

626
COMPARATIVE STRATIGRAPHY OF THE
PROTOHISTORIC CULTURES OF THE
INDO-PAKISTAN SUBCONTINENT

by
JAGAT PATI JOSHI
M.A., LL.B., DIP. ARCH.

with a foreward

by
SRI B. B. LAL
Director
School of Archaeology
Archaeological Survey of India

913.054 P

JOS

1963

ETHNOGRAPHIC & FOLK-CULTURE SOCIETY U. P.
LUCKNOW

GOVERNMENT OF INDIA

ARCHAEOLOGICAL SURVEY OF INDIA

Central Archaeological Library

NEW DELHI

ACC. NO. 71384

CALL NO. 913.054 P | JOS

D.G.A 79

COMPARATIVE STRATIGRAPHY OF THE
PROTOHISTORIC CULTURES OF THE
INDO-PAKISTAN SUBCONTINENT

71384



by
JAGAT PATI JOSHI

M.A., LL.B., DIP. ARCH.

with a foreward

by
SRI B. B. LAL

Director

School of Archaeology
Archaeological Survey of India

913.054P

Jos

1963

ETHNOGRAPHIC & FOLK-CULTURE SOCIETY U. P.

LUCKNOW

71384

अवधि संख्या दिनांक 19.6.84

निर्देश संख्या 913:054P/JOS

नई दिल्ली

केन्द्रीय पुरातत्व प्रस्तकालय

Copyright : J. P. JOSHI

To
MY FATHER

LATE PANDIT HARISH CHANDRA JOSHI

FOREWORD

Before the twenties of this century, the Indian Civilization was regarded to be no older than the time of Alexandar the Great. Whatever the literary evidence had to say in the matter, particularly in regard to a high antiquity, was always looked upon with suspicious eyes—it is done not unoften even now. However, with a stroke of the spade in 1921, the archaeologist suddenly threw back the antiquity of civilization on the subcontinent by as much as two millennia. The excavations at Harappa and Mohenjodaro proved it beyond doubt that this country too had a claim for a hoary past, in no less a degree than had Egypt or Mesopotamia.

But while this discovery solved a problem, it created many. It became more or less obligatory to answer questions such as these : Who were the Harappans ? Aryans or non-Aryans ? Did they live any permanent impression upon the subsequent civilization of the subcontinent ? And no less important became the problem of bridging the gap—nearly of 1500 years—between the end of the Harappa Civilization and the early historical times, with Alexandar or Asoka as known fixed points.

Since Independence, an all-out war—one might very well borrow the phraseology—has been declared against this demon of the Dark Age. Indeed, the spade has never been so active as it is now. And, without any feeling of undue pride, one might say that it is now possible to draw a reasonably intelligible picture of the Dark Age, though no doubt many a detail is still badly wanting. Work is on, and one day—let it be hoped, sooner than later—it would be possible not merely to fill in the details but also to provide necessary colours, so very necessary for a picture to be appreciated by the layman.

But before that day arrives, it is not unfruitful to piece together the available data and see what kind of a picture is emerging. This, incidentally, also gives an opportunity to reorient, if need be so, the work-plans.

Shri J. P. Joshi's present essay, submitted for the Diploma in Archaeology Examination, 1961, of the School of Archaeology, Government of India, is one such bold attempt. Not only he has taken into account the latest material, but has also sorted it out with a keen insight. He has tried to produce a coherent picture, as far as the data permit, on regional as well as chronological basis. In his 'Conclusion', he also highlights the lacunae and points the way for tackling them.

I am confident that the booklet will be of immense use to the students of Indian protohistory, for whose sake specially, it seems, the author has given a number of useful sections and charts.

17-12-63

New Delhi

B. B. Lal
Director,
School of Archaeology

Received from Ethnographic & Folk Culture Society. V.P. Lucknow. Bill No. P/Soc-191-1989
dt-3.6.84.

TABLE OF CONTENTS

Illustrations			
1.	Introduction	...	1
2.	Prelude	...	3
3.	Baluchistan	...	6
4.	Indus Valley	...	11
5.	Gujarat	...	14
6.	Rajasthan	...	17
7.	Gangetic Plain	...	21
8.	Eastern India	...	23
9.	Malwa And Maharashtra	...	28
10.	Southern India	...	30
11.	Conclusion	...	31
12.	Acknowledgement	...	31
13.	References	...	31

ILLUSTRATIONS

(a) Figures

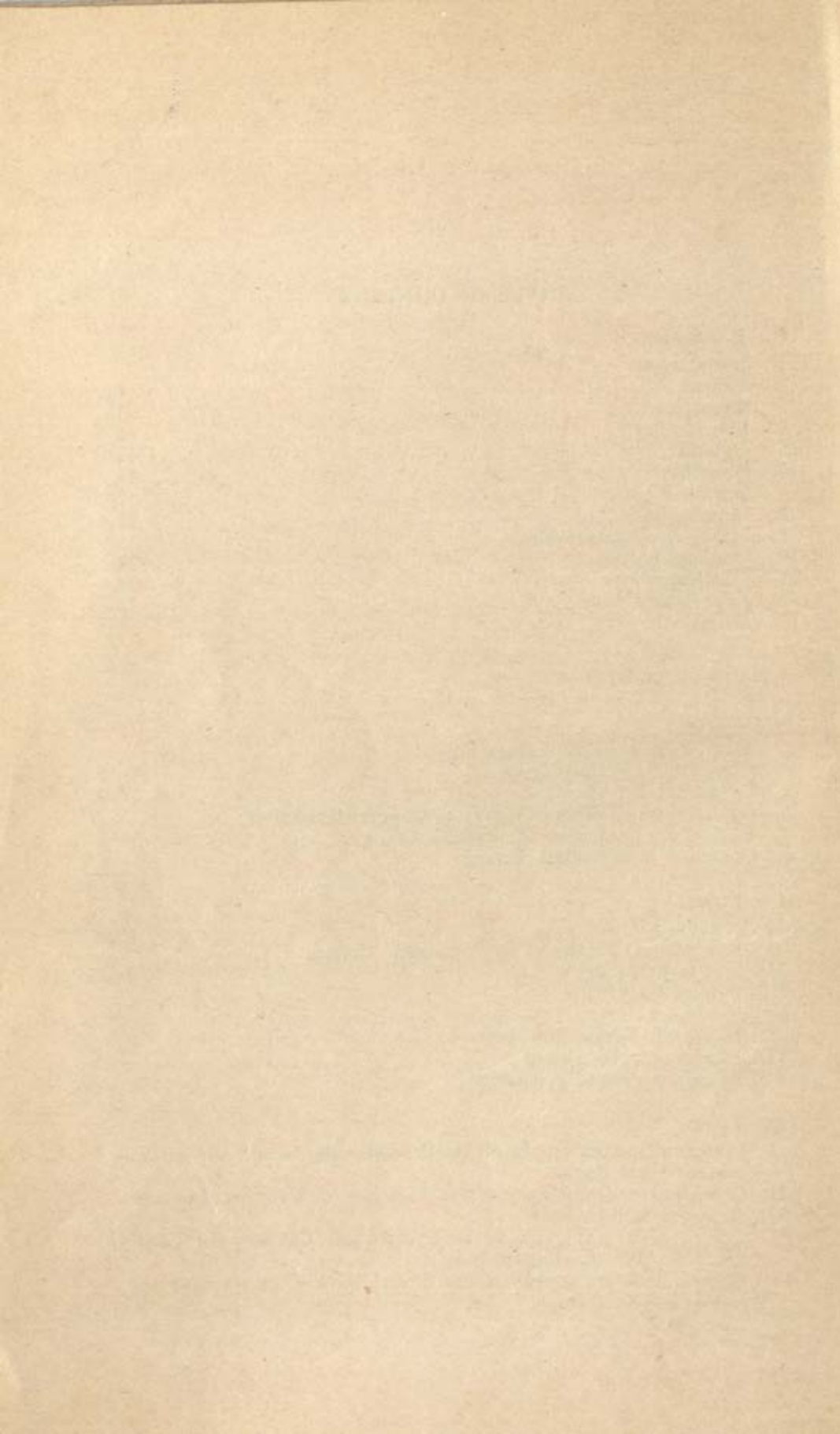
1. Map : Principal Protohistoric sites
2. Comparative Pottery Types
3. Comparative Schematic Sections
4. Implements and other objects from Copper Hoard sites
5. Harappan Influence on Chalcolithic Cultures
6. Comparative Schematic Sections

(b) Plates

- I Microliths
- IIA Kalibangan : Pottery of the Antecedent Culture
- IIB Seals and Sealings
- III Painted Grey Ware
- IV Neoliths
- V Navdatoli : Chalcolithic pottery
- VIA Khurdi : Copper Hoard
- VIB Borzahom : bone implements

(c) Tables

- I Comparative Stratigraphy of the Protohistoric Cultures of Baluchistan, Sind and Panjab
- II Comparative Stratigraphy of the Protohistoric Cultures of Gujarat, Rajasthan and Malwa
- III Comparative Stratigraphy of the Protohistoric Cultures of the Indo-Gangetic Plain and Eastern India
- IV Comparative Stratigraphy of the Protohistoric Cultures of Maharashtra and South India





COMPARATIVE STRATIGRAPHY OF THE PROTOHISTORIC CULTURES OF THE INDO-PAKISTAN SUB-CONTINENT

JAGAT PATI JOSHI

Archaeological Survey of India, Excavations Branch, Nagpur

INTRODUCTION

The protohistoric investigation in the Indo-Pakistan sub-continent carried out in the last three decades has brought to light considerable amount of material [Lal 1953 : 80f] with diagnostic culture-traits having both similarities and divergences in their technological traditions. This phase has a marked trait of having highly developed cultures in the areas of attraction and primitive cultures surviving in the areas of relative isolation [Subbarao 1958 : 85]. Again, in the analysis of the protohistoric material no stage of transition from the hunting economy notably of the microlith using people to that of the food producing has clearly been recognized [Gordon 1958 : 26]. An attempt, however, is made to analyse the protohistoric cultures of the different regions of the Indo-Pak sub-continent in their comparative stratigraphic perspective. The study includes (a) the 'peasant cultures' of Baluchistan ; (b) the Harappa Culture in the traditional Indus Valley, Saurashtra and Rajasthan ; (c) protohistoric cultures of the Indo-Gangetic Plain ; (d) the cultural pattern in the eastern India ; and (e) the post Harappan chalcolithic cultures of central, western and southern India. [Fig. 1]

PRELUDE

A prefatory phase to the protohistoric cultures of the various regions of the sub-continent can be now recognized at (a) Kili Gul Mohammed in Baluchistan where a pre-pottery neolithic phase has been found [Fairservis 1952 : 1-39] ; (b) Golf link area, Karachi, Sind which yielded microliths (now in the British museum) comprising blades, points, lunates, trapezes and fluted cores ; (c) Sukkur and Rohri in Sind where from a long blade (ribbon flake) industry but significantly without pottery is reported [Krishnaswami 1958 : 2] ; (d) Langhnaj, in Gujarat where an overwhelming number of geometric microliths have been found in association with fragments of an ill-fired red ware and such neolithic elements like querns and maceheads besides twelve mineralized skeletons of dolicocephalic type [Sankalia, Karve and Kurulkar 1945] ; (e) Rangpur, Period I, where geometric microliths unassociated with pottery have been found [I.A.R. 1953-54 : 7] ; (f) Singrauli basin, Banda, Bundelkhand and Baghelkhand regions in Uttar Pradesh which provide

noteworthy evidence of geometric microliths ; (g) Pachmarhi, Hoshangabad, Jabalpur [Krishnaswami 1953 : 64-65] and Adamgarh in Madhya Pradesh [I.A.R. 1959-60 : 13] where during the recent excavations a large number of geometric microliths have been recovered from the lower levels, the upper levels yielding pottery in association with the microliths ; (h) Bombay region in Maharashtra [Todd 1950 : 4f and Gordon 1950 : 64f] (i) Kurnool and Nagarjunakonda in Andhra Pradesh [Gordon 1950 : 83, I.A.R. 58-59 : 6 ; 59-60 : 6] also yield microliths without pottery ; (j) Sangankallu in Mysore, in Period I has the evidence of geometric microliths [Subbarao 1948] ; in this region the Jalhalli 'hunting type' of microliths are worth mention [Seshadri 1953] ; (k) the *teris* of Tinnevely in South India, datable to 4000 B.C. on the basis of the ancient sea level, [Zeuner & Allchin 1956 : 4ff] have yielded plenty of geometric microliths including small bifacial points which 'so far remained unparalleled in India' [Sankalia 1962 : 46] ; (l) Birbhanpur in West Bengal [Lal 1958 : 15ff] and Kuchai in Orissa have recently given substantial evidence of a non-geometric microlithic horizon of an earlier date in the stratigraphical perspective. At Kuchai, a flake industry of an earlier facies is associated with the microlithic industry [Thapar 1961 : 7].

These microliths have a wide distribution in the sub-continent and may represent the equivalent stage of the European mesolithic complex [Pl. 1]. Does this stage show an advancement in the material culture of man in India ? The evidence of Langhnaj may be useful in this respect. On the basis of this site, it may be said that this phase is characterized by communities which have a mixed economy and might be practising some sort of primitive agriculture along with hunting and fishing, domestication of animals to some extent, burying their dead and having a slightly more settled pattern of life than the wandering folks. In the postulation of such a phase are we to include Braidwood's concept of a stage of 'incipient agriculture' [Braidwood 1959 : 105-113] ? It seems presently that more evidence of a substantial nature is required before anything can be said with certainty. However, if vertical development of food economy of ancient man is to be established in India, some such stage will have to be recognized to avoid a cultural vacuum.

It is plausible that the traditions of this phase were carried on to the advanced microlithic industry of the succeeding protohistoric cultures of the western and central parts of the sub-continent. Subbarao has pointed out that with the dawn of metal and urbanization, the utility of stone tools gradually declined and of the earliest forms only the blade survived as the most useful tool [Subbarao in *Excavations at Maheshwar and Navdatoli* 1958 : 59] or as Wheeler puts it, it 'represents the microlithic tradition at its last gasp'

[Wheeler 1959 : 80].

BALUCHISTAN

In the fourth and third millennium B.C. a large number of village communities were living in the 'sullen border land where the Iranian Plateau drops tumultuously to the Indus plain' [Wheeler 1959 : 93]. The present Baluchi hills had, it seems, more rainfall in ancient days. The evidence of 'gaburbands' or dams of antiquity might indicate irrigation and more population [Piggot 1950 : 69]. It will not be out of place to mention here that some of these communities brought to the Indo-Pak sub-continent some elements of Iranian affinity from an advanced culture. The works of Stein, Majumdar, Piggot, Ross, McCown, Fairservis and Gordon have thrown much light about these peasant communities with the result that it is now possible to have a comparative study of these cultures in the relative chronology of pre-Harappa, Harappa and post Harappa horizon in Baluchistan.

The excavation at Kili Gul Mohammed, Baluchistan [Fairservis 1952 : 1-39], have revealed four phases of occupation : Kili Gul Mohammed I yielded parallel-sided chert blades, mud-brick houses, grinding stones but no pottery ; domestication of sheep, goat and ox is suggested. A radio carbon date of 5300 ± 200 B.P. has been determined for this phase which, in all its elements, is a pre-pottery neolithic one. In Kili Gul Mohammed II, handmade pottery with basket-work impression makes its appearance along with other elements of Kili Gul Mohammed I. An identical cultural milieu is presented by Ranaghundai I where Ross also found bones of domesticated horse [Ross 1946 : 284-316]. In Kili Gul Mohammed III wheelmade painted pottery having black designs on red slip and a red painted ware (type A wares of Ross) and copper is met with. At Ranaghundai II bowls with flaring rim and pedestalled base, designs of the black buck, and the 'bull ware' (painted bull elongated horizontally) are found. The pottery of this phase at Ranaghundai is comparable to Hissar I [Lal 1953 : 62]. In Kill Gul Mohammed IV Kechibeg polychrome ware appears. Again the black and black-on-red wares and carafe like vases at Ranaghundai III (a) and III (b) are comparable to Kili Gul Mohammed IV. Besides, Kechibeg polychrome ware also offers links with Damb Sadaat I. For which a C-14 date of 4150 ± 250 B.P. has been assigned. The presence of Ranaghundai III type of pottery below the deposits of the Harappa Culture at Harappa indicates the comparative dates of the two cultures, though at Ranaghundai itself, there is an overlap at this stage. Some affinities with Togau b, c, d, Amri and Surjangal are also in evidence, notably in the designs of animals, with horns and

dots etc. The Togau ware known for its antler motif is associated with Kechibeg wares of Kili Gul Mohammed IV and Damb Sadaat I. Fairservis has seen the feasibility of relating the 'horned buck design' to the 'horned bucks' found at Surjangal and Ranaghundai II and III (a). In Damb Sadaat II, Zhob figurines in black-on-buff or grey ware are available. In Damb Sadaat III the stair designs disappear. It seems that at this stage Harappan contacts were established. [Fairservis 1956 : 354-364].

