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Clay Working and Basketry: New Materiality of Hunter-gatherer/ Foragers in mid/ late Holocene Sri Lanka

R. Somadeva
A. Wanninayaka
D. Devage
J. Ambalampitiya

Abstract

Recent archaeological investigations carried out in the hinterland areas in Sri Lanka have revealed evidence suggesting a series of fresh cultural dynamics of the hunter-gatherer/foragers (HGF) during the mid/late Holocene. Excavations in prehistoric cave dwellings in five individual locations have yielded an assemblage of artifacts that exemplify an emergence of a new cultural make-up of the HGF which helped them to perceive themselves and the surrounding world through a different perspective. Paleo-climatic data together with chrono-stratigraphic information's support to corroborate this behavioral change with the climatic oscillations triggered off during the Holocene.

key words: hunter-gatherers, foragers, Holocene, behavioral change, Sri Lankan prehistory

1. Introduction

A research project was initiated in 2010 to investigated the resilience of the prehistoric communities to the climate change of the Holocene. Fieldwork was geographically focused on the foothills of the central highlands centering Balangoda of the Sabaragamuva province. Six excavations were carried out in different locations within an area covering approximately 300km^2. This paper presents the results of the fieldwork. It also attempts to provide an archaeological explanation to the techno-cultural context of the assemblage of artifacts referred to.

2. Background

Our knowledge on the adaptations to the Holocene climate by the prehistoric communities in Sri Lanka seems inadequate and suffers from lack of clarity. Since the beginning of the prehistoric research in the country in late 19th century, the greater attention was paid to resolve the problem of chronology relying on the lithic implements (cf. Pole 1907; Sarasin & Sarasin 1908; Hartley 1911; Lewis 1912; Wayland 1915.). Later the focus was shifted to investigate the prehistoric ecology and has explained the human-environment interactions which existed during the Pleistocene (e.g. Deraniyagala 1992). Even though having a series of radiometric dates with a substantial collection of artifacts that correspond to the Holocene (*v.* Deraniyagala 1992: 696,698,700,702) a serious academic concern was not initiated to take them as a separate unit of analysis until the present research program was initiated.

It is noted that the second millennium BCE emerged as a platform for a number of innovative changes in the cultural progress in the South Asian region. This was archaeologically characterized by the discovery of several proto historic cultures in the Indian sub continent. Especially the middle

part of the second millennium BCE was crucial in this regard as some of the important techno-cultural transformations were setting in motion in the middle part of that period. This leads to investigate the situation which existed in Sri Lanka with reference to the climatic and cultural history in mainland India. We will restrict the discussion here to the *Deccan* region, considering its geographical proximity to Sri Lanka.

The cultural transformation which took place in the *Deccan* region during the second millennium BCE has been described as a techno-cultural motive developed from the Mesolithic to the Chalcolithic. The latter is technologically dominated by copper implements, but still carries along with it the use of Mesolithic stone implements. As Shinde emphasized (1994) one of the important characteristic features of the *Deccan* Chalcolithic culture is its well developed blade industry. Apart from the continuation of the stone industry, production and use of earthenware was also characteristic of this period. Four specific earthenware traditions have been identified namely (a) *Savalda* culture (1947-1689 BCE), (b) *Malwa* culture (1749-1261 BCE) (c) Early *Jorwe* culture (1687- 901 BCE) and (d) Late Jorwe culture (1614- 901 BCE).

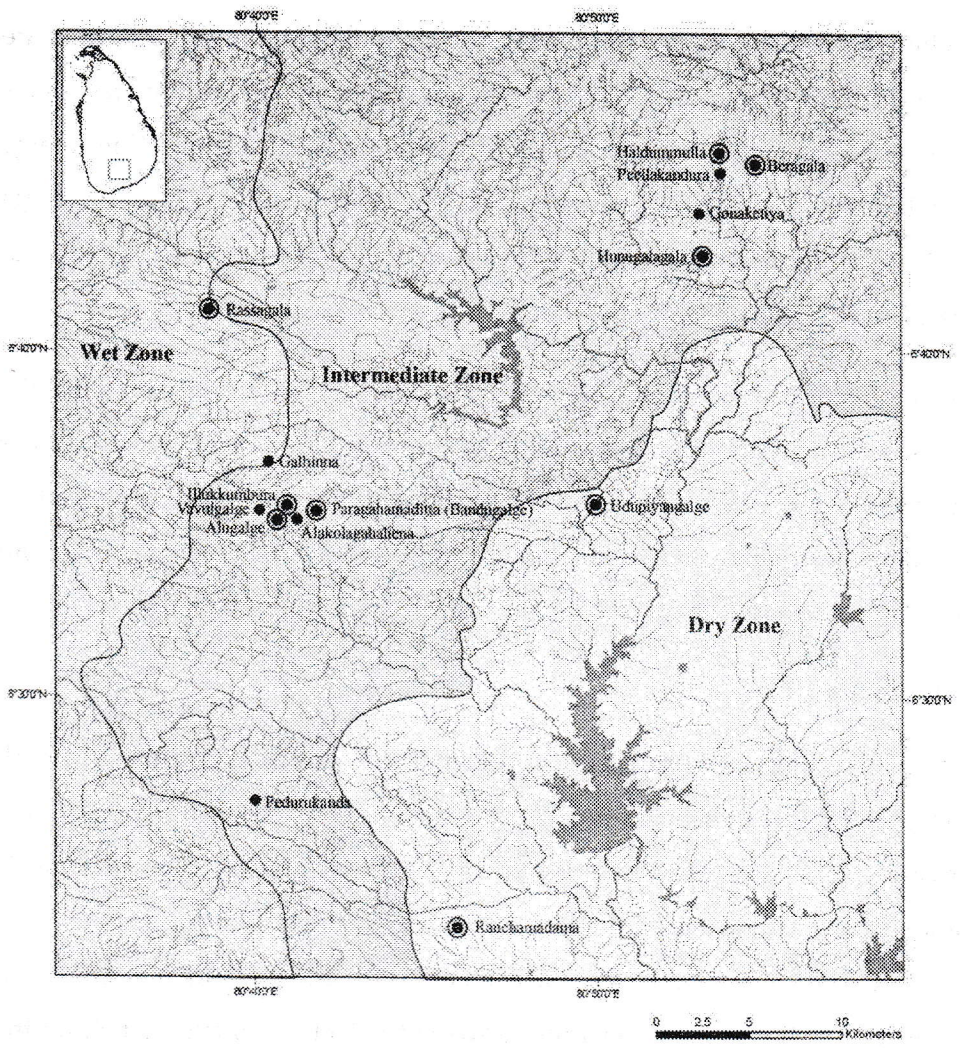
A broad scheme of climatic oscillations inferred from the analysis of lake deposits is proposed as the physical stimulant for such a techno-cultural change in which the transformation of subsistence strategies stands as the major indicator. For the techno-cultural transition held from Mesolithic to Chalcolithic in Western India, Shinde (2004) has proposed an important climatic oscillation synthesis. He attempted to correlate that innovative transition with an initiation of a dry arid phase following a wet phase around 2200 BCE. His data was derived from the analysis of sediments in

