-11). The caves covered at the mouth by trees and plants and by turf (?) served as forts (*ibid*, Sloka 19) and possibly they were of the Neolithic type. The better weapons like bows and arrows excited wonder in them (*ibid*, Canto XII, Sloka 5). The fight between Bāli and Sugriva is carried on by blows, fisticuffs, wooden weapons as well as by stone weapons (*ibid*, Canto XII, Sloka 18). In the

Mahābhārata, Vanaparva, Chapter 281, we read of the fight being carried on by weapons of Sāl and Tāl wood as well as of stone. And it has been often pointed out by many that the so-called monkeys were not actual tailed arboreal animals.[1] "The monkeys in Rāmāyana might have been a very low class primitive southern tribe. The tail probably referred to a peculiarity in the mode of dressing of the lower class people in Southern India (which can still be seen occasionally) which appeared like tails. The panels on the Sanchi tope representing the primitive tribes bring it fully home to us." Bruce Foote forgetting that Valmiki writing in historic times was liable to make errors of anachronism states that the tussle occurred in later times. But as the tail-wearing habit recalls predynastic Egyptians, the earlier form of Rāma legend making Sitā—his sister—wife recalls the royal custom of dynastic Egypt. Dasaratha the father of Rāma is a name familiar in Western Asia and 'Ra-amu' has a Hamitic ring. Are the Bellary neolithic and Rāma legends witness to Hamitic invaders in India.

The stages of 'celt' manufacture.

Leaving aside these doubtful but highly interesting speculations and only pointing out how prehistory can come to the rescue of Indian history by bringing, as in this case,

[1] *Vide* Somerset Playne, Southern India, p. 58.

independent evidence as to the date of Rāma's expedition (not Vālmiki's composition) we pass on to considerations more proper to our review. These old Neolithic peoples of the Bellary district can be traced at their work of celt-making. The successive series of celts in various stages of preparation tell an eloquent tale. A piece of dioritic trap was first selected and chipped into form roughly. Then it was pecked, *i.e.*, the different angularities due to chippings were broken down. Then came the third stage in which the implement was ground and all roughness was smoothed down. Lastly the things were polished and made fit for hafting. Celts of various types were used, some were of basalt with narrow shape and straight sides, some were pecked and the ridges between the chipping faces were broken down, some were of thick battle-axe type, some were adze-like in shape, but all were in different stages of polishing and thoroughly effective.

The coloured stones.

No longer mere hunters but partly agriculturists the Neolithic peoples show abundant varieties of mealing stones, corncrushers, pounding stones. In fact, the people were more vegetarians than carnivorous like the preceding men of the Old Stone Age as the peaceful implements far outweigh in number the weapons for war. The fascination for colour is more than evident

especially in the articles for domestic use. The small tools were made of beautiful chert, agate, chalcedony, bloodstone, Indian stone and rock-crystal. Knives, saws, drills, and lancets were made from the flakes struck off for them and went to make up the comforts of their economic household. The numerous fine rock-shelters have already been commented upon. Thatched primitive houses were also not infrequent as the presence of the straw in the cinder-mounds clearly prove. But the inhabited parts of the old settlement were mostly the citadel on the hills and on the little shallow sloping valleys.

Iron-smelting.

That this Neolithic settlement was acquainted with iron-making industry need not be doubted as some small pottery (tuyere) suitable for protection against direct flame action of the nozzle of a small bellows was found in the Neolithic strata.

The Cinder-camps.

Before passing on to the next section, some mention should be made of the cinder-camps which form the standing puzzle of this place and which as we have already suggested might but mark the invasion by peoples of higher culture from the north of these tracts of Neolithic culture. Bruce Foote has once for all established the connection of these cinder-heaps with the Neolithic Age and differentiated them into cinder-camps and cinder-mounds. To the former class belong the

two camps at Kupgal, one at Halakandi (S. W. of Bellary), one at Gadigunurer (23 miles west by North of Bellary), the fifth at Soadaspur (16 miles North of Bellary) and the last at Lingadhalli (129 miles N.-E. of Bellary). Of the latter class are those at Budiknama, Nimbapur, Kanchangar, Belagulla, at Sugura, at Kurikoppe and at Suridamna Konda.

Possible cultural routes.

It would be an injustice to Neolithic India if the other parts from which the polished stones are abundantly forthcoming, are not brought in for due considerations. To Burma specially some remarks are due as a few new types come from that part alone. It has already been remarked that the Neolithic settlements are more abundant in Northern India or rather the parts immediately North of the Deccan namely the Central Provinces, and still higher up, the United Provinces. Of course Bengal and Assam on the one side and the Indus valley on the other also yield their Neolithic celts, chisels, etc. The involuntary suggestion cannot be kept back that as it were the Palæolithic passed into the Neolithic stage in Southern India which became in time the emanating centre of the some Neolithic culture over other parts of India, and, who knows, probably over a large tract of the Old World. The question of this distribution of some Late Stone Age

culture from some central point has been the bone of contention of prehistoric archæologists for a long time and as, so to speak, a particular phase of this has received ampler treatment in a later chapter we pass by it for the present.

Burma types.

Theobald's paper in the Memoir of the Geological Survey of India[1] can still be read with interest and as it deals with the Burma Neoliths and their speciality it is given here, "Were there however, any objector so hardy as to argue that such similarity of monuments both industrial, funeral and religious, was merely the result of fortuitous similarity of condition it would seem as though a conclusive answer to such a supposition was provided in anticipation in British Burma. It seems difficult to imagine what differing conditions could have obtained during the savage infancy of our race in Burma, greater than what existed between India and Europe; yet directly we cross from India, properly so called, to the countries lying to the eastward of the Bay of Bengal, we find stone implements not less abundant than elsewhere, but of an entirely different type. We no longer find the Indo-European type either Palæolithic or Neolithic, but one seemingly autochthonous to the Malayan countries, and both in size,

[1] Vol. X, p. 160.

shape, and design displaying considerable divergence from any of the ordinary types of weapons found elsewhere." The main points of divergence are, 1st, the frequency of forms possessing "shoulders" a peculiarity quite confined to articles from the Burmese or Malayan area; 2nd, the cutting edge being usually formed by grinding down on one side, as chisel, and not an axe; 3rd, the general small size and seeming inefficiency for any rough purpose, though it must be remarked that very small and well fashioned weapons are also found in India."

Shouldered celts and ethnic associates.

Shouldered or spade-celts have since been discovered in the highlands of Bengal and Assam. These with some grooved hammers and axes have been found in Assam and rarely occur in Eastern Asia. Mr. H. C. Das Gupta who wrote in the Journal, Asiatic Society, Bengal,[1] connected them with the Khasia hill tribes who are still in the practice of raising megalithic monuments:—

"The occurrence of these two implements of the Burmese type, in areas through which the wave of Khasia immigration very likely passed, before the race found its present hilly home, is of extreme interest and is quite in conformity with the view so long held regarding a relationship between the Khasias of Assam

[1] Vol. IX (1913), p. 292.

and some of the older tribes of Burma, which has been based chiefly on linguistic grounds."

Indus Cores.

Whether these had anything to do with the Khasias or whether the Mon-Khmer languages are the only surviving remnants of the Neolithic race passing out of India and evolving a high stone culture, is more than can be answered at the present juncture. But what is highly interesting is that if a progress is admitted in a Northerly route from the Deccan, distinct advancement is discernible in the North-East as well as the North-West of Inda. Perhaps the most finished specimen of Neolithic celts and cores come from the Indus valley which with their flawlessness remind us of the great height the New Stone Age culture of the Toltec, Maya, Nahua and Aztecs of America attained to. Mr. Blandford in the course of his long notice of them in the Journal of the Asiatic Society of Bengal[1] while calling attention to the high finish, the ground bottom and the late age of these was led to suppose the existence of a new race with a higher civilisation. The cores especially from Rohri, Sind, are strikingly similar to those found from Anau by Pumpelly, from Egypt, from the Swiss Lake Dwellings and from Denmark.

[1] 1875, pp. 135-36.

Wooden types.

In North-Western India the cores are more common than other types. They are most often of agate or chert and with their translucent pinkish, white and orange, milkish white, banded and other variegated hues form very pleasing objects to the eye. These with flakes often of very small size, hammerstone, smoothed sandstone, polishing stone and ringstone were much in request amongst the Northern Neolithic dwellers. An article of which primitive Indians from late Palæolithic times seemed to have been very fond, was "Reddle." It was no doubt used for pigmentation and stones for its preparation as well as pieces of red earthy hematite have been discovered in Neolithic sites. Wood was undoubtedly very largely used along with stones but being less durable has not come down to us. Fortunately a piece of fossil wood beautifully polished and flattened on one side has been recovered from the Sitakoond range in Chittagong. But the most interesting wooden find, though perhaps of a later prehistoric age, is the wooden tooth-comb perfectly preserved and found at Guntakul Junction by Mr. Cardew.

CHAPTER XI.

Prehistoric Metallurgy.

The early knowledge of metals in India.

The 'wealth of Ind' and its 'barbarous pearl and gold' had always been before the eyes of the civilised world and the modern views are that prehistoric peoples were not blind to the beauties of the yellow metal. Savants led by Elliot Smith are trying to map out the trend of prehistoric migrations by the location of mines and attractive materials. The articles that come in for our consideration are Copper, Iron, Gold and Gem Stones. In all these cases we find not only that they are widely distributed throughout India but they had been worked almost from time immemorial. The difficulties for prehistoric study are increased for it is very difficult in India to associate the working of a particular metal with a particular set of people or fix its beginnings at a particular point of time. This much is known that the beginnings of metal for general use as distinguished from articles of ornamentation came into vogue gradually after the people had known the art of perfecting stone

implements, taken to a settled life, learnt the art of weaving garments, began to use pottery and gradually inventing the use of the wheel for making it quicker in the end of the Neolithic age. But though it is true that copper (and much less bronze) and iron were totally unknown in the Neolithic age and were used for some time side by side with polished stones, the same can scarcely be said of the precious metals and shining beads for which as for coloured stones, a fascination was never wanting from almost the earliest dawn of humanity probably in India.

Gold and gem stones.

For " Gold is very widely distributed throughout India, more so perhaps than any other useful mineral with the exception of iron ore. There is, in fact, hardly a province in which the washing of alluvial gold from the sands of the rivers is or has not been practised by the native inhabitants." (La Touche, Art. Gold). Gold is obtained also directly from quartz veins or schists of Southern India. It is well-known that the Deccan Palæolithic peoples used quartzite and were very fond of milkwhite quartz. " Many old workings have been met with along the out-crops of the veins in the Chota Nagpur with large number of grooved stones which had been used for crushing and grinding the quartz " (*ibid*). Gold has been obtained at great depths from various

prehistoric sites of Tinnevelly in South India. "India, at all times, has been regarded as a land of gold, yet the gold-bearing districts are almost exclusively confined to comparatively small areas in the South, so that the question naturally suggests itself, whether the gold was chiefly obtained by mining or by external intercourse. Gold certainly occurs in small quantities in the sands and gravels of many rivers and streams but the chief remains of ancient workings are found in the Wynaad district of Malabar and Nilgiri and in Mysore and Hyderabad. In the former, the country is covered with detritus left by ancient miners, who here were not content to treat only the alluvial deposits but sank shafts in the quartz veins" (Gowland, Metals in Antiquity, Journ. R. Anthrop. Inst., Vol. XVII, p. 260). Its yellow colour was the cause why it was found in sporadic use in such early times. A like case is of several finely coloured gem-stones which were in demand for beads which were used for ornamental as well as ritual purposes. Agates and Carnelians were great favourites and it may be said that diamond exercised like attraction as it occurs in districts of Anantpur, Bellary, Cuddapah, Kurnool, Kistna and Godavari which we know were great centres of human habitations even in early Palæolithic times.

Copper is also of wide occurrence throughout India though not in native sheets but as ores.

Copper.

What is of great interest to us is that copper ores have often been found associated with iron in India, so here the invention of the extraction of copper probably had gone hand in hand with that of iron at least in Northern India. Ancient mine workings have been found in many places which are still the seats of peoples who are accepted as the descendants of Pre-Aryans in India. Thus in Singbhum heaps of slags still bear witness to the fact that copper deposits had long been known and exploited by primitive tribes living there. Mr. S. C. Ray has discovered copper slags from 'Asura' sites in Chhota Nagpur. 'Their treatment (which may be considered to be substantially unchanged through ages) consists in four processes: (1) the ore is thoroughly pounded and washed; (2) it is smelted with charcoal in a primitive furnace, so as to form a regulus, the slag being removed by cooling the surface of the molten mass with a wisp of wet straw; (3) the regulus is pounded and mixed with cowdung, made into balls, and roasted with free access of air, (4) the roasted powder is resmelted in the original furnace, (La Touche, Bibliography, II, p. 115). Old copper workings have been reported from the Shan States, Indore, Nellore, Kistna district, Rupavati in Kathiawar, Nepal and Kangra, Singbhum, Sikkim and Kumaon.

In the Indian Antiquary, October, 1905, Vincent Smith had emphatically held that India

(in spite of there being reports of bronzes at various places) had no Bronze Age. All the bronzes that occur here were used as adornments or mere exotics. "That the Iron Age in peninsular India was not preceded by a Bronze Age, as in Crete, Greece and so many other Western countries, was very probably due to the land-loving character of the Neolithic people, for had they possessed any sea-faring inclinations, they would certainly have sailed across the Bay of Bengal, reached the Tenasserim coast and there become acquainted with the tinstone of that region. As copper is found plentifully in India, the art of making an alloy must soon have followed. As it fell out however, the discovery of the alloy was not made in India till after the art of iron-smelting had been acquired and iron weapons and tools had come largely into use" (N. A., pp. 24-25)—such is the opinion of Bruce Foote. Mr. Read in his Presidential address to the Royal Anthropological Institute in 1900 also harped on the probable precedence of Iron to Bronze specially referring to Mr. Gowland's paper on Early Metallurgy of Copper, Tin and Iron in Europe thus :—" One point of great interest that in his judgment is still undecided, is whether iron or bronze was first used by man though it is probable that many archæologists have made up their minds on the subject ; but he dispels altogether the idea that

Bronze

there is any greater difficulty, by the most primitive process, in producing an implement of iron than in making one of copper or bronze and endorses Dr. Percy's opinion that metallurgically the Age of Iron should precede the Bronze Age." Six bronze weapons of which three are harpoons, one a celt, one a spearhead and the last a sword have been noticed by Vincent Smith and no less than 123 bronze objects are recorded by Mr. Rea and I found not quite a small number in the Patna Museum.

Iron.

If the predominance of any article is to give the name to any country. India should have been called 'the land of iron' so widely distributed is the ore here and so many workings have been reported from various places. The question of the antiquity of iron in India has always been studied from the wrong side in as much as evidence was always sought from the literatures of the 'Bronze and Copper-using Aryans' whereas 'Pre-Aryan' India gives quite a different tale. Go to any part of primitive India, Iron industry, the high quality of steel produced and the low state of civilization of people producing them (*e.g.*, the Khasis, the Kols) would present a great riddle. It does not matter whether in the Vedas, the shining metal often mentioned Ayas would be 'steel' or 'copper' though as in the case of Homeric literature the case for Bronze

or Copper seems to be more weighty than that of iron. But there is also no denying that when sometime had elapsed after the settlement of the Vedic peoples in this country they came in contact with the aborigines who prepared 'wootz' and the word might have soon artificially modified the meaning of Aryan 'Ayas.' This alone can explain why Iron according to Vincent Smith is not mentioned in the Rig Veda but is evidently known by the time of Atharva Veda and Satapatha Brahmana on the one hand as well as the very important fact adduced by Bruce Foote that traces of Iron smelting have been noticed in many neolithic settlements in the Deccan, *e.g.*, the Bellary. Bruce Foote has also rightly observed that iron industry is one of great antiquity in India, far more ancient indeed than in Europe, *e.g.*, at Hallstatt and La Tene Primitive furnaces have been reported from various parts of India.

Its ancient smelting processes.

"The furnace is built of clay by the smelter and his family, and is of no great capacity, the maximum yield reported for single furnace being about 30 tons per annum; while the blast is usually supplied by a pair of leather bellows. Only the softer varieties of ore such as can be easily reduced to powder, and if necessary concentrated by winnowing, are made use of. These are gathered from the surface or dug out from

the shallow pits and trenches; or when available are collected in the form of iron sand from the beds of streams. The ore is reduced in direct contact with charcoal, and without the addition of a flux to a pasty mass or 'bloom' from which a slag is expressed by repeated hammering and reheating; since the temperature at command is seldom high of the charge." (La Touche, Bibliography, Vol. II, p. 133.) Another special feature was the manufacture of wootz or crucible steel by the carbonisation of wrought iron as practised in the Trichinopoly district and other places of Southern India from time immemorial. The iron is placed in crucibles made of ferruginous clay and charred rice husk, with wood of the Avaram tree (*Cassia auriculata*) and leaves of *Calotropis gigantea* or *Convolvulus laurifolius*, and sealed with clay. The crucibles are arranged in the furnace in batches of 25, forming a flat arch, and are subjected to a continuous blast for about two hours. The steel is produced in the form of small conical ingots, each weighing from 8 to 11 ounces."

Dr. Panchanan Neogi, Professor of Chemistry, Rajshahi College, has shown in his admirable monograph on "Iron in Ancient India" (1914) that the crucible process of making cast-steel is an Indian discovery. He says "It is evident that the traditional Indian method of making steel

was the crucible process of making cast-steel in a fused condition by cementation, which process should really be regarded as Indian discovery. The chemical action that takes place is that during the application of heat to the closed crucible the dry wood and green leaves would yield charcoal as well as an abundant supply of hydrocarbons. This joint action of carbon and hydrocarbons greatly facilitates the formation of steel as the European method of cementation by means of charcoal alone used to take six or seven days, and even fourteen to twenty days, while the Indian process takes only four to six hours."

The antiquity of the Early Iron Age in India.