With Damb Sadaat II and III, Surjangal II and Ranaghundai III parallels of Faiz Mohammed painted ware, Mian Ghundai Buff ware, Mian Ghundai fine and plain ware have been equated by Fairservis. Damb Sadaat designs also occur in Periano Ghundai painted types comparable to Loralai. According to Fairservis the earliest Harappan contacts are established in Damb Sadaat III, Zhob cult Period, Ranaghundai IV and post Surjangal III [*op. cit.*].

Besides these stratigraphical equations, ceramic comparisons have also been made. The Quetta ware which has a pinkish white to greenish surface over which geometric designs have been made in purplish brown pigment is comparable according to Piggot to Susa I, Gyan V and Sialk III [Piggot 1950 : 75, Lal 1953 : 83]. This is also comparable to Amri, Zhob and Shahi Tump on the basis of geometrical designs. A fine grey ware of Quetta ware is comparable to Amri ware. [Majumdar 1934 : 24ff].

Amri ware is stratigraphically earlier to Harappa ware and is characterized by black or reddish designs on buff to light red background. This is also confirmed at Amri, Lohri, Ghazishah and Pandiwahi. However, at Paiji Kotario in the Gaj valley an intermixture of Amri ware and Harappa ware have been found in the assemblage. Houses of mud-bricks or of stones or with stone foundation, chert blades and copper beads are its characteristic cultural equipments. This culture is localized only in Sind. The panels of chequers framed within red or black lines available here are also met with in Zhob, and in early stage of Nal culture. With an additional red colour this design is also met with at Nundara [Piggot 1946 : 16]. The designs of Kechibeg polychrome of Kili Gul Mohammed IV and Damb Sadaat I offer a greater degree of affinity to those of Amri. The ibex in panels, overlapping scales, hatched triangle patterns, *Peepal* leaf, the willow leaf (especially in multiple form and the "Amri-Nal polychrome style suggests a rather closer relationship between the Amri, Nal and Harappan styles". [Fairservis 1956 : 354-364].

The Nal-Nundara culture in Southern Baluchistan is characterized by a pottery which is pale or greenish buff with designs executed in black blue, red or yellow. Flat axes and knives of copper have been found here. At Nal complete and fractional burials are

met with in the cemetery. This culture came prior to Harappa culture and was also in existence during its lifetime. A pot showing motifs such as intersecting circles, *peepal* leaf, stone weights, steatite beads and copper spear types suggest Harappan contacts. As indicated earlier, early Nal has affinity with Amri. According to Fairservis, "Nal is most probably parallel in time with Damb Sadaat II" [Fairservis 1956 : 354]. A few comparisons are made here between Nal Nundara pottery and Kulli. The beasts on Nundara pottery with striped bands across their loins and forequarters are comparable with the designs made on clay figurines of Kulli. The cylindrical cannister of Nal may have some resemblance with squat bottles from Kulli. The grave goods and copper seals can again be compared to Shahi tump. Nal-Nundara mud-bricks according to Piggot, accord some comparisons with the Zhob culture underlying Nal cemetery [Piggot 1946 : 16].

The Kulli-Mehi culture of Southern Baluchistan [Piggot 1946 : 15] is quite interesting. It has a predominant buff ware with sparing use of red in addition to black. Stone and mud-brick house, clay figurines of cattle and human beings, steatite vessels and copper pins and mirrors are available. The typical feature of the pottery is animal-cum-landscape motifs [Stein 1931 : 54f and 118f ; Lal 1953 : 83]. The pottery is comparable to scarlet ware of Early Dynastic times in Iraq i.e., 2nd quarter of the third millennium B.C. Incised compartmented pots are available at Kulli culture and also at Early Dynastic Iraq. Steatite boxes of Kulli culture are comparable to Mohenjo daro [Piggot 1946 : 16]. The pottery has its counterparts at Harappa. Double branching tree patterns, banana leaves, brazier of Harappa are available on the sherds of Kulli. The cross hatched technique in the treatment of animal's body at Harappa is not an infrequent Kulli technique. At Mehri offering stands of Harappa form are available. The bird figurines of Mehri can be compared to those of Damb Sadaat III. At Ghazishah in Sind, Harappan designs have Kulli technique. Perforated vessels of Harappa are available at Kulli sites and thus seem to be imported. Finally Kulli figurines are nearer to Harappa than Zhob.

The recent explorations at Edith Shahr, district Lasbela, western Pakistan have yielded Kulli type of pottery along with Harappan terracotta toy carts, bulls, incised pottery, terracotta cakes and bangles [Fairservis 1961 : 320-325].

With this brief survey of the stratigraphical equations of the peasant potter cultures of pre-Harappan times, we come to the Indus Valley where the mighty Harappa culture emerges. For the sake of the chronological order, the post Harappan cultures of Baluchistan have been discussed later. [Table 1].

INDUS VALLEY

In the third millennium B.C. the Harappa culture appears in a fulfilled form suddenly in the Indus Valley. This culture, "like any other great revolution may best be visualized as a sudden off-spring of opportunity and genius" [Wheeler 1953 : 14]. The creative genius and environmental opportunity were responsible for giving rise to this great culture. The origin of this culture is shrouded in darkness and as Wheeler puts it "the integrity of the Indus Valley Civilization is unchallenged". [Wheeler 1953 : 94].

A few sherds of Quetta wet ware discovered in the lower levels of Mohenjo daro [Mackay 1937-38 : Pl. 6-7, p. 134], of Ranaghundai III fabric from pre-Harappa levels at Harappa [Wheeler 1947 : 134] and of a different class of pottery (the difference lies in fabric and painted thick bands) below Harappan deposits at Kot Diji [Khan 1958 ; Piggot 1961 : 248] make a case of pre-Harappa horizon, but do not in any way lead towards the genesis of the Culture. The material, however, needs further examination. Thapar has rightly observed "while some of the features of these peasant cultures are common to the well-known Indus Civilization, none of them can be regarded as the parent of the latter which with its metropolitan cities like Mohenjo daro and Harappa is known to be the most extensive civilization of the 'pre-classical world'" [Thapar 1961 : 8].

It will be worthwhile to mention here that after the discovery of Mohenjo daro in Sind and Harappa in Panjab, a number of sites have been discovered showing the cultural expanse of the Harappans from the foot-hills of the Himalayas at Rupar to Sutkagen dor on the shores of Arabian Sea, Lothal and Rangpur in Gujarat, Bhagat-rav in South-west and Alamgirpur in the Gangetic Doab. The prophetic remark "under the jejune archaeological nomenclature of the Harappa culture there lies concealed one of the greatest nameless cultures of Western Asia" [Piggot 1950 : 133] has in fact come true. This far-flung Harappan culture has both similarities and regional variation, 'the unchanging and astonishing stagnation of Harappa culture' does not stand true in the light of present excavations [Ghosh 1959 : 44].

Harappa and Mohenjo daro as Gordon Childe remarks, "stand out like twin capitals in a single empire among a number of sites" [Gordon Childe 1952 : 174].

At Harappa and Mohenjo daro, the ancient ruins show a citadel mound distinct from the lower city [Marshall, Mackay, Vats and Wheeler]. Other fortified sites of this culture are Sutkagen dor, Ali Murad, Ghazishah and Dabarkot. The 1947 excavations at Harappa revealed three phases of occupation of which the predefence

phase has already been discussed above. The defence phase is marked by the Rampart wall made of mud-bricks and externally revetted with burnt bricks, and having rectangular towers and a circular gateway on the west. Two rows of workmen's quarters, platform with circular depressions, granary having air ducts and ramp, wide streets cutting at right angles and having cart ruts, have been found at Harappa. At Mohenjo daro too the citadel has rectangular bastions and the buildings notably the granary shows the use of wood as a reinforcement material. The 'Great Bath', granary having passage for air and sockets for super-structure, 'Assembly Hall', the so-called 'college building', depression for keeping merchandize, wide and covered drains, houses, single or double storeyed, wide roads cutting at right angles have been also found at Mohenjo daro. There is a great similarity in the systematic and elaborate town planning, both at Harappa and Mohenjo daro. The same is the case with Chanhu daro, another site in Sind. [Wheeler 1947 : 59 ; Marshall 1937 ; Mackay 1943 : Vats : 1940].

The ceramic types at Harappa, commonly known as Harappa pottery consist of dish-on-stand, cylindrical perforated jars, goblets, troughs, cylindrical vases, and other jars, large storage jars with convex side and flat rim and lamps. All these occur in the red ware. In Buff Ware, beakers, basins and vases are available. Both the wares have a finely lavigated clay. These are well fired and sturdy. Over a thick red slip, are painted designs with a black pigment. The designs consist of naturalistic motifs like peacock, deer, plantain tree, *peepal* leaf, fish, and human figures. Geometric designs include rectangles and intersecting circles, hatched triangles, alternating triangles and horizontal bands, etc.

Besides pottery, chert blades, and cubical weights, terracotta triangular cakes, bangles, bird whistles, cart frames, bobbins and 'mother goddesses', steatite discs, faience beads ; long tubular beads of carnelian ; bronze knife blades, saws, sickles, celts, chisels, razors, pins, tweezers, fish hooks, spear, axes and arrowheads ; seals with animals and human figures along with pictographic script, querns and platters, ivory combs and bronze handled mirrors are also available from these sites. Steatite bust of a bearded man from Mohenjo daro, the nude figure from Harappa and the bronze dancing figure from Mohenjo daro are remarkable examples of plastic art. Cotton and wheat were grown. Worship of Siva-Pasupati (seal from Mohenjo daro) *linga* and *yoni*, plants, trees and the cult of 'Mother Goddess' was prevalent. These objects show a highly developed culture. Extended burials with typical Harappan pottery is another distinctive feature of this culture as evidenced at Harappa.

What brought the end of these great cities ? May be flood

[Sahani 1953 : 153-54] or invasion or desiccation of land. Mohenjo daro was already on decay during the last days of the city and in Harappa, the cemetery H people came, [Wheeler 1947 81-83] of course, after a gap [Lal 1953 : 88].

When did this civilization flourish? There is no direct evidence. The only reliable evidence comes from the occurrence of typical Indus seals at various sites in Mesopotamia and seals of Western Asia type in India [Gadd 1932 : 3-22]. Of these, about a dozen have stratigraphical bearing : Two are from pre-Sargonid, six from Sargonid and the remaining in the Larsa Kassite levels. Most of these seals fall within the Sargonid Period ascribable to *circa* 2350 B.C. On the basis of these, Wheeler has given a date of 2500 B.C. for the beginnings of Harappa culture. A chlorite schist from a lower level of Mohenjo daro incised with 'hut and window pattern' would suggest an early Dynastic date. A lozenge shaped seal from a lower level of Harappa bearing a splayed eagle occurs at Susa (2400 B.C.) and Tell Brak in Northern Syria (2100 B.C.). Etched beads of Harappan type are paralleled at the Akkadian levels of Tell Asmer. Gold disc beads with axial tube can be compared to Mesopotamian sites of early Dynastic Period i.e., about 2300 B.C. Cruciform pattern of a shell bangle plaque from Royal Tomb PG 789 at Ur is comparable with the cruciform designs in the silver ring from Mohenjo daro. The faience beads from the upper levels of Harappa are identical with those from Knossess, i.e., *circa* 1600 B.C. [Wheeler 1953 ; 84-93]. Spiral beads pins, animal triform toilet objects and a cylindrical vase from the Babylonian to the Kassite levels in the British Museum collection having similarity to the typical Harappan vases has recently been recognized by Thapar. What this correspondence signify—an occasional trade or an active cultural intercourse?

So, this was the story of Harappa culture in Western Panjab and Sind. In Eastern Panjab near the foot-hills of the Siwaliks, the sites of Kotla Nihang, Rupar [I.A.R. 1953-54 : 6-7] and Bara claim our attention [I.A.R. 1954-55 : 9-10]. At Kotla Nihang the excavated pottery belongs to the mature Harappa Culture with noteworthy exception of a few incised designs. The sequence available at the systematically excavated site of Rupar provides a good index. Here in Period I (Harappa culture) stone walls, mud bricks, kiln-burnt bricks (11" x 5" x 3 1/4"), steatite and faience beads, chert blades, perforated jars, dish-on-stand and pedestalled goblets are available. The designs comparable to Harappa show geometric patterns and animals like peacock, copper spearhead, celt and a seal, are some of the other components of this culture. Extended burials with typical Harappa pottery are met with in the partially excavated cemetery. At Rupar, the Harappa Culture shows two

stages. In the earlier stage the typical Indus goblet indicates the mature stage of the Culture. In the later stage the goblet disappears and incised designs come into vogue. Terracotta cakes also become rare. In this respect the seal found at Rupar is very interesting as on it excepting the pictographic script, no human or animal figure is depicted. At Bara, a late phase of the Harappa Culture is met with. Here, the dish-on-stand shows a shorter stem. Indus goblet disappears and the pottery shows varied slips. Besides, as Gordon has observed, in designs 'an arrowhead vertical between a pair of horns' found at Bara is comparable to cemetery H [Gordon 1958 : 85]. All this evidence suggests that the Harappa culture was succeeded by a folk who used Painted Grey Ware represented by dishes, bowls, and a *lota* type. With the end of this culture, the story enters in the period when Northern Black Polished Ware emerges.

The Harappa culture was succeeded by other cultures in Baluchistan, Sind and Panjab about which a brief reference has already been made. A detailed description in their proper perspective now follows.

At Ranaghundai in Period IV large open bowls of coarse grey ware with crude foliage designs in black to purplish red colour quite unlike any in the preceding period are found. In the succeeding Period a pottery with embossed designs including 'cowry shell' and wheat ear is met with [Ross 1946 : 284-346]. The Shahi tump cemetery lying over the Kulli-Mehi culture has yielded pots of yellowish buff ware painted over in black or reddish pigment with festoons, bands, triangles, angular spirals and *svastika* motifs. Other objects include shaft hole axes, copper spearheads, compartmented seals with strap handles and beads of agate, ruby and lapis lazuli. The pottery is comparable to Susa IV or Susa D and Khurab in Persia [Stein 1937 : 118f]. The shaft hole axe is comparable to those from Maikop and Tsarskaya in South Russia [Schmidt 1937 : p xxviii and Schaeffer 1946] while the seals are comparable to Hissar II B and Anau III and Jhukar. The burial cairns of Moghul-Ghundai have yielded tripod jars which are comparable to cemetery B at Sialk. Besides, horse bells, rings and bangles are also available at Moghul Ghundai. To the same period are ascribable Zangian, Jiwanri and Londo Wares [de Cardi 1950 : 52-57 ; 1951 : 63-75]. The bronze sword from fort Munro and trunnion celts from Shalozan have western affinities and indicate the arrival of a new people in the second millennium B.C. in this part of the sub-continent. According to Lal, this may suggest an eastward movement of people in the first half of the second millennium B.C. [Lal 1953 : 88-91].

In Sind, the post Harappa cycle is represented by Jhukar and

Jhangar cultures at Chanhudaro [Mackay 1943 : 10 ff]. The succession between the two, however, was not continuous. A distinctive industry labelled as Trihni Ware, painted with loops and bands seems to have intervened between the two. The Jhukar culture is represented by a pottery having designs in purplish pigment executed in dull red over a buff surface. The design muster consists of chequers, herring bone and *peepal* leaf. Besides, compartmented seals, shaft hole axe of Shahi tump type ; spiral headed pins also occur. The pottery of the Jhangar culture is characterized by incised designs. In Panjab the post Harappa evidence is quite clear at the type site Harappa itself. Between the Cemetery 'H' culture and the Harappa culture is a hiatus indicated by a debris layer of 5 feet to 7 feet. There is thus no overlap between the two cultures. Cemetery H comprises two stratum burials, the lower ones being fully extended while the upper ones are fractional in pots. Northern Steppe folk of the Aryan stock were absent and the proto Austroloid and Armenoid were represented as seen from the examination of the skeletal remains recovered from the Cemetery H. Thus the Cemetery H people were altogether new at the site. The pottery has a deep red slip tending to purplish over which rayed stars, typical arrows, fish and peacocks are made in black pigment. In form and fabric, the pottery is alien to that of Harappa. The pointed bottom goblet is generally absent, although, some of the ceramic traditions seem to continue [Vats 1940 : 203ff : Lal 1953 : 88].

In eastern Panjab, as already pointed out, the post Harappa phase is represented by the Painted Grey Ware people as evidenced at Rupar (Fig. 4) and Salaura [I.A.R. 1954-55 : 9-10].

GUJARAT

Recent excavations at Lothal, Rangpur and Prabhas Patan have provided a workable sequence for the chronology of Gujarat. Besides these three sites, a number of other sites have also been excavated in the region. The sequence revealed therein is also referred to below.

