
**MESOLITHIC SETTLEMENT IN THE MULRI HILL,
KARACHI (SINDH), PAKISTAN**

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ABSTRACT

The transition between Paleolithic culture to Neolithic culture developed another phase of Stone Age called Mesolithic. It was a transformation from hunting phase to farming phase of human prehistoric culture. The Mesolithic period was important because of new techniques developed for making small size flint-chert chipped tools called microliths. Discovery of Mesolithic sites in the Mulri Hill of Karachi is an important addition in discoveries of other Mesolithic sites in the Thar Desert region of Sindh in Pakistan and Rajasthan in India. The exploration of Mesolithic settlements in the Mulri Hill was started in late 1960s when it was a barren scarp mesa. In 1980 Mulri Hill was announced part of urban housing scheme which is now an urban housing settlement. Fortunately the stone assemblage discovered from the Mulri Hill in late 1960s and 1970s have been preserved in the Geography Department of Karachi University. It is important that this important discovery must be known to researchers for further studies in the Mesolithic age of Pakistan.

Keywords: Mesolithic, Microliths, Mulri Hill, Flint-Chert, Cultural Change.

INTRODUCTION

The transition of Pleistocene to Holocene climate change also brought a cultural change from Paleolithic, characterized by hunting and food gathering culture to Neolithic, attributed by crops farming and animals grazing. In the process of transformation from Paleolithic culture to Neolithic culture a transitional culture in between these two phases is called Mesolithic or middle stone age. The Mesolithic culture began with the beginning of plants and animals domestication ultimately led to crop farming and animal's husbandry culture. The Mesolithic culture started with the end of upper Paleolithic i.e. about 13,000 B.P and ended up to 6000 B.P with the beginning of Neolithic Culture. The Mesolithic culture was linked with the advancement of making small size chert or flint chipped tools called microliths. Therefore the Mesolithic culture is also called microlithic culture (Agrawal, D. P., 1985).

BACKGROUND OF THE MESOLITHIC CULTURE

The last glacial age ended with the end of Pleistocene epoch i.e. about 12000 years ago. The cool climate stage ended and climate started to become warmer. This was the beginning of Holocene epoch. Due to the climatic change there was expansion of flora and fauna which led the domestication of plants and animals. Searching of food was difficult task for Paleolithic hunters and food gatherers. The human groups of late upper Paleolithic age had developed considerable knowledge and skills about different types of wild plants like wheat, rice, corn, millet etc. which were planted for obtaining food. Similarly the Mesolithic people started to learn about domestication of animals like sheep, goat, buffalo, camel and horse. These animals provided milk, meat, wool and hide. The Mesolithic cultural change transformed life from wandering to sedentary and paved the way of Neolithic cultural advancement. In the dry world of Africa and Asia most probably in the Nile River Valley region and the land of Tigris and Euphrates wheat and millet were first planted by Mesolithic people. Rice was first planted in the monsoon region of East Asia. Camels, donkeys and sheep were first domesticated in the dry world. Thus the beginning of crops farming and animals' grazing started in the dry world of Africa and Asia around 10,000 BP (Sauer, 1935). The Mesolithic people were the first farmer. Initially farming was done through simple method of sprinkling seeds on the ground then simple tools were made for digging and sowing seeds. In the late stage animals were used for ploughing and their manures provided natural source of fertilizer. The beginning of agriculture led the development of earliest farming settlement. Plantation of crops and keeping cattle required permanent attention from wild animals therefore the Mesolithic people had built houses and shelters for them and their domesticated animals.

TECHNIQUES OF MESOLITHIC TOOLS MAKING

Because of cultural transformation new techniques of flint tools making mostly small size tools for skinning, scrapping, boring and harvesting were introduced. Because of their very small size mostly geometric in shape and better finished flint or chert tools the Mesolithic culture is also known as microlithic culture. These microliths were usually about one to five centimeters length, made by blunting one or more sides with steep retouch. New techniques of chipping flint or chert cores for making different types of blades were introduced in the Mesolithic era. The most common types of microliths were backed blades, obliquely blades, points, lunates, triangles and trapezes, different types of bores and micro burins.