It is curious how "wootz" is often spoken of in very ancient Greek literature as well as Egyptian dynastic literature as one of the metals imported from the East and has been generally interpreted as Electrum, but much more likely refers to Indian steel where we get the very name. Von Luschan in dealing with "Eisentechnic in Africa" (Zeitschr. f. Ethn. 1909) had described the Egyptian "Schalengeblase" the handled blowing instruments which were worked by standing on leather and maintained that these were the most primitive and the Egyptians had derived the knowledge of these from Negroid neighbours and from Egypt this had spread all over the old

world. Now amongst the Kols of India exactly identical processes prevailed till a late day. Thus we read in the District Gazetteer on Santal Parganas (1910, p. 201)—"In the ground on each side of the furnace a planted stake 8 or 9 feet in length had been driven. These were now bent over towards the bellows, and to the stake on the left-hand side was fastened a string which was attached to the goat-skin of the left-hand bellows, so that the stake, trying to spring back into place, pulled up the skin on the bellows. The stake on the right-hand side was similarly attached to the right-hand bellows. The skins each had a perforation. Then a man standing on the bellows, with one foot on each, depressed the right-hand stake, and at the same time closed the perforation in the skin of the right-hand bellows with his foot, and by means of his weight drove the air from the bellows into the furnace. He then leant over to the left and repeating the operations on the left-hand hand bellows sent a blast from the left-hand pipe into the furnace and thus alternately he threw his weight from right to left in a series of operations resembling a man in the tread-mill, and gave a fairly steady blast into the furnace." It seems as if we were reading a description of Egyptian treadle-blasts depicted in Fig. 7 of Luschan's article, so strikingly similar are methods adopted by these Pre-Dravidians to that of the Egyptians.

There are some facts and data which go to show that the civilisations of earlier Sumer and Egypt might be due to some Neolithic Indo-Erythraeans whose home was likeliest to be round the shores of the Erythraean sea. The opinions of several Egyptologists are well known to be the same, though India specificially was not mentioned by them. Now it is a curious fact that iron though not in common use in Egypt till in the middle dynastic period, occurs as sporadic specimens undoubtedly in the earliest dynastic times. *If the mysterious ethnic and cultural connection between India and Egypt based on the identity of cephalic indices of Veddaic and predynastic skulls, identity of the shape of some funeral urns as well as Neolithic pottery-marks from Egypt and early Indian megaliths and the possible affinity of agglutinative tongues is conceded, it must be also said that in predynastic times even the knowledge of iron was probably common to both countries.* And as the one is possessed by India at large, we think steel, especially wootz was imported from India in Egypt as objects of high value in those early times about 3 to 4 thousand years before Christ. It seems that a great equatorial neolithic race of India, of East African affinities, whom I called the Indo-Erythraeans, probably evolved in the Deccan the process of smelting iron and that is why we find iron beads in Egypt in Pre-Dynastic times

occurring sporadically long before the times when they became more frequent when possibly trade-relations were re-established with the Deccan after a long lapse following the ethnic separation of the peoples on the African and Indian littorals. It would not indeed be impossible to think of the piece of iron of the Great Pyramid at Gizeh in the IVth dynasty as results of trade relations with India as was the case with the piece of Indian teak found in Mugir in a strata of about 4000 B.C. That the knowledge of iron did not spread from Asia Minor eastwards is proved by the iron age in China (about 2357 B.C.) being much anterior to that in the West, say in Hissarlik (about 2000 B.C.).

CHAPTER XIII.

Prehistoric Copper, Bronze and Iron finds.

An Indian Bronze Age is still a thing to be proved, for bronze occurs but rarely in prehistoric sites and figures there more often as costly ornaments than articles of daily use. In the case of Europe, in Homeric and pre-Homeric Greece and all through the North, Bronze has been found at a certain stage to be an article in common use and swords and celts were mostly made of bronze. The great Minoan culture was essentially a Bronze Age culture and pottery of the highest artistic kind, palaces of great ingenuity have gone hand in hand with it. It is rather curious that the South of India where thousands of megalithic structures of late Neolithic days and early Iron Age are still standing, yield pottery and iron implements of the type of pre-historic Bronzes yet give out but some occasional Bronze articles meant to be gaudy furnitures or costly ornaments.

This leads us to think that the bronzes of India are exotic. As such they would be the corner-stones of Indian protohistoric chronology by supplying definite landmark's whenever their foreign affinities may be established.

But this is not the case with the copper objects. Decholelte in his admirable way thus sums up that case. "Ths existence of an age of copper in India is attested by several discoveries, The most important is that of Gungeria (1870), about 10 English miles from Boorha in Central India. It comprises mestly of 400 flat axes, of various lengths, all in copper, and 102 objects in silver, notably several plaquettes figuring schematically the head of a bull. No consideration permits us to assign the Gungeria craft to an original phase of metallurgy. The diverse varieties of axes do not correspond to a ptimitive type, At least it may be allowed to connect the horned amulettes to old bull cult so much spread in the West in the premycenean epoch." (Dechelette, Manuel D'archeologie, Age du Brone, p. 66).

Thus the use of copper itself in primitive form has been demonstrated to exist in India from the various discoveries from several places of Northern India. Southern India is now held to have passed through no Copper Age even and the Iron Age succeeded there to the polished Stone Age. Copper Age antiquities have been forthcoming from Rajpur, Mathura, Mainpuri, Niarai, Bithur, Allahabad, Behar, Hazaribagh, Karachi and Beluchistan, while the most important discovery of instruments of copper in the old world has come from Gungeria

in the Balaghat district of the Central Provinces.

A remarkable feature of the copper finds is that most of them are weapons and of heavier build though perhaps not with sharper edges than the Iron Age artifacts of Southern India. Nothing more can be said of the people who used them on account of the absence of other associated articles. The manner in which most of them had been found, at least the Gungeria articles, would seem to indicate that they had been been often as Europe, votive offerings consecrated to divinities. And the low depths from which most of had been recoverered combined with the primitive shape clearly point out that these had been found out and collected at a later age and cherished as a treasure with superstitious veneration. The Neoliths from Bhita recovered from the house of Nagadeva of Kushana date might have been used for religious purpose or due to invading tribes as Sir John Marshall suggested or merely collected by later peoples and looked upon with veneration by them as the Yunnanese Chinese regard still Neolithic stone implements as of celestial origin. Many objects of Hindu worship and veneration are still but Neoliths which are gathered under some tree and receive homage as rude phallus. In the case of metallic finds, popular Bengali superstition attributes them to

Yak and speaks of them as Yaker dhan, the treasure of Yaka, which may be a variant of the Veddah Yakku often standing for spirits departed souls (as the Nae Yakku). The men think that some calamity would visit them if they reveal the secret places or utilise the treasure and this clearly explains why Hazaribagh finder did not point out the place of discovery of the copper celts and metal plates.

Coming now to the artifacts themselves we find the celt to be conspicuous by its variety. First of all the celts are generally of broad, flat battle-axe type.[1] A much larger type and more expanded across the cutting edge which is highly convex but blunt has also been found from Gungeria and resembles strongly some Irish Bronze celts. A distinctly 'shouldered' celt in the form of a battle axe with a rounded cutting edge has also been recovered from the Midnapur districts.[2] Swords of various types but betraying Indian individuality have been found

[1] These flat axes are found throughout the Mediterranean basin, notably in Egypt, Cyprus, in the island of the Egean sea, in Palestine, in the second city of Hissārlik in Italy, in Sardinia, in Spain and Portugal. They have been found also in India the caucasus and places in France. They are mat with in the North of Europe in the Britannic isles, the Balkans and the Baltic coasts, Switzerland, Scandinavia and in several parts of Germany' (Dechelette Age du Bronze, p. 244).

[2] Axes have been clareads into five principle types as follows :—

1. Flat axe (1st period).
2. Axe with straight edges.
   (*a*) raised slightly (Period II).
   (*b*) raised sides (Period III).

from the district of Ferruckabad. Leaf-shaped swords not contracted towards the hilt but having two projections on two sides a little below the top, formed picturesque but effective weapons of the day. Some swords had long tapering blades one side of which was rounded off into the handle. Some others were dagger-shaped and some were meant for piercing and cutting. Spear-heads of copper were also not unknown.

Vincent Smith draws attention to the remarkable copper harpoons peculiar to India, which recall the very widespread Magdalenian and Azilian bone harpoons on the one hand and the mirzapora cave paintings on the other.

Some sort of money like the ring money of the Northern antiquaries were evidently used as the six rings, of which three were linked together, found from Mainipuri had been thought to be such by Dr. Oldham. They also recall the mycenean spiral rings which are however smaller.

The Gungeria silver discs emborssed with several concentric circles like the solar discs of Ireland and peculiar threeconed pieces

3. Axe with handle (Period III).
4. Axe with wings (Period III).
   middle wings (Period III).
   terminal wings (Period IV).
5. Axe with pocket (Period III) of there only the first two types have been found up to now in India. (Dechelette, Age du bronze p: 242.

have given rise to much discussion and their connection with cults of the sun, the circle (*chakra*) and the sacred horn is obvious. I would like to refer to a figure in "The Cave Temples of India" by Fergusson and Burgess and to plates VII and XI of Vincent Smith's "The Jaina Stupa and Other Antiquities of Mathura" and point out that both the forms occur conspicuously as prominent Jaina emblems. They also are found in Buddhist symbols and thus with the Svastika has passed from prehistoric times to the historical cults of India.

Iron[1] was known to the Vedic Hindus from the very earliest times. In the Rigveda there are numerous references to weapons made of iron (*vide* R. V. I. 326; II. 156; IV. 250, etc.). And the people whose monuments have been discovered in Southern India where abundant traces of the uses of iron are forthcoming were surely not Hindus and most probably the pre-Hindus of the Deccan as their funeral rites plainly prove. Some prehistoric chronology may be attempted by tracing the use of iron and of another important element of the so-called,

[1] The question on the interpretation of 'Ayas' which has been taken to mean copper in consideration to Latin 'aes,' Gothic 'Aiz.' But black 'Ayas' is also found described in late Vedic literature. I suggest that this was the sematological change consequent on the Aryans coming in contact with "wootz" steel manufactured by pre-Aryans from time immemorial.

Aryan civilization, the horse.[1] For the latter also was well-known to the early Iron-age people of the Deccan as the rider-figures of bearded people amongst the pre-historic pottery are very frequent. It may indeed be argued that the use of the horse by these pre-Hindus of the South was subsequent to their being influenced by the Northern "Aryans." If so why then should they have continued in their peculiar funeral rites and went on building the megalithic structures as before? It is well-known that megaliths have long since ceased to be reared up in Hindu India as in mediæval and modern Europe. The important exception of the Khasis in Assam who still continue this curious practice, proves our contention as they are still beyond the pale of Hindu influence. Besides it is well-known that in Babylon the horse was known as the "Ass of the East" and the dwarfish horses of the pottery figurines of Southern India, which, by the by, were probably descended from the *Equus asinus* of the extinct Narbada fauna, suit that description more than the spirited horses described in the Rigveda (II. 220; IV. 154, etc.). Nothing can be definitely stated but the strong likelihood is that the Iron Age in Southern

[1] The ideogram of the horse in Babylon signifies 'the ass of the mountain in the east' and its name is "Susu." The Babylonians could not have learnt its use from the Aryans who were not inhabiting mountain-tracts but living in steppes or plains at this stage.

India was in full swing at least in 1500 to 1600 B. C. and that the knowledge of iron in Mesopotamia valley spread from the plateaus of the Deccan and not possibly *vice versâ*.

The main objects of iron found are from the Deccan megaliths. From Adichanallur along with iron finds has come forth a cup of bronze with geometric patterns of the earliest Hallstatt type. The iron swords are long, ribbed, with lateral projections at times recalling early Hallstatt forms. The sickles also like the swords seem to be copied from bronze specimens. A bronze cup from the Nilgiris found with iron is incised with a pattern akin to cypriote palmettes. The gold objects found in the iron-bearing graves of Adichanallur resemble the long oblong dotted ornaments from Mochlos (*vide* Dussaud, les Civilisations préhelleniques, fig. 21). Thus iron in India is synchronous with the times of extension of Ægean influence in the East up to the end of Hallstatt epoch in Europe (*i.e.* C. 2000 to 600 B.C.) and may be thus coeval with Vedic culture.

CHAPTER XIV.

The Indian Megaliths.

Their Builders and Origins.

When Walhouse wrote his famous paper on non-sepulchral monuments in the Deccan about fifty years ago scholars were led to search for Sanskritic texts to prove their antiquity. For then the vast antiquity of the orthodox Aryan literary records on the one hand as well as the just revealed Buddhist monuments on the other were leading people to ascribe the Deccan megaliths to post-Asokan times—the more so as definite allusions in Hindu literature to them could not be found. Prof. Chanda has however already drawn attention to the tumuli mentioned in the Satapatha Brahmana. The passage is remarkable as we have reference not only to the custom as prevalent among non-Aryan peoples but also to at least two different kinds of sepulchral mounds rectangular and round. Thus we find in the 8th Adhyāya, 1st Brahmana[1]:—"They now do what is auspicious for him (to serve him) either as a house or a monument." It is interesting

[1] Satapatha Brahmana—Sacred Books of the East—translated by Eggeling, p. 42.

to note here that the Sanskrit word Smasāna is derived as meaning a couch for the body (*sman sayana*) by Yaska and also meaning a stone (*asman sayan*) by Prof. Weber. Then again we read[1] "four-cornered (is the sepulchral mound). Now the gods and the Asuras both of them sprung from Prajapati were contending in the (four) regions (quarters). The gods drove out the Asuras, their rivals and enemies, from the regions, and, being regionless, they were overcome, wherefore the people who are godly *make their burial-places four cornered*, while those who are of the Asura nature *the Eastern and others* (make them) round for they the gods drove them out from the regions. He arranges it so as to lie between the two regions, the eastern and the southern, for in that region assuredly is the door to the world of the Fathers: through the above he thus causes him to enter the world of the Fathers, and by means of the (four) corners he (the deceased) establishes himself in the region and by means of the other body (of the tomb) in the intermediate regions: he thus establishes him in all the regions."

It is essential here to remember the methods of the disposal of the dead amongst the Vedic peoples. Macdonell[2] describes it thus:—"Burial and cremation were concurrent one hymn of the Rig Veda (10, 16) describes a funeral by burning

[1] Ibid, pp. 423-424.

[2] Vedic Mythology, p. 165.

and another (10-18) one by burial. The 'house of the clay' is also spoken of (7, 8, 9). Fathers burnt with fire and those not burnt with fire (*i.e.*, burial) are referred to (10, 15, 14; A. V. 18, 2, 34). But cremation was the usual way for the dead to reach the next world." The conditions we have been hitherto describing belong to times estimated to be not later than 800 B. C. at least so far as the Satapatha Brahman goes and they have reference to North Indian conditions. In the South there is another highly ancient literature, the Tamil, and though its classics have not been held to earlier than 1st century A. D. they record for us many pre-Aryan cultural traditions just as the Niebulungen Lied or Chanson de Roland or Beowulf contain, though a little mixed up, a vivid picture of the pre-Christian pre-classical spirit in Europe at large. To such a class belongs the Manimekhalai where it is recorded that the means of disposal of the dead were five in number: (1) by cremation, (2) exposure in an open place to be eaten by jackals and vultures, (3) burial, (4) stuffing the corpse in natural pits, and (5) covering it with big earthen jars."[1] ?

Coming back to Asuras of the Vedas we have got to record two interesting facts. According to Sir R. G. Bhandarkar and Prof. D. R. Bhandarkar who have traced the 'shibboleth' of

[1] Ayanger, Tamil Studies, p. 39.

these people in Vedic literature, they came of a stock akin to or identical with the Assyro-Babylonians. There has also been found in the forests of Ranchi an early Pre-Dravidian tribe calling themselves still "Asuras" and it is for Indologists to decide what connection they have with the Eastern Asuras of the Vedas. Anyway the significant fact remains that the earliest archæological vestiges yet unearthed in India are some of these mounds excavated from the neighbouring province of Behar. Sir John Marshall speaks of them as but one group of monuments now existing to which there is any warrant for assigning a Vedic origin. These are the well-known mounds at Lauriya Nandangarh in Behar, which were opened by Dr. Bloch and identified by him with the burial mounds (*smasāna*) described in Vedic ritual.[1] The tentative date assigned to these has been the 7th or 8th century B. C. We read in the Report[2] "Four of the mounds in all were opened by Dr. Bloch and two of them presented almost identical features. The material of which they are constructed is a yellow clay, which appears to have been taken from the bed of the Gandak river, at present about 10 miles distant. This clay was found to be laid in horizontal layers a few inches thick and intending apparently, right

[1] Sketch of Indian Antiquities (Calcutta), 1914, pp. 6 and 7.

[2] Archæological Survey of India, Annual Report, 1904-5, p. 39.

through the mound, with straw and leaves between them. Time had rendered it for the most part very hard and rough, but it varied in this respect in the several and varied also in colour according to its depth below the surface. At a few feet below the top and in the centre of each mound was a deposit of human bones and charcoal and a small gold leaf with the figure of a woman stamped upon it, then further down comes a long hollow shaft in the clay, showing where a wooden post had once existed but had since been eaten away by white ants; and then still further down, at the dividing line between the yellow clay and the grey virgin soil was found the stump of the post itself *in situ*. Prof. Jouveau-Dubreil in a recent monograph has tried to connect many of the Deccan megaliths with sacrificial houses mentioned in later Vedic literature.

