Anything that happens, happens. Anything that, in happening, causes something else to happen, causes something else to happen. Anything that, in happening, causes itself to happen again, happens again. It doesn't necessarily do it in chronological order, though.

Douglas Adams
Mostly Harmless

Chapter I

Black-and-Red Ware: A Reassessment

The research presented here is an attempt to understand and enunciate the position of the Black-and-Red Ware within the ceramic assemblage of three selected Chalcolithic sites in southeast Rajasthan and north Gujarat. Since Black-and- Red Ware has served as a culturally diagnostic tool in understanding sites found in various temporal and spatial contexts, it presents an interesting example of how pottery has been used in the study of the past. This particular study seeks to do the same, but, by gaining a technological perspective on the aforementioned ware and examine its relationship with associated wares by a comparative analysis of the clay-paste characteristics.

Black-and-Red Ware: The creation of an 'enigma'

The term Black-and-Red Ware is generally understood to designate a class of pottery characterised by a red slip on the exterior surface and a black slip on the interior surface, which is the result of a firing process that produces two colours from the same slip. It is present in both painted and plain varieties and the paintings are usually in white on the black surface. From 1952 onwards, it captured the imagination of archaeologists in India when it started appearing in persistent and unavoidably earlier Chalcolithic contexts than hitherto recognised or known. This was merely five years after Wheeler had given its first contextual definition as an integral part of the South Indian Megalithic assemblage and a relative date of 2nd Century B.C. to mid 1st Century B.C. based on its stratigraphic position below Rouletted Ware and Roman coins at Brahmagiri and Chandravalli (Wheeler 1947). The usual context of its occurrence till then had been in the early Historic/Iron Age and Megalithic sites such as Sisupalgarh in Orissa (1948)[1], Nasik (1950-51)[2] in Maharashtra, Ujjain (1955-58)[3] and Nagda (1955–

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56)[4] in Madhya Pradesh and Kausambi (1949-1967)[5] and Hastinapur (1950-52)[6] in the Gangetic Valley where it was associated with the Painted Grey Ware and Northern Black Polished Ware. Thus, although a kind of Black-and-Red Ware had been noted in the Chalcolithic context at Rangpur in 1947 by Dikshit, it was considered an intrusive element (Dikshit 1950-51).

Between 1955 – 1962, some important Chalcolithic sites excavated in western India, such as Rangpur (re-excavated 1953-56),[7] Lothal (1954-62)[8], Somnath (1955-57)[9], Amra and Lakhabaval (1955-56)[10] in Gujarat, Ahar (1954-56)[11] in south-east Rajasthan and Maheshwar-Navdatoli (1952-53, 1957-59)[12] in Central India, confirmed that certain kind of Black-and-Red Ware also had a strong presence in the Chalcolithic context. Subsequently, Black-and-Red Ware was found in varied Chalcolithic contexts such as the Pre-Harappan, Mature Harappan, Late Harappan and regional complexes (Anarta) at certain sites like Surkotada[13], Desalpur[14], Dholavira[15], Bhagatrav[16], Rojdi[17], Kanasutaria[18], Malvan[19], Nagwada[20] and Ratanpura[21] in Gujarat, at Aharian sites such as Gilund[22], Balathal[23], and Ojiyana[24] in Rajasthan, at sites like Eran[25], Kayatha[26], Prakash[27], Chandoli[28], Inamgaon[29], and Bahal[30], of the Central Indian and Deccan Chalcolithic Cultures and at Eastern Indian Chalcolithic and Neolithic-Chalcolithic sites like Sonepur[31], Chirand[32], Pandu Rajar Dhibi[33], and Mahisdal[34] in Bihar and Bengal, to cite a few. Apart from occupying different spatial and chronological brackets, these sites differed in the Chalcolithic economies they represented, their defining potteries and other material assemblages. However, they all had some kind of Black-and-Red Ware in a dominant to diminutive degree occurring in the assemblage (Table 1.1 and Figure 1.1).