Some microliths were used as components of spearheads, arrowheads, knives, sickle and harpoon. Flint scrapers and animal hides were used for polishing these microliths. Different types of microliths like lunates, triangles, trapezes were fitted into grooves in bones, woods and reed shafts and fixed with natural adhesive like gum and resin.

Bored stones, which first appeared in the upper Paleolithic period, became common during the Mesolithic and Neolithic periods. The bored stones were most probably used as weights in digging sticks and in sinkers. Similarly grinding stones and shallow querns were also appeared in the Mesolithic and Neolithic periods.

MESOLITHIC CULTURE IN RAJASTHAN, INDIA

The proximity of Rajasthan desert with Thar Desert and Karachi region of Pakistan has created a need to discuss briefly the discoveries of Mesolithic settlements in Rajasthan. It is quite interesting the discoveries of Mesolithic settlements in the Mulri Hill, Karachi were older than the discoveries in Rajasthan. Evidences of Mesolithic exploration had been reported in the Rajasthan and Gujarat in the period of 1980 to 1990 (Khanna, 1993). The human burial tradition was most likely started in the Mesolithic period. Mesolithic human burials have been found at Bagor in Rajasthan, Langhnai in Gujarat and Bhimbetka in Madhya Pradesh. Animal bones, microliths and antler ornaments were also found in the burial along the dead (Khanna, G.S., 1993). The Mesolithic paintings at Bhimbetka provided information about Mesolithic hunting practice. The bow and arrow, barbed spears were used in hunting. Ring stones were used as stone clubs. It was reported from various Mesolithic sites like Langhnaj, Bagor, Nagarjunakonda, Chopani Mando etc. that beginning of agriculture and making of pottery started when human adopted sedentary life (Bhan, K. K., 1994). Initially handmade sun dried potteries were made than wheel was first used for making potteries in the late Mesolithic period. Baking and geometrical designing were also started in the late Mesolithic period but widely spread out in the Neolithic.

MESOLITHIC CULTURE IN PAKISTAN

In Pakistan some evidences of Mesolithic culture in Soan valley and Zhob valley were reported in 1970s and 1980s. In the desert region of Cholistan and Thar which are parts of Rajasthan desert evidences were identified in the flood plains of the extinct rivers. The first Mesolithic site in Upper Sindh was discovered in 1995 (Biagi & Kazi, 1995). During the 2001 and 2002 surveys most of the sites were found along the dunes that surround the salt lakes of *Khuth Sim, JamilShah Sim, Ganero and*

Saniso Sim (Biagi, 2004b). All the Mesolithic assemblages of the Thari district were obtained from the flint nodules of Rohri Hills, the nearest outcrops of which are located some 5 km east of *Khuth Sim*. In the Karachi region of lower Sindh the Mesolithic settlement in the Mulri Hill which was probably first important discovery in Pakistan was carried out in 1960s by A.R.Khan, a geographer of Karachi University who developed his interest in the Prehistoric culture. It is quite interesting that A.R Khan in the mid-1960s had already explored Paleolithic flint-chert industry at Ongar Hill located along the Indus River delta about 150 km north-east of the Mulri Hill Karachi (Khan,1976). Unfortunately the explored artifacts of the Mulri Hill could not be published by him in his life. However, some materials were published and cited by Italian archeologist Biagi in his research paper (Biagi, 2004a). It is worthwhile to mention that being student of prehistoric culture the author had opportunities to work along with A.R. Khan. Therefore, it is important to bring out the original pictures of Mesolithic artifacts explored by A.R.Khan in late 1960s from the Mulri Hill which has now become a urban housing scheme of Gulistan-e-Jauhar Karachi.

PHYSICAL SETTING

Mulri Hill is located in the north-east of Karachi city. It stretches between longitudes 67° 5" East to 67° 7" East while latitudes 24° 54" North to 24° 56" North. It is a fault scarp eroded ridge, located just along the Karachi University (Fig 1).