Somewhat akin to these we have come to know a good deal recently are the so-called Asura sites in the Ranchi district from the great ethnographist Rai Bahadur Sarat Chandra Roy, M.A., B.L., only, one wishes that the excavations had been more scientifically carried out and there should have been a thorough investigation whether these sites are locally spoken of as 'Asura' just as most archæological remains, no matter whether they are mediæval or ancient or pre-historic, are locally spoken of by

peasants as those of Rākshasas, (demons) Asuras, Pandavas etc. or whether, as it is tacitly taken for granted, these are actually associated with and still owned or looked upon with reverence by the neighbouring Pre-Dravidian Asura peoples. Still one cannot but be sufficiently cognisant of the high worth of the articles unearthed from these places all of which bear remarkable prehistoric facies and when comparative archaeology has settled their places, there is no doubt that a definite step would be taken towards the scientific ascertaining of the chronology and ethnology of the N. E. Indian megalithic peoples. Coming now to the graveyards of these 'Asuras' we read [1] "The Asura burial place is a large tract of land, measuring several acres, which slopes down on the south and the east into a *dhora* or water-channel. Huge stone-slabs mark the burial sites and under each of these slabs are found from one to three or even four cinerary urns in the shape of large earthen jars. Over fifty large stone-slabs were visible above ground. These slabs are not supported, as in Mundari graves, on small pieces of stones at the four corners, but they lie flat on the ground with the urns lying from one foot to over two feet under ground. A big earthen jar (Gharā) with a bowl-shaped earthen cover fixed

[1] S. C. Roy—Journal Bihar and Orissa Research Society, Decr. 1915, p. 7.

over its mouth with a paste of clay, contained the mortal remains of the dead Asuras. Unlike the Mundaris, who only bury on a small *chuke* or jug with a very narrow mouth a bit of bone from the forehead, a bit from the chest and sometimes also a bit from the arms and a bit from the legs, the Asuras appear to have buried all the bones of their deceased. Later on he describes them thus :[1] The largest of the stone slabs measured 13 feet in length, 7 feet 6 inches in breadth and 6 inches in thickness. The size of the slab probably varies according to the importance of the family whose remains are buried underneath. The contents of the different burial urns do not however give any indication of the difference in the wealth or the importance of their owners. In fact, some of the urns under the smaller stones contained the largest number of beads and other ornaments. The Mundas call the shelter formed by such a stone slab on the top with the stones at the four corners underneath the "houses of the dead." Besides some building sites were found associated with these megaliths. About their chronology, though probably mixed up, we find Mr. Roy bringing out a significant fact. "In the gullies or channels formed by rain water I have on several occasions, particularly after heavy showers of

[1] S. C. Roy—Ibid September, 1920, p. 395.

rain, picked up stone crystal beads, stone arrow-heads and axe heads and stone cores and flakes at a depth of from seven or eight to about fifteen feet below the top level of the brick foundations of Asura buildings. And close to more than one Asura site I have found genuine palaeoliths, although but very few in number. This would appear to indicate that the sites extend over a wide range of time, having been occupied successively in the Stone Age, the Copper Age and the early Iron Age."[1] The above though perhaps not proving the Asuras to be descendants of palaeolithic peoples in India at least shows that they were successors to that culture, occupying as they did the Palaeolithic sites which had perhaps been not still entirely abandoned or forgotten and that they were probably flourishing peoples from early Neolithic to early Iron Age time and some of the stone grave yards may be of that date. The existing Asura tribes appear in Munda traditions as earlier than these pre-Dravidian peoples in those parts as they are invariably associated in Munda as well as Oraon traditions with the early knowledge of smelting iron. Bruce Foote also speaks definitely of Neolithic megaliths from the Deccan[2] and there should be little doubt *that the megalithic cult apart from the architecture, existed in*

[1] S. C. Roy—Ibid p. 400.

[2] Vide Hoffman, Mundari Grammar, Appendix p. vi and S. C. Roy—The Oraons II, part 2, p. 471.

India from the earliest times traces of them being found amongst the earliest ethnic stocks the precursors of pre-Dravidians as well as Neolithic remains. We cannot say whether the furthest eastern cults had originated in some migrations from this early Neolithic epoch, but the fact of American culture being mainly neolithic and at the same time being possibly due to Asiatic sources and Pater Schmidt's definite tracings of the Austronesian influences in South America make it likely. Where Prof. Elliot Smith's theories also render it very likely that different cultural waves did reach these places as well as India from higher civilisations in the West, but if a very crude megalithic cult was brought along with ethnic migration it probably happened through neolithic peoples. Mr. Perry[1] in his book on the 'Megalithic Cultures of Indonesia' which he ascribes to migration of culture folks from India and further West, works with this basic idea,—'evidence points to the possibility of a connection between India and Java as 700 B.C.' and thence of course the cultural wave spread further eastwards. Whatever that be, we find in San Cristoval islands in the eastern Pacific mounds being erected which remind us strongly of Asura grave-yards and Lauriya Nandangarh mounds and also possibly might explain some features in them. Thus we

[1] Perry—Introduction, pp. 2-4.

read of the 'Heo's and 'Masitawa's how a hollow is made about thirty or forty feet long and twenty feet broad and in this a house is built like a sago-palm tent. An opening is left so that the jaw bone may be taken out when the body on the platform within the house decays. The whole is then covered over with earth and large stones are placed along the side. After a time the whole falls in making a broad low mound only a few inches high, flanked by stones. Probably of still ruder types are the neat huts erected over the graves as in the South Australia where 'upon the mounds or tumuli over the graves, huts of bark or boughs are generally erected over the graves to shelter the dead from the rain, they are also frequently wound round with netting.' Similar customs are also known in Western Australia and New Guiana.[1]

We have here some motives akin to or identical with the cult that led to the rearing of megaliths, but from the architectural point of view we are yet far off from the finished brick-graves of the predynastic period, the Mastaba or the Dolmen or the circle. Now if the megalithic *cult* spread from a single source, the first wave Eastwards then evidently passed before the stone-monumental forms, so common in the Deccan and

[1] *Vide* Frazer—Belief in Immortality and Worship of the Dead, Vol. I, pp. 150-151 and 203-4.

the west, were elaborated. The finding of a gold-leaf in Lauriya-Nandangarh mounds and its identification with the goddess Prithivi (Earth)[1] of the Vedas as well as the direction of building of mounds over *cremated* remains therein connect oddly enough this cult with the Aryan rather the roundheaded peoples with mediterranean rites. From Minns[2] we come to learn of funerary mounds in Siberia and from Pumpelly[3] we hear apparently of menhirs from Central Asia. Is it possible that the reverence for the dead and the mound cult existed amongst the Indo-European section of the Boreal folk in Central Asia to which was added a vast mass of a complex cult of Erythrean section of Equatorial people, and resulted in elaborate ramification which we can follow in such illuminating details in Egypt and which we can only guess at from the varied innumerable rude stone structures in the Deccan, If Prof. Elliot Smith is right it seems the nature folk could not have elaborated such a complex megalithic cult with its array of cognates[4] unless they had received it from the hand of culture

[1] While the small size and gold representation reminds us of Mycenean icons, we are sure in finding here the neolithic idol, 'Dechelette's '*déesse tutelaire des tombaux*" whose appearance is synchronic with dolmenic chambers and other megalithic structures in Europe (Archeologie prehistorique p. 428-429 and p. 603).

[2] Scythians and Greeks, 1913, pp. 145-148.

[3] Explorations in Turkestan.

[4] *Vide* Supra, Chap. I, p. .

folks. But is it that two distinct strains of the Naturistic North and Totemistic South-East are discernable therein and were responsible for the various differences amongst them that perplexed even now such a life-long student as Lewis? But synthetic cult studies in order to be thoroughly scientific have yet to wait till Central Asia, savage, barbarous or civilised is as stratigraphically studied as Melanesia or Polynesia.

When we come to architectural considerations we are on safer grounds as the element of speculation and interpretation becomes much less. Mr. A. L. Lewis who has life-long emphasised the difference in structure between the various rude stone-monuments has reiterated his views as follows:—

"From[1] a consideration of the subject as a whole it would seem then that the building of dolmens was not confined to one race and the building of circles to another, nor that there was any one race which originated and diffused both, but rather that megalithic construction was a phase of culture through which many races have passed, and which was developed in a different way not only by separate races but also, in very restricted localities by different tribes, without regard to any racial differences or connection between them." In contrast with these is the view held by more technically skilled archæologists

[1] Journal Royal Anthropological Institute, 1910, p. 342.

like Fergusson who as early as 1871 was impressed by the unity of the basic structure of the Rude Stone Monuments in all countries and T. Eric Peet points out clearly that the megalithic building could not have evolved among several races independently. "On the whole, this idea has not found favour among archæologists. The use of stone for building might have arisen in many places independently, but megalithic architecture is something much more than this. It is the use of great stones in certain definite and particular ways. In each case we see a type of construction based on the use of large orthostatic slabs, sometimes surmounted by courses of horizontal masonry, with either a roof of horizontal slabs or a corbelled vault. Associated with this we frequently find the hewing of underground chambers in the rock. In almost all countries where megalithic structures occur certain fixed types prevail, the dolmen is the most general of these, and it is clear that many of the other forms are simply developments of this. The occurrence of the structures with a hole in one of the walls and of blocks with 'cup-markings' is usual over, the whole of the megalithic area. These parallels are due to something more than coincidence, in fact, it is clear that megalithic building is a widespread and homogeneous system, which, despite local differences, always preserves certain common

features pointing to a single origin."[6] Similarly Warren, after his masterly study of the various basic measures, comes to the conclusion that the various cubits used all belong to one series, and are closely allied in simple proportion, that there was a curious connection of prehistoric measures all over the world and that the unit or base was the fathom of 72 Imperial inches divided into 4 cubits of 18 inches and further into 80 and 100 digits."[7]

But where did this system originate? Prof. Elliot Smith in his essay on the Evolution of the Rock-cut Tomb and the Dolmen comes to the following conclusions[8]:—

(1) "It is quite certain that the Egyptians of the second and third dynasties invented the rock-cut tombs.

(2) The other Mediterranean peoples both in the Aegean area, as well as in the middle and west adopted the use of such tombs from Egypt.

(3) From the simple type of trench grave the Egyptians developed a great variety of tombs and funerary monuments and crude imitations of which were made by all their neighbours eventually by more distant nations.

(4) The dolmen represents the crude and overgrown copy of that part of the Egyptian

[6] Rough Stone Monuments—1912, pp. 45-46.

[7] "The early weights and measures of mankind" by Sir Charles Warren, G.C.M.G., F.R.S., &c., 1913, pp. 99-100.

[8] Essays presented to William Ridgeway—1913, p. 544.

mastaba, the Serdab which was supposed to be the dwellng of the spirit of the deceased."

So it has always been recognised that the "European megaliths in spite of the rudeness of their architecture are in evident relations with the ancient funeral monuments of the East" as Dechelette points out. He goes on to observe "The chamber with cupolas in Spain, the Britannic isles and those of Asia Minor and of Greece have had incontestably a common ascendant which we hardly know of, but which ought to be placed at the East of the Mediterranean.... With Montelius we admit a continuous influence exercised by the East on the West since a period in the remote past of prehistoric times. Without doubt one should not conform to the doctrines of Sophus Muller and to derive from Egyptian art the quaternary art of the hunters but one may recognise that beginning from Neolithic times commercial relations extended gradually and united Western and Northern Europe with the Mediterranean regions..... We are not concerned with the ancient theories relative to the supposed existence of a dolmen race, who were navigators who had travelled over the vast zone occupied by the dolmens, in masses or in small groups and left on their route these imperishable testimonies of their passage. Anthropological observations have fortunately, done away with all this adventurous hypothesis. One should

admit amongst the peoples who raised these megalithic monuments a certain community of culture but not a community of races." (Archeologie prehistorique, pp. 425 and 427).

So also we find this same view upheld by Elliot Smith in the following manner at Dundee:

"If one considers the details of the history of Egypt and the evolution of her arts and crafts and her custom and beliefs during the beginning of the third millennium B.C. and bears in mind either the chronological order of appearance and the geographical distribution of megalithic monuments in various countries on the one hand or the general plan, the structural details and the ideas exemplified in the evolution of tomb construction in Egypt and the other places where megaliths occur, it seems to me inconceivable that any other conclusion can be reached but that the idea of tomb building, which was slowly evolved in Egypt during the fourth and third millennia B.C. was handed on from people to to people, not only along the whole Asiatic litteral, from that of the Red Sea to Southern Arabia and Persia, and thence to India, Ceylon and Burma to Indo-Malaysia, Korea, Japan and the Pacific islands if not to American."

And the megalithic culture which was evolved in Egypt as one of the results of the discovery of metals, made its appearance in other lands

first before the dawn of the age of metals. This theory essentially differing from that of Lewis in that a common origin is insisted upon also differs from that of Peet for though ascribing the invention to a single race, the Egyptian, the building in different parts of the world are propounded to be due to culture contact. This is best understood from the lucid statements of the great psycho-sociologist (if we might say so) Dr. Rivers:[1] "May there not be a relation between the passage of the megalithic culture by sea and its association with use of metals. May it not have been the use of metals which first made possible the building of craft fit to carry men to such distant parts of the globe? We know that vessels capable of long ocean voyages can be constructed without the use of metal, but if the megalithic idea had its birth in the knowledge of metals and was fostered by their use, a great impetus must have been given to the manufacture of vessels which would make possible the dissemination of the idea throughout the world.

"I believe that it will become far easier to accept the ethnological unity of the megalithic culture if we assume that it was carried by small bodies of migrating people peacefully received. The peculiar feature of the distribution of the

[1] The Contact of Peoples (Essays presented to Ridgeway, 1913), p. 491.

monuments, the transport of their culture by sea, the slowness with which it travelled, all become natural if those who carried the culture so high that they became the chiefs, perhaps even in some cases the god, of those among whom they settled."

As a faint protest and a possible alternative to Prof. Elliot Smith's theory may be read an interesting article in *Man*, 1916, No. 68. There Harold Peake incidently brings out that 'the conditions postulated by Prof. Elliot Smith as necessary for the evolution of the domen may be met with everywhere, except on barren rocks, where there existed members of the Mediterranean race or of any other race which connected the idea of future existence with the preservation of the body.'[1] So also 'that Prof. Elliot Smith has made the Phoenicians the transmitters of the megalithic culture in the West sometime about 800 B.C. whereas Siret had placed the date of earliest Phoenician trade in the West at 2000 B.C. but both these dates are but imaginative and hypothetical.[2] He suggests that[3] prior to 2200 B.C. some traders from the north-east of the Aegean, familiar with the use of copper and probably possessing the secret of bronze, set out from their home, which may have been Lemnos, in search of copper and tin. Their voyages to Sicily led them to Sicily, Spain and in all probability to Sardinia and Balearic

[1] Man, 1916, p. 117. [2] *Ibid*, p. 118. [3] *Ibid*, p. 121.

Islands. They were also in touch with Morbihan, though possibly through mediation of western traders, who may have been engaged from some time past in commerce along the Atlantic sea board. At home they had relations with crete, the Cyclades and the Hissarlik and through the last named possibly with Cyprus. They were accustomed to erect Cyclopean walls, and learnt the use of cists from the people of the cyclades, they spread the knowledge of these two arts away the people with whom they traded, and the result was evolution of the dolmen. "What is of great interest and not a little importance for us in the article is that the figures of the four axes from Britanny especially the copper axes from Spain matching with those from Hissarlik II, Cyprus and the Aegean are almost in shape and size identical with those long copper axes found from Gungeria and other places in Northern India and that the graves of megalithic character which have been fairly excavated in India *e.g.*, those of the Nilgiris by Breeks, of Adi channallur by Rea, of Asura sites in Ranchi by S.C. Roy have yielded copper and bronze articles in abundance, the latter being invariably cult objects[1] and especially reminding us of Mediterranean types, e.g., the big bronze cup from the Nilgiris in Bruce Foote Catalogue 1901 or the various Bronze spirals from Asura sites in Ranchi.

[1] Connected with the cults of the sun or of the circle or of the axe or of the sacred horn.

Coming now to the actual people in megalithic India we can build up a tolerable picture of their culture for the purposes of ethnic comparison. Mr. C. Hayavadan Rao, the well known contributor to Anthropos on Deccan ethnography has beautifully summarised the evidence from Breeks and Bruce Foote thus;—"Prehistoric burial graves such as stone-circles cairns, cromlechs, barrows and cistvaens have been found in the Nilgiris, Travancore, Malabar, Cochin, Tinnevelly, Madras, Palni hills, Coimbatore, Salem, North Arcot, South Arcot, Chingleput, Bangalore, Coorg, Anantapur, Bellary and Kurnool. Among the most striking objects of the pottery series are tall jars, many storied cylindars of varying diameters, with round or conical vases fashioned to rest upon pottery ringstands or to be struck into soft soil. These jars were surmounted by domed lids, sometimes in fitting but mostly projecting over the edges of the jars they covered. On these lids stand figures of men or animals and much more rarely of inanimate objects fashioned in grotesque style. Among the arms borne by these people were short-handed axes, swords, daggers, maces but of spears there is no positive evidence. Men and women appear to have worn head dresses of various shapes, mostly peaked caps, with the peaked summit hanging more or less in a forward position. The men wore their beards clipped rather short, but

they were apparently of thick growth. In the true prehistoric grave the funeral urns are now found low down in the grave. These are usually low flattish vessels with or without covers and they have been known to contain a few burnt bones with five black or brown mould in which are found small gold ornaments, bronze and iron rings and beds of glass or agate or small sowries with perforated backs.

The tradition extensively prevails in Southern India that the cromlechs and dolmens mark the burial sites of a race of pygmies who at one time formed the general population of the land. They are variously termed *Moriar Mane, Pandu Kuzhi and mandu or mandowar Kuzhi.* The monkeys in Rāmāyana might have been this tribe. The tail probably referred to a peculiarity in the mode of dressing of the lower class people in Southern India."

Now it is very interesting to find that the culture of the pre-dynastic Egyptians with their ornamental iron beads and "Karnata" wearing was little dissimilar to it. Thus we learn from Budge :—"Predynastic (Egyptian) women wore necklaces of beads made of carnelian, agate, flint, limestone, etc. Bracelets made of ivory, flint and mother of pearl have been found. Some garments were worn. In daytime most of them wore no clothing of any kind, some wore the undressed skin of animals in such a manner that

the tail was seen hanging behind the men's back. The hair of both sides was short and the beards of the men were long and pointed but turned up at the points. The faces were regular and oval." Mr. Longhurst, Superintendent of Archæology, Madras Circle, the last systematic explorer of some Deccan megaliths after Breeks, and Mr. Rea, quite curiously got a similar impression of Indo-Egyptian similarity after excavating some of the megaliths in the Anantpur district. Most of these were provided with a circular ring of stones all round like the cairns and there is little doubt that coins were actually built over most of these stone-box like cells. In plan they are of the usual rectangular shape, with four stone sides and a heavy cap-stone. Some had a little passage about 1 ft. 6 in. in width in front, while others had smaller circular openings but cut in one of the side-slabs possibly intended as passages for the soul on its return to earth. From the nature of the construction and the contents found in these Indian cell-tombs it would appear that the religious belief of the primitive peoples who constructed them must have been much the same as that held by the Ancient Egyptians regarding man's life after death. The Egyptian belief in the transmigration of the soul fostered the religious duty of preserving the body after death. The soul was thought to return

to earth and re-enter its former body after a long cycle of years and again live the life of a human being. The natural outcome of this belief was this process of embalming and a construction of tombs which might be relied upon to safeguard the remains of the dead by taking them in earthen jars or urns, carefully sealed with clay, while the almost cyclopean nature of the construction of some of the tombs rival those of the Egyptian in point of durability. The presence too of a circular hole laboriously cut through one of the solid stone side-slabs, seems to show that the soul was expected to return at length to the tomb and probably to re-enter its former body. It is a curious fact that tombs of this kind are found in Southern India which seem to point to Western influence. It is noteworthy that the two other savants who had personal knowledge of some of these South Indian megaliths put emphasis upon this similarity. Thus Mr. Fergusson in comparing Eastern with Western dolmens sums up the evidence[1]: "These two—the holed stone and the simulated cist—are perhaps the most direct evidence of similarity between the East and the West, but the whole system affords innumerable points of contact, not sufficiently distinct perhaps to quote as evidence individually,

[1] Rude Stone Monuments, p. 498.