Lake *Sambar* in Western India. A little earlier Krishnamurty *et.al* (1981) had arrived at a similar conclusion whilst emphasizing the occurrence of a climatically dry phase after 1700 BCE with a short interval of a relatively wet episode in 1500 BCE. Singh *et. al.* (1971; 1974 & 1990) and Enzel et al (1999) have pushed back the upper limit of this dry phase up to the third millennium BCE. Similar results have been reported from the *Nilgiri* Hills in southern India which suggest that an arid environment existed there around 4500 BP (Sukumar *et. al* 1993).

Then how do we understand the adaptive responses of the prehistoric communities in Sri Lanka in the face of these climatic changes archaeologically? What would be the archaeological manifestations of such transformation? To address such questions, the 'Hunters in Transition project' was initiated in 2010 under the aegis of the Postgraduate Institute of Archaeology and the National Science Foundation in Sri Lanka. The following sections of this essay will briefly discuss the results of the fieldwork.

3. Sites investigated

The locations selected to investigate belong to three climatic zones i.e, wet (wz), intermediate (iz) and dry (dz) (see *map 1*). At the outset of the project it was hypothesized that the environmentally diverse geographies were more receptive to influence upon the changes/transformation of the prehistoric cultures. It was due to the environmental stress spawned by the climatic vulnerability of the Holocene.[i]



Map 1 The map showing the area explored and the distribution of the archaeological sites (source: field surveys)

Six prehistoric caves/rock shelters; (i) Rassagala[ii] (wz) ii) Lunugalage (iz) (iii) Udupiyangalge (dz) (iv) Bandugalge (iz) and (v) Alugalge (iz) have been archaeologically investigated. The caves excavated in the intermediate climatic zone (Lunugalge, Bandugalge and Alugalge) have produced a contrasting assemblage of artefacts other than the sites investigated in the other two zones. Excavated artefacts show that there were several new advances in technology, cognition, subsistence strategy and resource

exchange set forth among the prehistoric cave dwellers in the intermediate zone during the mid/late Holocene as suggested by the radiometric dates assigned to the prehistoric contexts of the respective locations (Lunugalge (cal. BC 4320 (Beta 42251), Alugalge (cal. BC 3505 (Beta 448330). The single prehistoric occupation level in Udupiyangalge in the dry zone is dated to cal. 7745 BC (Beta 450381) shows a slightly early

livelihood of the Holocene prehistoric communities who inhabited in the Kaltota escarpment. Rassagala cave has produced an assemblage of similar artefacts to those from other caves investigated, but disturbances caused by the later occupations to its archaeological deposit has prevented us from obtaining a trustworthy date.

