

Pioneers of the Settlement at Kalibangan

C. Mamatamayee

Department of Geography, Miranda House, University of Delhi, Delhi 110 007, India

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ABSTRACT Kalibangan was pioneered by hunters-gatherers who moved from upstream of the Ghaggar. They could hunt and gather on the way while seeking protection against inundation at riverside levees. The levee at Kalibangan became more than a camping ground as it had causal powers to support an enduring settlement of people. It was well raised and was wide enough to accommodate groups of people and was easily accessible from the river front. It had animals to hunt and plants to gather which would have made the settlers self-sufficient for their survival.

Kalibangan is an archaeological site famous as the largest Harappan metropolitan excavated in India. Site occupation terminated in the second millennium B.C. (IAR, 1963-64) with fall of the Harappan civilization at Kalibangan. Little is known about the pioneers of this place. Evidence of the earliest site occupation is an excavation of a ploughed field dating C. 5000 B.C. to C. 3000 B.C. (Lal, 1971). The field could belong to the pioneers if they came as farmers, or the pioneers could be some other people. Explanation requires conjecture of a mechanism whose consequence must be initiation of a settlement at Kalibangan. A mechanism is release of causal powers, liabilities or tendencies of people as agents of their intentional acts thereby releasing powers of their place, in accordance with the realist philosophy (Bhaskar, 1979; Harre, 1970). Liabilities or the potential of the then existing place suggests that Kalibangan could have been pioneered by the Mesolithic hunters-gatherers moving along the Ghaggar.

MEDIATING SPACE AND THE MIGRANTS

A place is pioneered by the settlers migrating from elsewhere. Their movement is contingent on the causal powers of the physical space that mediates between places of origin and destination (Mamatamayee, 1989a). The mediation

space can only be an infrastructural channel that enables mediation or through-movement of people and their belongings (Mamatamayee, 1990a). In addition, it can be a link-space with spatial powers which can be built in the acts of survival of the people on move (Mamatamayee, 1989a). Movement is constrained if the mediating space is an obstacle. Realisation of powers is contingent on the culture that people had developed at the place of their origin, though modifying it as they moved further. There is no separation between infrastructural channel and link space in a culture expressed in slow mode of movement as associated with all pre- and proto-historic people. Itinerary of the ancient migrants would have been through a passage which was also a raw material for their acts of survival.

Kalibangan could have been pioneered by the migrants who were farmers of the excavated field. Farming had already begun in the south-west Asia so the farmers could have migrated from the Indus in the West. Journey from the Indus to Kalibangan at the Ghaggar could have been tedious even for culturally advanced Harappans of much later period, unless the migrants used bullockcarts (Gupta, 1984). Difficulty could have been caused by channels and levee-back swamps punctuating the Indus-Ghaggar inter-fluve. These powers would have been equally constraining for farming along the channels.

Finding a pre-Harappan terra-cotta model of bullock cart at Kalibangan (Thapar, 1985) is not an indication that the migrants used this mode of transport to pioneer the place. Farmers of the Indus, seeking silt and irrigation water for farming, could not have arrived at Kalibangan seeking farmland well protected from flood.

The northward extension of the link-space of Kalibangan was constrained by the Ghaggar that was 3 km to 12 km in width (Raikes, 1984). Adding to the constraint was enormous discharge of the river degrading its bed by 12 m (IAR, 1960-61; Misra, 1984). There must have been temperate forests of birch, pine or deodar north of the river. Podzolic soil developing under these forests could not be cultivated. Site-specific natural openings in forests could support pastures built in acts of pastoralists, as in the Karewas of Kashmir (Thapar, 1985). South-ward link of the herders would have terminated in the forests rather than extending southward to Kalibangan.

Kalibangan would have been equally unapproachable from the south. Sand-dunes came close to the ancient settlement (IAR, 1968-69; Lal, 1984). The dunes were the northern fringe of the Thar desert. The desert could have been greener during the pluvial periods (Singh, 1982) creating potential for pastures. The potential could have been realised in the acts of nomadic herders of sheep, goat and camels. Area of herding would have been oscillating between place of dwelling in the desert and better pastures towards Gujarat and the Aravallis in the south and east respectively. Expansion of the desert would have constrained herders northward movement to Kalibangan.