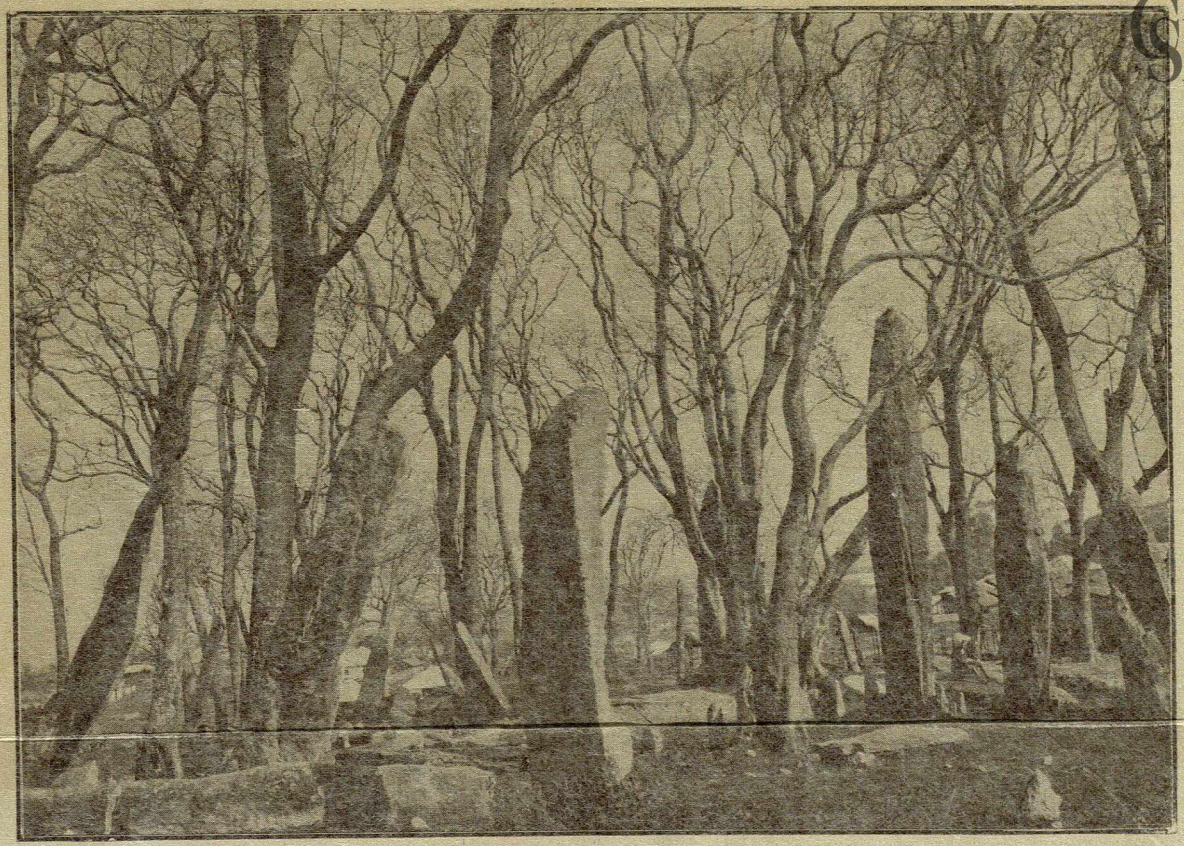
but collectively making up such a case that it seems very difficult to refuse to believe that both styles were the product of one kindred race of men and who at the time they erected them must have been more or less directly in communication with one another." And it is interesting to read along with it Mr. Walhouse's explanation of the holed dolmens as early as 1874 of Egyptian analogies :

"The idea [1] immediately arises whether the mysterious holes so carefully pierced in the massive slabs of prehistoric dolmens may not have had a similar use of blowing incense to the spirits of the deceased and pupose. The ancient Egyptians were of the tomb-building Turanian race and these lately explored countries, which are at least 4000 years old, may contain traces of the survival amongst them of still more primeval and prehistoric customs. Evidence for the enormous antiquity of communication between Egypt and Southern India continually grows stronger and the forests of the latter country abound with fragrant gums, notably the ancient *olibanum* which to-day are principally gathered up by wild jungle tribes, who are looked upon with much probability as the descendants of the prehistoric cairn-building peoples." Similarly he speaks of the 'identity' of the megaliths in Etruria with many a group with

[1] Indian Antiquary, Vol. LII, p. 278.

which he was familiar in the jungles of Koimbatur, Maisur frontier, in Salem and elsewhere." [1] So also Coggin Brown summarising the latest evidence speaks as follows :—"There is a very remarkable resemblance between the oblong terracotta coffins discovered near Bagdad, and also between the latter and more highly developed and ornamented Etruscan terracotta coffin-tombs. This similarity of interment in earthenware coffins, identical in shape, size and material, has given rise to interesting speculations connecting archaic Indian civilization with that of Babylonia and Assyria. The hut-urns, which were apparently used for funeral purposes in Neolithic times are the prototype of the later hut-urns now met with, in various parts of the country. Two forms of the earliest Etruscan hut-urns figured in Birch's " History of Ancient Pottery " very strongly resemble modern forms, such as those occurring at Harsani in Baroda and a large group of very fine ones discovered by Foote near the great ford over the Tapti some miles east of Mandu in the Surat district." Mr. Richards has dwelt on some interesting points of contact possible between Dravidian culture and Etruscan and Mr. Yazadani has also referred while bringing out his remarkable list of signs occurring on the megalithic potteries found in Deccan, which as would be seen later on, are

[1] Indian Antiqvary, Vol. III P. 276-7.



Monoliths at Barabazar, Shillong
(By courtesy of Sacchidananda Ray, M.A.)

remarkably similar to the ownership-marks found on the pre-dynastic and proto-dynastic potteries of Egypt. A detailed study of the various finds in the megaliths has also called forth this remarkable question of affinities elsewhere.

Some light as to the origin of Indian megaliths was sought with a good deal of justice from a study of those tribes amongst whom the cult still survives in some form or other. Truly as Fergusson remarks:[1] "In India there is a curious but persistent juxtaposition that everywhere prevails of the highest form of progressive civilisation beside the lowest types of changeless barbarism. Everywhere in India the past is the present and the present is the past, not as is usually assumed that the Hindu is immutable-quite the contrary. When contemporary history first dawned on us, India was Buddhist and for eight or nine centuries that was the prevalent religion of the state. There is not now a single Buddhist establishment in the length and breadth of the land....Even within the last six centuries one-fifth of the population have adopted the Muhammadan religion and are quite prepared to follow any new form of faith that may be the fashion of the day. But beside all these never-ceasing change there are tribes and races which remain immutable...The Bhil, the Kol, the Gond, the Toda, and other tribes remain as

[1] Rude Stone Monuments, pp. 458-459.

they were and practise their own rites and follow the customs of their forefathers as if the stranger had never come among them." Fergusson then mentions the Khasis, the Kurumbars and the Mala Ariyans as peoples still practising the megalithic cult. If we turn to the other great student of these monuments, Walhouse, we find the list almost complete.[1] "That these dwindled miserable tribes of Kurumbars are the representatives of the race that once covered the plains with megalithic monuments is proved, as far as proof is ever likely to be obtained, by the curious fact of their maintaining at the present day the same practice in miniature show. The *malei Ariyans* of the Travancore mountains who still number from 15,000 to 20,000 on a death amongst them make as imitation *Kistvaen* of small slabs of stone, lay in it a long pebble to represent the body and place a flat stone over with ceremonies and offerings the spirit of the deceased is suffered to dwell in the pebble. The Kurumbars and Irulars of the Nilgiri Hills do the same. The Gond tribes of the Godavary and Orissa make miniature cromlechs. The Kols are reported by Major Macpherson to place the ashes in a chatty, bury it in the ground and lay a large stone over it." Ethnology being regarded as one of the prime factors in the study of prehistoric archæology, the importance of the study

[1] Journal, Royal Asiatic Society, 1875, p. 27.

of these tribes who still carry on the megalithic cults cannot be over-emphasised. From Thurston who quotes the Rev. S. Mateer we learn "The Aryans bury their dead, consequently there are many ancient tumuli in these hills.... These tumuli are often surrounded with long splintered pieces of granite from eight to twelve or fifteen feet in length, set up on the edge, with sacrificial altars and other remains, evidently centuries old. Numerous vaults, too, called Pandi Kuri are seen in all their hills." Prof. R. P. Chanda[1] has shown the similarity in physical features between the Todas and the Mala Aryans and are disposed to look upon them as Proto-Dravidians. Thanks to Lapicque, Thurston, Ruggieri and Haddon the Irulas and Kurumbars are recognised as Pre-Dravidian tribes. The Kadirs, possibly another Pre-Dravidian tribe, have the custom of simple mat-burial. Next to these come the Irulas of whom we read that "the dead are buried lying flat on the face with the head to the north, and the face turned towards the east. When the grave has been half filled they throw in it a prickly pear shrub, and make a mound over it. Around this they place a row or two of prickly pear stems to keep off jackal. No monumental stone is placed over the grave."[2] When we pass on to the Kurumbars

[1] Castes and Tribes of Southern India, 1909, Vol. IV, p. 389.

[2] *Vide* Anantakrishna Iyer, Cochin Tribes and Castes.

we notice one interesting fact that at present these like the Veddas are sharply distinguished into a ruder forest tribe (Kurumbar) and a more advanced barbarous tribe (Kuruba) who are undoubtedly ethnically the same,[1] and it is amongst the latter that megalithic cult still survives showing that it was espoused as a fashionable form by the advanced section of these whenever it did happen in the dim post.[2] "The temples of this caste are usually rather extensive, but rude low structures, resembling an enclosed matapam supported upon rough stone pillars, with a small inner shrine, where the idols are placed during the festival time. A wall of stone encloses a considerable space round the temple and this is covered with small structures formed of four flat stones, three being the walls, and the fourth the roof. The stone facing the open side has a figure sculptured upon it, representing the deceased Gandu or Pujari to whom it is dedicated. For each person of rank one of these monuments is constructed, and periodically, and always during the annual feasts, puja is offered not only to the spirits of the deceased chief but also to all those who have died in the clan. It seems impossible not to connect with those strange structures called by the natives Pandava's temples. They are numerous where the

[1] Thurston : Tribes and Castes, 1909, Vol. II, p. 386.

[2] *Ibid*, Vol. IV, pp. 158-159.

Kurumbas, are now found, and are known to have been raised over the dead. Though the Kurumbas bury, they do not now raise their monuments over the resting-place of the corpse. Nor can they build them upon anything approaching to the gigantic scale of the ancient kistvaen or dolmen." Though it is a far way off to Fiji, which, by the way, falls within the sphere of the culture stream from the west we are strongly reminded of the *Nanga* or open air temples formed by flat stones set upright and embedded endwise in the earth the more so, as these "sacred enclosures of stone have been compared to the alignments of stones at Carnac in Britanny and Mobihan on Dartmoor and it has been suggested that in the olden time these ancient European monuments may have witnessed religious rites like those which were till lately performed in the rude open-air temples of Fiji. If there is any truth in the suggestion, it would furnish another argument in favour of the view that our European cromlechs and other megalithic monuments were erected specially for the worship of the dead."[1] We have almost exhausted the hill tribes of the Deccan and Southern India who still indulge in this practice classed as Pre-Dravidian or Proto-Dravidian. Passing now to Central India we find the Gonds, who

[1] Frazer, The Belief in Immortality, pp. 437-38.

are spoken of as Proto-Dravidians, raise memorial stones to the dead. "At some convenient time after death, a stone is set up in memory of any dead person, who was an adult, usually by the road-side. Families who have emigrated to other localities often return to their parent village for setting up these stones. The stones vary according to the importance of the deceased, those for prominent men being 8 feet high. After being placed in position the stone is anointed with turmeric, curds, ghi and oil, and a cow or pig is offered to it. Elsewhere a long heap of stones is made in honour of dead men, sometimes with a flat-topped post at the head." Still further North-East we come to the Oraons, who strangely enough speak a tongue akin to the Dravidian but are culturally and physically nearer to the Mundas whose neighbours they are. Dr. Haddon in his introduction to the Oraons by S. C. Roy[1] refers to several stone cults of the Oraons, which he is inclined to ascribe to a culture contact with the Mundas. In fact the ceremony of the 'marriage of the dead' points to higher organisation and cultural status.[2] "From the autumn until the harvest is over, the Oraons may not cremate their dead, and thus until then the corpses of all the Oraons dying during this period remain buried at the village burial place (*masan*). After

[1] S. C. Roy, The Oraons, 1915, p. xvi.
[2] *Loc. cit.*, p. 277.

the winter paddy has been harvested and garnered by all the villagers, the corpses of all the buried dead are disinterred and cremated on a day appointed beforehand, and the bones are then ceremonially gathered by the women, anointed with oil and turmeric, and with music carried in procession to the stone *Kundi* by the side of some pool or water course where the bones of the dead Oraons of the village family are always deposited. Coming now to the Mundas, who linguistically if not in many other respect belong to a different stratum, the familiar 'Austric' group of Pater Schmidt and have a similar custom of jang-topa or bone-burial ceremony[1]:—"after the winter rice is harvested when the bones of the deceased are deposited underneath old stone-slab of the family cinerarium. Otherwise a new stone slab is placed in the '*sasān*' for the deceased. A grave is dug at a selected spot in the '*sasān*' and in it the earthen vessel containing the bones of the deceased is interred. Along with the bones a little rice, oil mixed with turmeric and a few copper coins (pice) are put into the vessel. After the excavation is filled up, the large stone slab is placed over it, supported on four small pieces of stone at the four corners." We pass now to the extreme North-East of India to a group of tribes, who are decidedly mongoloid in features though some of them speak languages which have been

[1] S. C. Roy, The Mundas, 1912, pp. 465-466.

ascribed to the Austro-Asiatic group. Now the best authorities have practically been superseded by Perry's manual where we read:[1] "The Khasis cremate their dead and have an elaborate system of stone structures chiefly alignments and menhirs dolmens being comparatively raised. The Garo erect menhirs. The Nagas inter their dead and have several megalithic structures. Several of the tribes of the old Kuki of Manipur erect megalithic monuments and so also to the Lushie. The Chin tribes erect either menhirs or dolmens and inter their dead in graves lined with stone. The Mikirs erect menhirs, alignments and dolmens."

We have taken a rapid detailed survey of the tribes among whom the megalithic cult is still prevalent and who are looked upon as survivals of the times when the culture was a predominant and fashionable one. We would notice one important fact that in India the more numerous, ancient and gorgeous structures occur in the South. In North-West and Central India these are entirely absent. And so also in the Gangetic plains but they are common in the Chota Nagpur and Assam hill tracts where however it is difficult to separate the modern ones from the ancient all being mostly of degenerate imitative class some being spoken of by Mr. Perry as 'dissoliths.' The same degenerate forms are noticeable in the

[1] The Megalithic Cultures of Indonesia, 1918, pp. 23 and 14.

modern ones erected in the South. We have further seen that the culture exists still in India among such varied stocks Pre-Dravidian, Proto-Dravidian, Austric (Australoid-veddaici) and Tibeto-Burman that ethnic unity is out of the question. Then evidently it was a phase of culture which we find has been traced with the greatest amount of likelihood to the influence of Egypt. But when did it come? Evidently not in 'Aryan' India. The orthodox Aryan Sanskrit literature of India has no place for these in spite of their high antiquity and only one mentions the enemy tribes Eastern Asura mound-builders. Prof. Chanda pointed out to me that in Pali literature especially in the Buddhist scriptures we find references to a cult of the worship of *chaityas* or funeral mounds and dolmenic structures. This cult prevailed over a tract inhabited by men with chhatrākārasirah (round-heads) and tunganāsāh (prominent noses) in pre-Buddhistic times. Peet has also pointed out that in spite of Montelius, 'the megalithic structures are to be associated with cultures and races decidedly not Aryan.' Was it Dravidian? Fergusson long ago answered it once for all:[1] "The first inference one is inclined to draw from this is that they must be Dravidian as contradistinguished from Aryan, and it may be so. But against this view we have the fact that all the races at

[1] Rude Stone Monuments, p. 475.

present dominant in the South repudiate them: none use similiar stones of burial now, nor do any of them object to our digging them up and destroying them." Now Ruggieri has called our attention to the importance of Pre-Dravidians thus[1]:—"Everything induces us to hold that the Dravidians have really been *a small number of invaders who have introduced their languages* and even that not everywhere, since in the Munda-Kol zone, languages more ancient, have been preserved. It is logical, that if the languages have remained in spite of the Dravidian influence, those who speak them should also have been little contaminated. There is therefore no reason to consider them as platyrrhine Dravidians but certainly as Veddaic or Australoid, and from the fact that between the Munda Kols of the North and the Veddas of the South there intervene other Platyrrhines (Paniyans, etc.) these latter also represent the same ancient Pre-Dravidian formation which at one time extended over the whole of India and has always been much less affected by the newcomers (Dravidians, Aryans, etc.)."