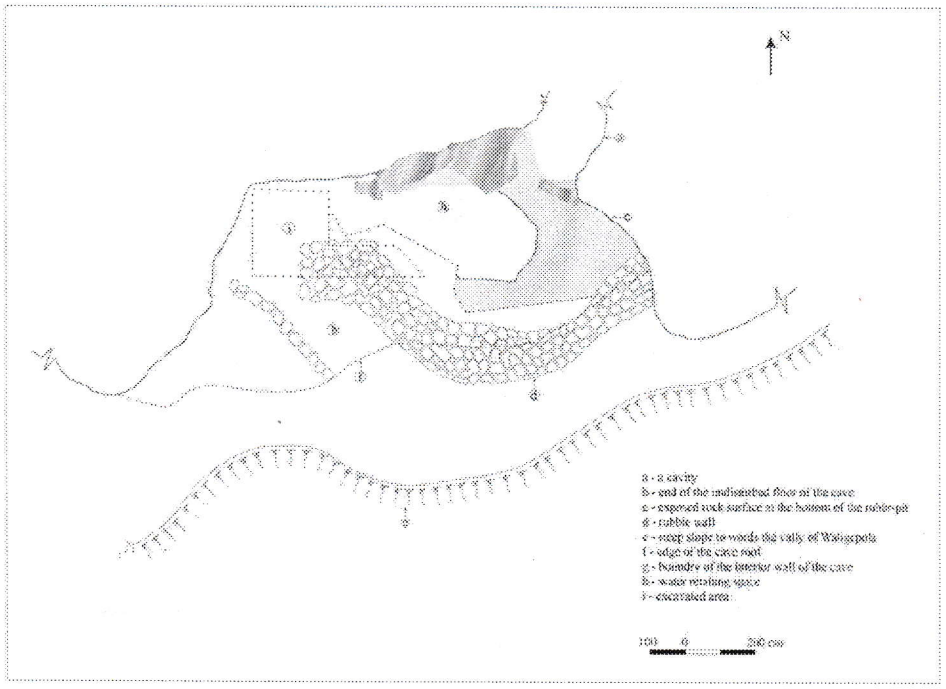
4. Prehistoric Landscape

The HTP project is working on a regional framework in comparison with the parallel research programs carried out by the other scholars. An area covering 2846.km^2 was intensively explored to identify the prehistoric landscape. This methodological approach facilitated us to increase the resolution of the width (spatial extent) and the breadth (intensity of sampling) of the site surveys thus showing the factors which lay behind the community interactions in intra-site and inter- site scales.

The major characteristic observed in the spatial distribution of the identified sites is the homogeneity of the landscape preference by the prehistoric communities. All the caves observed are situated on hill-slopes at varying heights ranging from 730m to 326 m msl. which is still covered in wilderness. Several brooks and rivulets flowing along the hill slopes provide the required level of moisture conditions to sustain the fauna and flora in the surrounding environment for most of the year. Steep slopes

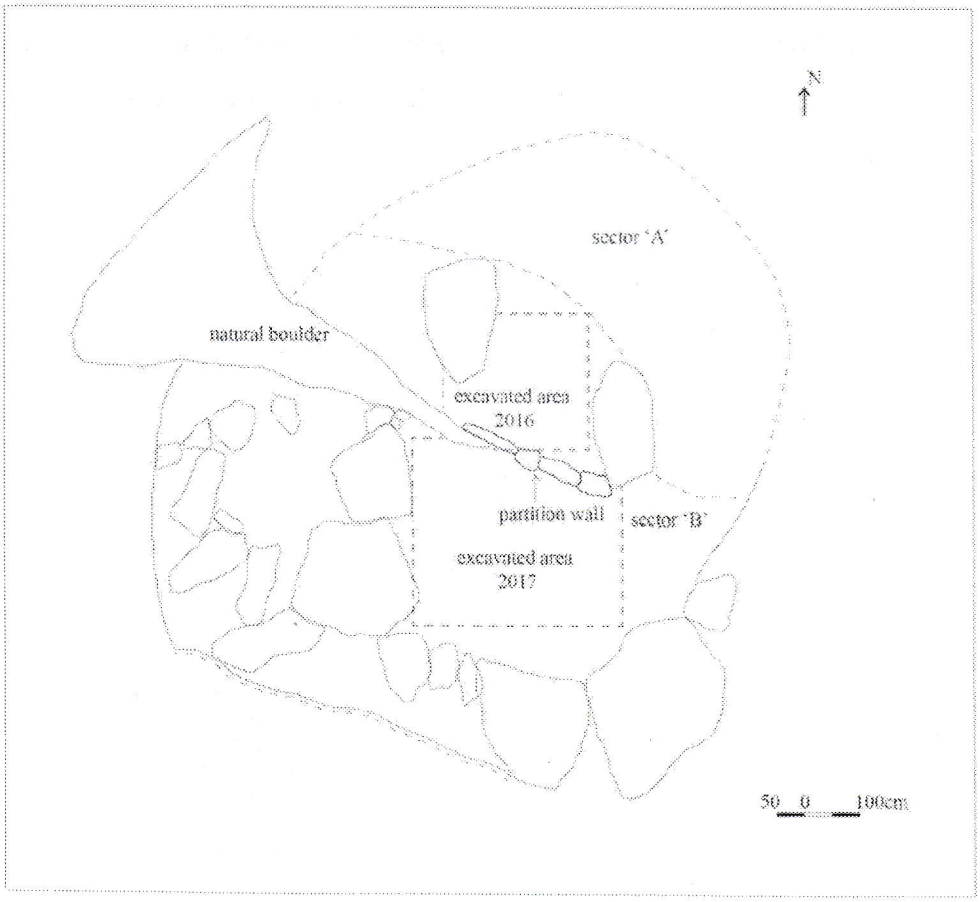
might have obstructed the access to those caves by predators thus conveying a safe stay in such locations. Efforts had been made to minimize the danger of the steep gradient in the front of the caves whilst constructing artificial fortifications (*fig. 1*). A wall constructed using rubble stones in Lunugalage is an explicit manifestation of this consciousness. Alugalge has a projection of a natural boulder formed across the cave front that would have been functioned as a natural barrier (*fig. 2*).

Attempts at organizing the living space was also a marked feature observed in two cases investigated. In Lunugalge, clear demarcation of outer and inner spaces by a rubble wall has –remained intact to this date. A straight line of stone slabs was arranged vertically across almost the centre of the cave interior dividing it into two parts. The intended function of this internal partitioning is not clear and the distribution of artefacts does not provide any clue to make a feasible inference.



0-1 Ground plan of Lunugalge. The arrangement of a rubble piling clearly visible is a partitioning wall.

It seems that the use of caves for sheltering predominantly took place in rainy seasons. During the summer, the prehistoric groups spent most of their time in open grounds and occasionally under the natural rock shelters. This is clearly manifested by the food residues unearthed in three locations. For instance, Alugalge and Udupiyangalge caves have yielded a greater quantity of land snail shells (*Acavus* sp. *Ologospeira* sp. & *Paludomus* sp.) showing the occupation there during a period of relatively high precipitation. Contrary, the Lunugalge rock shelter is devoid of a single land snail shell which could be an indicator of a relatively dry period occupation. The distance between Lunugalge and Alugalge and the Lunugalge and Udupiyangalge are 0.5 and 17.06 kilo meters respectively.