The earliest Harappan site in Gujarat is Lothal. Excavations extended over seven seasons of work have revealed two phases labelled as Lothal I (subdivided into four structural phases, typically Harappan in content) and Lothal II showing devolved or transmuted traits. Typical structures of the former include low mud-brick platform, baked brick buildings, oriented streets, kiln, dock yard, (?) coppersmiths oven, workmen's quarters. Burial practice includes both single and double burials with typical Harappan funerary accompaniments. The double burials, however, are related to phase III. In their content and practice they are unparalleled in

a Harappan assemblage. Whereas most of the Harappan forms with characteristic paintings are available, some new forms and fabrics peculiar to this region occur here. These comprise of convex sided bowls with flat sides and bowls with short stud handles. Black and red ware is available. Similarly in the painted designs the stag motif is new here. Other finds recovered are typically Harappan like seals, [one seal with Bahrain affinity Rao 1961 : 47] terracotta cakes, faience bangles, chert blades, spheroid and elliptical weights, thick ovoid and triangular terracotta cakes. No 'Mother Goddess' figurine has, however, been found. The painting style undergoes a change in Lothal II and simpler motifs are used ; only the upper half of the vases is covered by paintings ; stylized peacock and filled up triangles appear. Furthermore some sherds of the Prabhas Ware are also found in this Period. As regards other finds, button-less seals with linear symbols ; short parallel sided blades of jasper and agate as opposed to the normal Harappan long chert blades are met with. The houses have a shabby construction. This Period is comparable to Rangpur IIB. [I.A.R. 1954-55 : 12-13 ; 55-56 : 6 ; 56-57 : 15-16 ; 57-58 : 11-13 ; 58-59 : 13-15].

The story of Harappa culture and its devolution is best revealed out at Rangpur [I.A.R. 1953-54 : 7 ; 54-55 : 11]. Period I already referred to earlier, yielded microliths without any pottery. After a break, (represented by a deposit of silt) the Harappan occupation started. The structures exposed include mud-brick platforms for buildings (earlier reported as fortification), baked brick drains and bath-rooms, etc. Pottery comprised Indus goblet, dish-on-stand, basins, beakers, perforated jars in red ware and buff ware, short stud handled bowls (it may be noted here that the handle of this type of bowl becomes longer in the succeeding phases) and convex sided bowls in black and red ware. This ware is available at Lothal I and other sites in the Gujarat but not at Harappa. Naturalistic designs are few, loops, fronds, honey comb, horizontal lines are available in black on red slip. Triangular cakes of terracotta, chert blades, copper celts and pins, micro-beads, lenticular beads, and cubical weights of agate are also met with. However, the Harappan seals are conspicuous by their absence. Besides, no elaborate town-planning is available. Rangpur IIB is a late Harappa phase. Here the repetition of designs is available on pottery. The lines are not carefully drawn. The structures are not provided with bath-rooms and drains. One mud structure is also available. All Harappan types in ceramics continue except the goblet and beaker. This phase is comparable to Lothal II, Mehgam, Prabhas I and Rojdi I. In Rangpur IIC the typical Harappan forms like goblets, beakers, perforated jars reminiscent of Lothal I disappear while other types continue. This may be regarded as a

transition period. In the paintings more stylized animals are seen. Lustrous Red Ware also appears here. In Rangpur III Lustrous Red Ware is also found in profusion and Harappa types in pottery completely disappear. High necked jars of thick fabric are available and deer, peacock and hatched diamonds form the design elements. The terracotta bull figurines, have a raised neck. On the basis of the evidence of Lustrous Red Ware found also at Navdatoli, the closing horizon of Rangpur can be datable to *circa* 1100 B.C. or so.

Period IIC and III of Rangpur have provided a link with Navdatoli, Ahar and Prabhas Patan. Dish with beaded or clubbed rim of Rangpur IIC and III is available at Prabhas IIA, Ahar IA and Navdatoli IIIa and IIIb. The corrugated dish-on-stand again links Rangpur III with Prabhas IIC and Ahar IA. The long necked jars of Rangpur III are comparable to Navdatoli IIIA, IIIB, Prabhas IIC and Ahar Ia. The basins with straight sides and beaded rim of Rangpur II and IIC correlate with Navdatoli IIIB, Prabhas IB, Amra I, Lakha Bawal I. The black-and-red ware is comparable to Lothal I, Navdatoli IIIA, Ahar I and Nagda I. [M.S.I.A. 1956-57 Appendix] (Fig. 2).

Broadly speaking, the earlier phases of Rangpur and Lothal are Harappan but the upper levels show distinct traits linking them with the succeeding chalcolithic culture of western and central India.

Prabhas Patan or Somnath in Gujarat gives a good picture and provides a link between the late Harappa sites of this region and the sequence of five phases is revealed here. [Subbarao 1958 : 134]. In Phase IA a corrugated or broadly incised ware having resemblance with Rangpur IIB occurs. In Phase II, two ceramic traditions make their appearance, one of which is Harappan as shown by dish-on-stand, sauce-pan-handle and the other is Prabhas ware having round bowls with levelled rims painted with panelled patterns in brown, black or violet pigment. With this phase is comparable the last phase of Lakha Bawal. The Lustrous Red Ware also is present in Phase IIA and is comparable to Amra and phases IIC and III of Rangpur. In Phase IIB cruder and plainer Lustrous Red Ware occurs. Phase IIIA has black-and-red ware and IIIB has black-and-red ware with Northern Black Polished Ware. Phase IV has coarse gritty ware followed by Phase V, having Red Polished Ware. It is worthwhile to note here that at Prabhas the black-and-red ware is succeeded by Northern Black Polished Ware. [Subbarao 1959 : 134].

The southernmost Harappa settlement known so far explored is at Bhagatrav at the mouth of river Kim and Mehgam on Narmada. At Bhagatrav, in Period IA Harappan ceramics comparable to Lothal A and Rangpur IIA is available. In period IB dish with short

projected rim, small jars with slightly elongated rim are found [I.A.R. 1957-58 : 15 fig. 5, 6 & 7]. (Table II).

RAJASTHAN

Recent exploration followed by excavations have clearly shown four main cultures in the protohistoric period viz., pre-Harappan, Harappan, Post Harappan, Chalcolithic and the Painted Grey Ware. Sankalia has rightly remarked, "Rajasthan being a half way house from north to south seems to be a junction of several chalcolithic cultures and *future discoveries* are sure to unravel the relationship and routes of these and other new cultures" [Sankalia 1962 : 82]. So far as the stratigraphical position of these cultures is concerned it can be said that to the west of the Aravalis pre-Harappan, Harappan, Painted Grey Ware and Rangmahal cultures flourished in succession with appreciable gaps after the Harappans. The relative position of the cultures to the south east of Aravalis, particularly in the Banas Valley, is however, not very clear.

In the Bikaner region, a large number of sites of the Harappa culture have been found extending right from Indo-Pakistan border to midway between Hanumangarh and Suratgarh along the ancient dried up beds of the river Sarasvati. As many as twentyfive sites have so far been identified [Ghosh 1952 : 37f].

Recent excavations at Kalibangan (District Ganganagar) by Lal and Thapar have yielded stratigraphical sequences of pre-Harappan and Harappa cultures which in the present stage of our knowledge is of far-reaching importance, especially for the proto-historic cultures of the sub-continent. The pre-Harappan horizon is marked by 'an unslipped dull red ware painted in black, with a variety of designs comprising series of bands often subjoined by loops and sometimes with fronds, segments or triangle'. Roughly similar pottery is also available in the pre-defence phase at Harappa and proto Harappa phase at Kotdiji. [Piggot 1961 : 248]. This evidence poses the following problems. Are the earliest inhabitants of Kalibangan the same as those of the early Kotdijians or pre-defence phase people of Harappa? Or is the pre-Harappan phase at Kalibangan an early or formative stage in the evolution of Indus Culture itself? Or does this represent only an indigenous culture existing before the arrival of the Harappans in Rajasthan. At the present stage, it would be presumptuous to offer any convincing solution to any of these problems. This must await detailed analysis of the material from the Sind-Baluch sites as also further confirmatory evidence from Kalibangan or other sites in this region.

This antecedant culture continues along with the Harappan at Kalibangan. Its profuse occurrence in the lower levels and slow fading away in the upper levels is, however, significant. (Pl. IIa).

The Harappa culture here shows all the characteristic features namely twin-mounds, the more westerly representing the citadel, city area on the east overlooking the lay out of the streets, covered baked brick drains and soakage jars. Sun-baked bricks have been used mostly for the houses, the use of the baked bricks have also very limited and being confined to drains and wells. Terracotta cakes and nodules were employed for the street metalling and house floors. Use of 'wooden rafters' for the roofs is also in evidence. Typical Harappan pottery; seals and sealings (Pl. IIb); sherds with pictographic graffiti, some bearing the conclusive evidence according to Lal of writing from right to left [Lal 1961 : 64]; copper implements; faience beads and bangles; terracotta human and animal figurines; bangles and toy cart frames; chert weights and blades and terracotta cakes; triangular, ovoid, circular and disc shaped. No 'Mother Goddess' of the Harappa type has so far been found. Harappa culture at Kalibangan seems in the main to be contemporary with Lothal; its lower levels may, however, run parallel with Harappa with its twin-mound feature and a preceding culture. "Harappa and Mohenjo daro with their citadel mounds represent two provincial capitals of a big empire and it is not unlikely that Kalibangan was a third one, commanding ancient Sarasvati Valley". [I.A.R. 1959-60 : 31-32].

The earlier excavations of Ghosh at Tarkhanwala Dera [TKWD] (Harappan site) and Chak 86 (Painted Grey ware site) have further added to the chronology of Rajasthan. The Harappan occupation at Tarkhanwala Dera started right on the natural soil, but at Chak 86 two clay deposits intervened between the natural soil and the Painted Grey Ware levels indicating that the latter appeared on the site much later than the Harappans, the time gap being represented by the two clay deposits. [Ghosh 1952 : 37f].

According to Ghosh trial excavation at Sothi indicated that the Harappa culture was followed by Sothi Culture. Since the excavations were essentially exploratory and confined to a limited area and the site being mostly a single culture one, the relative position of this culture is not very clear. Sankalia's assumption that Sothi ware is a "perhaps degraded 'varient' of Malwa ware" [Sankalia 1962 : 82] does not hold good in as much as some of the forms and painted designs now show antecedent features.

The excavations at Rer revealed that the Painted Grey Ware culture was followed by the Rangmahal culture of the historical Period. Thus, a chronological succession is established by these sites.

The excavations at Ahar by Agarwal revealed a 20' thick deposit of chalcolithic culture characterized by the use of black-and-red ware with white paintings. In the lowest phase, the fabric is

coarse though the vases are polished externally. In the middle phase the vases are polished both externally and internally. A large number of them are painted usually in white, (but sometimes black) pigment with patterns showing parallel lines and dots. In the final phase the ware is further devolved and a black-on-red painted ware is introduced. Such forms as the dish-on-stand, corrugated stem, long necked jars are comparable to Nagda I, Navdatoli IIIa, Bahal, Rangpur IIA, IIB [Fig. 2]. On the basis of the availability of black-and-red ware of Ahar type at Navdatoli in Period IIIa, the ware can be dated to *circa* 1500 B.C. The other associated ceramic industry is a brown ware, painted with black designs executed on whitish and yellowish surface. A coarse grey ware has also been found. A comparative study of the designs of black-and-red ware with Painted Grey Ware can be envisaged [Thapar in *M.S.I.A.* 1955-57 : 11]. Plain red ware with incised designs on the shoulder has also been found. This is also available at Gilund. The other finds are microliths, fluted cores, houses of mud and stone ships. The last occupation of the site related to the early historical or the Kushan period represented by a plain red ware of known shapes like lids, miniature jars, votive lamps etc. [*I.A.R.* 1954-55 : 15].

The recent excavations carried out under Sankalia at Ahar have further added to our knowledge and have shown three phases of chalcolithic culture followed by a historical one. Period I is divisible as IA, IB, and IC 'on the basis of ceramic industries'. Black-and-red, painted ware is available right from the beginning to the close of the sub-periods. The carinated bowls occur only in Phase IC. A painted black on red ware is also available. What connection it has with the Malwa ware cannot be said at present. In the present excavation the painted buff ware and the slipped ware are available in phase IA and IB. "The other early exotic wares like the fine tan orange and chocolate wares with stone like fabric consisting principally of shallow dishes (on stand?) with slightly in turned rim and deep groove below at the junction of the rim and the base is not so far known". Sankalia has pointed out that "one bowl in greyish fabric on a hollow tall base reminds one of a similar goblet at Tepe Hissar. The bottle like vessel in grey ware is reminiscent of a similar form in Hissar II". On the basis of Jorwe ware, Ahar IB can be equated with Navdatoli IIIc and Ahar IC to Navdatoli IIId on the ground of Lustrous Red Ware. The early inhabitants were using pounding balls. The use of copper is indicated by a sheet of copper and celts. The present excavation has not yielded any microliths. This culture is available upto 4th century B.C. when iron arrowheads appear along with the Northern Black Polished Ware [Sankalia 1962 (a) : 1-16]. (Table III).

The excavations at Gilund (District Udaipur) brought to light a chalcolithic culture having black and red painted pottery which is found almost throughout the occupation and is comparable to Navdatoli lowest levels. A cream slipped ware with dancing figures painted on it found in the uppermost levels of Gilund is comparable to Navdatoli lower levels. Dish-on-stand, high necked jars, basins, cut spouts in red ware, lipped basin and vases with strap handle in the brunished grey ware have been found. Black-on-red occurs in the upper levels and the polychrome ware in the lower levels. Incised designs are also found. Four structural periods ascribable to this phase have been identified. A baked brick wall over stone rubbles, found here with its return entrances and ramps may suggest a kiln? Mud bricks measure 14" x 6" x 5". It is interesting to note that outside the Harappa culture this size is available at Gilund only at present.

On the analogy of Navdatoli the Chalcolithic levels here are dated to *circa* 1500 B.C. or little earlier. This was followed by a period in which bowls and dishes in grey ware and pottery ascribable to Sunga Period is found. A sherd of the Painted Grey Ware found from the surface claims added attention [I.A.R. 1959-60 : 48f]. It may be mentioned here that Chosla and Gondi lying at a distance of about 150 miles north east of Gilund have also yielded the Painted Grey Ware.

GANGETIC PLAIN

For obtaining a picture of the cultural sequence in the Gangetic Plain the excavations at Alamgirpur, the copper hoards sites, Hastinapur and Kausambi, are noteworthy.

The recent excavations at Alamgirpur (District Meerut) have shown that the Harappan culture extended up to this region [I.A.R. 1958-59 : 53-54] (Fig. 4). Of course, it is clearly a late stage of the Harappa culture. Here in Period I, the pottery included dish-on-stand, goblet with pointed base, beaker, goblet with a concave neck and elongated base, and shallow basins. These shapes are comparable to Harappa, Rangpur IIa, Lothal and Rupar I. Designs are executed in black pigment over a red slipped surface. Simple bands, intersecting circles, plant and peacock are available in design reportare. Blocked and hatched designs are also available. The graffiti marks have affinity with Lothal II seals. Kiln-burnt bricks are in evidence; large platters and troughs with open base have also been found as also beads of steatite and semi-precious stones. Terracotta cakes are met with in large numbers. Noteworthy are the textile impression on a potsherd and a terracotta bull. No evidence of seals, chert blades and systematic town-plan-

ning has been forthcoming. This period is followed by Painted Grey Ware folks after a break indicated by a weathered strata.

At this stage it will not be out of place to mention that in Period I of Kausambi mud packed rampart, revetted externally with burnt bricks, bastions and towers, corbelled underground passage reminiscent of Harappan architecture, have been found. In pottery a few types like a suspected goblet, dish-on-stand (?), beaker (?) and basin are according to Sharma comparable to Navdatoli IIIB, C, D, Rangpur IIB, C, III, Nevasa III and Amra II. Besides these possible equations in ceramics and architecture, the late phase of the Painted Grey Ware is also available. The defences had been built in two structural phases earlier than the appearance of the Painted Grey Ware. This is an interesting phase in Indo-Gangetic region and needs further investigation for a definite evidence [Sharma 1960 : 6-7 ; 60-63, Fig. 9-10].

A large number of copper hoards, consisting of celts, bar celts, shouldered celts, rings, hatched type, double edge harpoons, anthropomorphic figures, antennae swords and spear heads (Fig. 3) have been found in the Gangetic region [Lal 1951 : 20-39].

Copper axe also occurs at Mohenjo daro, socketed axe at Shahi Tump, trunnion celt at Shalozan and fan hilted sword from Fort Munro. On the analogy of Western Asia, Heine Geldern built the theory that these might be associated with the Aryans and their migration [Heine Geldern 1936 : 87-115]. While Piggot agreed earlier with Geldern but later declared their association with the vestiges of the Harappan refugees [Piggot 1944 : 173-82]. Recently Lal made a systematic study of these tools and showed that these have no affinity with western Asian complex. The simple character of flat celts can be no criterion for correlations. Shouldered celts are available mostly in U.P., Bihar and Bengal. These have an Eastern Affinity. Lal has observed that bar celts may have developed from stone bar celts as found at Bana Asuria. Piggot's assertion that these might have developed from long celts of Chanhu daro and Nal does not seem probable. Harpoons found in copper hoards cannot be associated with the Magdalanian because the Indian examples are far removed in time and space. Barbed arrow-heads and harpoons are functionally different. Lal has pointed out that on the basis of Ghomargur and Lakunia, District Mirzapur, cave-paintings, where harpoon headed poles are shown in hunting scenes, the origin of harpoon is indicated in the Gangetic Plain. Rings are confined to the Gangetic Plain. It may be noted here that the copper antennae sword found at Kallur has been shown affinity with bronze sword from Koban culture in Caucasia. The Indian sword has the hilt and the blade in one cast while the Koban sword has hilt and blade in two portions and jointed. It is made of

bronze while the Indian example is of copper and thus has an Indian origin.