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Regional non-Harappan and Harappan Culture (Gujarat)

Site	Archaeological Level of BRW	Date	BRW Details	Associated Wares
Somnath	Pre-Prabhas	3000 BC - 2500 BC	Handmade, highly burnished red/orange Slip, incised horizontal and oblique ribs. Flat bottomed basins with flaring sides Decorated incised rims	Coarse Red Ware, Coarse incised Red Ware Coarse Grey Ware
Lothal	Lowermost occupational Level (Phase A)	2450 BC	Convex Sided Bowls	Micaceous Red Ware
Mature (2500 B.C. - 2000 B.C.) and Late Harappan (2000 B.C. - 1400 B.C.) Culture (Gujarat)				
Rangpur	Period II A -III	2400 B.C.- 1400 B.C.	Bowls (convex sided, stud-handled,	Typical Harappan Red and Buff wares, Coarse Red Ware, Coarse Grey Ware, Micaceous Red Ware, Lustrous Red Ware
Lothal	Phases A and B	2400 B.C.- 1800 B.C.	Blunt carinated, ring-footed etc), dishes,	Typical Harappan Red and Buff wares, Coarse Red Ware, Coarse Grey Ware, Micacaeous Red Ware
Surkotada	Period IB - IC	2200 B.C. - 1900 B.C.	basins and small pots	Reserved Slip Wares, Coarse Red Wares, Typical Harappan Red and Buff Wares, Amber Slipped Ware, Red Slipped Polychrome Ware, Polytone Cream Slipped Ware

Table 1.1 Occurrence of Black-and-Red Ware at major excavated sites

(Continued...)

Site	Archaeological Level of BRW	Date	BRW Details	Associated Wares
Rojdi	Period IB	2200 B.C. - 1700 B.C.	Basin with beaked rim Bowl with everted rim	Typical Harappan Red and Buff wares, Coarse Grey Ware, Coarse Red Ware, Fine Grey Ware, Coarse Black and Red Ware
Desalpur	Period IB	2200 B.C. - 2000 B.C.	White paintings, confined to inner surface	Coarse Red and Black Ware, Coarse Red Ware, Typical Harappan Red and Buff Ware, Lusturous Red Ware
Oriyo Timbo		1700 B.C. - 1400 B.C.	Bowls with simple everted rims, Shallow bowl with flat projected rim	Coarse Red Ware, Typical Harappan Red and Buff Ware, Lusturous Red Ware
Banas Culture (S.E. Rajasthan)				
Ahar	All Periods and Phases	2500 BC -1700 BC	Variety of bowls, dishes-on-stand, dishes	Thick Red Slipped Ware
Gilund		2500 BC -1500 BC	globular pots.	Coarse Grey Wares
Balathal		2800 BC - 1500 BC	Both, in painted and unpainted varieties	Tan Ware
			Clay well levigated. Scooping marks on interior surface	Thin Red Slipped Ware

(Continued...)

Table 1.1 Occurrence of Black-and-Red Ware at Major excavated sites

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Banas- Malwa Culture (Central Indian Chalcolithic)				
Site	**Archaeological Level of BRW**	**Date**	**BRW Details**	**Associated Wares**
Maheswar / Navadatoli	Phase I - Phase IV	2000 BC- 1400 BC	Convex bowls with bulbous belly carinated bowl with flaring rim, goblet. Painted BRW.	Jorwe Ware, Cream Slipped Ware, Black on Red Ware, Lusturous Red Ware
Kayatha	Period II - III		Unpainted BRW with Jorwe Ware (late)	Tan Ware, Grey Ware, Black on Red Ware
Eran	Malwa Culture	1950 B.C. - 1400 B.C.	Eran BRW - individualistic shapes, designs	Jorwe Ware, Cream Slipped Ware, Black on Red Ware, Lusturous Red Ware
Malwa - Jorwe Culture (Deccan Chalcolthic)				
Inamgaon		1700 BC - 900 BC	BRW is limited.	Jorwe Wares
Daimabad	BRW occurs in Jorwe and	1700 BC - 1500 BC	In Late Jorwe Phase, BRW is plain and	Jorwe Wares
Prakash	Late Jorwe Periods	1200 BC - 900 BC	of coarse fabric	Pale Grey Ware, Malwa Ware, Savalda Ware, Coarse Burnished Wares
Bahal			Elongation in shape of bowls	Thick Grey Ware, Fine Red Ware
Chandoli		1500 BC- 1200 BC		Jorwe Wares, Black Wares, Black on Red Wares, Lusturous Red Wares