0-2 The plan of the interior of Alugalge. Conscious attempt of constructing a partition wall is visible in the plan.

A location investigated in the village Galinna of Meddekanda was identified as a summer camp of the hunter-gatherer/ forager groups. The summit of a rocky mountain there is an extensive area of nearly 25 acres bears surface scattering of artefacts including prehistoric blade implements and pitted-hammers. Ongoing farming activities has made an adverse effect on the site and it obstructs the earth surface into a considerable depth. This nature has prevented identification of any remaining sign of out-door constructions like temporary huts. The abundance of pitted-hammers may suggest a considerably long stay or repeated use of that location for summer encampment. Some of the artefacts found have shown the contemporaneity of the site with other caves situated in the vicinity. For instance, a perforated quartz flake which appeared to be an attempt to convert into a shape of a heart, –is a symbolic artefact; probably used as a pendent, could be comparable with the fragment of a similar object (chert) reported from Lunugalage rock shelter. A perforated shark tooth of similar function was unearthed from the prehistoric level in Alugalge.

Another important location was reported from the village Alakolagahahena situated not far from the caves investigated (*map 2*). It is a natural formation of vitreous quartz. The extensive use of vitreous quartz for the lithic industry of the prehistoric communities in the area suggest that this quartz deposit might have functioned as their major attraction of the technological choice.[1]

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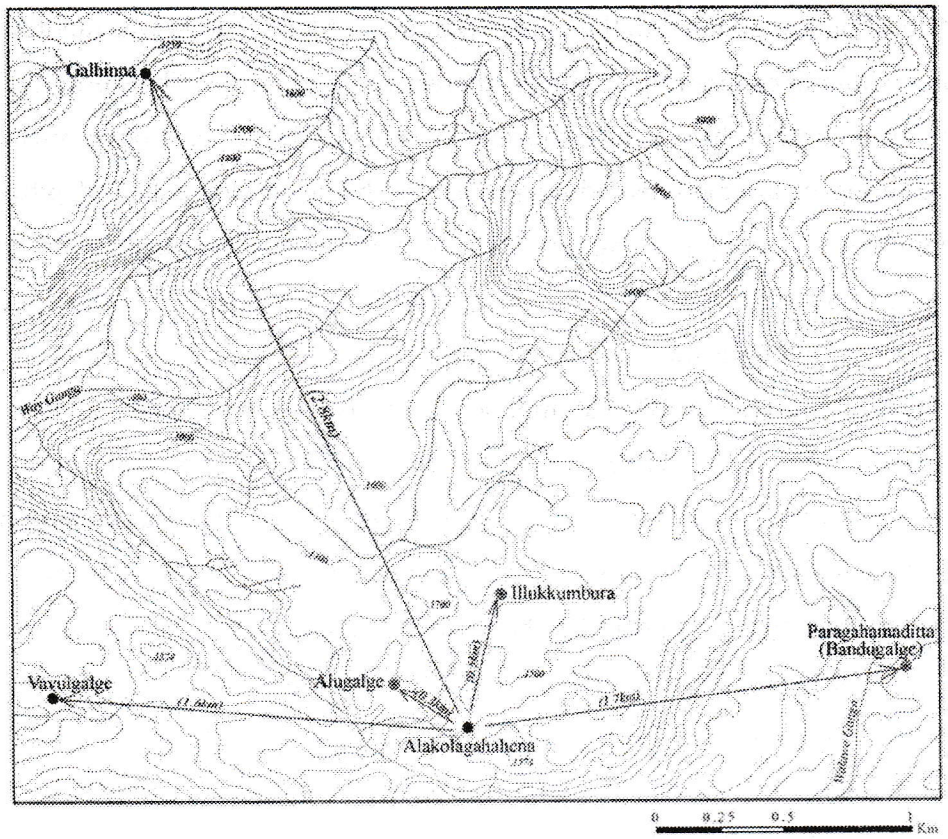
[1] Another place which has similar quartz formation has been reported from the village ..... in Belihul Oya situated .....km northeast to the present location. This shows that a far extending quartz deposit exist from uplands towards the valley across the mountain slopes of the central highland. Indication of the existence of interbanded quartz-feldspar-garnet is geologically identified in this area (Kehelpannala 2007).



Map 2 The map showing the distribution of the excavated sites around the quartz deposit in Alakoalagahahena in Paragahamaditta of Illukkumbura.

5. Materiality in move

The information retrieved from the caves and the rock shelters investigated clearly show signs of a marked behavioural change of the Holocene hunter-gatherer/foragers. We are able to elaborate this fresh behavioural make up by highlighting material evidence along tripartite thematic avenues *viz.* (i) technological (ii) subsistence and (iii) cognitive/symbolic.

Except for the emergence of several new forms (fig.3) in the lithic assemblage, some earlier existed forms appears to have been quantitatively

increased. Findings of miniature implements, for instance could have been a tendency of maximizing the reduction of the size of the blade implements. Length of some miniature crescents reported 6.mm suggest that, for some reason, miniaturization has been overwhelmingly stressed in the lithic implements.