Who were these people who used copper hoards ? To find a clue, Lal excavated at Rajpur Parsu and Bisauli, the two copper-hoard sites. No copper implement was found, but significantly, a few sherds of the ochre coloured pottery were duly recovered from the excavations. Again at Bahadarabad from where a large number of copper implements were found during a canal digging, stratified excavation yielded ochre coloured pottery, but no copper implements. The few types recognized in pottery included i.e., squattish dish-on-stand, pedestalled cups and wide basins. At Hastinapur this pottery was found underlying the deposits of the Painted Grey Ware. The sherds are very few in number and were again without any association of copper.

The aforesaid study leads to the following conclusion :—

- 1) The copper hoard people were occupying the Gangetic Plain ;
- 2) The evidence of Hastinapur suggests that they preceded the Aryans, assumes that the Painted Grey Ware is associated with Aryans ; and
- 3) The dish-on-stand may suggest a mutual contact with the late Harappa culture ?

It may be mentioned here that the recent explorations at Manpur and Bhatpura (District Bulundshahr, Uttar Pradesh) have provided noteworthy evidence of the ochre coloured pottery and its affinity with the late Harappa. The case is, therefore, getting more strength [Sharma 1961 : 54].

The excavations at Hastinapur [Lal 1954-55, 10f], as already pointed out that in its earliest Phase i.e., Period I, yielded ochre coloured pottery. After a lapse of time the Painted Grey Ware people settled on the site. (Fig. 4).

The abandonment of site is visible due to floods after Period II and Northern Black Polished Ware and associated ware culture appears in Period III. Punchmarked coins and uninscribed cast coins are available at this level. Period IV has Mathura, Yaudheya and Kushana coins, stamped pottery and pottery similar to Rangmahal culture. Period V has yielded coins of Balban and Muslim glazed ware.

The most important contribution of Hastinapur is the discovery of the Painted Grey Ware which needs elaborate treatment here. This Ware is prepared from a well lavigated clay, is thin in section and shows a well-burnt surface. The types represented are mainly straight sided bowls and dishes with incurved sides and saggar or convex bases. These shapes are available throughout a deposit of 7 ft. On the grey surface are painted linear and dotted

patterns before firing. On the outer surface group of oblique strokes below the rim-band are of the commonest designs. Intersecting lines, rows of dots and dashes, groups of wavy lines, *swastika* symbols, concentric semi-circles, sigmas, concentric semi-circles with radiating rows of two lines each and hooks emerging from a semi-circle or from a vertical line form the design scheme. On the inner surface of the dishes appear spirals, group of circles, intersecting chains, scalloped concentric circles, etc. A brownish red-ware is also associated with the Painted Grey Ware. The designs are executed in chocolate or on deep black. Walls of mud and mud bricks, fragmentary burnt bricks are also available in these levels. Other finds include copper arrowhead, nail parer, antimony rod, glass bangles, terracotta animal figurines, feeding cups, bone styli. Charred grains of rice and bones of horse and pig provide the paleobotanical and osteological evidence. Two iron slags are available in the uppermost levels of this Period.

Excavations and explorations in the Gangetic Valley, Panjab and Rajasthan, have brought to light Painted Grey Ware of Hastinapur II (Pl. III) type and this has helped a lot in establishing a chronological sequence. The excavations at Alamgirpur provided a fine stratigraphical chronology and confirmed that Painted Grey Ware is posterior to the Harappa culture. A similar sequence is also available at excavations at Kotla Nihang and Rupar in Panjab and Chak 86 in Rajasthan. At Alamgirpur, Painted Grey Ware (Period II) is available along with the plain grey ware and the black slipped ware. The percentage of Painted Grey Ware is, no doubt, low which may perhaps indicate a late phase. The designs and shapes in the Painted Grey Ware are wholly similar to Hastinapur. The black-and-red ware bowls with deep convex edge are also available here though not found at Hastinapur II. In Hastinapur II only two iron slags are available in the upper levels but at Alamgirpur very well formed iron objects are associated with the Painted Grey Ware, pointing a full knowledge of this wonder metal during that period. Iron is not reported from the Painted Grey Ware levels at Rupar. The evidence of iron is scanty at Hastinapur. It is possible, therefore, that iron comes in full use in the late phase of Painted Grey Ware. Iron is also not associated with the Painted Grey Ware sites in Rajasthan. If there was any movement of the Painted Grey Ware people from west to east such a distribution of iron may turn out to be significant. It will be of interest to record here that in Nagda II, Eran II, and Ujjain I iron appears for the first time. Thus the antiquity of iron is pushed back to at least 800-750 B.C. The lowest levels of Ahichchhatra have also yielded Painted Grey Ware. At Kausambi, Painted Grey Ware seems to have reached slightly late and as already pointed out by Sharma,

it is available after the second structural phase of the defences [Sharma 1960 : 58-59, 70-71]. Designs on the sherds found are comparable to Hastinapur, Rupar and Alamgirpur. Black-and-red ware is also found here. Painted designs in this Ware consist of dots, circles of dots, horizontal incisions, groups filled white-colour horizontal lines etc. A stylized human figure in one piece is available. Some types of Painted Grey Ware continue to occur in the earliest phase of the Northern Black Polished Ware and there is an overlap. The excavations at Sravasti also yield this sequence. In view of these, it seems that Painted Grey Ware though it had an early beginning at Hastinapur, i.e., 1100 B.C. continued up to the wake of the historical period, as suggested by Kausambi and Sravasti excavations. In all the sites of the Panjab and Upper Ganga Basin Painted Grey Ware is followed by Northern Black Polished Ware which ushers the historical period. From our point of view, this is an important factor in the chronology.

The aforesaid evidence has suggested that in the Gangetic Plain (as also at Rajasthan and Panjab) Painted Grey Ware is later than the late Harappa culture and ochre coloured pottery. It is available in almost all the sites mentioned in the *Mahabharata* and in the Ghaggar and Sarasvati Valleys on the banks of which Aryans lived. The reference to floods in *Mahabharata* tallies with the stratigraphical evidence at Hastinapur. On these grounds, Lal has surmised that it would be quite possible to associate Painted Grey Ware with the Aryans. Lal has further suggested that Painted Grey Ware and plain grey ware is available in Greece to Seistan via Iran and is broadly assignable to second millennium B.C. Within this range also falls the Boghazkoy inscription mentioning the Aryan Gods (1360 B.C.). This may indicate an Aryan speaking movement. On the basis of the literary and archaeological evidence Lal postulated the problem of ascribing Painted Grey Ware to Aryans [Lal 1954-55 : 147-150].

In the Gangetic plain Painted Grey Ware is followed by the Northern Black Polished Ware and we reach the dawn of the historical times. (Table III).

EASTERN INDIA

The non-geometric microliths, a survival of the Mesolithic complex found in the Chhota Nagpur area introduce us to the proto-historic culture in East India.

The recent trial excavation at Kuchai, District Mayurbhanj [Thapar 1961 : 7], Orissa has revealed a non geometric microlithic horizon similar to Birbhanpur [Lal 1958 : 4-48], followed by a neolithic culture. For the first time neoliths along with a coarse gritty red ware have been found in the excavations. Stratigraphically

speaking, the results of these excavations are significant.

A large number of polished stone axes have been collected in eastern India. Recently, Dani (1960), Lal (1953), Krishnaswami (1958) and Allchin (1962) made a systematic study of these tools. According to Lal these stone axes are different from those found in the southern areas. The eastern axes are characterized by a trepezoidal or rectangular section while the southern stone axes have a lenticular or oval sections. The technique of flaking in both is different. Eastern stone axes have the characteristic shouldered type which is absent in Southern polished stone axe complex. (Pl. IV).

From Assam hills, five varieties of hoes have been found, i.e., curvilinear, bifacially ground median edge, unifacially ground edge type, faceted hoe with side notches, shouldered hoe or spade shaped celt having prolonged butt in to tenon. These shouldered hoes are available in India, Burma, Indo-China and South-east Asia. A rare type of splayed axe, a long thin axe, oval to lenticular in section with rounded butt has been found in Garo hills. A grooved hammer stone from Tejpur is worth mentioning. Chisels from Singbhum, and Jaugadh, shouldered celts from Dul Barh, Bongra and Manbhum Mayurbhanj, Central India up to the mouth of Godavari are available. Hammer stones and dabbers are available from Manbhum. Wedges chisels, perforated tools, shouldered hoes and Burmese shouldered celts are available from Chhota Nagpur [Krishnaswami 1958 : 18-19]. Besides, bar celts are available from Ban Asuria, Jashpur, Thakurani, Daspalla, Sitabhanji and the Santal Pargana, in Bihar. These are analogous to Malayan type. Lal has found in half a dozen of these sites a coarse brown ware which he thinks might be associated with the stone axes. The association of this ware has been stratigraphically confirmed by recent excavation at Kuchai mentioned above. The Tamluk excavations have revealed a 'scanty assortment of neolithic celts and an ill fired pottery' [Wheeler 1959 : 135].

Lal has pointed out that stone axe cultures were followed by copperhoards with a considerable overlap in between the two. Certain celt types both in stone and metal are available e.g., bar celts and shouldered celts. The copper hoard sites are Mami, Bargunda, Tamajuri, Bhagrapir and Dunria [Lal 1953 : 91-98].

No connected sequence from the neolithic to the appearance of the Black-and-Red ware has so far been available. The recent discovery of black-and-red ware and microliths at Rajar Dipi, District Burdwan, West Bengal may offer an interesting clue [I.A.R. 1959-60 : p. 67]. Black-and-Red ware is found prior to the Northern Black Polished Ware at Jaugada, Sonapur and Sisupalgarh. The fixed point in the chronology of eastern India is still (up to to-

day) is the appearance of the Northern Black Polished Ware at Rajgir, Vaisali, Sisupalgarh [Lal 1949 : 62f] and Tamluk. [Table III].

MALWA AND MAHARASHTRA

The recent excavations at Nagda, Maheshwar, Navdatoli, Tripuri, Eran, Kaundinyapur, Prakash, Bahal, Daimabad, Nasik, Jorwe and Nevasa have shown that during the protohistoric period the chalcolithic folks settled on the black cotton soil and the people were using the black-and-red ware which at a later period showed contacts with Northern Black Polished Ware. Broadly speaking, the chalcolithic cultures of Central India and Maharashtra evolve out of four influences. [Thapar 1957 : 21 ; Mittre 1962 : 29-30].

1) The crested ridge technique of its microliths and a few painted motifs on the pottery and dish-on-stand forms and same species of wheat indicating Harappan influences. (Fig. 5).

2) The black-and-red painted pottery linking it with Ahar culture of Rajasthan.

3) The Iranian contacts indicated by some pottery forms available at Navdatoli.

4) When the chalcolithic culture impinged on the neolithic cultures of Deccan and South, the neolithic burnished grey ware and polished stone axes also came into it.

The black-and-red pottery of the succeeding phases connects the chalcolithic cultures in some form with the megalithic cultures of South India and Painted Grey Ware of the Gangetic plain. Of course, the matter has to be investigated further.

The excavations at Maheshwar and Navdatoli have given a complete sequence which at present guides the chronology of the Malwa region [Sankalia etc. 1958 ; Subbarao 1958 : 151-52 ; *I.A.R.* 1958-59 : 2 ; *I.A.R.* 1959-60 : 32-33]. At Navdatoli, the chalcolithic culture Period III starts on the black cotton soil and has four phases showing important links with Gujarat, Gangetic plain and the Deccan. [Table II and IV].

In Phase A the Chalcolithic people lived in round and square huts as suggested by postholes, and ate wheat, pulses and grams. A microlithic industry having crested ridge technique is found here. In this phase there has been three main ceramic traditions (a) white slipped ware represented by a shallow dish with broad flat rim and stand and a high concave sided bowls carinated at the waist, resembling those found at Sialk in Iran (Pl. V). A band of running antelopes and groups of dancing human figures are found. (b) Malwa ware — a pale red slipped ware — painted in black on the red slipped surface. The dancing human figures also occur at

Nagda I and Togau. (c) The black and red painted ware of the Ahar fabric represented by bowls. This related it to sites like Gilund and Nagda where this ware has also been found. A copper celt having a crescentic edge and shoulder shows affinity with the Gangetic plain culture of copper hoard using people. In Phase B black-and-red ware disappears, Malwa ware, black-on-red with a thick red slip is found. The concave bowls and basins connect it with the Deccan.

In Phase C appearance of the coarse well-fired ware of the Jorwe type along with a variety of Malwa red ware is available. In Phase D Lustrous Red Ware comparable to Raugpur II C and III and Jorwe type spouted vessels and carinated bowls occur. The carbon-dating for the lowest levels of Navdatoli is 1457+127 B.C. and for the upper levels is 1294 + 125 B.C. At Maheshwar the chalcolithic culture is followed by the black-and-red ware and the Northern Black Polished Ware. Thus, Maheshwar and Navdatoli provide a chronometric basis for the protohistoric sequence in western and central India and other associated sites.

It will be worthwhile to mention here that most of the Navdatoli designs and types in Malwa Ware and black and red ware microliths and copper occur at Nagda I also. Microliths having crested ridge technique are also met with here. A few intrusive (?) shreds of the fine fabric with cream or light brown slip having thick bands are unique at Nagda I [*I.A.R.* 1955-56 : 14]. Nagda has yielded good evidence of the use of sun-burnt bricks in structures. None of the chalcolithic sites of Malwa and Maharashtra has revealed this aspect of the architecture. [Banerjee 1957 : 10]. However, sun-baked bricks are available at Gilund (District Udaipur, Rajasthan) [*I.A.R.* 1959-60 : 41-46]. The recent excavations at Manoti (District Mandasor) in Period I have also yielded black-on-red ware with painting on the inner surface comparable to Nagda and Ahar, a red ware with paintings in black, a spouted bowl of Maheshwar type, and a few other shapes are comparable to late Lothal phase? At Nagda, Period II has black-and-red ware and iron [*I.A.R.* 1955-56 : 14]. This is followed by Northern Black Polished Ware and associated types in Period III. Here it may be noted that in Ujjain Period I, we get black-and-red ware with a double slipped ware represented by convex sided dishes and cordoned bowls, and iron objects recalling affinities with Painted Grey and Associated Wares found at Kausambi [Fig. 6]. A sherd of the Painted Grey Ware, of degenerate variety, has been also found from the core of the mud rampart built by black-and-red ware using people [*I.A.R.* 1957-58 : 37-38]. This may suggest a link with the Gangetic plain between 750 B.C. and 500 B.C. The excavations at Tripuri (District Saugar) also showed the evidence of chalcolithic culture in

its earliest phase followed by the culture of the historic period [Dikshit 1955 : 18-19]. Recently excavated site at Eran, District Saugar, Madhya Pradesh [I.A.R. 1960-61 : 17] has also confirmed a chalcolithic horizon in Period I which has microliths, black-and-red, thick grey ware, black-on-red ware comparable to Nagda and Maheshwar ; thin grey ware, coarse grey ware with white paintings, grey ware painted in light red pigment with linear designs, terracotta animal figures, beads and small pieces of copper. Like Nagda black-on-red continues here till the dawn of iron in Period II. Again at Kaundanpur (District Amaravati) Maharashtra a chalcolithic culture is anticipated by the occurrence of some painted sherds. Tripuri, Eran and Kaundanpur mark presently the eastern boundary of the chalcolithic cultures. (Table III).

In Maharashtra, the excavation at Prakash [I.A.R. 1954-55 : 13], situated at the confluence of Tapti and Gomai rivers revealed the following sequence. In Period I, the chalcolithic culture is represented by black-on-red painted pottery, showing diamonds, crisscross wavy lines, ladder pattern and animal motifs. High necked jars, dishes with clubbed rim and rising sun designs, are comparable to Navdatoli. There are sherds of thin burnished grey ware having white designs. Thicker grey ware comparable to Brahmagiri IA, Daimabad I and Bahal IA are also met with. The fine ware which is grey outside and black inside, sometimes painted with white designs is unique. Vessels with short clubbed rim connect it with Nasik-Jorwe. Again incised ware is comparable to Navdatoli. In addition a few sherds of the Lustrous Red Ware and one sherd of the Ahar fabric were also found. This chalcolithic phase is followed, of course, after a break, by black-and-red ware and iron (14 ft. deposit). In the last stage of this phase, Northern Black Polished Ware is available. Once again, like Nagda and Ujjain black-and-red ware precedes Northern Black Polished Ware and gives a link in the chronology of Maharashtra.