It is evident then that India was being influenced by the megalithic culture, if at all, only in Pre-Dravidian times considering that all the megalithic tribes are either classed physically as such or are proved linguistically like the Khasis

[1] Primiline d'un Anthropologia sistematica dell' Asia—1919, p. 46.

to have been strongly influenced by a Pre-Dravidian (Mon-Khmer) cultural wave. We know that 500 B.C. the Aryan culture have superseded the Dravidian in Southern India. Allowing some time (say 300 to 500 years) for Dravidian domination considering the extent of the languages there we might roughly arrive at 1000 or 800 B.C. as the approximate limit of the Pre-Dravidian domination in the South when we might naturally expect their *megalithic cults to have dominated.* Prof. Flinders Petrie has beautifully shown that the association of a cycle of nature with an ethnic stock may be taken as 1500 to 1800 years. So the beginning of the megalithic cult in India may be taken as roughly 2500 B. C. That this was so is proved by the identity of numerous ownership marks on the megalithic pottery of the Deccan with those from Predynastic and Protodynastic Egypt. The only objection that can be urged against this date is that Prof. Elliot Smith assigns 800 B. C. as the likely date of the spreading of the megalithic idea from Egypt eastwards. But it is evident that not having at hand any other proof of earlier foreign connection of India than Rhys Davids' Phœnician theory on the origin of the alphabets, he had to fall back upon that. But he himself has got to go in far earlier dates on grounds of technology. Thus he says in his essay on Ancient Mariners[1]

[1] Proc. Belfast lit. and Nat. History Society, 1918, pp. 52-55.

"The preservation until the present time in Burma and further east, of the earliest known type of Egyptian sea-going ship which in Egypt itself was superseded by new developments in the art of shipbuilding before 2000 B. C. indicates that before that date these distinctively Egyptian models must have reached the Indian ocean. The recent researches in Elam have revealed the fact that the painted pottery which was being made there before 2000 B. C. was copied in Turkestan and Baluchistan[1] not very long afterwards. The derivation of this art of painted pottery in Elam is probably to be referred to Predynastic Egypt, and it may have been carried to the shores of the Persian Gulf along with the knowledge of copper working, by means of the early maritime intercourse between the Red Sea and the Persian Gulf." But there is a rift in the lute as Elam pottery is derived from Predynastic Egypt and not *vice versâ* as by general concensus of opinion. It is very possible that there was a mound cult in central Asia as is established by Pumpelly and Minns and that a migration from Central Asia which brought about the civilisation of dynastic Egypt had some counterpart in India and that out of the conflicting and converging elements

[1] The Beluchistan pottery with Anau linear designs in Indian Museum has been found only with copper objects and flint knives and with no trace of iron.

of the cultures of the existing equatorial and invading boreal races there arose an Indo-Erythræan culture-complex which saw the rise of the huge countless funerary monuments in the Deccan as well as Egypt. The variety and number of the megaliths near the Southern seaboard of India in contrast to their absence in North-Western India and feeble miniature copies in the North-East show that a strong culture-stream came by the sea-board and passed out of India possibly late by the North-East. Warren also metrologically proves the influence of the megalithic peoples in N. E. India and thence over Indonesia. These were the times when India was in intimate cultural contact with Egypt and possibly Central Asia and may be set down roughly as ranging between 2500 and 800 B. C.

CHAPTER XV.

Cultural Sequence, Affinities and Survivals.

Simcox in his Primitive Civilisations in the long section on Malabar has given us an interesting study of some customs of the Deccan and those of Egypt and Babylon which goes to show in his own words 'that in Malabar, a number of usages linger akin to the most archaic customs of Egypt and Babylonia.'[1] Avebury in "The Origin of Civilisation and the Primitive Condition of Man" in pages 153 and 175-79 has also drawn attention to several particular Dravidian customs closely similar to some of the customs of the Red Indian tribes. But of more interest to us from the point of view of prehistoric archæology are Dr. Wilke's two remarkable books "Sudwest Europaische Megalithkultur und ihre Beziehungen zum Orient" and "Kultur-Beziehungen zwischen Indien, Orient und Europa" which in spite of their radical defect by being ridden by the mistaken theory that the megaliths are due to a Aryan race who poured from N. E. Europe into Asia are useful as

[1] Vol. I, p. 354.

having collected many facts together. The connection between the East and West have taxed brains from the learned pages of Heeren's Historical Researches into the Politics, Intercourse and Trade of the Primæval Nations of Antiquity (1820) to the speculative flourishes in the lecture of Hermann and Keyserling (Ueber die innere Beziehung zwischen den Kulturproblem des Orients und des Okzidents). Bissing's study of Prähistorische Topfen aus Indien und aus Aegypten (1911) brings out clearly besides other things how Egyptian "glazing" was done by means of some plant juice like the Indian process.

But all this is but an array of wilderness unless we can arrange things and see them in the proper perspective. India lying so near Central Asia, which, as we have seen, was the likeliest place where mankind was evolved was also possibly subject to the various culture-waves emanating from the Central home. So a study of prehistoric India would be incomplete and mutilated unless it can be brought in relation to the other early cultures at least of Asia if not elsewhere. We all know that prehistoric Europe has been more illuminated than later times therein simply because the greatest savants like Montelius early recognised that 'without chronology one cannot write any history' and 'build up a fortified castle of interrelated culture

systems by which alone the whole culture of Europe could stand on the firmest basis.'[1] One cannot hope for such things in Asia at such an early stage but if this is not prominent in the minds of oriental archæologists, even the most startling finds would cease to excite any human interest and would be taken as the mere whims of curio-hunters. Specially in this synthetic 20th century when Karl Pearson himself in his presidential address to the Anthropological section of the British Association was advocating the cause of useful science as opposed to science for its own sake, the prehistoric archæologist would but fail in his task if he makes no endeavour in his humble way to indicate the place of the chipped stones, be they old, in the foundations of the human structures of our times.

Central Asia.

Starting now from the central home, if any, we find a plausible explanation of past events is supplied by Pumpelly in the beautifully sketched tale of 'early regional isolation, the segregation into separate groups brought about by the regional progress of desiccation in Central Asia.' It may indeed be supposed that in prehistoric as well as in historic times the world was overrun by the surfeit of population in Central Asia. So we may take Pumpelly to be likely correct when trying to describe

[1] Zeitschrift fur Ethnologie, 1910, pp. 955-62.

past conditions as follows :—" The great continental unrest which variably affected different parts of the West, being caused by the decreasing capacity of the pasturage to support nomadic shepherd life, could not have begun until all of Central Asia has become peopled up to the limit of that capacity. We may imagine the great area to have been by this time portioned out among peoples of varied racial origin and having different degrees of culture, varying from nomads in the arid regions to more or less settled pastoral peoples with elementary agriculture in the more favoured lands north of the Black Sea. The waves of movement beginning in the drier eastern region, should seem to have progressed outward, and so on till the climatically favoured peripheral regions including Europe, were successively submerged by one migration after another, ending with the purely Turanian inroads of our era."

Asiatic Palæolithic and Neolithic sites and Indian Correlations.

Pumpelly could come across no Palæolithic cultures in the Turkestan which began with a neolithic culture. From Eastern Turkestan however Stein gives us information of a palæolithic settlement 30 miles from the nearest traceable bed of Yarkand river,[1] a neolithic settlement from the Lop-Nor region[2]

[1] Stein—A Third Journey of Exploration in Central Asia, 1913-16, p. 18. [2] *Ibid*, p. 28.

and another neolithic and later settlement from near the Helmund.[1] Of these the first two are of supreme interest when we remember the Pithecanthropus find in Java and also the earliest Indian Palæolithic curving from Burma. Though the majority of Indian palæoliths come from Southern India and extend up to Ceylon, a stray Palæolith has also been heard of from the Punjab [2] picked up by the geologist Theobald near Attock. Near Asia Minor we find many stone-age sites mostly palæolithic and early neolithic as at Narh-kelb, Adloum, Damas hillocks, at a place between the Demovend and the Caspian Sea, Tapeh Gulam, etc.[3] We should remember that the ancient historic civilisations of Chaldæa and Egypt began with the Neolithic culture. Minns has collected from Niederle and others all about Stone Age remains of South Russia and Czaplicka from Adrianoff about such remains in Siberia, but the record of the Stone Age in Russia is, as we find, yet a blank. The notable exceptions are Indo-China and possibly China. About the former we learn from Man Suy "up to the present day there has not been discovered in Eastern Asia any instrument comparable to the quaternary artifacts of Europe. On the other hand certain polished stones, knives with chipped

[1] *Ibid*, p. 63.

[2] Records of the Geological Survey of India, Vol. XIII, p. 176.

[3] Morgan, Notes sur les ages de la pierre dans l'Asie anterieure (Bull. de Soc. d'Anthropologie de Paris, 1902, pp. 709-10).

ends offer remarkable similarities to European neoliths.[1] Similarly Guiseppe Ferocci tries to fix a chronology of about 3000 B.C. from Chinese literature about the usual reverence of thunder-weapons (shoulder-headed celts ?) which we know are characteristic of late neolithic North-Eastern India. It is idle and premature to attempt to build up any theories from such scrappy information and some more possibly that have escaped my reach, for Asia is still to a great extent archæologically *terra incognita*. But one cannot help pondering over the comparative fulness of the palæolithic and neolithic records of India in contrast to other parts of Asia and also that the historical civilisations of Chaldæa, Egypt and possibly China start with neolithic times. But eirdence is forthcoming that palæolithic centres are not wanting in Central Asia to make it a convenient first home of men of the Old Stone Age though W. Europe teems with authentic finds some of which are being resolutely attempted to be pushed even into tertiary times !

Central Asia and the ancient civilisations.

But the correlation of the ancient springs of culture with the seats of early civilisation in Asia, Southern Europe and Africa, though attended with controversies has not been very fruitful. Their importance for us also cannot be minimised for India also would

[1] L'Anthrop., Vol. XXX, 1920, pp. 172-74.

come in for its share in comparison and though it would be somewhat spasmodic in character there is no doubt we would arrive at some mile posts on our long road. Besides the swinging of the pendulum of migrations in other lands would also bring us clear indications of the periods of oscillation in the prehistoric cultures in India. In the beginning of 1920 R. Campbell Thompson delivered an interesting lecture in Royal Institution where he made out three distinct migrations as causing three different cultures :

(1) A proto-Hamitic Mediterranean migration with the Arab and predynastic Egyptians as their contemporaries (*vide* my Indo-Erythræan culture complex) forming a nest for future Semitic migrations from Arabia.

(2) An Armenoid migration *viâ* Syria about 4000 B.C. starting the dynastic cultures in Egypt and replacing peaked beards by bushy beards.

(3) A sumerian migration with potteries quite different from the geometric potteries of the second.

Now from the archæological standpoint Elliot Smith has brought forth along others 'evidence of an intimate cultural connection that must have linked proto-dynastic Egypt to Elam and Sumer and these in turn with the Iranian and Turanian domains.' Petrie

[1] Journal, Manchester Egyptian and Oriental Society, 1918-19, p. 15.

simultaneously holds that 'Elam (Susa) was a whole cycle ahead of Egypt in its development.'[1] In a very learned and interesting paper Prof. M. Rostovzieff has come to some definite conclusions after an exhaustive enquiry into the origin besides giving us an useful summary: "The potteries of Anau and Elam are contemporary and related but each followed its own independent line of development of more elaborate style in Elam but of a simpler kind in Anau. At the present time it is impossible to determine the place where this painted pottery actually originated and indeed the time has not yet arrived for conjectures on the subject. We shall have to wait, at the very least, for the publication of data concerning the very interesting neolithic necropolis at Eridu and near Van, where painted pottery was discovered ; the published specimens of this painted pottery show a very close relationship with Elam and Turkestan. Practically nothing is known about the painted pottery found in the neighbourhood of Carchemish by Hogarth's expedition. We do not know even, whether any parts of it go back as far as Neolithic period at the Danube and the Dnieper regions many of whose features stand in so strikingly close connection with particular features of the Susan pottery. After that alone may it be possible to say whether the painted pottery was imported

[1] Eastern Exploration, 1918, p. 75.

into the river-valleys from far-away Central Asia, or whether it was developed by the local population in a number of different centres, the people having gradually descended into the valleys from the mountains and having communicated their cultural achievements to neighbours either by migration or by exchange." [1]

Central Asiatic and Indian pottery.

We have already pointed out that pottery from prehistoric India dates roughly from neolithic and chalcolithic times. In fact Bruce Foote has given a list of no less than 54 places in Western and Southern India where the pottery finds according to him are distinctly neolithic and 41 sites where they belong to the Early Iron Age.[2] Amongst these painted designs remarkably similar to those from Elam and Anau are easily detected and they are all geometrical in design. We know 'there is a close relationship between the geometrical ornament of Susa and of Anau. In both cases a strange preference is shown for triangles partly with concave sides; in both cases there are rows of zig-zag lines, the chess-board pattern is found and the net-work pattern is in common use; in both cases rows of triangles are used and combinations of rhombuses and triangles; a love of

[1] Journal of Egyptian Archæology, Vol. VI, Part I, Jan. 1920, p. 25.

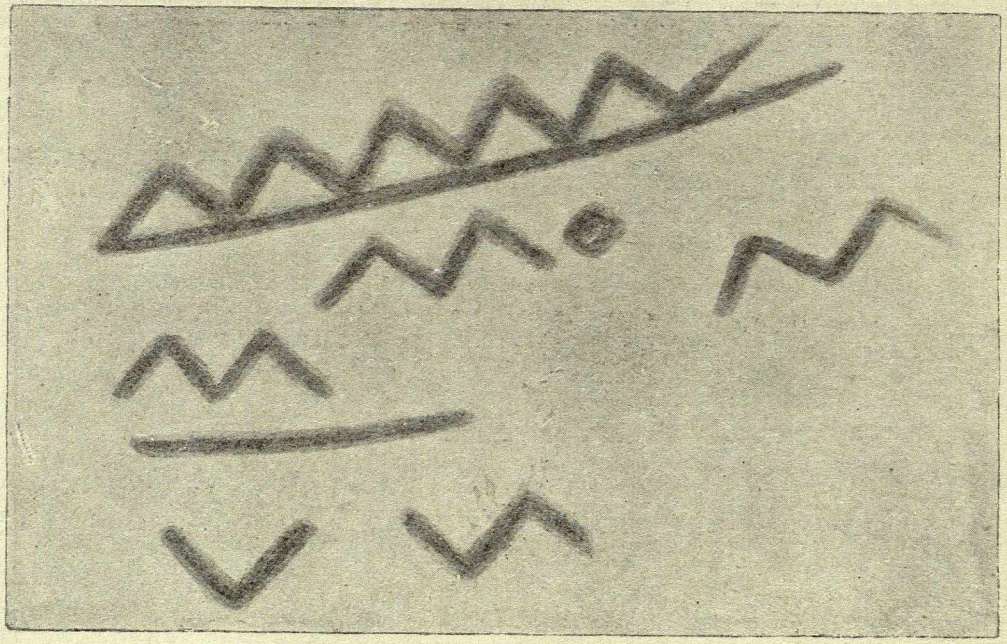
[2] Notes on the Ages and Distribution of Foote Collection, 1916, pp. 32-33.

dented lines is also traceable and a tendency to choose cross-like ornaments and so forth."[11] Now in prehistoric India the only painted designs so far known are dominated by these characteristics. The Kalat state in Baluchistan figures in Bruce Foote in the list of neolithic pottery-bearing sites. In the Archæological Survey Report of India, 1904-05, Sir John Marshall has brought to notice with coloured plate some potteries from a mound in the Nal village of the Jhalwar district of the Kalat state. He has not failed to observe that 'the main interest of this pottery centres in its decoration *motifs*. The simplest of these are quite elementary geometric forms, like the chevrons in Plate XXXIII, figs. 4, 7, 9, and 11 and the diamond-shaped lozenges in Plate XXXIV, fig. 12. An advance on these is seen in the foliate design of Plate XXXIII, figs. 1 and 2, and Plate XXXIV, figs. 8, 11 and 13 (op. *cit.*, p. 104). It is remarkable that not only the geometrical designs are identical with the like from Central Asia, *e.g.*, the Anau pottery figured in Pumpelly, Vol. I, plate XXVIII or in figs. 82, 84 of page 130 but the phyllomorph designs are the exact counterparts of fig. 85 in p. 130 of figs. 1 and 2 of Plate XXXIV. I may note here that these designs had a wide distinction

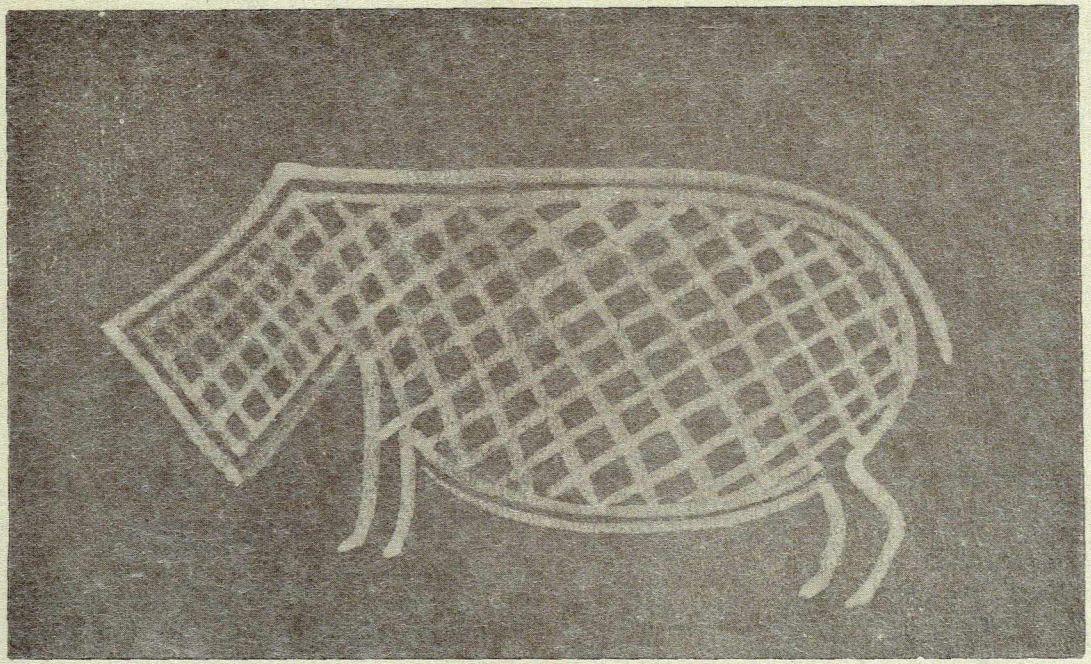
[11] Rostoozeff, *ibid*, p. 25.