Multi-layered tropical forests must have prevailed in the Aravalli region east of Kalibangan where slash-and-burn farming was in practice (Singh, 1982). Kalibangan has no evidence of slash-and-burn (Raikes, 1984). Farming at this place started when the slash and burn phase of the Aravallis was over (Vishnu-Mittre, 1974; Thapar, 1977). Abandoning the Aravallis, these farmers could not have moved westwards to Kalibangan which was located in the region of

decreasing humidity therefore, not liable to support forests necessary for slash-and-burn practice. The ancient farmers of the Aravallis would have taken to hunting and gathering, analogous to auxiliary act of present day farmers associated with hunting and gathering. Movement of these hunters and gatherers would have been constrained by barren sands.

THE ANCHOR PLACE

The Ghaggar could be an infrastructural channel and link-space for people upstream of the river moving down to Kalibangan. These could be Mesolithic hunters-gatherers on move. Trajectory of their movement could only be through a passage that had animals to hunt and things which could be gathered for use. The Ghaggar had the potential as forests would have opened to predominantly herbaceous corridor along the banks of the river and at its bed emerging during meander sweeps. Movement would have been obstructed when the river was in spate. People on move would have looked for safety against inundation at the closest raised ground (Possehl, 1982: 17), which would essentially be a levee in an alluvial plain such as drained by the Ghaggar.

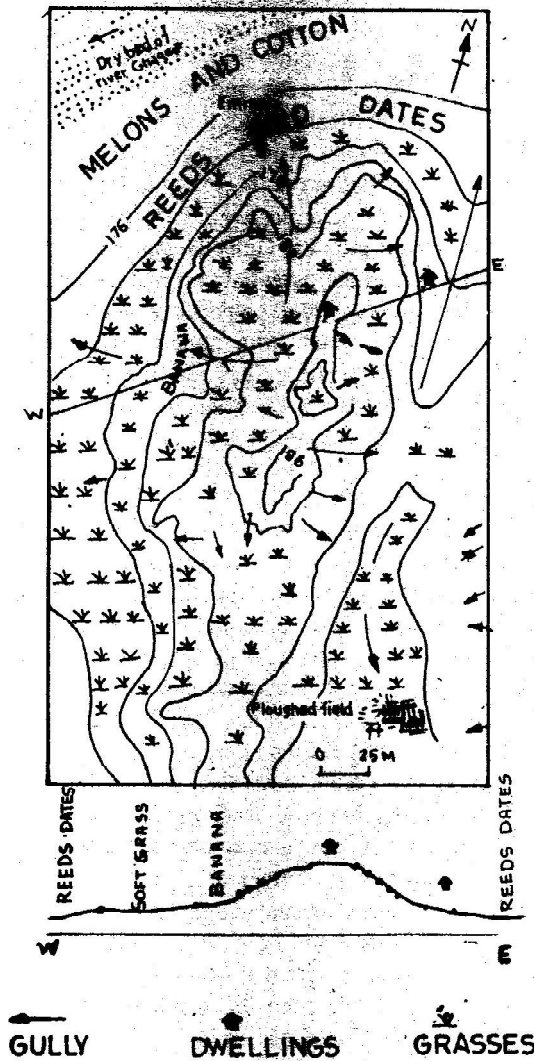
Levees are micro ridges located along channels. They can be a few centimeters to tens of meters in height. Their tops mark the maximum level to which water would have risen when river was in high flood. They stand above water in subsequent normal floods. Thus levees develop emergent power to provide shelter against river inundation but are constrained and enabled by their areal extent and height. Individuals can perch on pinnacles but populations require a larger areal extent. Habitation on levees is common in the Indo-Gangetic plains of north-western India (Pal, 1984; Mamatamayee, 1989b). The pioneers of Kalibangan had settled at mount KLB-1 which is western of the two adjacent levees located at southern bank of the Ghaggar.

The hunters-gatherers on move would have sought shelter on the levees along the Ghaggar in each season when the river was in spate. There

were a number of such settlements along the Ghaggar-Hakra channels (Gupta, 1975: 474). Some of the migrants on move could have taken southward diversion to the Aravallis which could

continue to be the source of their stone implements. The Aravallis have a number of sites from where stone implements of the Mesolithic Age have been excavated (Aggrawal, 1982). Other groups would have continued to move along the Ghaggar. Suratgarh, about 25 km upstream of Kalibangan, is on map showing site of the Upper and Lower Paleolithic people (Aggrawal, 1982). Groups moving downstream of Suratgarh would have arrived at Kalibangan. they could have anchored at the Kalibangan levee if it was accessible from the river front.