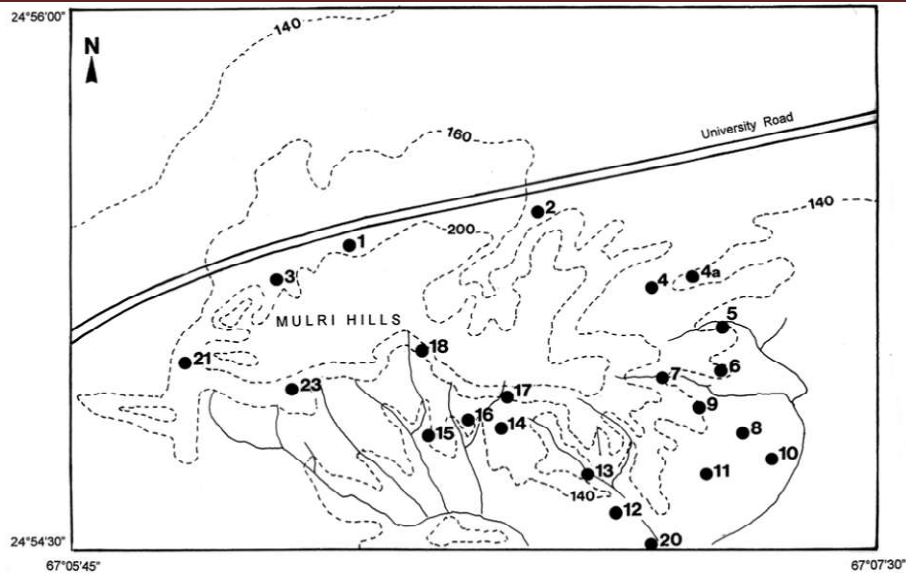


Fig : Mesolithic sites discovered by A.R. Khan in Mulri Hill, Karachi (Source: A.R.Khan, 1976 , map redrawn by Paolo Biaji, 2004)

In 1980 an urban housing scheme Gulistan-e-Jauhar was announced in this area and the topographic and archaeological features and sites of Mesolithic settlements have buried under the urban built up landscape (Photo-1).



Photo 1: Urban housing on the Mulri Hill, Source: picture taken by authors.

TOPOGRAPHY AND GEOLOGY

The structural geology of Mulri Hill can be explained in form of its linkage with other hills like Drigh road hill, Dhoraji Hill, Hill Park, Honey Moon ridge and Gizri Hill located in different parts of Karachi City. The outcrops and structure of these hills show that all pertain to sedimentary rocks of Miocene age locally called Gaj formation (Blandford, 1884). These hills are the remnants of the Kund anticline which starts in the north from the Gadap to south dipping in Gizri creek. This anticlinal structure separates Malir synclinal River valley from Lyari Synclinal River Valley. The anticlinal structure was eroded, form monoclonal ridges and hills. There are several strike slip and dip-slip faults in the Mulri hill. The major portion of hill is a flat table land structure. The mesa formed as a result of fault scarp. The folded structure of Mulri hill is dissected by strike slip faults. The main strike slip fault is located in Safari Park. Thrust and normal faults also exist in the folded structure. The outcrops of the Mulri Hill pertain to Miocene age. The top of the mesa is covered by thick yellow limestone underlying by shale and clay easily eroded during rainy season and cause of landslide, rock fall and mudflow (Photo 2).



Photo 2: Mulri Hill, Source: Picture taken by A.R Khan in 1968.

Evidences of Pleistocene deposits exist in the area in form of wind-blown deposits and conglomerate deposits. In the university area thick and broad buried deposits of conglomerates exist overlain by windblown deposits of Holocene age. The texture of cobbles and pebbles indicate their linkage with the Eocene age Kirthar formation of the bed load deposits of Hub River. It can be hypothetically said that on the basis of the size boulders a big stream also flew near to the Mulri Hill up to late Pleistocene.