The sequence at Bahal and Tekwada further makes the picture clear [I.A.R. 1956-57 : 17-18]. Bahal has five phases of occupation : Period I (further subdivided as IA & IB) is chalcolithic ; with period II, black-and-red ware and iron using folks come in ; Period III shows black-and-red ware with Northern Black Polished Ware. After a break the site is again occupied in Period IV followed by Period V, which do not fall within the scope of this paper. In Period IA, jars of thick grey ware sometimes with ochre painted lids, handmade jars with incised and oblique designs, criss cross lines, designs of dots and chain are available. Microlithic blades are also available. This phase is comparable to Brahmagiri IA. In Period IB, wheel-made pottery, painted with a variety of designs is seen. Some sherds of the Lustrous Red Ware may show affinity

with Rangpur IIC and III. In the upper levels of this phase, carinated bowls and spouted vessels of Nasik-Jorwe type appear. Burnished grey and black ware having oblique paintings in white may remind one of Navdatoli and Prakash. Parallel-sided blades of agate and jasper are also available. To this phase are also related some burials. The accompanying pottery of the burials is very interesting. A red slipped ware painted in black with curvilinear design forming a shell pattern and on the other occurs along with deep bowls of apparent megalithic type in black-and-red ware. After a break, this phase is followed by Period II where black-and-red ware and iron come into full use.

The sequence of Chalcolithic culture has also been confirmed at Daimabad, a site situated on the left bank of the river Girna [I.A.R. 15-17]. Here in Phase A, the Chalcolithic folks settled on black cotton soil and used thick grey ware similar to Brahmagiri IA, large globular urns with flared rims, basins with slightly out turned rim, lids painted with red ochre. The pottery is wheel-made; troughs have applied decorations. The jar having panelled jungle scene and a dish-on-stand, though found on surface, are also ascribable to this period according to Deshpande. Malwa ware is also found here. Besides, microliths of chalcedony and agate and pointed butt axes along with extended burial are available in this Phase. In Phase B, Malwa ware continues but Daimabad ware is also there. Subspherical bowls, tubular spouts, short necked *handis* are there. Paintings include geometric patterns and designs of dogs and goats. Beads of semi-precious stones, faience, microliths, fluted cores and copper pin and knife are worth the mention. In Phase C Jorwe ware occurs having the characteristic concave sided bowls and funnel shaped high necked jars. Microliths, beads and querns form the other cultural equipment. While Daimabad I shares the features of stone axe culture of Brahmagiri IA and Sangankallu IIB. Bahal IA, it has Malwa ware at the earliest phase, thus indicating the influences from central India. Like Navdatoli Prakash and Bahal in its closing chapter Nasik-Jorwe ware appears bringing the end of the chalcolithic culture at *circa* 1100 B.C.

At Nasik the earliest phase is characterized by lunates, trapezes and parallel-sided blades along with ochre washed and orange coloured pottery both wheel-made and hand-made. Occasionally painted with red or black. Spouted vessels are also available. These occur at Navdatoli, Bahal, Daimabad. Large round bottomed vessels are also met with. After a weathered horizon the place was inhabited by black-and-red, Northern Black Polished Ware and iron using people. For the present study these two earlier horizons are pertinent. At Jorwe which is a single period chalcolithic site,

wheel-made and hand-made specimens of carinated bowls and spouted vessels, very typical of this site, already discussed earlier, are available [Sankalia 1955]. The six flat axes found here may represent 'a hang over from Indus or sub-Indus culture of the north west coast' [Wheeler 1959 : 147].

Another single culture site of the chalcolithic period is Chandoli (District Poona) [I.A.R. 1960-61 : 26-27]. Here the Jorwe ware, plain grey ware, Malwa ware, cream slipped ware and black-and-red ware have been found. According to Sankalia the last two are non-available at Nevasa which is a significant thing. Chandoli has yielded besides other copper objects, a dagger having leaf shaped, mid ribbed blade long antennae and tang which is first of its type in India. Chisels and celt are also worth mention. Huge querns and anvils along with balls are available. It may be mentioned here that in all chalcolithic sites only saddle querns are available. Find of polished celt of dolerite confirms similar phase at the Deccan and southern chalcolithic sites. A terracotta bottle in the form of a bull with applied hump, tail and legs is remarkable and is comparable to theriomorphic vessels available from Hissar and Sialk. Like Nevasa here also urn burials (twenty-four in number) have been found. Here the "skeletons which are mostly outside the jars bore burn marks on the face and skull — a feature not observed at Nevasa".

The sequence at Nevasa has five phases beginning with the stone age [Sankalia etc. 1960]. Phase III which is chalcolithic is characterized by pointed butt axes, chisel, adze in trap, hammer stone, slingstones, microliths of chalcedony involving created ridge technique copper and bronze beads and hooks and chisel. Large storage jars and burials urns are handmade. Bowls with concave rim and rounded base and spouted vessels with flaring rim of Jorwe type are found. Graffiti figure of a man, painted *peepal* leaves, geometric patterns, animal designs, some of which stylized are also found in the pottery. A pottery basically similar to Jorwe ware in fabric having thick orange to red slip like Malwa ware, small bowls with pronouncedly concave sides, resulting in a sharp carination at the waist "producing a shape reminiscent of Ahar black-and-red ware with white paintings", a bowl with high concave sides and carination at the base comparable to such shapes in cream ware at Navdatoli are interesting finds. Five types of burials (extended and urn) have been found [Sankalia etc. 1960 : 23-33]. Nevasa has provided a good chronology. Here also the neolithic element in tools and pottery of Brahmagiri IA on one side and presence of the Nasik Jorwe elements on the other side are noticed. The chalcolithic phase here as at Prakash is also followed by black-and-red ware and the Northern Black Polished Ware. (Table IV).

SOUTHERN INDIA

A large collection of neoliths was made from the Bellary District by Bruce Foote, Knox, Richard, Jardine and Gometz. Allchin made a systematic study of these tools and brought to light three working techniques, i.e., flaking, grinding, and pecking. The tools consist of axes, adzes chopping tools, chisels, wedges, scrapers, grinders, hammers etc. [Allchin 1957]. Krishnaswamy thinks that the Karnatak polished stone industry was locally developed as it originates from crude post palaeolithic (microlithic) flake industry absorbing dominant parallel-sided blade industry [Krishnaswamy 1958 : 14]. Worman's contention of its eastern origin is not acceptable [Worman 1949 : 181-201] and Lal has also pointed out to the basic difference between eastern and southern Neolithic complex [Lal 1953 : 101-102].

The excavations at Sangankallu revealed (Subbarao 1948 : 9-11) that Phase IIa has the characteristic feature of having polished stone axes, oval or lenticular in section pale grey hand-made pottery represented by jars of flaring rim internally carinated globular body and querns. A weakening microlithic facies is also available. This phase of Sangankallu is comparable to Piklihal Phase IA and Nagarjunakonda where neolithic burials have been found. The neolithic evidence from Nagarjunakonda suggests stone polished axes in different stages of manufacture. The typical tool of the industry is a hoe or pick chise. Along with it the associated burnished grey ware and pale brownish red ware are found [Sundararajan 1958 : 99-110]. Evidence of pit dwelling is also there [Sarkar 1961 : 49-51]. Disc circular beads of shell paste and steatite have been noticed. One important factor in the neolithic complex of Nagarjunakonda recently brought out by Sarkar, is the association of quartzite flakes with the neolithic deposits, besides microliths. This tradition seems to be a continuity of an early facies and a necessary appendage of the neolithic culture of Nagarjunakonda [Sarkar 1962 : 227]. The excavations at cinder mounds at Utnoor have given a date of 4120 yrs. B.P. \pm 150 which Allchin feels is the date for early occupation and according to him occupation ends there by *Circa* 1280 B.C. Allchin's A1 and A2 wares are available here along with their painted and incised variants. A3 ware occurs in great frequency here while it is limited to lower Neolithic (IA) levels at Piklihal. The pottery in question is very well comparable to Brahmagiri, Piklihal, Sangankallu IIa. A few cream slipped painted sherds may show "contact with northerly assemblages". Used flake of basalt, beads, stone rubbers and querns are also available from the excavation [Allchin 1961 : 27-28, 47-49].

The excavation at Piklihal has yielded valuable evidence. The

lower neolithic phase (IA) here is comparable to Sangankallu IIa, Brahmagiri Stone Axe Culture Ia, Nagarjunakonda on the ground of ceramics and other associated finds. Terracotta bull figurine and "legged stand of A3" are quite characteristic of this phase besides ground axes and a blade industry. In the upper neolithic phase (IB) A3 ware disappears and "A4 and A5 wares have a increased frequency besides the availability of copper. This phase, according to Allchin, is comparable to Bahal IA, Jorwe, Prakash I. The find of painted sherd of A B ware leads Allchin to associate it with the chalcolithic folks at the end of upper neolithic (IB) at Piklihal [Allchin 1960 : 32-62, 123-132, xvi].

The recent excavations at T. Narsipur (Mysore) brought to light a Neolithic phase associated with stone celts and burnished grey ware having ochre paintings. In this a footed type is worth the mention. Besides, incised ware has been also found. This phase has been followed by a chalcolithic culture in which a sherd of the Jorwe ware in a debased fabric has been reported. Finally the Megalithic Black and Red Ware comes at the site [I.A.R. 1959-60].

The excavations at Brahmagiri brought to light a Neolithic chalcolithic complex in Period I (IA and IB) followed by megalithic culture [Wheeler 1948 : 232f]. Sangankallu Phase IIB is comparable to Brahmagiri stone axe culture. At Brahmagiri, stone axe culture IA and IB is separated by a sterile layer. The Brahmagiri stone axe culture is throughout characterized by polished pointed butt axes of trap associated with microliths of semi-precious material. The earlier examples have a dominantly lenticular section. They lived in huts, of which postholes have been found. The pottery is invariably hand-made, besides coarse grey ware, incised pottery and painted pottery is also available. Painted sherds have curved lines and conventionalized plant patterns. Extended and urn burials have been found. The burial urns of IB are coarse, mottled, hand-made. The typical type is the jar of globular body, flared rim and rounded base. Similar pots have been found from Bahal, Daimabad, Piklihal, Nevasa and Maski. Lipped spouts in dull grey ware, funnel spouts in black ware have been found. A bronze and two copper rods and a ring are available from IB Period.

As referred to earlier, there is a sterile deposit between IA and IB phases of Period I. It is quite possible that in Phase IA the indigenous neolithic folks came in touch with the chalcolithic people as suggested by incised and painted pottery and after that the contact was lost and thus no incised and painted pottery is found in Phase IB.

At Sangankallu in phase IIB identical material [Subbarao 1948 : 9-11] as found at Brahmagiri is available. At both the

places the Stone Axe Culture is followed by the megalithic cultures.

At Maski the sequence is more interesting. Period I is represented by ribbon flake blades and asymmetrical flakes [Thapar 1957 : 10ff]. The pottery is generally wheel-made with few handmade examples. The burnished grey ware types in pottery include globular jars of flared rim similar to Brahmagiri, Sangankallu, Nasik and Jorwe (type 22). Troughs of everted rim in dull red ware. Linear patterns are also painted on some sherds. Dull red is also available. From the surface pointed butt axes have been collected which go with this phase. Spheroid balls of granite according to Krishnaswami may go with Navdatoli III and Brahmagiri I. Thapar has suggested that the long blades found at Maski are reminiscent of Harappan tradition. The cylinder seal found shows contact with Sumer, and the burnished grey ware and polished axes may indicate its association with Brahmagiri Stone Axe Culture and Sangankallu IIB (Fig. 5). At Maski again the chalcolithic phase is followed by the megalithic culture. In this period the burials occur in the habitation area itself and show inhumation of complete skeleton in an extended position with the use of lime on the pit floor. In these circumstances are we to conclude that it may be the continuance of the chalcolithic burial traditions? It is an important aspect in the chronology and needs further investigation. (Table IV).

CONCLUSION

It will be seen from the foregoing that comparisons have been attempted on the basis of ceramics, other small finds, burials and architecture etc. Wherever the data is available, the relative position of respective cultures has been envisaged. In this connection it will be worthwhile to mention that a few problems need more analytical study. For better understanding of a culture-complex and its various industries, it seems that recourse may be taken to horizontal dig wherever an index is available. It is always desirable to study the various cultures in their maximum extant remains.

One of the chief problems is the position of the black-and-red ware. As has been already referred to at various places, it is available in the Harappan culture, post Harappan, Chalcolithic cultures in the Painted Grey Ware culture, prior to the historical period (in central India and Maharashtra) and in the iron using megalithic culture and has a wide distribution. The present knowledge of the black-and-red ware may support the hypothesis that it may belong to a single complex but its relation has to be determined. The connecting links, threads and patches are ascribable to Bahal IB and Nagda II, a few shapes from Bahurupa and Nevasa.

Another important point which is getting clearer is the asso-

ciation of ochre coloured pottery with late Harappa. The excavation at Bhatpur and Manpura (District Balundshahr) may throw some light.

In the central Indian chalcolithic complex the Iranian affinity is posing a link [Pl. V]. Sankalia has brought to light the Khurdi Copper-hoard from Rajasthan. Besides other implements, the channel spouted bowl offers great similarity with the type found at Navdatoli and Sialk. This find is very valuable. More work in this direction may lead to extremely interesting results. (Pl. VIA).

Recently the neolithic phase of Kashmir has furnished evidence of pit-dwellings, the oval (southern) and rectangular (eastern) cross-sectioned celts, harvesters and bone tools are also available here. Had this phase any connection with Eastern Asia? It has to be investigated. The position of the megaliths indicated by menhirs on the site still remains to be determined by further work. (Pl. IV & VIB).

In the light of the above review it is hoped that some of the problems above would be solved and lacunae in our knowledge would be filled up by further work.

ACKNOWLEDGEMENT

I am grateful to Sri A. Ghosh, Director General of Archaeology in India, for kindly permitting me to publish this article along with the illustrations and to Sri B. B. Lal, Director, School of Archaeology, under whose guidance this paper was approved for Diploma in Archaeology Examination in the School of Archaeology in 1961. My gratitude to Sri B. K. Thapar, Superintendent, Archaeological Survey of India, Excavations Branch, is manifold. Besides, the pains which he took in going through the article and many of the corrections which he made, have been of great value. I am thankful to Dr. H. D. Sankalia for permitting me to publish the sequence recently available at the excavations at Ahar. I am greatly indebted to Sarvashri L. Dütt, L. K. Jain, A. K. Roy, H. O. Sajani, O. D. Dogra and B. S. Seth, all my colleagues in the Archaeological Survey of India for the kind help extended by them in numerous ways in the final preparation of this article.

REFERENCES

- Allchin, F. R.
1957 'The Neolithic Stone Industry of the North Karnataka Region', *Bulletin of the School of Oriental and African Studies*, XIX|2 [London].
- Allchin, F. R.
1960 'Piklihal Excavations', *Andhra Pradesh Government Archaeological Series*, No. 1, [Hyderabad].
- Allchin, F. R.
1961 'Utnoor Excavations', *Andhra Pradesh Government Archaeological Series*, No. 5, [Hyderabad].