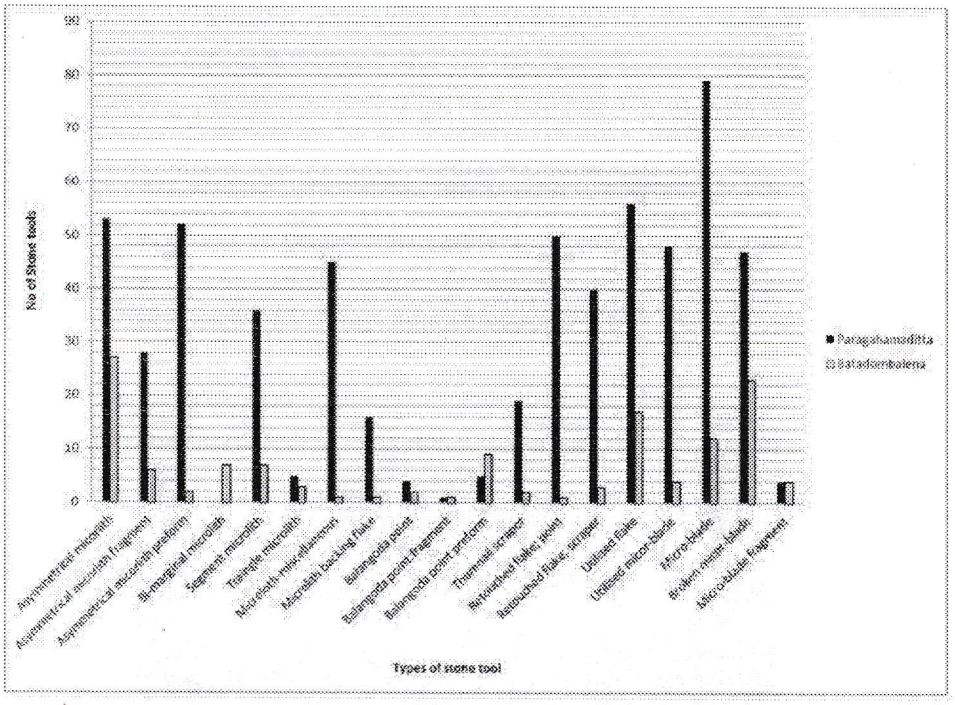


Figure 0-3 A graph showing the density distribution of different lithic classes in two different sites, viz. Batadombalena(late Pleistocene) in Kuruwita (after Perera 2010) and Bandugalge (mid Holocene) in Panana, Balangoda.

Our understanding on the production of utility implements is confined predominantly to lithics due to the poor preservation of other perishable artefacts under tropical climatic conditions. However some bone artefacts recovered imply that the repertoire of utility objects was more complex than we generally experienced in other prehistoric sites in the country. Remnants of a fair number of bone objects could be cited to make an argument in this

regard. Beyond our common experience of prehistoric bone-points, fragments of a few bone-harpoons have been recovered (*fig.4*). Perhaps, the harpoons would have been used for fishing and this possibility has been further strengthened by the presence of fish bones of several fresh water species like *Tor khudree, Puntius sarana, Mystus sp. and Heteropneustes fossilis.* It is not surprising because the rivulets in the surrounding landscape (*map 3*) would have functioned as a rich resource base of the food quest by the cave dwellers.

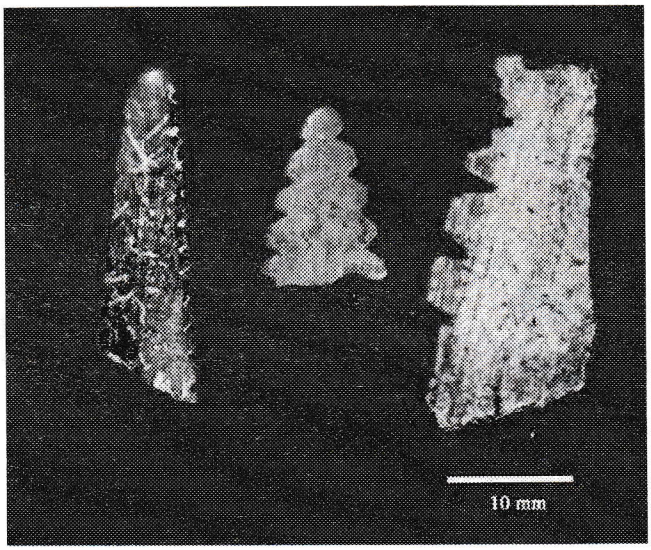
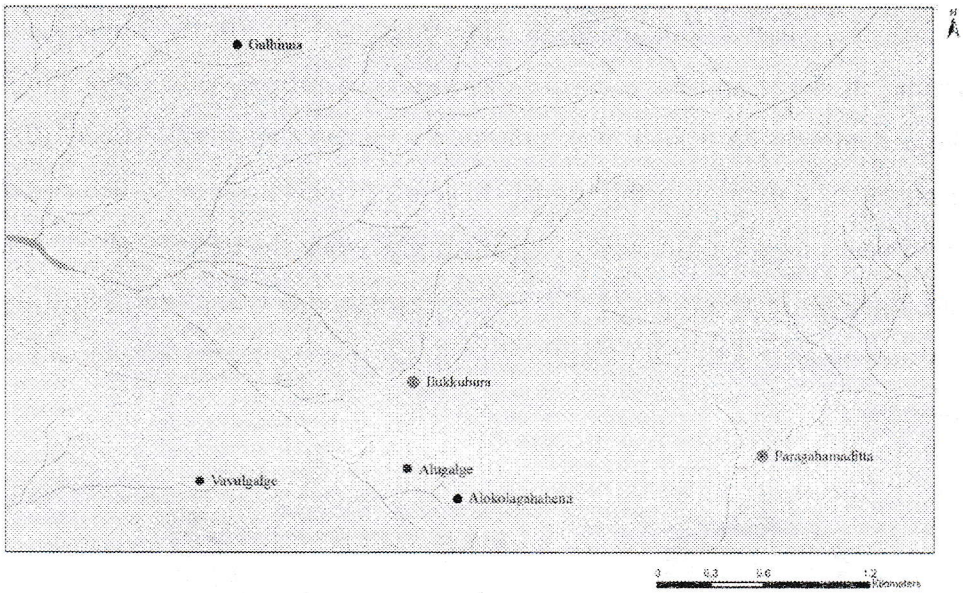