CLIMATE

Karachi is located just above the tropical zone i.e. 24° North. It is situated along the coast of Arabian Sea. Both these factors influence the climate of Karachi. Summer is warm with maximum mean monthly temperature in June is 31.4° Celsius while winter is mild i.e. minimum mean monthly temperature in January is 18.1° Celsius. Karachi is a dry place. The total annual rainfall in the city is about 208 mm. The city receives a tail end of summer monsoon which is the main source of rainfall in the city between June and September. July is the wettest month with mean monthly rainfall is 85 mm followed by western winds bring little amount of rainfall in winter season. Thunder storms also occur in May and October. Sometimes bring occasional torrential showers. To sum up the climate of Karachi is arid with warm summer and mild winter. The palaeo-climatic studies reveal that climate in the early Holocene was nearly same at present today. The cool climate and dry phase ended and warm period started.

RISE OF MESOLITHIC CULTURE

The beginning of Holocene epoch marked change of climate (rise of temperature and rainfall. The landscape of dry regions like Karachi turned into grazing land attracted human groups to keep livestock because of copious fodder. Hill torrents and ephemeral streams rejuvenated provided sufficient water during rainy season. Earth embankments were constructed which stored surface runoff utilized for drinking and crops farming. The trace of the beginning of Mesolithic and Neolithic settlement in the Karachi region was first reported in 1930s over the conglomerate terrace called aeroclub about 2 kilometers away from the Mulri Hill (Khan F., 1963). The size, quality and quantity of microlithic artifacts collected from the Mulri Hill indicate that Mulri Hill was once the place of several Mesolithic settlements located on the top flatted ridge which was safe from the flash flood.



Photo 3: Mesolithic sites on the Mulri Hill. Courtesy A.R Khan, 1968

The windblown silt and surface runoff weathered clay and shale deposits formed fertile grazing lands suitable for animals grazing. The presence of rainwater storage through stone embankments hypothetically indicates that the Mesolithic people knew the technique of collecting rainwater used for drinking. Evidences of springs originated from faults were also found which were active up to 1980s (Photos 3 & 4).



Photo 4: A rainwater storage built with stones. Courtesy: A.R.Khan, 1968

TECHNIQUES OF MAKING MICROLITHS

Like other parts of the region the Mesolithic community of Mulri Hill through their experiences, practice and learning were more advance in the techniques of flaking, chipping, boring, polishing and making sharp edge pointed small size tools than their Paleolithic predecessors. The conditions required for the development of Mesolithic settlements in the Mulri Hill area were appropriate. The microlithic culture developed in the Mulri Hill was in par with other areas of the region in terms of technology of making small size flaked and chipped flint and chert artifacts.

The assemblages collected from the Mulri Hill were made of flint or chert. These are not found locally. There were three sources of flint or chert nodules, used by Mesolithic grazers of the Mulri Hill. They are located within the range of 200 kilometers (Photos 5 & 6).



Photo 5: Different types of flint-chert microliths explored from Mesolithic sites of Mulri Hill (Source: Department of Geography, University of Karachi)



Photo 6: Different sizes and shapes of Lunates, important Mesolithic flint-chert made tool collected from Mulri Hill

Source: Department of Geography, University of Karachi.

The reddish chert nodules were brought from Gadani, 60 kilometers away along the Makran coast, the grey and brown chert nodules were brought from Ongar Hill and Thano Bula Khan .It could be possible that special black and pink flint microliths were made of flint nodules found in Rajasthan. The Mesolithic grazers used flint or chert stones for making microlithic artifacts because of their shining texture and hardness which is equal to quartz.



Photo 7: Trapeze, points, angle bore; important mesolithic flint-chert made tool collected from Mulri Hill

Source: Department of Geography, University of Karachi.



Photo 8: Different shape of cores used for making microliths, collected from the Mulri Hill

Source: Department of Geography, University of Karachi

The first step of tool making was the development of cores. For this purpose the rough surface of raw flint- chert blocks was removed through flaking techniques. Different small size cores were prepared for making different microliths like lunate, trapeze, triangle, different types of bore and points. Different shapes of cores like circular, cylindrical, hexagonal etc. were found from the sites of Mulri Hill (Photos 7 & 8).