- Allchin, F. R.
1962 'The Neolithic Stone Industry of the Santal Pargana' *Bulletin of the School of Oriental and African Studies*. [London].
- Banerjee, N. R.
1957 'Excavations at Nagda', *Transactions of the Archaeological Society of South India*, No. 1. [Madras].
- Braidwood, R. J.
1959 *Prehistoric Man* [Chicago].
- Dani, A. H.
1960 *Prehistory and Protohistory of Eastern India*. [Calcutta].
- De Cardi, B.
1950 'On the border of Pakistan: Recent Explorations', *Arts and Letters Royal India Pakistan Ceylon Society* — XXIV No. 2.
- De Cardi, B.
1951 'A New Prehistoric Ware from Baluchistan' *Iraq*, No. XIII.
- Dikshit, M. G.
1955 *Tripuri* — 1952 [Nagpur].
- Fairservis (Jr.), W. A.
1951 'Preliminary Report on the Prehistoric Archaeology of the Baluchi Hills, Novitates American Museum of Natural History 1587.
- Fairservis (Jr.), W. A.
1956 *Excavation in the Quetta Valley, West Pakistan* [New York].
- Fairservis (Jr.), W. A.
1958 *Archaeological Surveys in the Zhob and Loralai distts., West Pakistan*.
- Fairservis (Jr.), W. A.
Pakistan [New York].
- 1961 *Illustrated London News Weekly*, August 26, 1961.
Fairserois (Jr.), W. A. 1961 'Edith Shahr Complex'.
- Gadd, C. J.
1932 'Seals of Ancient Indian Style found at Ur', *Proceedings of the British Academy*.
- Ghosh, A.
1959 'A Survey of Recent Progress in Indian Archaeology', *Indo-gen Tagung*, Gottingen.
- Ghosh, A.
1952 'The Rajputana Desert — Its Archaeological Aspect', *Bulletin of the National Institute of Sciences of India*. No. 1.
- Gordon Childe,
1952 *Newlight on Most Ancient East*, [London].
- Gordon D. H.
1950 'The Stone Industries of the Holocene in India and Pakistan', *Ancient India* No. 6. [New Delhi].
- Gordon D. H.
1955 'The Pottery Industries of the Indo-Iranian Border', *Ancient India* No. 10-11. [New Delhi].
- Gordon D. H.
1958 *Prehistoric Background of Indian Culture*. [Bombay].
- Hargreaves
1929 'Excavation in Baluchistan', *Mem. Arch. Surv. Ind.* No. 35. [Calcutta].
- Helne Geldern, R.
1936 'Archaeological Traces of the Vedic Aryans', *Journal of the*



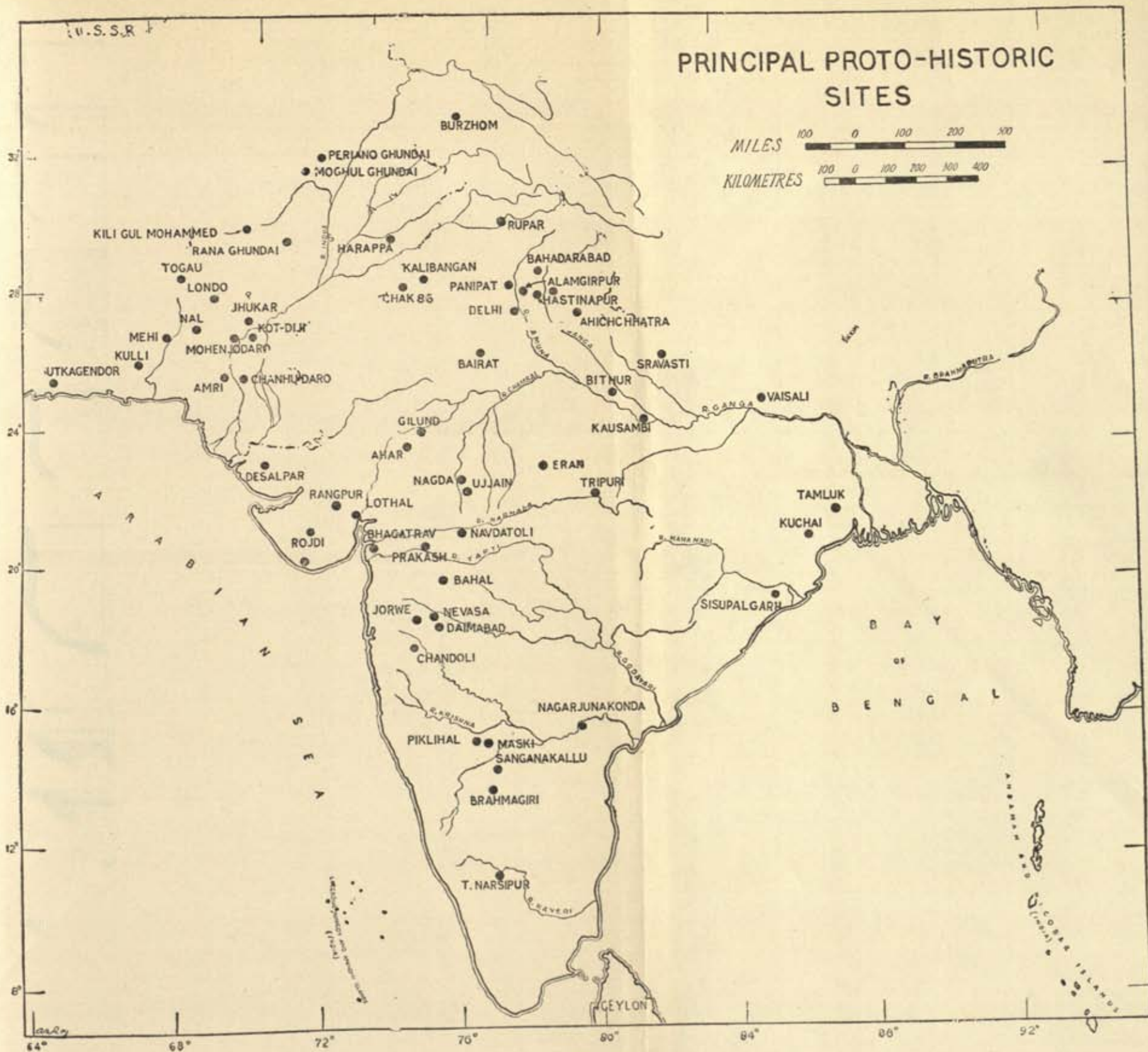
- Indian Society of Arts* Vol. IV.
- 1953-54 *Indian Archaeology A Review* [I.A.R.].
 1954-55 *Indian Archaeology A Review* [I.A.R.].
 1955-56 *Indian Archaeology A Review* [I.A.R.].
 1956-57 *Indian Archaeology A Review* [I.A.R.].
 1957-58 *Indian Archaeology A Review* [I.A.R.].
 1958-59 *Indian Archaeology A Review* [I.A.R.].
 1959-60 *Indian Archaeology A Review* [I.A.R.].
 1960-61 *Indian Archaeology A Review* [I.A.R.].
- Krishnaswami, V. D.
 1953 'Progress in Prehistory', *Ancient India* No. 5. [New Delhi].
- Krishnaswami, V. D.
 1958 'Neolithic Pattern of India', *Presidential address to Archaeology and Anthropology Section, Indian Science Congress 1958*, [New Delhi].
- Khan, F. A.
 1958 'Kotdiji', *Illustrated London News*. May 1958.
- Lal, B. B.
 1949 'Sishupalgarh: An Early Fort in Eastern India', *Ancient India* No. 5. [New Delhi].
- Lal, B. B.
 1951 'Further Copper Hoards from the Gangetic Basin and a review of the problem' *Ancient India* No. 7. [New Delhi].
- Lal, B. B.
 1953 'Protohistoric Investigation' *Ancient India* No. 9. [New Delhi].
- Lal, B. B.
 1954-55 'Excavations at Hastinapur and other Explorations in the Upper Ganga, Sutlej basins — 1950-52'. *Ancient India* No. 10-11. [New Delhi].
- Lal, B. B.
 1958 'Birbhanpur 1958: a microlithic site in the Damodar Valley' *Ancient India* No. 14. [New Delhi].
- Lal, B. B.
 1961 'The Direction of writing in the Harappa Script'. *Summary of Papers: International Conference on Asian Archaeology*. 1961. [New Delhi].
- Mackay, E. J. H.
 1937-38 *Further Excavations at Mohenjo daro — Vol. I & II*. [Delhi].
- Mackay, E. J. H.
 1943 *Chanhudaro Excavations — 1935-36*. [New Delhi].
- Majumdar, N. G.
 1934 'Explorations in Sind', *Mem. Arch. Surv. Ind.* No. 48. [New Delhi].
- Marshall, J.
 1937 'Mohenjo daro and Indus Civilization' Vol. I, II.
 1956-57 *Minutes of Symposium on Indian Archaeology*, [M.S.I.A.].
 1957-58 *Minutes of Symposium on Indian Archaeology*, [M.S.I.A.].
 1958-59 *Minutes of Symposium on Indian Archaeology*, [M.S.I.A.].
- Mittre, V.
Plant Economy in Ancient Navdatoli and Maheswar. [Lucknow].
- Piggot, S.
 1944 'Prehistoric Copper Hoards in Ganga Basin', *Antiquity* Vol. XVIII.

- Piggot, S.
1946 'The Chronology of the Prehistoric North West India', *Ancient India* No. 1. [New Delhi].
- Piggot, S.
1947 'A New Prehistoric Ceramics from Baluchistan', *Ancient India* No. 3. [New Delhi].
- Piggot, S.
1950 *Prehistoric India*. [Harmondsworth].
- Piggot, S.
1960 *The Dawn of Civilization*.
- Rao, S. R.
1961 'Lothal and West Asia', *Summaries of Papers, International Conference on Asian Archaeology*, [New Delhi].
- Ross, E. J.
1946 'A Chalcolithic Site in Northern Baluchistan', *Journal, Near Eastern Studies*, V.
- Sahni, M. R.
1953 *Man in Evolution*, [Calcutta].
- Sankalia, H. D.
Karve, I. and
Kurulkar, G. M.
1945 *Preliminary Report on the third Gujarat Prehistoric Expedition*, [Bombay].
- Sankalia, H. D.
1946 *Prehistoric Investigation in the Archaeology of Gujarat* [Baroda].
- Sankalia, H. D.
1955 *Excavations at Nasik* [Poona].
- Sankalia, H. D.
Subbarao, B. & Deo, S. B.
1958 *Excavations at Maheshwar and Navdatoli* [Poona — Baroda].
- Sankalia, H. D. etc.
1960 *From History to Prehistory at Nevasa* [Poona].
- Sankalia, H. D.
1962 *Indian Archaeology to-day* [Bombay].
- Sankalia, H. D.
1962 (a) 'Beginnings of Civilization in Rajasthan' *Supplement to College Magazine, M. B. College, Udaipur* [Udaipur].
- Sarkar, H. B.
1961 'Neolithic Pit Dwellings in India', *Summary of Papers, International Conference of Asian Archaeology*, [New Delhi].
- Sarkar, H. B.
1962 'Quartzite flake in the Neolithic deposit at Nagarjunakonda' *Man in India* [Ranchi].
- Schaeffer, C. A. F.
1948 *Stratigraphie Comparee et, Chronologie de l'Asie Occidentale* [London].
- Schmidt, E. F.
1937 *Excavation at Tepe Hissar, Damghan* [Philadelphia].
- Seshadri,
1953 'Microlithic Industries of Mysore' *An. Rep. Inst. Archaeology London*.

- Sharma, G. R.
1960 *Excavations at Kausambi* [Allahabad].
- Sharma, Y. D.
1961 'Copper hoards and the Ochre Colour Ware in the Ganga Basin', *Summary of the Papers, International Conference of Asian Archaeology*, New Delhi.
- Soundarajan, K. V.
1958 'Studies in the Stone Age Industries of Nagarjunakonda and its neighbourhood' *Ancient India* No. 12 [New Delhi].
- Stein, A.
1929 'An archaeological tour in Waziristan and northern Baluchistan' *Mem. Arch. Surv. Ind.* No. 37 [Calcutta].
- Stein, A.
1931 'An Archaeological tour in Gedrosia' *Mem. Arch. Surv. Ind.* No. 43 [Calcutta].
- Stein, A.
1937 *Archaeological Reconnaissance in North West India and South West Iran* [London].
- Subbarao, B.
1948 *Stone Age Industry of Bellary* [Poona].
- Subbarao, B.
1959 *Personality of India, Second Ed.* [Baroda].
- Thapar, B. K.
1957 'Maski : A Chalcolithic Site of Southern Deccan' *Ancient India* No. 13 [New Delhi].
- Thapar, B. K.
1962 *Handbook to Centenary Exhibition* [New Delhi].
- Todd, K. R. V.
1950 'The Microlithic Industries of Bombay', *Ancient India* No. 6 [New Delhi].
- Vats, M. S.
1940 *Excavation at Harappa, Vol. I & II* [Delhi].
- Wheeler, R. E. M.
1947 'Harappa 1946 : The Defences and Cemetery R. 37', *Ancient India* No. 3 [New Delhi].
- Wheeler, R. E. M.
1948 'Brahmagiri and Chandravalli 1947, Megalithic and other Cultures in Mysore State' *Ancient India* No. 4 [New Delhi].
- Wheeler, R. E. M.
1953 *Indus Valley Civilization — First ed.* [Cambridge].
- Wheeler, R. E. M.
1959 *Early India and Pakistan* [London].
- Worman, E. C. (Jr.)
1949 'The Neolithic problem in the prehistory of India' *Journal of the Washington Academy of Sciences*, 39.
- Zuener, F. C. & Allchin, B.
1956 'The microlithic sites of Tinnevalley District, Madras State' *Ancient India* No. 12 [New Delhi].

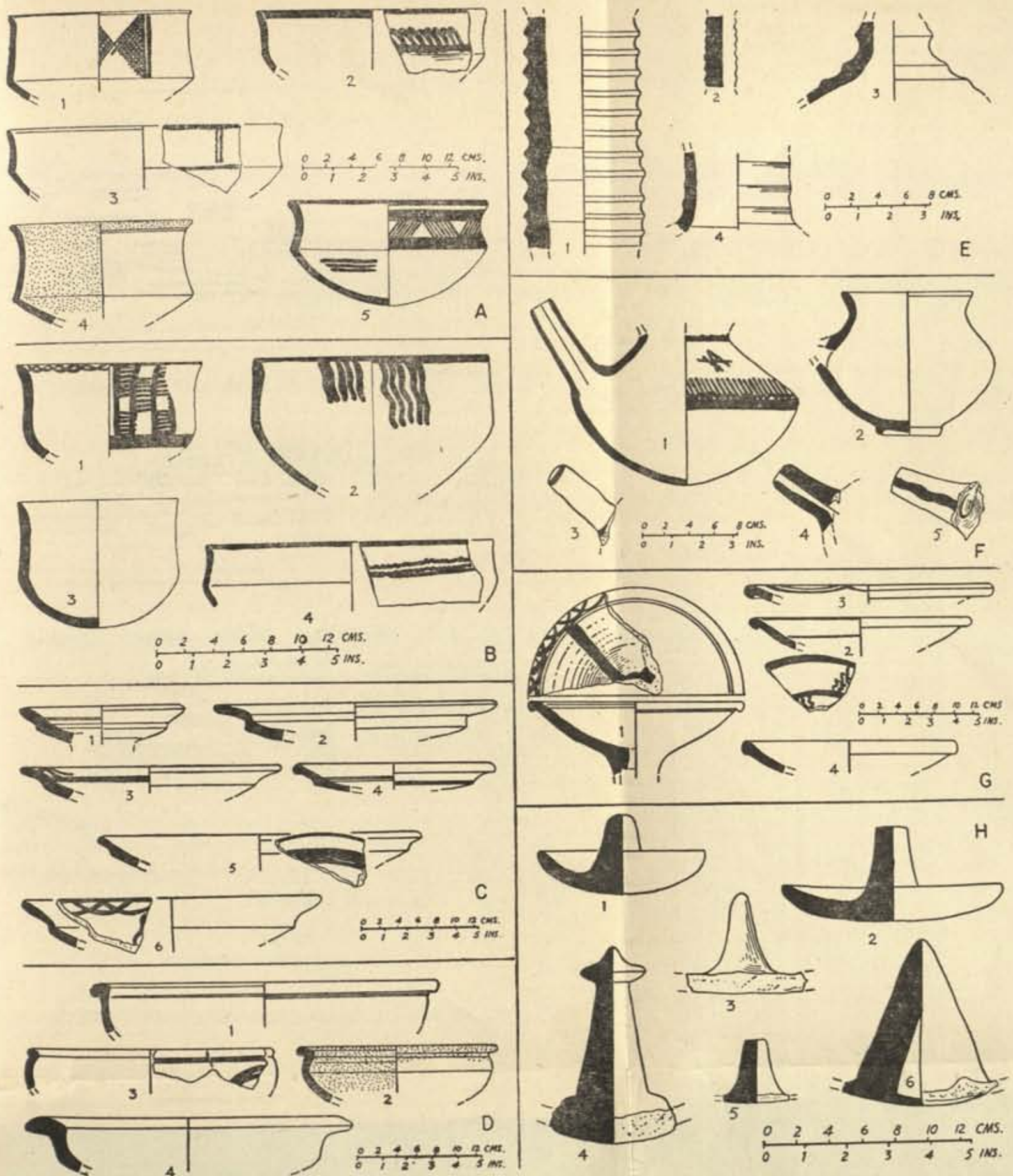


71384



(Fig. I)