Table 1.1 Occurrence of Black-and-Red Ware at major excavated sites

(Continued...)

Neolithic - Chalcolithic and Megalithic Context (South India)				
Site	Archaeological Level of BRW	Date	BRW Details	Associated Wares
Tekwada	Burial Context (Deccan)	1600 BC - 1000 BC	Typical megalithic shapes :	Fine Grey Wares
Tekkalkotta	Burial Context		Tulip shaped vases, funnel shaped lid, elongated vase with carinated	Grey Ware, Dull Red Ware
Brahmagiri		Megalithic :	shoulder,	Black Wares, Coarse Dull Red Wares
Hallur		1000 B.C. onwards	bowl with carination and elongated base	Grey Wares, Brown and Black Ware, Coarse Dull Red Ware
Eastern Neolithic				
Chirand	Neolithic Period IA - IB	2200 B.C. - 1500 B.C.	Simple and spouted vase, bowls channel-spouted bowls, footed cup	Grey Wares, Black Wares, Red Wares
Eastern Chalcolithic (post-Harappan Chalcolithic)				
Chirand	Chalcolithic Period IIA - IIB	1500 BC - 800 BC	Channel spouted bowl, tulip-shaped vases,	Steel Grey Wares, Black Wares, Red Wares
Golbai Sasan			dish-on-stand, trumpet-shaped basin,	
Mahisdal	post-Harappan Chalcolithic		conical basin with perforations at bottom,	Painted Red Ware

Table 1.1 Occurrence of Black-and-Red Ware at major excavated sites

(Continued...)

Site	Archaeological Level of BRW	Date	BRW Details	Associated Wares
Oriup		1400 B.C. - 800 B.C.	high-necked jar, footed bowl/cup	Northern Black Polished Ware, Black Slipped Ware, Red Ware
Pandu-Rajar-Dhibi			Paintings in white or cream.	Red Wares
Early Iron Age (Ganga-Yamuna Doab)				
Hastinapur		300 BC - 200 AD		Painted Grey Ware
Ahichattra	Early Iron Age	400 BC - 100 BC	Shapes follow those of PGW and NBPW	and later
Alamgirpur		900 AD		Northern Black Polished Ware
Atranjikhera (U.P.)	In a separate horizon Pd. II	700 BC	Unpainted BRW (Aharian affinity cited here)	Black Slipped Ware
Noh (Rajasthan)	preceded by OCP and Pd. II		Burnished interior - lustrous to dull black	Grey Ware
	succeeded by PGW		Exterior - chocolate/brown	Red Ware
			Bowls with flaring, incurved, convex or tapering sides, basins and dishes	

Table 1.1 Occurrence of Black-and-Red Ware at major excavated sites

In Search for an Explanation

Thus, as more fieldwork increased the number of dots depicting the Black-and-Red Ware on the map of India, so did explanations and theories about it. The underlying theme in the various theories put forward was to regard the Black-and-Red Ware as a single ceramic 'culture' and a distinct people, and the issues addressed revolved around a search for its authors and origins, both in ancient communities and in archaeological entities.