Figure 0-4 Parts of bone implements (probably harpoons) excavated from the prehistoric levels in Alugalage (pic. D. Devage)

Among the lithic artefacts, a few pieces of fragmented stone discs have been reported. Some fragments still bear the sign of a perforation at the middle. Subtle variations in their sizes suggest that the utility of those discs had diverse scales of application (*fig.5*). The presence of a perforation at the middle has urged us to think that either the discs were fixed into another surface or if not there was a stick like object put in to the perforation hence facilitating the disc to rotate freely around it. The function of those objects is

obscure. However it is interesting to note that six numbers of similar objects (clay) were reported from Bagor in Rajashtan dated to the period between 2800-600 BC. Sankalia has tended to identify them as spindle whorls (cf. Sankalia 1974:265, fig. 67b).

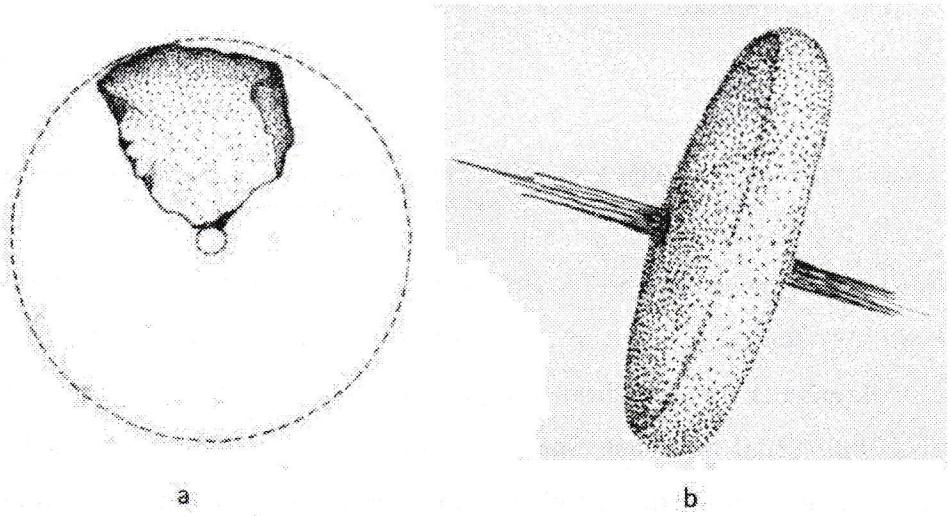


Map 3 The map showing the association of the prehistoric caves with the natural water streams in the surrounding landscape.

Most striking and perhaps the first hand experience that has been revealed from a prehistoric context in Sri Lanka is a fairly big collection of burnt clay fragments reported from the prehistoric level in the Alugalge cave. Each individual fragment has an irregular shape and size , and three common features are discernible *viz.* (a). majority of fragments have tunnels of differing diameters and (b). some fragments bear signs of a thin lime coating applied on the outer surface (iii) some of the fragment have a few parallel lines etched on the surface which could signify a reed impressions. (fig.6). These three features advocate that those burnt clay fragments are the

remnants of certain intentional activity performed by the inhabitants of the cave.

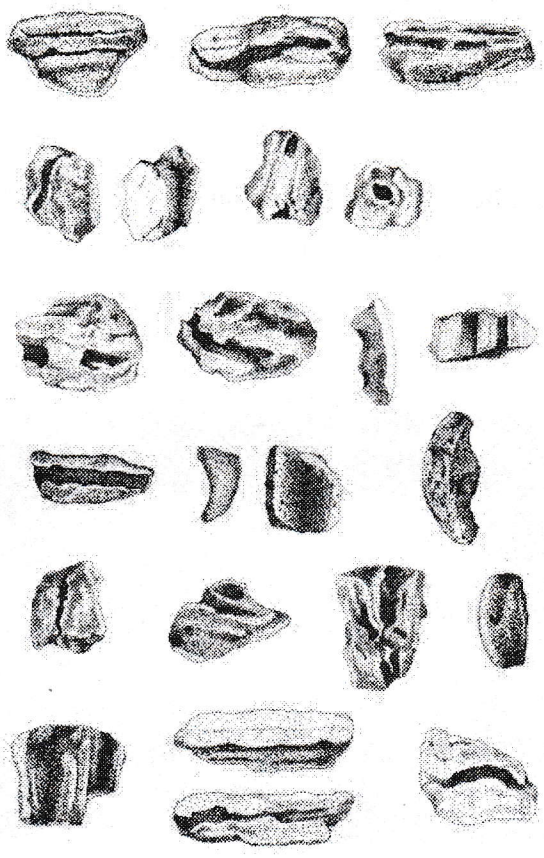
What would be the tunnel like holes found on such clay fragments tells us? Three assumptions could be made on this question on the basis of microscopic observations on these clay fragments *i.e,*. (i). the tunnels are circular in shape and have varying diameters. It proposes that something like a relatively hard stick was present inside the clay lumps during the firing (ii). The interior of the tunnels have s a blackish colour, which could have been caused by reduced Oxygen supply when the trapped object was burning (iii) In some places the tunnel takes a curvy angle in the firing process suggesting the fact that the clay lumps were intentionally moulded before firing.



0-5 A fragment of a stone disc (a), and the hypothetical way of its use (b).

thicknesses of stick like object that had been put into the clay lumps. The curvy angles present in the linear distribution of the tunnel impressions are clear indications suggesting that the inserted sticks were a flexible entity.