Map: Principal protohistoric sites

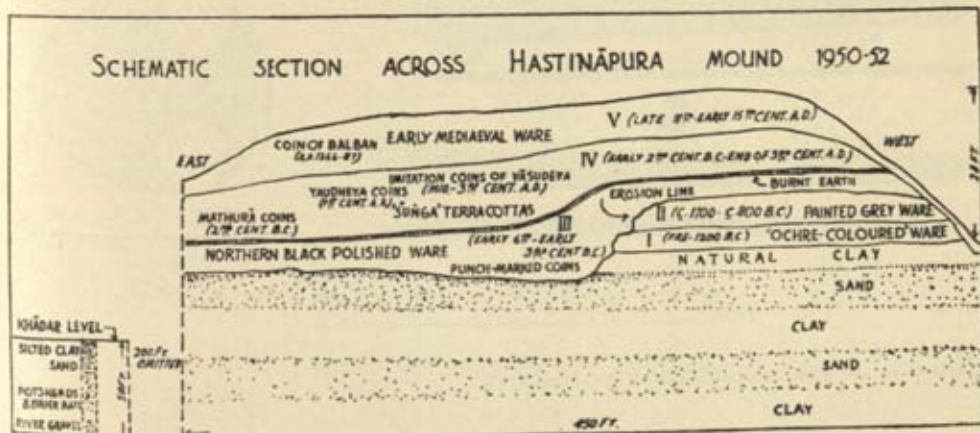
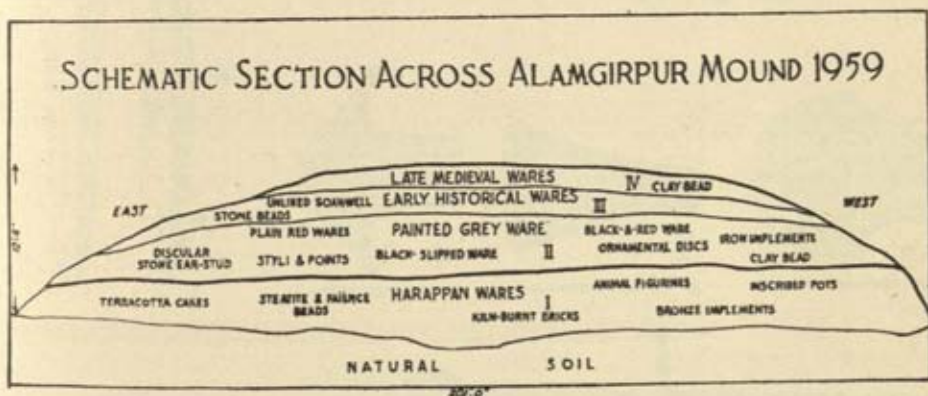
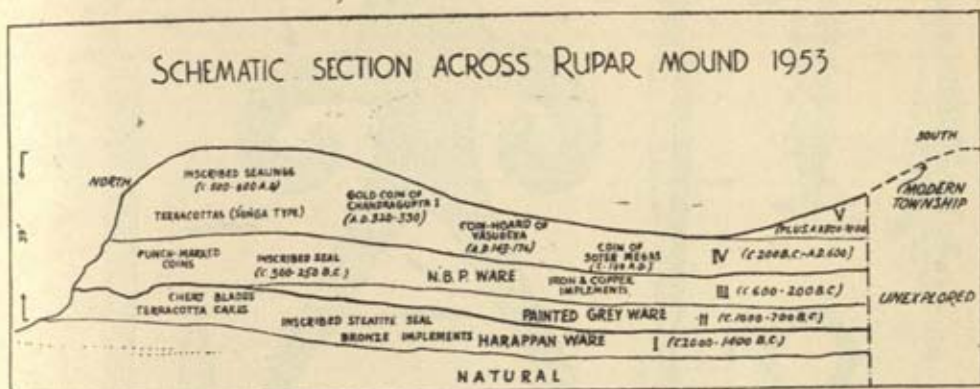


By Courtesy Archaeological Survey of India

(Fig. 2)

COMPARATIVE POTTERY TYPES

- The following abbreviations are used: AHR Ahar; BHL Bahal; JRW Jorwe; LTH Lothal; MSK Maski; NGD Nagda; NSK Nasik; NVS Nevasa; NVT Navdatoli; PBS Prabhas; PKS Prakash; RGP Rangpur.
1. Concave-sided carinated bowls (A)
RGP—III; AHR—IB; NVT—IIIB; PKS—IB; JRW; NVS.
 2. Concave-sided bluntly-carinated bowls (B)
PBS—IIA; and IIB; RGP—IIC.
 3. Carinated dishes on or without stand (C)
RGP—IIA and IIB; PKS—IA; PBS—IB; AHR—IA; NVT—IIIA & IIIB.
 4. Dishes with clubbed rims (D)
RGP—IIC; and III; PKS—IA; NVT—III—A and IIIB; PBS—IIA; AHR—IA.
 5. Corrugated stems (E)
RGP—III; NGD—I; PBS—IIA; AHR—IA; NVT—IIIB; BHL—IA.
 6. Tube-spouted vessels (F)
JRW; NVS—I; BHL—IB; PKS—IB; NGD—I.
 7. Painted channel-spouted vessels
NVT—IIIA and IIIB; NGD—I.
 8. Short-handled bowls
PBS—IB; RGP—IIA and IIB.
 9. Long-handled bowls
 10. Long-necked jars with bulbous (ovoid) body, often painted with horizontal rim-bands
RGP—IIC and III; PBS—IIC; BHL—IB; PKS—IA; AHR—IA; NSK—I; NVS—I; JRW; NVT—IIIA and IIIB.
 11. Basins or dishes with beaded rim (G)
RGP—IIC; and III; PBS—IB; PKS—I; NVT—IIIB.
 12. Coarse grey lids with oblong or semi-circular section and knob-lids (H)
BHL—IA and —IB; NVS—I; NVT—IIIA and —IIIB; AHR—IA; JRW; NGD—I.



By Courtesy Archaeological Survey of India

(Fig. 3)

Comparative schematic sections

SCHEMATIC SECTION ACROSS ALABAMA MOUNT 1050



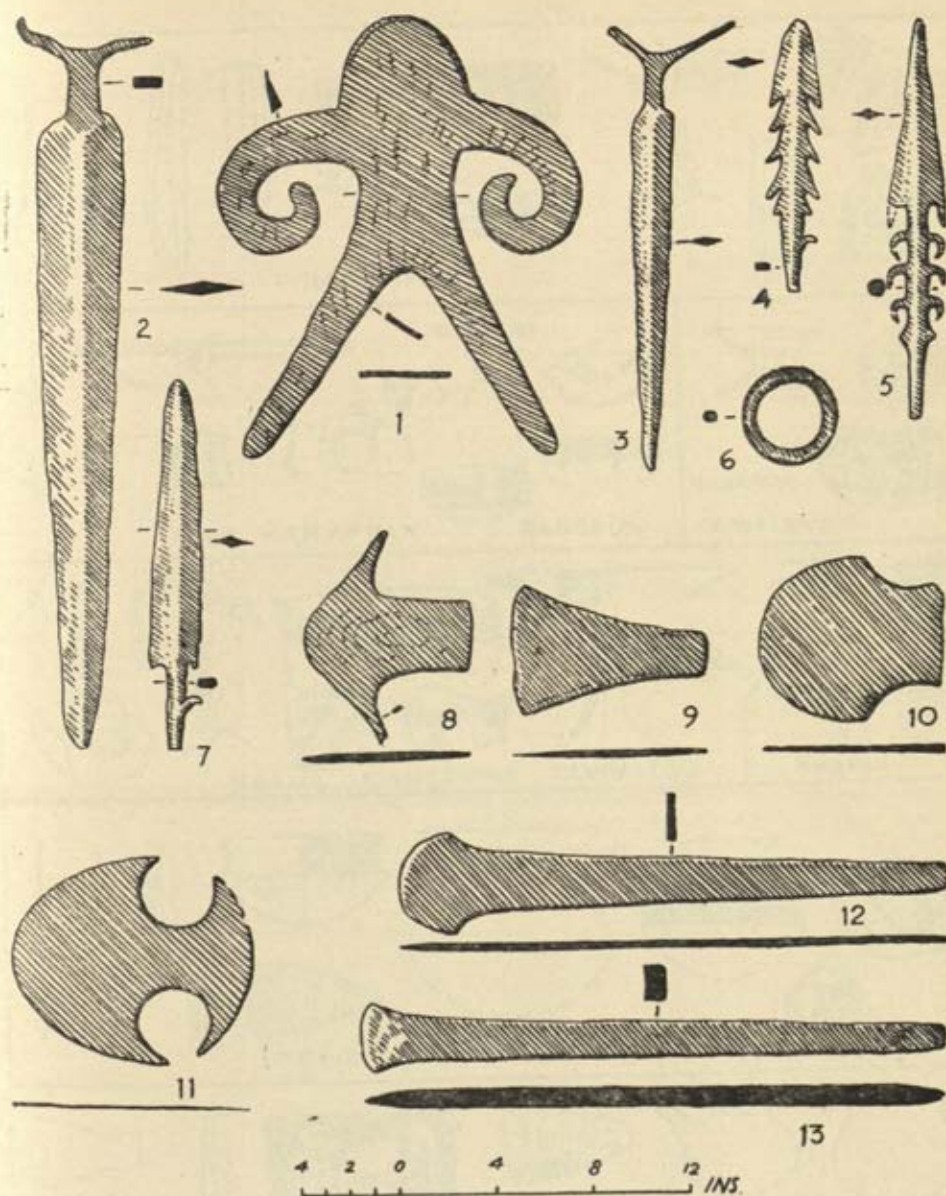
SCHEMATIC SECTION ACROSS ALABAMA MOUNT 1050



SCHEMATIC SECTION ACROSS ALABAMA MOUNT 1050



Geological Survey of Alabama

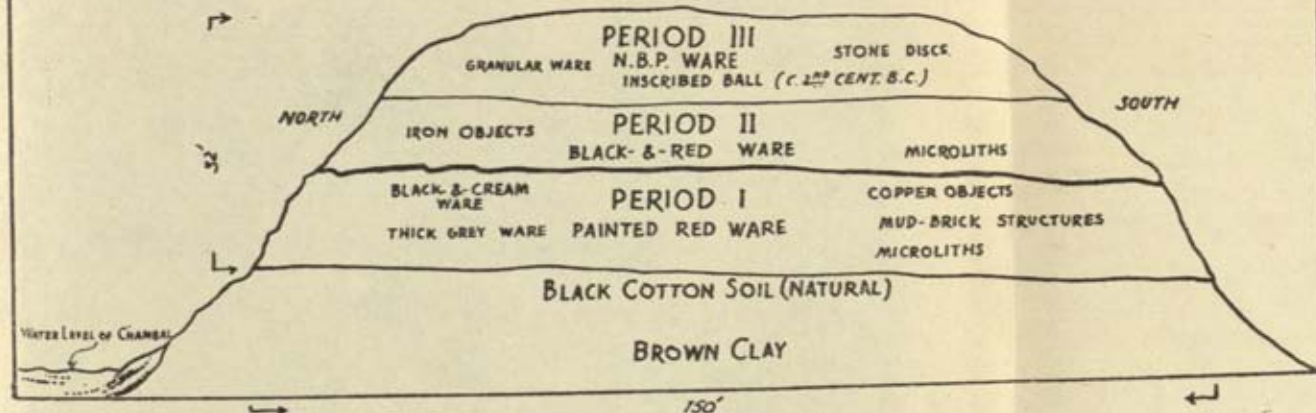


By Courtesy Archaeological Survey of India

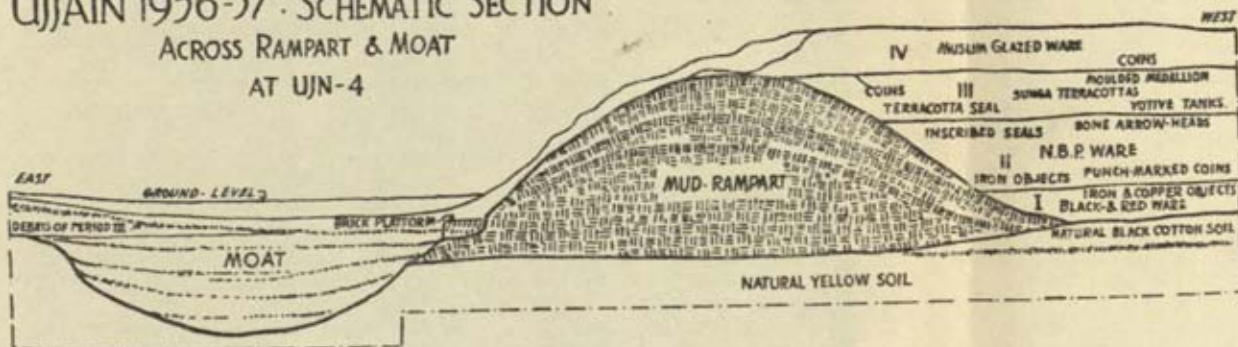
(Fig. 4)

Implements and other objects from Copper Hoard sites: 1. 'anthropomorphic' figure from Sheorajpur; 2 and 3, antennae sword from Fatehgarh; 4 and 5, harpoons respectively from Sarthauli and Bisauli; 6, ring from Pandi; 7, hooked spear-head from Sarthauli; 8, hatchet (parasa) from Sarthauli; 9, celt from Gungeria; 10, shouldered celt from Dunria; 11, double-edged axe from Bhagra Pir; 12 and 13, bar-celts from Gungeria.

SCHEMATIC SECTION ACROSS NAGDA MOUND 1956.



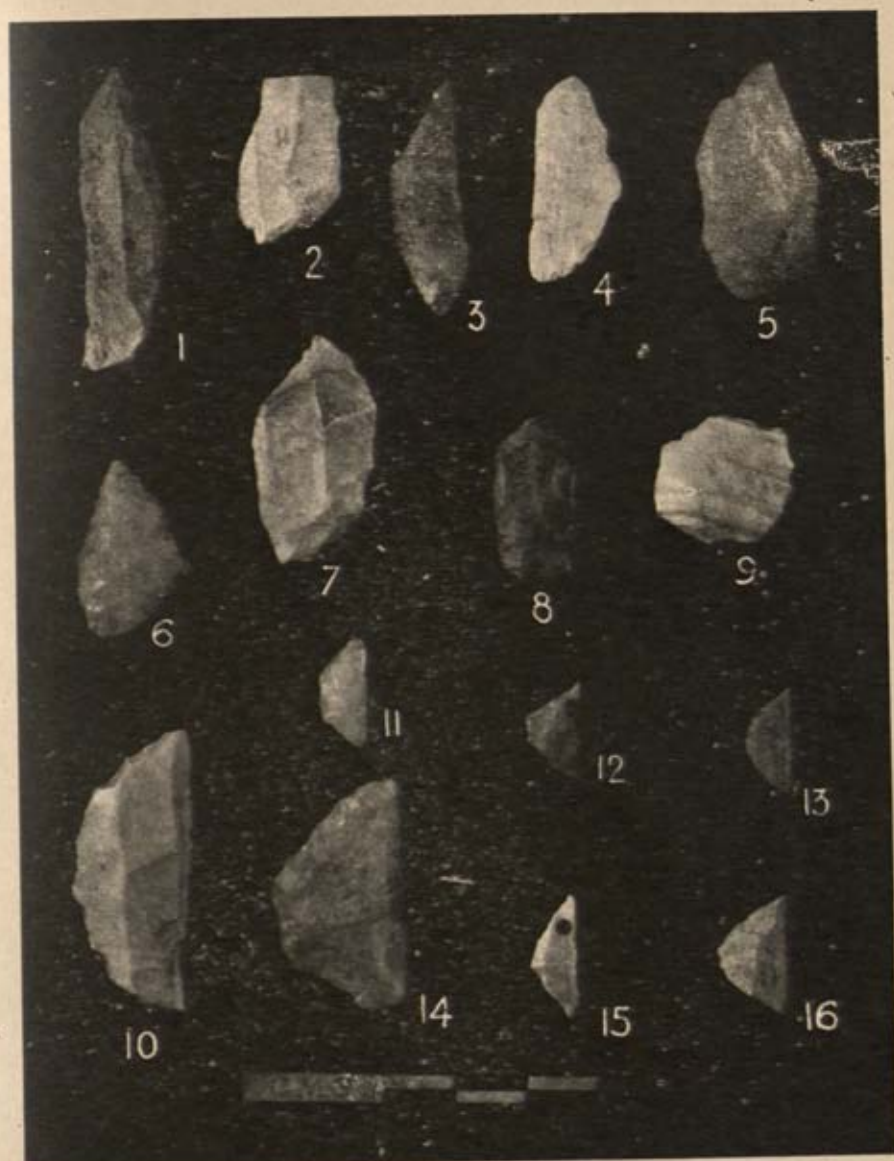
UJJAIN 1956-57: SCHEMATIC SECTION ACROSS RAMPART & MOAT AT UJN-4



By Courtesy Archaeological Survey of India

(Fig. 6)

Comparative schematic sections



By Courtesy Archaeological Survey of India

(Plate I)

Microliths, Sawyerpuram Teris: 1, 3, 6 and 14 (ASI); Birbhanpur: 2, 4, 5, 7, 9, 10, 11 and 16 (ASI); and Langhnaj: 8, 12.