ANCHOR PLACE OF THE PIONEERS OF KALIBANGAN



The western levee of mount KLB-1 had all the necessary and contingent conditions required for anchorage of the people moving along the river. It was accessible from the river side by a large gully joining the river from mid-north of the levee (Fig.1). Colluvial cone at the gully mouth must have provided a dry passage across marshy and swampy channel bank, as is common along the Ganga system of north-western India (Mamatamaye, 1989 b). It would have been easier to climb up this gully with gentle gradient of 1 in 20 against gradient of 1 in 10 along other gullies of both the levees. Same entry point was used by later day migrants who raised a fortification wall around the levee and kept their only opening to the north (Thapar, 1985).

ENDURANCE OF THE ANCHORAGE

The gully provided access to the levee hillock which was 12 m higher than the water surface. Almost 250m x 180m in area, it was large enough to accommodate a population seeking shelter at it. Flanking the levee was a river terrace about 25m in width which must have been the passage used by the migrants to reach Kalibangan. The terrace must have been inundation prone but the levee flank immediately overlooking the terrace was firm and level enough to raise dwellings yet too narrow to support cluster of dwellings. Crest segments of the levee were firm and level, and almost 75m to 20m in size, large enough for dwellings. The migrants would have settled at this hill top marking the site of mud-brick houses in the mid-north (Fig. 1). These brick houses

Fig. 1

could have been raised later but site could have been occupied earlier by wattled huts.

Anchoring at Kalibangan would have been transitory if it was only a place of rest (Mamatamayee, 1989a). A resting place endures if it has power to sustain people (Mamatamayee, 1990b). Migrant hunters-gatherers could sustain themselves at the place if it gave enduring access to animals for hunting and things, namely plants, for gathering. Animals, which the Kalibangans hunted or domesticated, included zebu or the Indian domestic humped cattle, the Indian buffalo, pig, *barasingha*, Indian goat, sheep, turtle, humped camel, Indian elephant, domestic ass, Indian rhinoceros, *chital* and fowl (IAR, 1964-65: 38). These findings belong to the entire period of site occupation at Kalibangan, therefore the elephant, camel and ass could be associated with the Harappan merchants of much later period coming from other domains but the place must have been a habitat of the other animals. S. Banerjee and S. Chakrabarti report of sighting rhino in this region in their writing of 1973, though it is extinct now. Antlers were hunted along the Ganga at Parikshitgarh near Hapur (Ghaziabad, U.P.) till 1975 (Mamatamayee, 1989b). Paintings of some of these animals on pre-Harappan pottery indicates their existence at that time (IAR, 1962-63: photoplate XLIX). The levee must have been a natural habitat of cattle. These animals must have been hunted and domesticated, as in the active flood plain of the Ganga (Mamatamayee, 1989b).

The Ghaggar at Kalibangan must have been rich in plants. There must have been succeeding zones of vegetation along the meander loop, as would be common to any stream according to the zonation proposed by Weaver and Clements (1938). Submerged and floating plants would have grown in river water with depth upto 2.5 meters. Reeds would have taken over the areas where water was 2.5 m above or below soil surface. Herbaceous plants would have grown where water table receded to 3 m below the surface. Higher areas could support trees, shrubs or grasses of species varying with micro relief and

drainage. Softer grasses would have covered the central gap between the eastern and the western levees as well as less steep slopes of the levees.

A river bed emerging during the process of meander sweep develops shallow soil which has liabilities necessary for growth of cucurbits, including melons and gourds. Similar niches with heavier soils, capable of retaining more water, were liable to support hydromorphic tropical grasses, namely rice, or could bear shrubs of wild cotton. Margins of the wet channel had niches liable to support date palms (Fig. 1) which grow with 'feet in running water and head in fire of sky' (Cobley and Steele, 1976; Kochhar, 1981).

The levee slopes would have had trees common to tropical areas. There could be individual stands of *acacia*, *peepal* or banyan, interspersed through grasses. Gully heads received unobstructed sunshine, essential for *ber* (C.S.I.R., 1976). *Ber* (Indian *jujuba*) could thrive on gully heads using soil water from almost saturated basal concavities of the gullies. Basal concavities collected abundant water from gully sides but were well drained and well protected from winds, forming niches liable to support banana (Cobley and Steele, 1976; Kochhar, 1981).