Photo 9: Trapeze, points, angle bores and blades collected from Mulri Hill

Source: Department of Geography, University of Karachi



Photo 10: Different types of lunates collected from collected from Mulri Hill
Source: Department of Geography, University of Karachi

The second step of making different types of microliths was the selection of tool according to the requirement of Mesolithic communities. The Mesolithic community of Mulri Hill was neither fishermen nor farmers. The tradition which still exist in the region of Sindh Kohistan and Gadap region of Karachi that inhabited communities are originally grazers because after monsoon rain the area provide grazing lands for herders. Therefore it can be hypothetically believe that the Mesolithic community of the Mulri Hill was basically grazers inhabited in the area either seasonally or permanently. Therefore microliths found in this area were mostly used in cutting grasses. Sharp edges Lunates, triangles, blades and trapezes were fixed in wood for cutting grasses. No hunting tools like bow and arrow, spears were found from the Mulri Hill (Photos 10, 11 & 12).



Photo 11: Trapeze, points, angle bore; important Mesolithic flint-chert made tool collected from Mulri Hill

Source: Department of Geography, University of Karachi



Photo 12: Trapezes, points triangles and angle bores collected from Mulri Hill

Source: Department of Geography, University of Karachi

Microlithic tools were prepared through indirect percussion and pressure techniques. Woods, bones and stones were used as hammers and sharp pointed tools for chipping and making microliths. The third step of preparing microliths was scrapping and polishing. Small flint made scrapers was used for making sharp edges of microliths. Animal hides were used for polishing and making sharp cutting edges of tools. The final step was to fix these microliths in the grooves of wood and bones. For this purpose gum most commonly obtained from Acacia trees locally called *babool* and *babar* was used for fixing in woods. Fats obtained from animals' intestine were used as ropes for fixing tools on woods and bones. The Mesolithic culture was also famous for introducing blades which were firstly made and used by Mesolithic people. There were different types of blades made by Mesolithic grazers of Mulri Hill like retouched blades, denticulate blades, double edge blades, sickle blades etc. These blades were prepared from cylindrical cores by using indirect percussion and pressure techniques. Animals like goats and sheep were the main animals which were kept for obtaining milk, wool, hide and meat. The sharp edge blades were used for removing animals' skin and cutting meat. Denticulate blades and sickle blades were fixed in the groove of wood, used for cutting grass.



Photo 13: Different shape of blades collected from Mulri Hill

Source: Department of Geography, University of Karachi

Mesolithic communities had learnt how to make holes in wood, pebble stones, bones and hides. For these purposes they also developed different types of small size bores mostly few centimeters in length. Different angular bores and bruins were made from flint or chert cores. For making very small size holes most probably for making stone necklaces and for sewing hides used to cover human bodies and to cover roofs of their houses. Animals' hides were also used for making water buckets. For making very small holes special type of tiny burin were made called micro burin.



Photo 14: Different types of bores and micro burins collected from Mulri Hill.



Photo 15: Different types of microliths, collected from Mulri Hill.

Source: Department of Geography, University of Karachi

The Mesolithic community of Mulri Hill was expert of making such sophisticated and technologically advance microlithic flint tools of burin and micro burin (Photo 13, 14, 15 & 16).



Photo 16: Different types of bores and micro burins collected from Mulri Hill

Source: Department of Geography, University of Karachi.

Archeologists by and large believe that pottery was introduced in the Mesolithic period but no evidence of Mesolithic pottery was found in the Mulri Hill.

CONCLUSION

Mesolithic culture was important in the prehistoric stone culture of early human communities because it was the transition period from hunting culture to grazing and farming culture. Transition of climate from cool and dry episode of late Pleistocene to the warm rainy early Holocene played an important role in the development of animals and plants domestication led the beginning of grazing and farming culture. Because of the dearth of studies about the exploration of Mesolithic settlements in Pakistan, discovery of Mesolithic settlements in the Mulri Hill in 1960s paved the way of later discoveries of Mesolithic culture in Pakistan. The flint and chert microliths like lunates, trapeze, bores, burin, micro burin and blades discovered from the sites of the Mulri Hill show the advancement and maturity of the microlithic culture in the lower Sindh Kohistan region of Karachi.

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