By Courtesy Archaeological Survey of India

(Plate IIA)

Kalibangan: Pottery of the Antecedent Culture

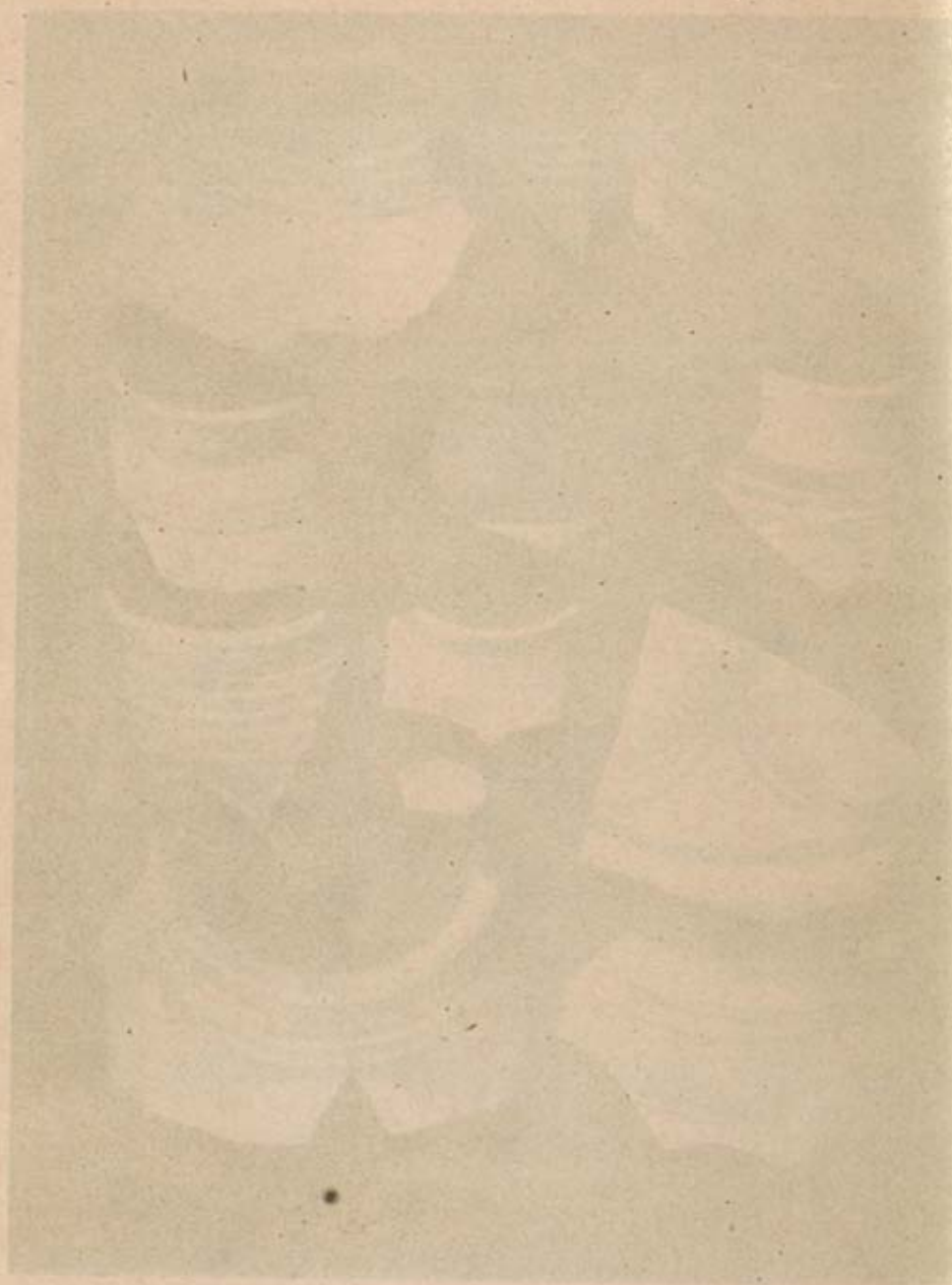
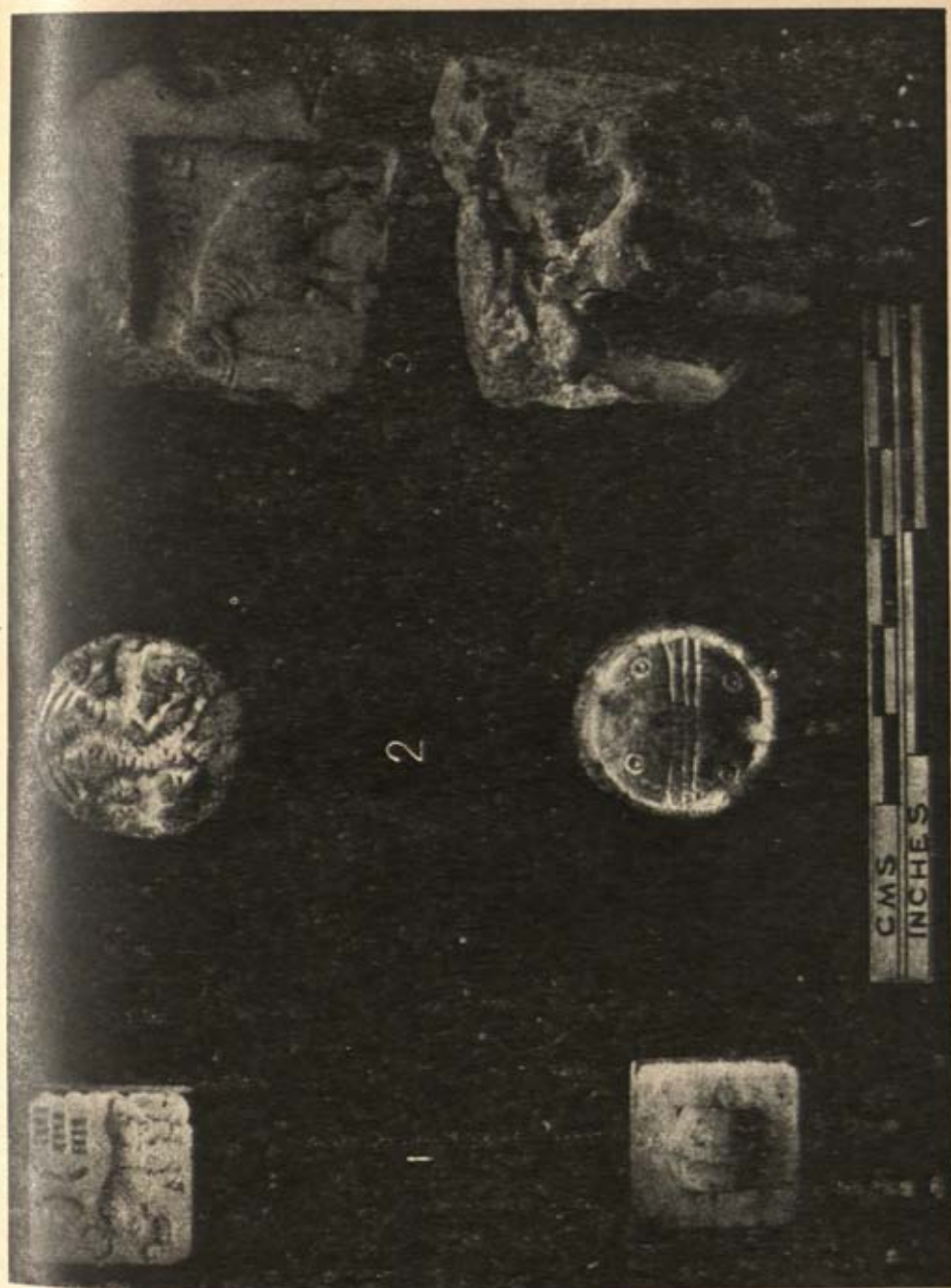


Fig. 1. Fragment of a vessel, found at the site of the excavation.

Fig. 2. Fragment of a vessel, found at the site of the excavation.



By Courtesy Archaeological Survey of India

(Plate IIB)

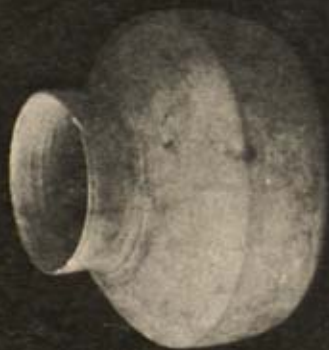
Seals and sealings. Kalibangan: 1 and 3 (ASI); and Lothal: 2 (ASI)



2



1



3



By Courtesy Archaeological Survey of India

(Plate III)

Painted Grey Ware. Rugar: 1 and 3 (ASI); and Achichchhatra: 2 (ASI)



By Courtesy Archaeological Survey of India

(Plate IV)

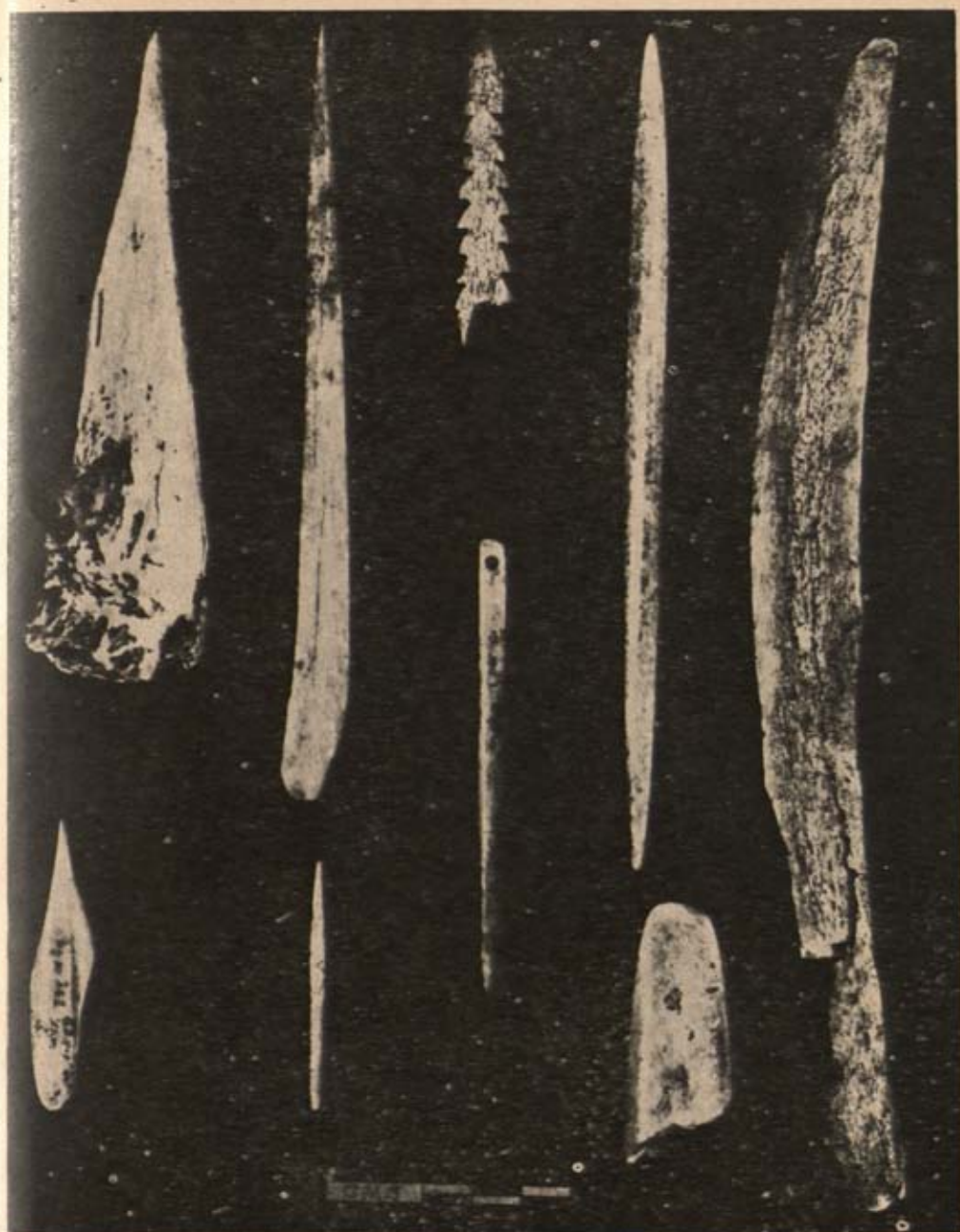
Neoliths. Burzahom: 1, 2, 4 and 5 (ASI); Baidyapur: 3 and 6 (Baripada Museum); Thakurani: 7 (ASI); Brahmagiri: 8 (ASI); and Sanganakallu: 9 (Deccan College)



By Courtesy Archaeological Survey of India
(Plate V)
Navdatoli: chalcolithic pottery (Deccan College)



By Courtesy Archaeological Survey of India
(Plate VIA)
Khurdi: copper hoard (Jodhpur Museum)



By Courtesy Archaeological Survey of India

(Plate VIB)

Burzahom: bone implements (ASI)

**COMPARATIVE STRATIGRAPHY OF THE PROTOHISTORIC CULTURES OF
BALUCHISTAN SIND AND PANJAB.**

BALUCHISTAN								SIND			PANJAB						
Dates B. C	Kili Gul Mohammed & Damb Sadaat	Ranaghun- dai	Sur Jangal	Dabar Kot	Periano- ghundai	Shahi Tump	Other Sites	Amri, Etc.	Chanhu Daro	Kot Diji	Harappa	Rupar & Kotla Nihang					
1000		RG V Break RG IV Destruction		Ghul			Moghul Ghundai Cemetery	Fort Munro Sword	Jhangar Culture		Cemetery H Culture Break	Sunga Terracotta N.B.P.W.					
				?					Jhukar ?			Shahi Tump Culture Break	Break	Painted Grey Ware			
													Jhukar Break	Break			
													Harappa Culture	Harappa Culture	Harappa Culture	Harappa Culture	Harappa Culture
2000				Harappan Occupation	Incinary Pot	Nal Culture		Harappa Culture	Harappa Culture	Harappa Culture	Harappa Culture	Harappa Culture					
2500	DST III	RG III c RG III b	Post Sur Jangal III	Zhob Cult	Zhob Cult	Kulli-Mehi Culture	Togau Ware	Break Amri Ware	KARACHI MICROLITHS	Proto- Harappa Culture	Break Pre Defence Culture						
3000	DST II	RG III a	SJ III	↑	↑		Quetta Ware										
	DST I	RG III a	SJ III	↑	↑												
	KGM IV	RG II	SJ II	Prehistoric Cultures of Group I	Prehistoric Cultures of Group I												
4000	KGM III	RG I b	SJ I	↓	↓												
	KGM II	RG I a	Natural soil														
	KGM I	?															

KGM=Kili Gul Mohammed; DST=Damb Sadaat; RG=Ranaghundai; SJ=Sur Jangal

After Fairservis & Lal

TABLE III
COMPARATIVE STRATIGRAPHY OF THE PROTOHISTORIC CULTURES OF THE
INDO-GANGETIC PLAIN AND EASTERN INDIA.

INDO GANGETIC PLAIN						EASTERN INDIA			
Dates B. C.	Alamgirpur	Hastinapur	Kausambi	Bhadarabad	Kuchai	Sishupal- garh	Tamluk & Jaugadh	Banasuria	
1000	III N.B.P.W.	III N.B.P.W.	N.B.P.W.			N.B.P.W.	N.B.P.W.		
	II P.G.W.	Break II P.G.W.	P.G.W.			Black & Red Ware ↓ ?	Black & Red Ware ?		
	Break	I Ochre Coloured Ware	Pre. P.G.W. Levels	Copper Hoards Ochre	? ↓ Neoliths		Neoliths	Copper Hoard ↓ V	
	I Harappa		Harappan Influence On Architec- ture	Coloured Ware	With Coarse Gritty Red Ware ↓ Break ?		↓ V		
2000									
3000					Non-Geome- tric Microliths				

TABLE IV
COMPARATIVE STRATIGRAPHY OF THE PROTOHISTORIC CULTURES OF MAHARASHTRA
AND SOUTH INDIA.

MAHARASHTRA							SOUTH INDIA					
Dates B.C.	Prakash	Bahal	Daimabad	Nevasa	Nasik Jorwe	Chandoli	Brahmagiri	Sangan kallu	Piklihal	Maski	T. Narasipur	Nagarjuna konda
	N.B.P.W. II B	N.B.P.W. III		N.B.P.W. V	N.B.P.W. III		Megalithic	Megalithic	Megalithic	Megalithic	Megalithic	Break ?
	II-A Black & Red Ware Iron	II Black & Red Ware Iron		IV	II		I B	II B	Intrusion	Break		
	Break	Break		Break	Break		stone Axe Culture	Stone Axe Culture With Painted Pottery	I B			
1000	Chalcolithic Culture Cf. Malva	Chalcolithic Culture I B I A	CHALCOLITHIC CULTURE C B A	III Chalcolithic Culture	I Chalcolithic Culture	Chalcolithic Culture	Break I A		Upper Neolithic With Painted Pottery	Chalcolithic Culture	Chalcolithic Culture	
								II A Neolithic Culture	? I A Lower Neolithic Culture		I Neolithic	Neolithic Culture
2000								↓ V ?	↓ V ?		↓ V ?	↓ V ?



71384

CATALOGUED.

Protohistory — India — Pakistan
India — Pakistan — Protohistory
Pakistan — Protohistory — India

Central Archaeological Library,
NEW DELHI.

71384

Call No 913.054P
Jos

Author— Joshi, Jagat Pati

Title Comparative strati-
graphy of the proto-
historic cultures of
Indo-Pakistan sub-
continent.

Borrower No. Date of issue Date of return

"A book that is shut is but a block"

CENTRAL ARCHAEOLOGICAL LIBRARY
GOVT. OF INDIA
Department of Archaeology
NEW DELHI.

Please help us to keep the book
clean and moving.