This leads to the possibility that initially someone has flattened a clay paste in a certain thickness on a rock surface or something similar to that and kept a flexible wooden stick on it. Then the clay sheet had been rolled around the stick in the shape of a coil. Then the coil was wrapped around a basket probably made of bamboo reeds or a similar substance which has a fibrous texture to obtain the desired shape of the vessel. Subsequent firing had resulted in the total burning of the reeds and the wooden stick trapped in the coil. Reduced firing of the trapped stick has given a blackish colour to the exterior surface of the tunnel as we once noted above.

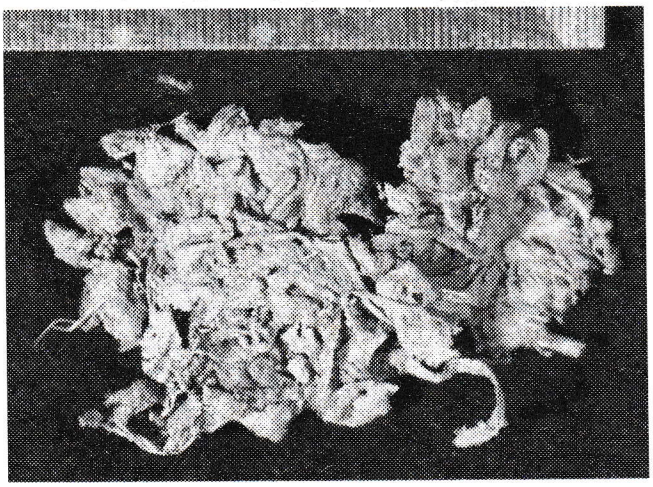


0-6 Some of the clay fragments recovered from the prehistoric levels in Alugalage. All the clay fragments illustrated here indicate linear marks, probably the reed impressions.

The curvy angles which remained in the burnt residual clay lumps could be taken as strong evidence to suggest that the clay coils had been arranged to obtain a shape following a pre-determined form; most probably a utility vessel.

Weaving baskets and nets using fibrous substances like stripes obtained from tree-barks were present among the contemporary cave dwellers. A small part of a woven entity, probably a fraction of a basket was found in level 8 in Alugalge (*fig.7 & 7a*). It is an accretion of a cord entangled together in order to make a woven receptacle. A thin coating of wax of a certain kind had been applied on the interior surface suggesting that the creator of the receptacle had attempted to keep the integrity of the cord-pattern after it was woven.

This object shed a light on the understanding of the stone disc mentioned above. Probably such discs may have been used to process the strings as similar to the role played by the spindle whorls in cotton processing (*fig.7b*).



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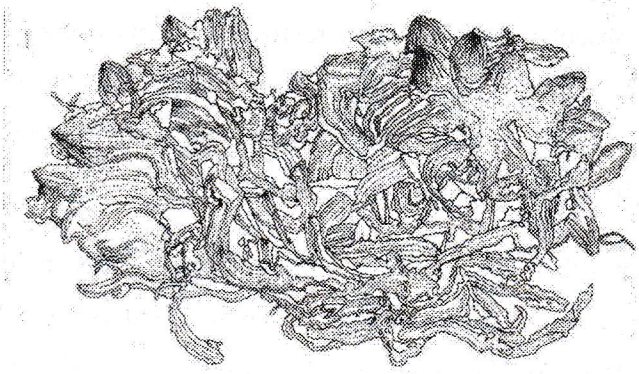

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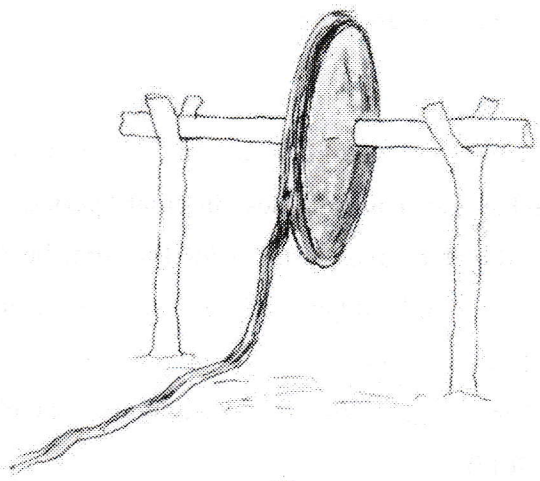

7b

Figure 0-7 An accumulation of cord pattern, probably a part of a basket. Several charred seeds are entrapped within it. (7a). line drawing of the cord pattern and (7b). An artist's impression of the usage of the stone discs recovered (7c). These objects are found from the prehistoric level in Alugalge (pic. D. Devage).

This item was trapped in a hole surrounded by large rock boulders submerged in the soil of the cave floor. The insulation by soil and rocks has provided an anaerobic condition in the hole and it had maintained a relatively stable temperature (24.3°C). Water penetration from outside was

completely absent and therefore the relative humidity was also stable in that hole. A fairly good preservation of this item might have been supported by the wax coating on the cord surface while obstructing the contamination of the item with its immediate environment.

The mode of utilization of this piece of artefact is verified by the residues of some seeds/nuts in its exterior surface which had remained intact in its interior surface. All the seeds which remained were charred and highly compressed. The association between the corded receptacle and the charred seeds/nuts on it proposes that the receptacle had functioned as a container for food items by the cave dwellers.

6. Symbolism

Growing receptiveness upon symbolism is another trend which had existed among the prehistoric communities in that period. Excavations in Lunugalge and Alugalge caves have yielded several beads and pendants made out of stone and animal bones. Two icons, a terracotta head of a dog (Canid *sp.*) (*fig.8*) and a human face (quartzite) were reported from the prehistoric level in Alugalge (for the discussion on symbolic artifacts, *v.* Somadeva et *al.* 2017).