[12] E. Smith : Ancient Mariners (Proc. Belfast Littrary and Natural History Society, 1918, pp. 53 4),

in prehistoric India, though owing to long lapse of time and the moist conditions here, the designs have often disappeared and escaped the eyes of almost all save Bruce Foote who figures in Plate 30 (*cf.* no. 386-7 Notes on the Ages, etc.) a trellis pattern found in Bellary with four other painted bowls. In Plate 53 of Bruce Foote's Notes, etc., and Plate XXIII (no. 1077) of his Catalogue of 1901 we find similar simple trellis patterns and wavy lines occurring respectively in potteries from Tungabhudra in the Hyderabad State and from Coimbatore district. Some Beluchistan potteries in the Indian Museum are given in the plates annexed to this book. These potteries have been found with copper objects alone. These are but mere indications of what has long begun to be hinted at by Elliot Smith thus :—"The recent researches in the Elam have revealed the fact that the painted pottery which was being made there before 2000 B.C. was copied in Turkestan and Baluchistan not very long afterwards...The contact between Elam and India may have been brought about by land in the third millennium B.C."



Singanpore cave painting—I



Singanpore cave painting—II

Appendix I.

Notes on the Prehistoric Cave Paintings at Raigarh.

BY

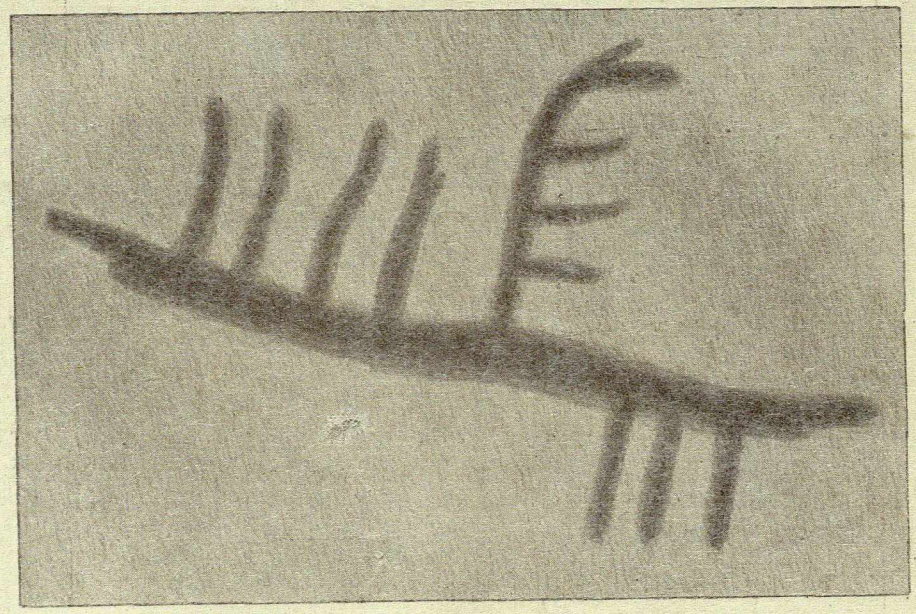
PERCEY BROWN ESQR., A.R.C.A.

Principal, Government School of Art, Calcutta; officer-in-charge, Art Section, Indian Museum, Calcutta

The examples of early painting in India are so rare, that it seems desirable that every site in which they occur should be somewhat carefully investigated and described. Ajanta, Bagh, and Sigiriya in Ceylon have each furnished types of early Buddhist painting which are of great æsthetic value, while at the caves of Raigarh Hill in Sirguja, C. P., certain frescos have been recently copied which are judged to be more than two thousand years old. But the paintings that are the subject of this note will probably prove to belong to an age that lies far outside the historic period of the country, and are believed to be the artistic efforts of primeval man himself. Much evidence remains to be sifted before this can be unconditionally accepted, but even now sufficient testimony is forthcoming to make these paintings of more than ordinary

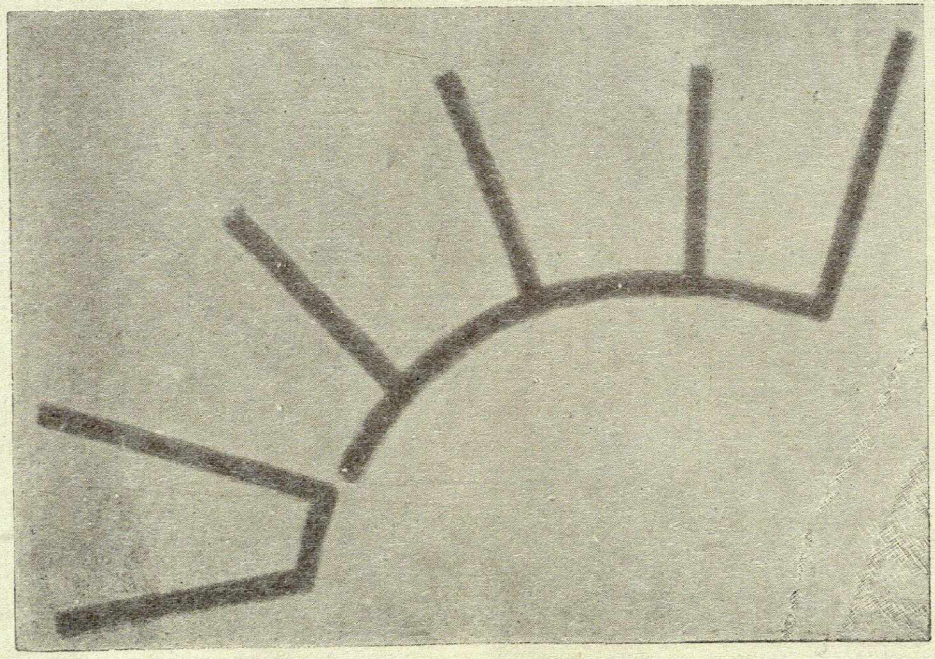
interest. The particular paintings about to be described are located on a rocky hill in the State of Raigarh in the Central Provinces. At the 375th mile from Calcutta on the Bengal Nagpur main line a range of low hills runs parallel to and within a mile and a half north of the railway. The nearest railway station to this is the very small one of Naharpali. Due north of this, about two miles away, a bold rocky bluff may be seen, and it is in the shallow caves on the south face of this that the paintings were found.

They were first discovered by Mr. C. W. Anderson of the B. N. Railway in 1910, and, here it should be mentioned, that to the energy and scholarship of this gentleman our first introduction to these unique paintings is due. In 1911 Mr. Anderson again visited the caves and was able to make some very careful and comprehensive copies of the paintings, and much of the material obtained on this occasion figures in the illustrations. But to enable the investigation to be quite complete certain geological evidences were considered desirable, and in 1913 efforts were made to secure these. By this time, however, the caves had become the haunt of wild bees, and the party undertaking the expedition was suddenly attacked by swarms of these insects and utterly routed. This expedition was singularly well