The Kalibangans gathered these plants as is evident from kitchen remains, sample of feces, and paintings on pottery (IAR, 1962-63: Fig. 25, and Photoplate XLIX). Cloth and cord impressions on pottery suggests use of cotton. Impressions of rice husk in terracotta cakes and pie (Vishnu-Mittre and Savithri, 1975) suggest presence of rice at Kalibangan.

These plants could have been gathered for food, as building material, as fibre for clothing and for cordage. It could also be used for making household articles and other artifacts. Foliage could be grazed by domestic animals, while dried parts of the plants could be used as fuel. Dried skin of bottle gourds were made into *Kamandals*, like other household utensils common during pre-pottery days (Blake, 1970). Solid-stem reeds would have provided building material for thatching while hollow-stem grasses were dried for fuel or used as bedding.

Some plants in use of hunters-gatherers are multi-purpose (Blake, 1970), as must have been for these Kalibangans. Nearly all parts of banana plant could be used as food. *Ber* provided food, fodder and fuel and its heartwood could be used for making implements like turnery and comb (C.S.I.R., 1976). The most important multipurpose tree would have been date-palm. It could bear as many as 20 leaves and bear fruits upto 45 kg (Kochhar, 1981). Leaves must have been used for making household furniture while fruit and sap from the tree was used as food and drink. Trunk must have made excellent raft and could be used as fender post.

Adding to the list of things, which could be gathered, was clay from river side depressions. It could be used for plastering wattled-huts or could be hand moulded to make household wares or clay-cakes for mud houses. Clay-cakes were used later on to fill foundation of the Harappan houses.

Things to be gathered spread far to the east and west from mid-north location of dwellings. Space intervening between place of rest at the dwellings and the place of work, from where plants had to be gathered and animals were to be hunted, was too large for daily acts of movement and hunting and gathering. The potential of the place could be realised by moving closer to eastern or western flank of the levee. The western flank was more open to ravages of flood and robbery. Erosion at the western flank was so severe that the fortification wall, raised by the pre-Harappans, had to be reinforced by the Harappans and yet it was badly riven by flood when it was excavated (IAR, 1964-65: 31). Robbery was common since the time of cave dwellers, as suggested by rock paintings of *Morhana* Pahar of central India (Allchin and Allchin, 1983, Fig. 4.12:83). Site potential could have been used by adding dwellings to the north-eastern flank of the levee (Fig.1). Thus Kalibangan was pioneered by hunters-gatherers firmly rooting their anchorage at the place.

SUMMARY

Kalibangan must have been pioneered by hunters-gatherers more than 7000 years ago as suggested by carbon dating of a ploughed field excavated at Kalibangan. The pioneers were the Mesolithic people as suggested by significant findings of blades of agate and chalcedony, some-time serated or backed, quern stones with mullers, and bone points (Thapar, 1985) such as those associated with middle stone age culture. The pioneers either arrived with these possessions or procured them later from the source already known to them. The animals hunted or plants gathered would have kept them self sufficient in their spatial isolation. Gathering of clay would have contributed to their sedentarization at Kalibangan.

This mechanism of pioneering is analogous to similar relational structure observed among existing tribal people. Archaeologists have used similar method of analogy to explain cross furrowing of the field excavated at Kalibangan (IAR, 1968-1969). Possibility of people-vegetation relation has been suggested by Fairservis Jr. (1982), Raikes (1984) and Vishnu-Mitre (1982). Analogy alone can be used in absence of any archaeological evidences which may be because (1) artifacts and implements of these people were made of less enduring substances, namely, grasses, bones and wood; (2) wooden and bone artifacts could endure but could have been washed away by flowing water, the difficulty recognized by some (Aggrawal, 1982; Butzer, 1983); or (3) the evidences would have been sedimented below the remain of the succeeding populations. The site had been in occupation of the Mesolithic hunters-gatherers and the Neolithic farmers associated with the excavated field, analogous to Chopani Mando of the Vindhyan ranges. Duration of the Kalibangan occupation was longer than that of Chopani Mando, extending to the Harappan civilization lasting for more than 5000 years before coming to an end.

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