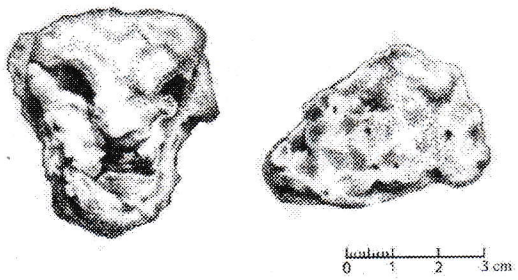

Figure 0-8 A terracotta head of a dog (Canid sp.) recovered from the prehistoric levels in Alugalge.

7. Synthesis

This brief essay has attempted to integrate archaeological evidence with environmental data to make a coherent picture on the cultural dynamics of the hunter-gatherer/foragers of the mid-Holocene. Some of the artefacts presented have shown a receptiveness to a contrasting change in their material culture in comparison with that of the late Pleistocene hunter-gatherers in the country. This new materiality has emerged as a behavioural consequence to deal with the climatic changes of the Holocene and it may have led the traditional hunter-gatherers to seek a new state of equilibrium in their life style while forming an avenue to a new cultural sphere.

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Bibliography

Deraniyagala, S., 1992. **The Prehistory of Sri Lanka**. Colombo: Department of Archaeological Survey.

Enzel Y., L.L Ely, S. Misra, R. Ramesh, R. Amith, B. Lazar, S.N. Rajguru, V.R. Baker and A. Sandler, 1999. **'High Resolution of Holocene Environmental Changes in the Thar Desert**, Northwestern India,' *Science* 284pp.

Hartley C., 1913. **The stone implements of Ceylon**. *Spolia Zeylanica* 9(34): 117-23pp.

Hartley C., 1914. Review: **'Ceylon stone implements' by J. Pole.**, Thacker, Spink and Co., Calcutta, 1913 *Spolia Zeylanica* 9(35):265-8pp.

Kehelpannala, K.V.W., 2007. **Geology**. In The National Atlas of Sri Lanka. Second edition. Colombo: Survey Department of Sri Lanka.

Krishnamurty R. V., D. P. Agrawal, V. N Mirsa and S.N. Rajaguru, 1981. **Palaeoclimatic Influences from the Behavior of Radiocarbon dates of carbonates from sand dunes of Rajastan**, *Proceedings of the Indian Academy of sciences* (Earth planet science) 90: 155-160pp.

Lewis, F., 1912. **Flints and c., from a cave at Urumutta**. *Spolia Zeylanica* 8(30):142-5pp.

Pole, J., 1907. **A few remarks on prehistoric stones in Ceylon**. Journal of the Royal Asiatic Society of Ceylon 19(58):272:81pp.

Perera, N., 2010.Prehistoric Sri Lanka. Late Pleistocene rock shelters and an open air sites. *BAR* International Series 2142 (2010), Oxford: Archaeopress.

Sankalia, H.D., 1974(ed.). **Prehistory and Protohistory of India and Pakistan**. Poona: Deccan College Postgraduate and Research Institute.

Sarasia P. & F. Sarasin., 1908. **Ergebnisse Naturwissenschaftlicher For schungen auf Ceylon**, 4: die Steinzeit auf Ceylon. Weisbaden: C.W. Kreidel.

Shinde V., S. S. Deshpande and Y. Yasuda, 2004. **'Human Response to Holocene Climate changes – a case study of Western India between 5th and 3rd Millennia BC.' In Monsoon and Civilization**. Yasuda Y. V. Shinde (eds.) 383-406pp. Asian Lakes Drilling programme (ALDP) Geo-genom project, Lustre press. Roli Books.

Singh G., 1971. **'The Indus Valley Culture seen in context of post –glacial climatic and ecological studies in northwest India'**. *Archaeology and physical anthropology in Oceania* 6 (2) : 177-189pp.

Singh G., 1974. **Late quaternary history of vegetation and climate of the Rajastan Desert**, India, Philosophical transactions of the Royal society of London, Vol. 267, 467-501pp.

Singh G., R. D. Joshi and A. B. Singh, 1972. **Stratigraphic and radiocarbon evidence for the age and development of three salt lake deposits in Rajastan** , India. *Quaternary Research* 2 : 496-505pp.

Sukumar R., R. Ramesh, R. K. Pant, 1993. **A 13 C record of late quaternary climate change from tropical peat in Southern India**, *Nature* 364,703-705pp.

Somadeva, R., A. Wanninayake, D., Devage, C. Abeysiriwardhana 2017. **'Cultural Dynamism: Prehistoric Hunter-gatherers in Mid/Late Holocene Sri Lanka'. In Climate, Change and Scale**. In honor of Professor Paul Sinclair. Aneli Ekblom & Chistian Isendhal (eds.), 1-35pp. Uppsala: Uppsala University.

Wayland, E.J., 1915. **Notes concerning the occurrence of small desert tracts in the north western of Ceylon**. *Spolia Zeylanica* 10(37):166-74pp.

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[i] Deraniyagala (1992:158) suggest four climatic trends during the Holocene for Sri Lanka:> 10,000 BP very dry; 6200 BP dramatically wet; 5000 BP dry; 3600 BP dry. These shifts are likely to have affected also seasonality and geographical shifts, particularly in the areas that are now intermediate between the dry and wet regions in Sri Lanka and which has been the focus of the present study.

[ii] Rassagala is a village situated in the Polvatugoda GS division of the Balangoda divisional secretariat. The cave excavated is also known as Rassagalagalge rest on a summit of an elevated height (……msl).