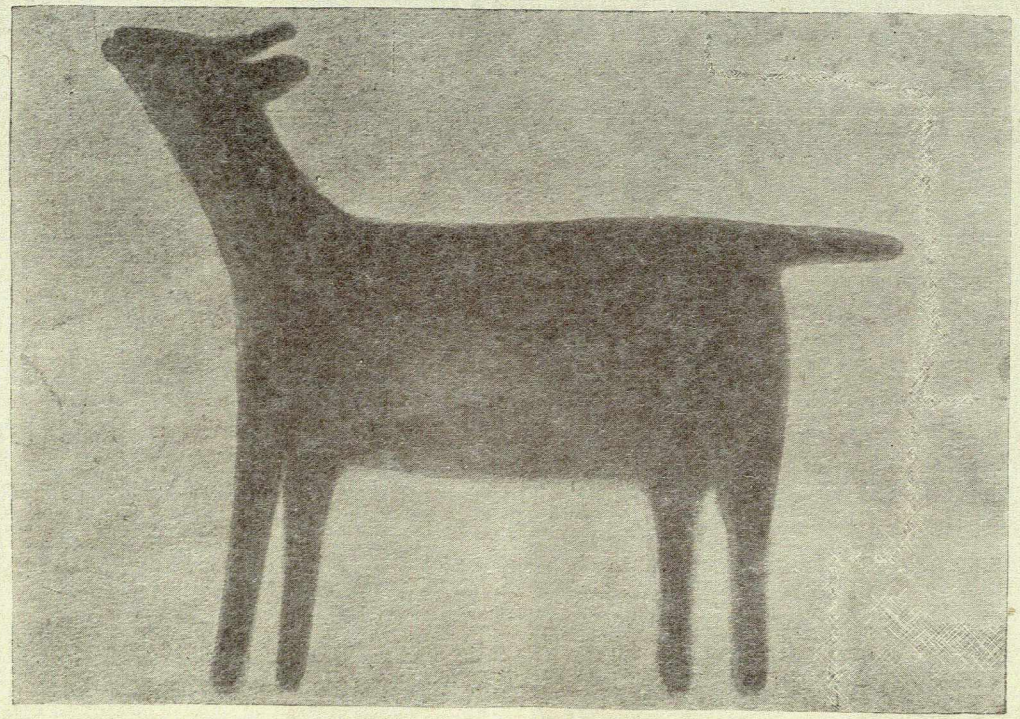
Singanpore cave painting—III

Singanpore cave painting—IV

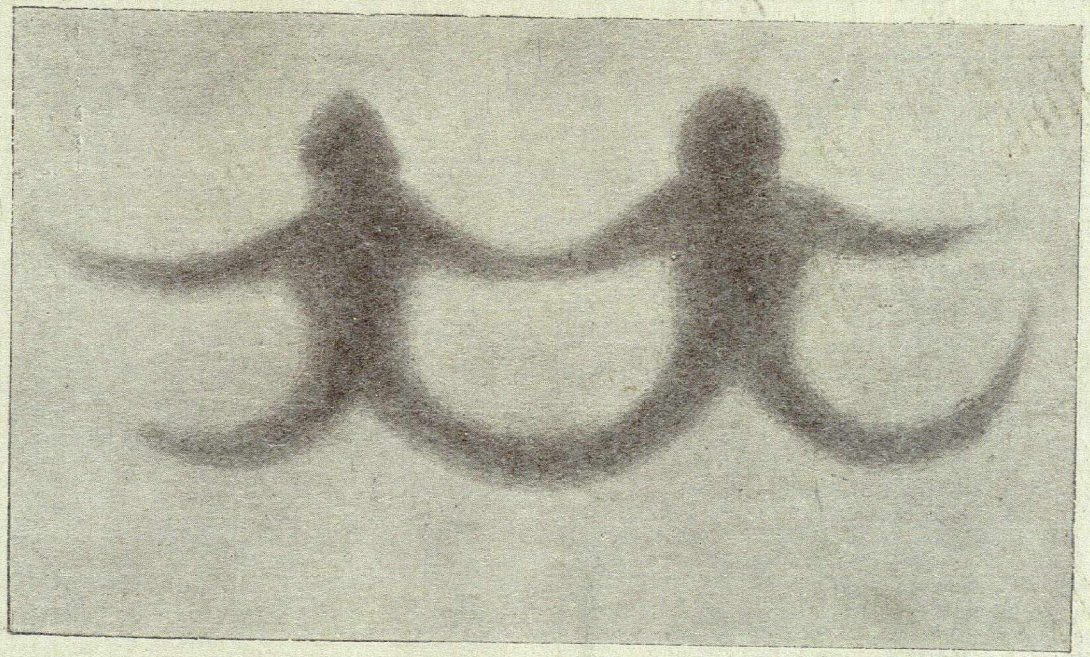


Singanpore cave painting—V

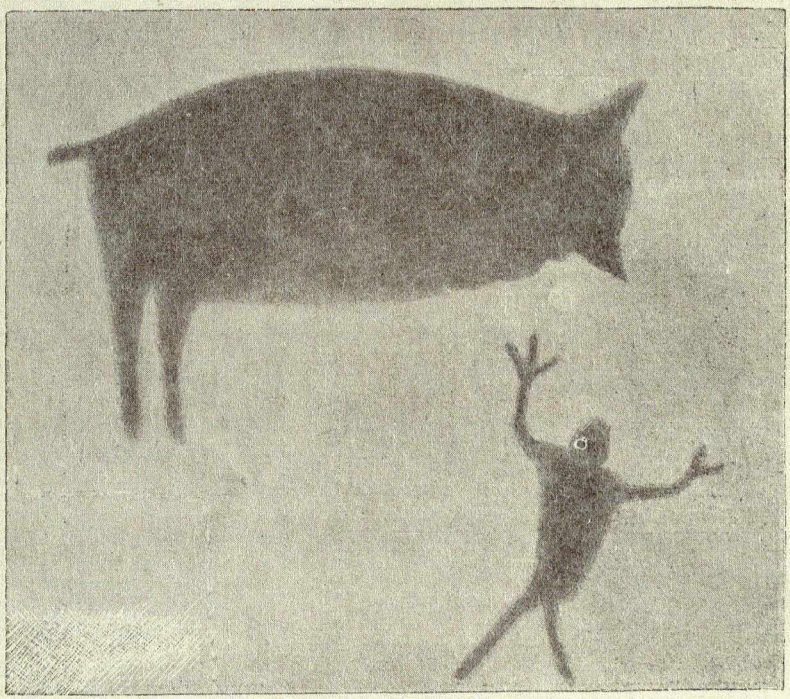
Singanpore cave painting—VI



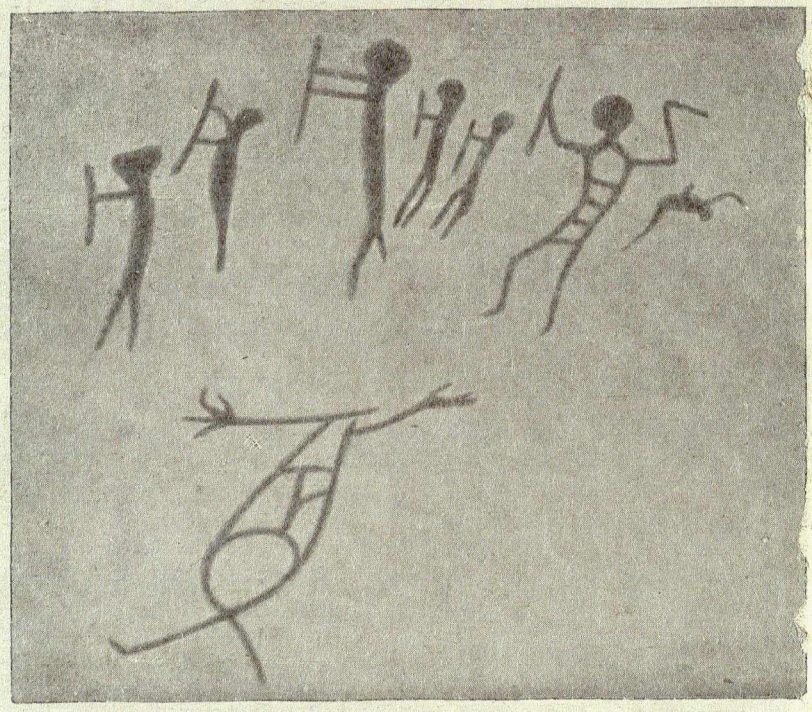
Singanpore cave painting—VII



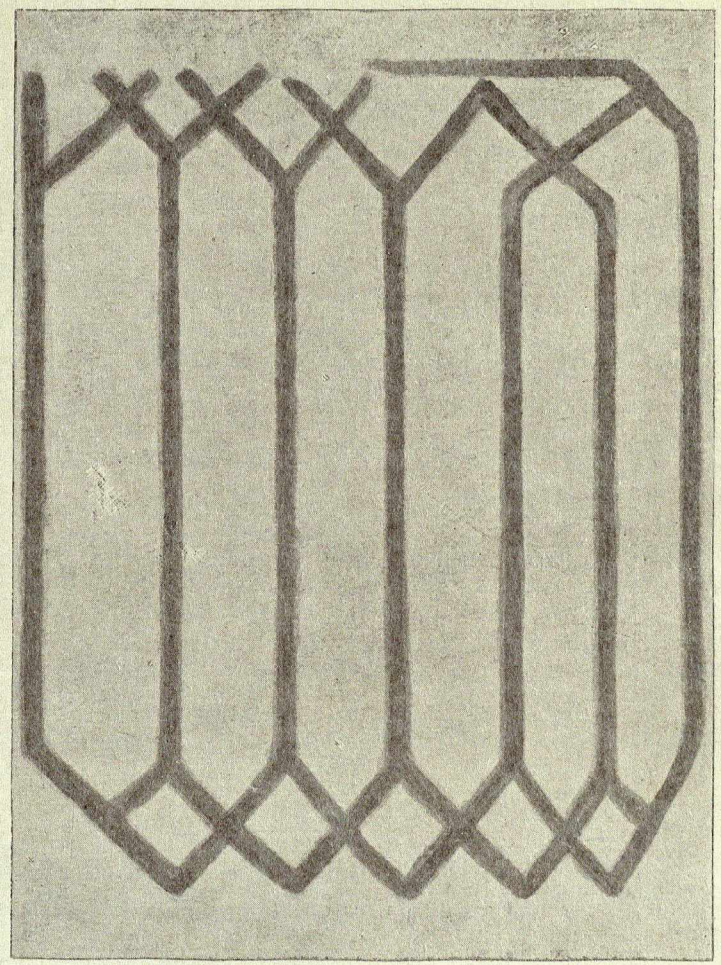
Singanpore cave painting—VIII



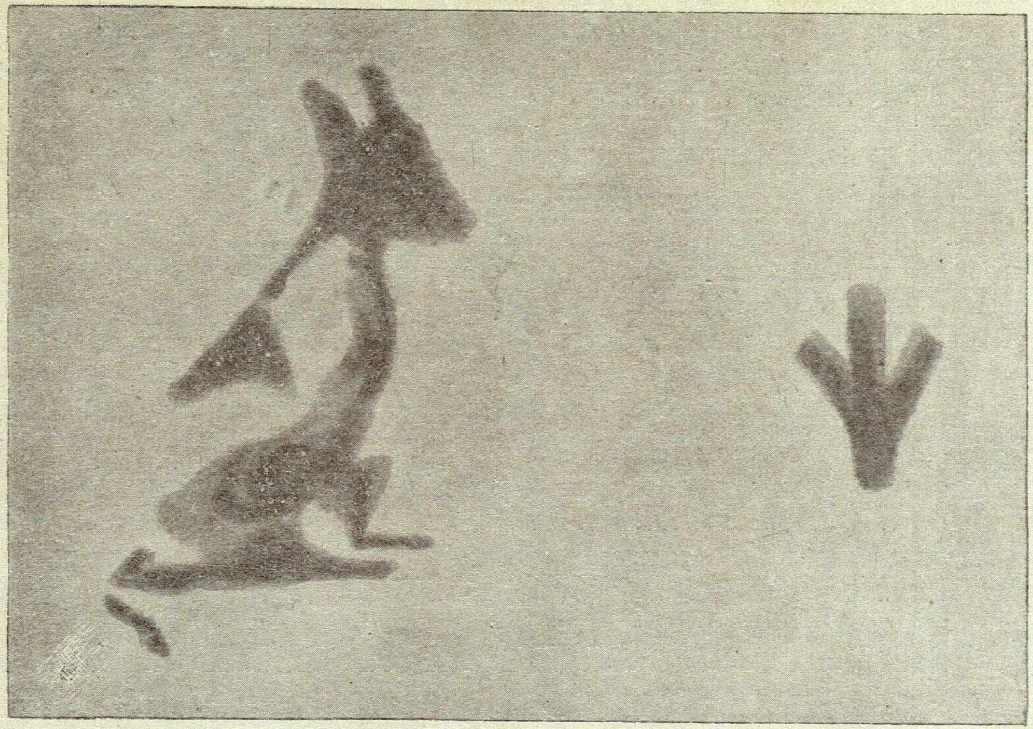
Singanpore cave painting—IX



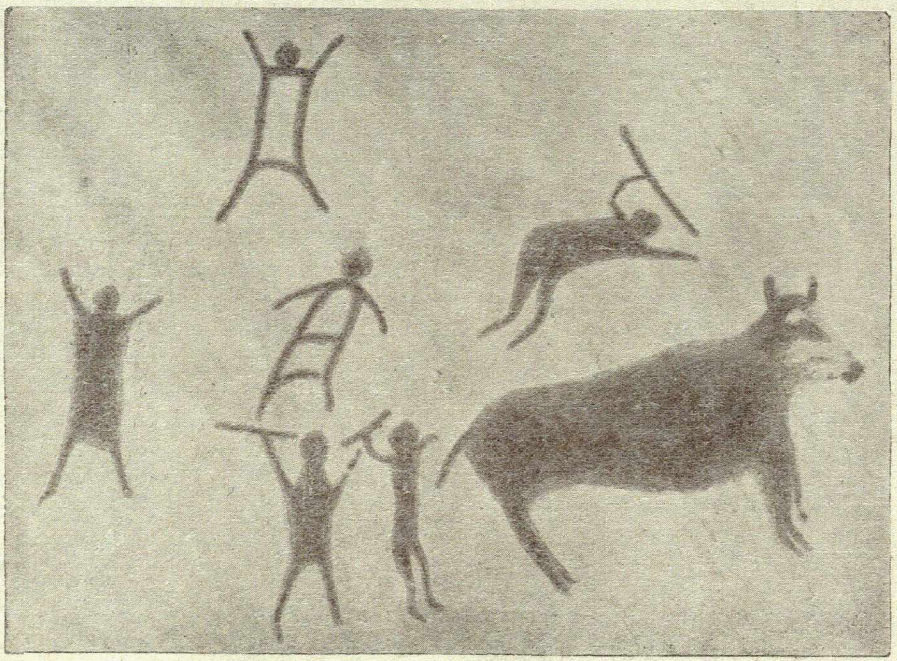
Singanpore cave painting—X



Singanpore cave painting—XI

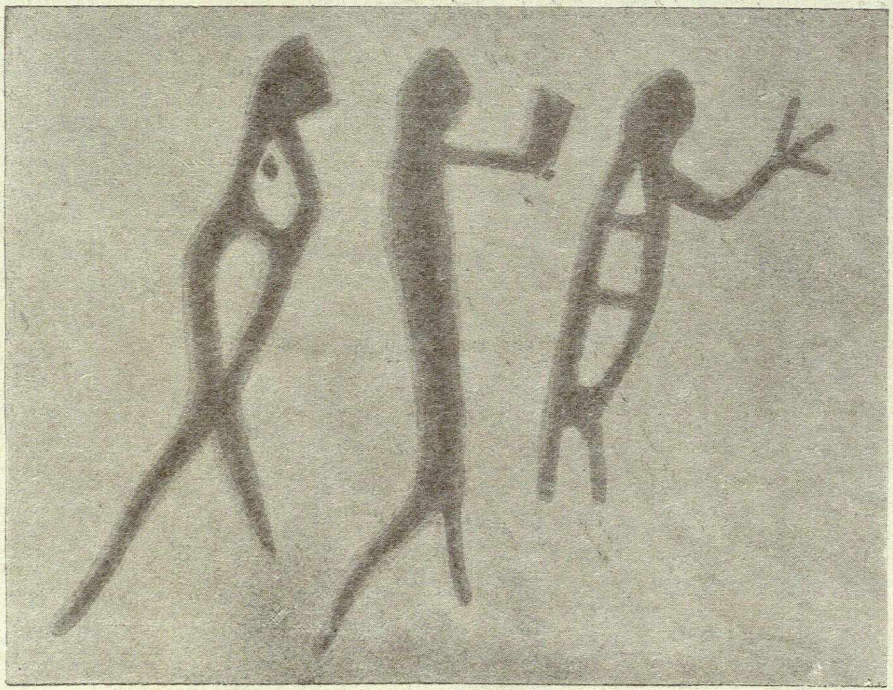


Singanpore cave painting—XII

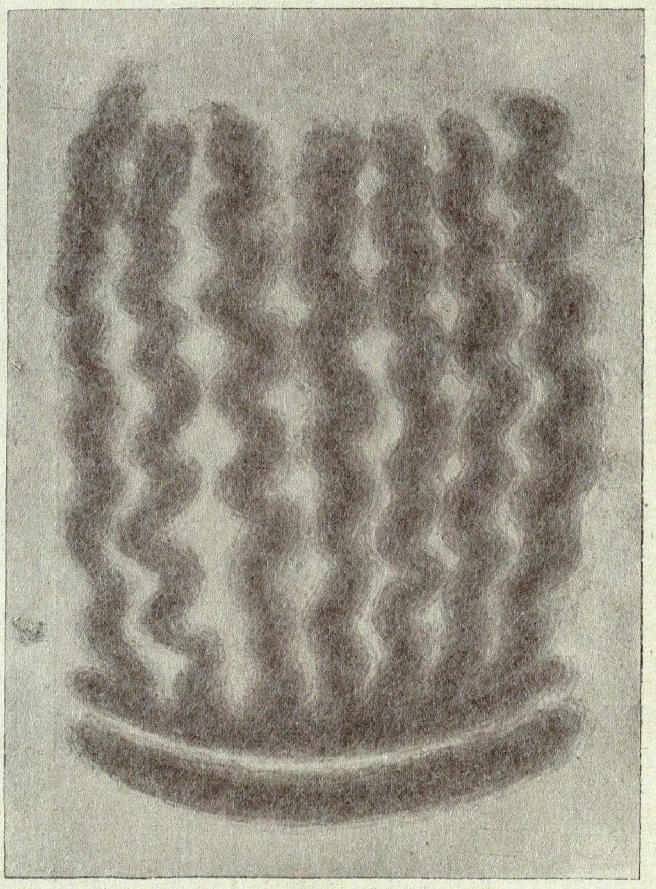


Singanpore cave painting—XIII

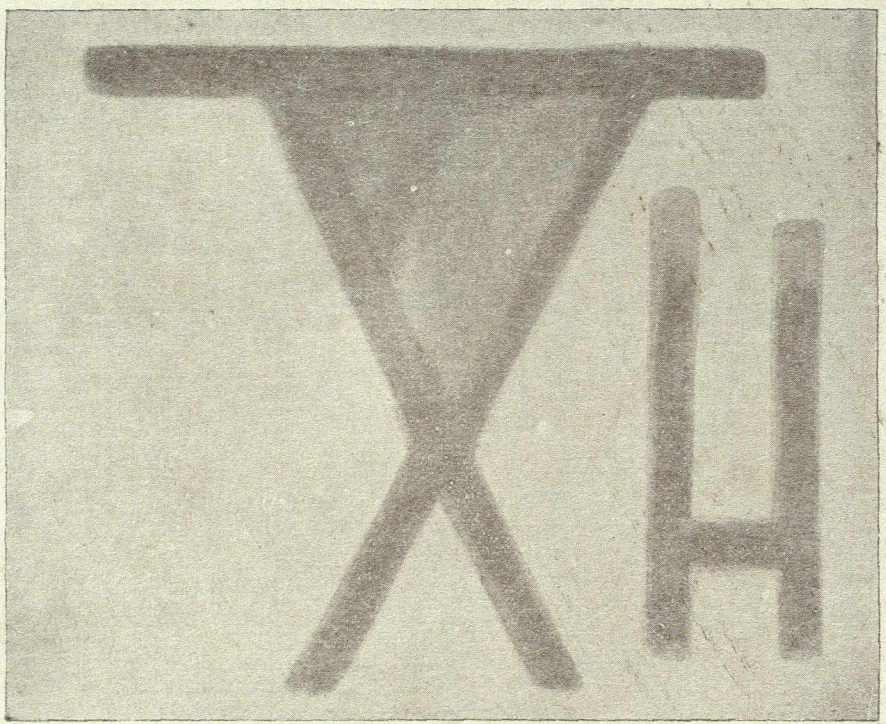
Singanpore cave painting—XIV



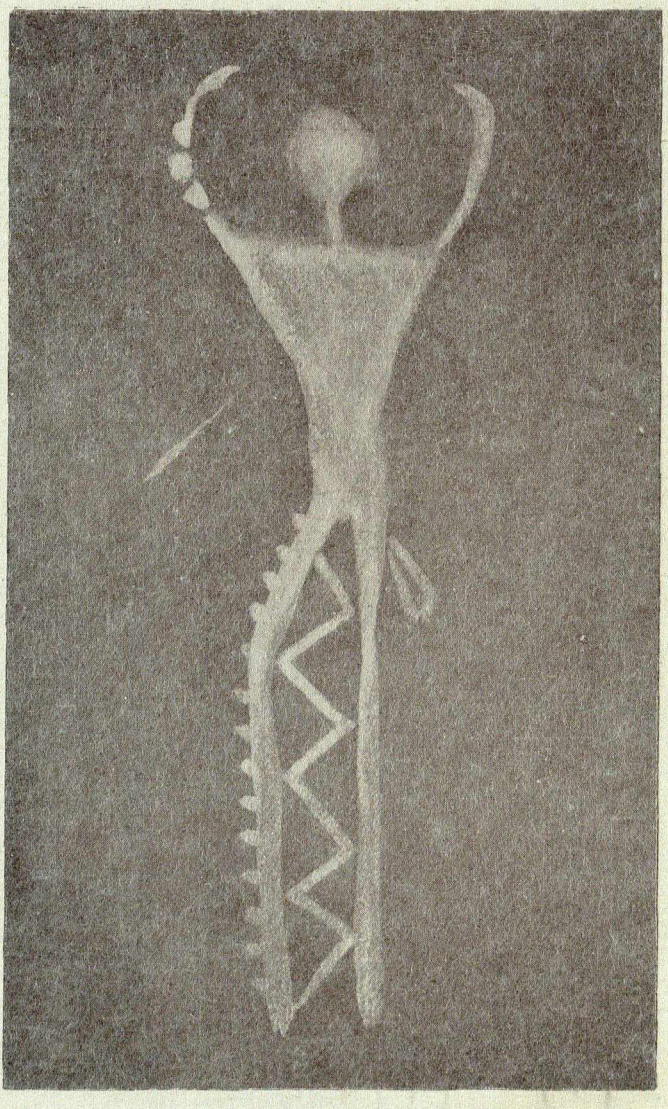
Singanpore cave painting—XV



Singanpore cave painting—XVI



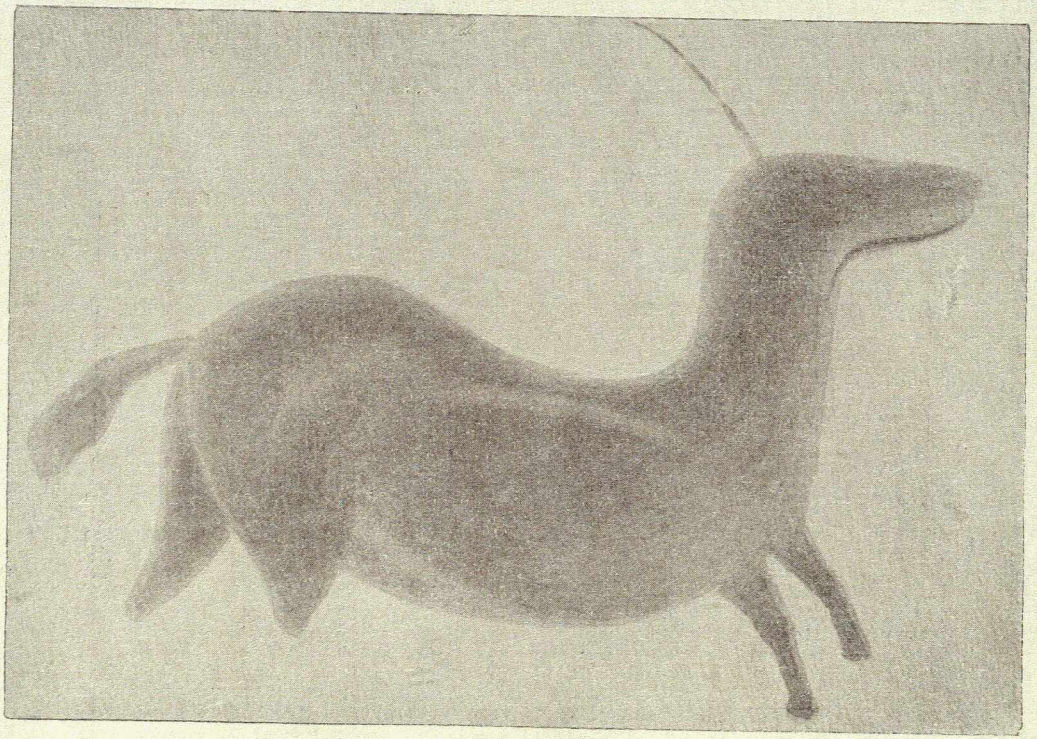
Singanpore cave painting—XVII



Singanpore cave painting—XVIII

Singanpore cave painting—XIX

Singanpore cave painting—XX



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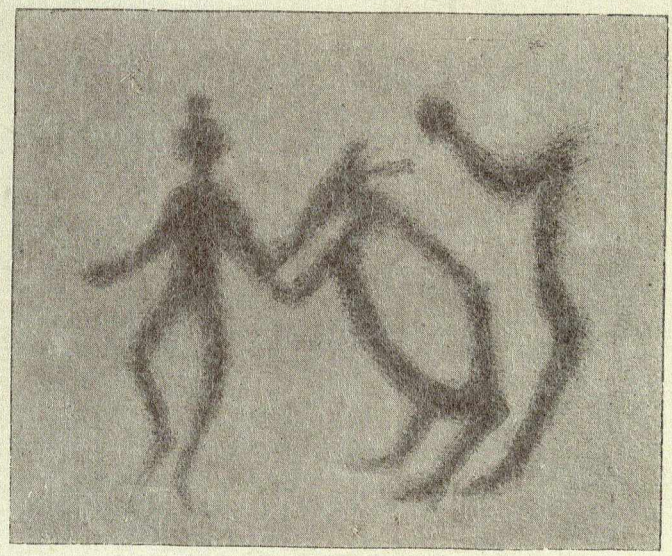
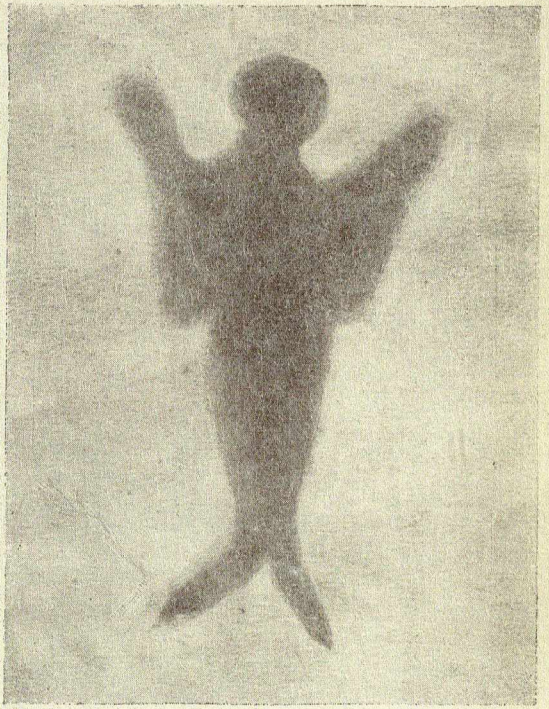
Singanpore cave painting—XXIII

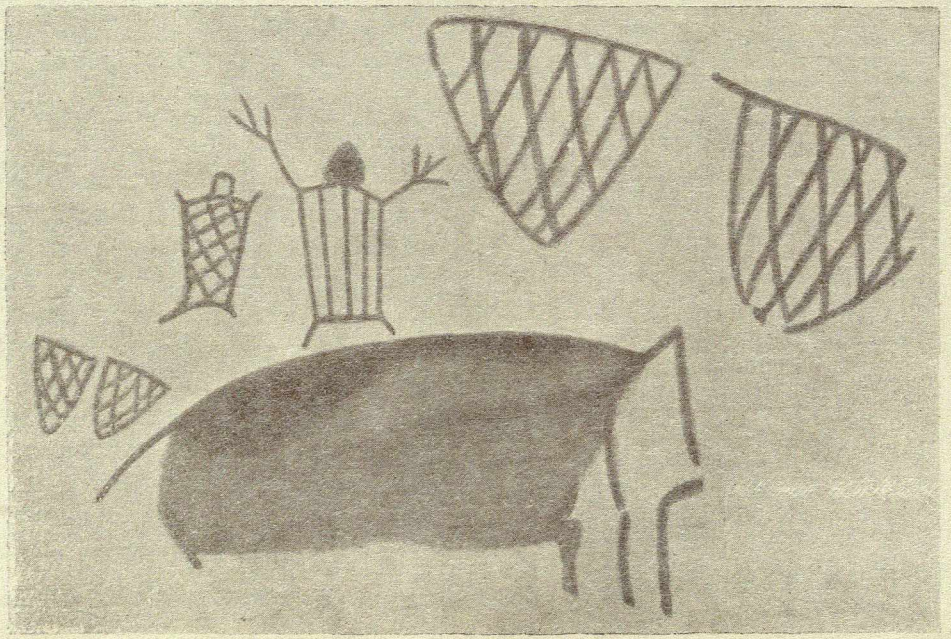
Singanpore cave painting—XXIV



Singanpore cave painting—XXV



Singanpore cave painting—XXVI



Singanpore cave painting—XXVII

fitted out, and it is a source of regret that it met with such an unfortunate end. The story of the precipitous retreat from the caves down the steep hillside has been graphically told by several of those who took part in this ill-fated survey, but this may not be related here. It will, however, suffice to say that the majority of the party never ceased running until they reached the railway station over 2 miles away where most of them, stung from head to foot, lay groaning, and in high fever, on the platform until medical help arrived.

A short time ago however in consultation with Mr. Anderson it was arranged that the effort should again be made to explore thoroughly the site of these paintings. In view of the last unfortunate experience, precautions were taken to fit out most of the party with protection in the way of mosquito net veils and also gloves, etc., for the hands.

Leaving Naharpali station we traversed the two miles of semi-cultivated land until the village of Singanpur was reached, which nestles immediately at the foot of the hill. A rough precipitous climb over huge rocks and through bamboo jungle brought us to the foot of the scarp in which the caves lay. Several of these excavations lie at intervals along this line, but the one containing the paintings has almost entirely collapsed and is approached only by

climbing over the great fallen rocks which originally formed its façade. Above this fallen debris, however, portions of a sort of natural platform still remain and from this the paintings may be comparatively easily studied. This platform, which is in height about 600 feet from the cultivated land below, enables one to obtain a magnificent view of the surrounding country, through which the sandy bed of the adjacent Mand River may be plainly traced.

Leaving the bulk of the party some distance below, we warily approached the cave, as the nests of bees immediately above the paintings were easily visible. Mounting the platform we were soon the object of an attack by a small reconnoitring force of these insects. Being well protected with nets, etc., we remained absolutely still, so they proceeded to attempt to sting us through our clothing. Finding this futile, and eventually realizing that we meant no harm, they finally retired, and after this preliminary skirmish we were subjected to no more annoyance from this source.

The cave in which the paintings occur is obviously only a ruin of a much larger excavation. It is possible that at some remote age the entire front fell in, thus hermetically sealing up the cave and preserving the drawings. Subsequently, at a much more recent date, the debris which had thus closed up the opening,

broke away and slipped another stage down the cliff, exposing the remains of the paintings to view. This mass of rocks and debris forms the stiff little climb which has to be negotiated before the cave platform is reached. Other and more extensive caves are to be found a short distance along the same cliff, but up to the present no inscriptions have been found in these. A complete exploration of this range might produce some interesting results. This particular site must have been eminently suitable to the inhabitants of these caves because a few hundred feet away, a little stream tumbles its way down the rocky hill-side.

Situation of the Paintings.

The paintings themselves, which are now quite exposed to view and on the exterior surfaces of the cave and cliff are all fairly close together but resolve themselves into three groups:—

(*a*) Those on the wall of the cave proper, (*b*) those on the side of a deep fissure, and (*c*) those on a completely exposed rock surface, but which was originally the far end of a shallow cave now entirely fallen away. The paintings seem to be in two distinct styles, being different in treatment and technique (*i.e.* pigment used), and are also possibly of two periods. Those presumed to be the older ones are more direct in their drawing,

of firmer brush forms, and the pigment used seems to have been more carefully prepared. The other paintings are more rudely daubed on, and show less care in drawing, while the paint is raw in colour and apparently not so carefully prepared. In the case of the paintings in the fissure (*b*), these are all high up beginning some 20 feet from the cave platform. Without a ladder they are inaccessible. The paintings in the cave proper (*a*) are on a level with, and also above, the eye. The most interesting series of all, those on the cliff face (*c*), commence above the level of the eye and continue irregularly up the surface of the rock for some 20 feet.

The position of the paintings on the face of the cliff is at present somewhat difficult to understand. So much of the cave has fallen away that its theoretical reconstruction is impossible. It is however likely that the cave ramified into a series of high clefts, on the upper surfaces of which some of the drawings were made. It might not have been difficult to have made the paintings in this position by means of footholds, or even rough rock-cut steps. An apparently awkwardly situated surface for the reception of their efforts is however a noteworthy and at the same time an incomprehensible feature of prehistoric man's art. Much of the painting too was undoubtedly executed in darkness and this has required explanation. Lamps burning

animal oils were probably used, and the soot from these would, after a time, disappear.

Technique.

The rock surface does not seem to have been specially prepared for the reception of the paintings. The subjects seem to have been painted on any of the fairly smooth portions of the cave, according to the fancy of the painter. What I have presumed to be the older painting appears to have sunk into the surface of the rock more than the other, but at the same time it has not penetrated far into the texture of the rock. The surface of the rock is a more or less natural pink, which when chipped indicates a skin, immediately under the pink surface, of what appeared to be a bright metallic green, like verdigris. Below this the rock was white. The pigment is undoubtedly hæmatite (iron oxide), which would be readily available in this locality. No materials or appliances, such as palettes, etc., were forthcoming from the neighbourhood of the cave. The pigment was probably applied by means of bamboo or reed brushes, the implement most likely used being a stiff blunt point, rather than a brush, and the treatment of some of the painted surfaces seems to prove this. For these surfaces are "cross-lined" over, the painter intending to fill in the interstices afterwards, but neglecting to do so. The

drawings are mostly executed in flat washes of one colour, although there are certain traces of shading and modelling, but these are very indistinct and barely discernible. The soft effect of the outline of the paintings may be due to age, or to the porous nature of the rock having absorbed the pigment. It has the appearance of what is termed "squelching" in an inferior lithographic drawing.

Subject.

The subjects are (*a*) hunting scenes, (*b*) groups of figures, (*c*) picturewriting or hieroglyphics and (*d*) drawings of animals, reptiles, etc.

(*a*) *Hunting scenes.*—These indicate the chase of what may be bison, and, in one drawing, possibly elephants or mammoths. One scene depicts a spirited encounter, the hunters attacking the bison with spears. The artist has most graphically drawn one individual in the act of being tossed, while others may also be regarded as either injured or dead. A small inset indicates the animal severely wounded with spears, and evidently in the act of "foundering." The tall individual like a ladder, who, bye is the one of the most distinct and readily recognized figures on the rock surface, is not understood, but this "ladder" treatment may be noticed in several of the people depicted. Some of the men

may be armed with bows. The large elephants or mammoths, except as interesting records have little worth mentioning in their connexion. The crossed triangles on the space near these animals may represent the local "yoke," which the villagers still use for carrying their produce. These are made of crossed cords in the form of a coarse net.

One of the scenes evidently depicts a hunting tragedy, a man being hugged by a bear while another hunter is endeavouring to rescue the victim by attacking the animal in the rear with a club. The district around Raigarh is noted for bears. Tigers are also occasionally seen, and the aborigines of the district when shewn one scene at once said it represented a man being carried off by a tiger. The similarity between this drawing and a prehistoric painting from a rock shelter at Cogul in Spain is most remarkable.

(*b*) *Groups of figures.*—Most of these appear to be dancing or engaged in some religious ceremony. The cross-legged treatment and the upraised arms occur in almost every case. The large figure of a gesticulating man, about 10 inches in height, is spirited in action. Below is a figure probably holding a trident.

(*c*) *Picture writing or hieroglyphics.*—Some of these are very intricate in shape, but are largely based on the running zig-zag, generally

identified with the Egyptian hieroglyphic for water. The figure of what may represent the rising or setting sun is painted in a greyer pigment than most of the other subjects. A flaw in the drawing of the semi-circle may be due to a movement of the rock strata, subsequent to the painting having been made. It is not a crack. This may be interesting to the geologist. To my mind the most interesting picture-writing is what I identify as a water-fall. After I had interpreted it in this way, a water-fall, somewhat of this general outline, was located in the same range of hills some 4 miles away.

(*d*) *Drawing of Animals.*—Most of these are life-like and spirited. The lizards are distinctly good, while what may be a "Sambur" has some natural characteristics.

Artistic Character.—The artistic character of these paintings is not high, it is hardly of the same quality as the prehistoric cave paintings of France and Spain. But as already indicated some of the drawings shew the same method of brush-work as the more primitive paintings at Cogul in Spain. The chief artistic feature of these Raigarh paintings lies in their spirited expression and spontaneity of treatment. A strong family likeness may be noticed between these cave paintings and the patterns on what is called the "cross-lined" pottery of prehistoric Egypt. In these the men are represented in the "triangular

style," a method of drawing adopted by many primitive races of ancient and modern times.

Geological Evidences.

At the suggestion of Dr. (now Sir Henry) Hayden a number of geological objects were collected, and are now under investigation. They are (*a*) samples of the cave wall, (*b*) pieces of the platform, and (*c*) a number of small specimens taken from the soil which formed the floor. In his preliminary acknowledgment Dr. Hayden says with regard to the last named (*c*) that these "flints" are really agates and have certainly been chipped and probably transported from a considerable distance, so that the find is presumably a genuine one.

APPENDIX II.

Indian Rostrocarinates.

At my request, my young friend and student of the senior M.A. Class, Mr. Rajendrakumar Bhattacharyya, B.A., has given me a detailed stndy of the rostrocarinates in the Indian Museum as follows :—

During the past few years, many researches by the most distinguished scholars have led to the discovery of a good number of flint implements in Europe, proving the existence of skilled workers of flints in Pliocene Age. Mr. J. Reid Moir has discovered more than 39 flints from Ipswich, 10 from the Red Crag of Suffolk, the River Gravels in the Thames Valley and other places. Sir E. Ray Lankester, K.C.B., has written lengthy papers with good photographs of each of them. He has tried to trace the evolution of earliest Palæoliths from these flints and he as givenh the implements of almond shape, and elongated kite-shape, the name of "Rostrocarinate."

Though some refer to the action upon flint of frost, of territorial water, of glaciers and frost,

of the pressure of beds of sand, yet Sir E. Ray Lankester remarks that this action is due to purposeful blows delivered by human hands in the primitive age. Another account of the flint implements has been published in *Nature*, July, 1921, from which I have gathered some details about quartzite flints of Rostrocarinates discovered by Mr. Reid Moir from Uganda, which have also thrown much light on the existence of Rostrocarinates in a continent other than Europe. Up till now, we had been certain fully that it was in Europe only which had furnished us with Rostrocarinate implements and other Palæolithic flints and stone implements discovered by western scholars and nowhere else. But with the process of time, the flood of light of advanced knowledge and study about these things I was directed to launch upon the investigation of such stone implements in India and I found some 200 stone implements, preserved in the archæological gallery of the Calcutta Museum, unmistakably of this Rostrocarinate type.

Rostrocarinate as applied really to flints fashioned by human hands, implies an implement having a broad posterior region called "stern" narrowed anteriorly to a quasi-vertical cutting edge which looks like a strongly curved point forming a beak of an accipitrine bird. This form looks like the "prow" of a boat being turned upwards when this stone is held with the beak in front. I

find an upper or dorsal plane, a lower or ventral plane and right and left lateral surfaces narrowed to the beak called "prow" while in the posterior portion we find a nodule called "stern" gradually narrowed down to the beak forming keel or carina of the boat. By blowing off some flakes on two lateral sides and some flakes below the beak in the ventral portion towards the anterior, the dorsal plane looks like the keel of a ship. But Sir E. Ray Lankester remarks that three and only three blows, one to the left, one to the right side and another to ventral plane below the anterior point of prow, are enough to form a "Rostrocarinate." I have also investigated this fact that it is this above method which helps one to shape a Rostrocarinate implement though it looks a very rough one. It is also interesting to know how Sir E. Ray Lankester has described the process of picking up nodules, handling in a particular manner and of detaching flakes therefrom. It is unnecessary to deal with this process at length.

Though it is very difficult to give detailed accounts of each of the 15 stones I have picked out from the archæological gallery, I will here try to dwell upon the Indian Rostrocarinates arranging the best specimens in an upward evolving series.

The Cudappah Rostrocarinates.

Coggin Brown's Catalogue No. 5697.—This is the earlier, I think, amongst those

implements, as it has been worked very roughly. Ventral plane still remained, worked roughly on the two lateral sides with rough flakes struck off, the keel beginning from the $\frac{3}{4}$th portion of the stone towards the stern; some flakes also struck off from the stern nodule but towards the beak, it is slightly broken at the point.

Ibid, 5699.—It has plain ventral surface though the lateral sides are little worked out and the keel is indistinctly marked with beak perhaps broken. It has been aberrated by water current slightly, the keel beginning from more than $\frac{3}{4}$ of the dorsal surface.

Ibid, 5687.—It has a long keel. Flakes have been struck off for the first time from both the lateral sides. Ventral plane is very smooth, indicating no work here. It looks like half of a boat broken, not well developed. Work is done very roughly on all sides.

Ibid, 5739.—Its beak has been broken downby some accident, the keel being present on the dorsal plane, lateral left side flaked greatly. In the ventral plane there is no ridge but a flat surface; a great flake struck off from lateral left side and worked towards the beak, the whole dorsal plane looks smooth without any marked rough ridges. Posterior portion is prominent.

Ibid, 5752.—Original form, keel prominent with a great portion of the nodule remaining, a

little portion below the beak struck off, with the beak point broken down perhaps, the lateral sides worked off. Ventral plane has a level surface.

Ibid, 5810.—The carina is prominent beginning from the middle of the dorsal plane, the strong curved point forming the beak of an accipitrine bird. This form looks like the dorsal surface, two or three flakes blown off, the dorsal plane is not well marked, on both the lateral sides some flakes chipped off by the blows delivered thereto. On the ventral plane, the left lateral side has been worked well with its right side unworked and only the beak point slightly worked.

Ibid 5832.—It has its lateral sides worked off. On the ventral surface left lateral side has been slightly worked. The dorsal plane is present with the carina extending from the midway. Towards the posterior point, only two flakes struck off. On both sides, beak is prominent but bent to the right.

Ibid, 5734.—The keel has been marked prominently; from the sides of the keel many flakes have been blown off and also from the posterior portion which is fitted for holding with the hand. Ventral plane is greatly worked, its beak is turned to the right and is prominent and the two lateral sides have been greatly narrowed downwards towards the beak with the beak

bending towards the ventral surface anteriorly, which has not been worked at all, only a part of the ventral portion on the left side has been flaked off. It looks like a typical Rostrocarinate.

Ibid, 5805.—It is a very prominent well-shaped Rostrocarinate with a lengthened keel well marked measuring ¾ of the whole stone with a nodule remaining, a big flake struck off from the right lateral side though the ventral plane is little visible as it has been worked well throughout. It has been greatly worked on the right lateral side, the beak being bent to the left.

Ibid, 5721.—The carina reaching up to the ¾ths of the dorsal surface with its lateral right sides worked to form a beak which has been probably broken off by accident ; all the sides worked well ; more flakes struck from the left lateral surface as well as on the dorsal point without any dorsal platform ; a carina-like ridge has been formed on the ventral plane.

Ibid, 5838.—It has a big nodule in the stern, the dorsal remained with beak broken off, keel little marked, many flakes struck off below the beak on the ventral side. Towards the stern, ventral plane is still visible though it has been worked out towards the beak.

Ibid, 5663.—It has the most prominent beak turned to the right, the posterior portion well fitted for handling, the left lateral side gradually turning towards the beak. A true Rostrocarinate is

existing here, both the right and left lateral sides have been worked out well to form a prominent beak. In the posterior end, 4 flakes have been blown off from the dorsal and ventral surface.

Ibid, 5725.—Ventral platfrom is present in the middle though sides around have been worked out; keel towards the right lateral side, not in the middle, reaching up to half way of the dorsal surface. The ventral surface on both sides is well worked, the dorsal platform is well marked.

Ibid, 5780.—On both the left and right lateral sides, flakes have been blown off to form the required beak, on the ventral and dorsal surfaces, 3 flakes gone off with the carina reaching midway and with a similar ridge formed in the ventral plane a nodule still remains. The ventral surface has not been worked towards the stern.

Ibid, 5775.—One of the flints probably approximating the *Coup-de-poing* with the carina more towards the right lateral side and with the beak turned towards the ventral plane and the beak being prominent, partially bent to the right.

The ventral platform is marked towards the posterior end. On upper and lower surfaces towards the anterior direction, both the sides are worked off, the flat posterior part is well marked as the old portion is still left.

We must here point out that though there are some 4000 to 5000 Palæoliths in the Indian Museum collected from all parts of India, Rostrocarinate types are forthcoming mainly from Cudappah and scarcely from anywhere else."

NOTICES OF PREHISTORIC FINDS IN INDIA.

PART I.

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PART II

BY

TARAK CHANDRA DAS ESQ. M.A.

INDIAN ANTIQUARY.

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Vol. I. The celts of Towngoo—by Francis Mason. P. 326.

Vol. II. On the rude stone Archæology of the Hassan district, Maisur—by Capt. J. S. F. Mackenzie. P. 4.

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