Different scholars have considered the Black-and-Red Ware to be the defining cultural equipment of ethnic groups whose existence is known through traditional literature and linguistics but who have eluded identification in tangible material terms. Sinha (1961), Sankalia (1963), Dixit (1969), Srivastava (1969) and Agrawal (1966) ascribed the authorship of the Black-and-Red Ware to the Aryans while Subbarao (1962) and Soundara Rajan (1962-63) argued for the Dravidians. Thapar (1975-76), by examining ancient lineage accounts traced the development of Black-and-Red Ware by connecting them with the Yadavas while Champaklakshmi (1975-76) believed that it represented the Velirs. The spread of the Black-and-Red Ware across the land is then ascribed to the movement of these communities and its changing forms and decorations to acculturation and contact.

Attempts have also been made to trace the origin of the Black-and-Red Ware in archaeological cultures through the primacy of its occurrence at various sites. Thus, it has been traced to the Harappans (Lothal) in Saurashtra (Rao 1962-63, Agrawal 1967-68, Singh 1982) or to Ahar (Sankalia *et al* 1969, Dhavalikar 1970-71, Agrawal 1981), while some others believed in a dual independent development from both these sites (Joshi 1974, Thapar 1975-76) while still others advocate a Neolithic origin (Arun Kumar 1974). The Black-and-Red Ware in later cultures in North, East, Central and South India is conceived to have come from a single source, either from Ahar or from Gujarat (Harappans) and several routes are cited for the movement (Agrawal 1967-68; Dikshit 1969; Dhavalikar 1970-71; Thapar 1975-76; Singh 1982). A generic relationship between the 'Ahar Fabric' and the megalithic Black-and-Red Ware is also suggested.

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The above review of archaeological literature on Black-and-Red Ware reveals that, this ware provided a vital explanatory link to archaeologists who were in search for a common element which could be then used to tie up the various and divergent material culture traits that had emerged following research in post-independence times. The models and concepts followed for integrating and interpreting the data were usually of the unilinear evolutionary, historical-descriptive and diffusionist kind. The use of the Black-and-Red Ware was rather flexible, depending upon the larger question, which sought to be answered. Some of these explanations were marked by a great deal of personification of the Black-and-Red Ware. To illustrate this, a few approaches are examined below.

Approaches to the Explanations

Wheeler looked upon the Black-and-Red Ware as one of the cultural streams from the north (the other being Iron), which contributed to the emergence of the Megalithic culture in Peninsular India. He suggested a diffusion of the Black-and-Red Ware from Rajasthan/Malwa region, which moved south and was accordingly modified in form, decoration and skill and was finally perfected by the megalithic builders (Wheeler 1959). Subbarao traced the origin of the south Indian Megalithic cult from proto-historic pit burials in Bahal, Khandesh and Gaya but in addition, linked it with the Dravidians and their long-term migrations from Rajasthan through central India to Gangetic valley, and then subsequently to the south. He found the Black-and-Red Ware (the material trait, which had an equal spread through time and space) to be characteristic of the Dravidian movement, and now called the Dravidians "Black-and-Red Ware people" (Subbarao 1962: 144-147).

Thapar (1975-76) and Champaklakshmi (1975-76) attempt to relate archaeological evidence with that gleaned from traditional literary sources to find a material association for the ancient communities mentioned in the literature. Champaklakshmi relates archaeological evidence from Tamil sites bearing place-names identifiable with those mentioned in the Sangam anthologies, in order to identify the authors of the Sangam literature and the Megalithic burial practices mentioned therein. At these sites, the occurrence of Black-and-Red Ware in the lowest levels and its distribution between juxtaposed habitational and burial sites seemed to reflect elements of Tamil socio-

economic organisation as known from the literature. As a result, the Velirs (who she ultimately derives from the Yadavas of the north) were identified as the migratory community responsible for the colonisation and extension of the Black-and-Red Ware, iron and large-scale agriculture into the south (Champaklakshmi 1975-76: 118-122). Thapar, using Puranic sources, cites the settlement of the Yadus as spread over the Aravalli region, Gujarat, Malwa, Narmada Valley, northern Deccan and eastern Ganges valley and links the Black-and-Red Ware with them by virtue of its geographical distribution, which occurs in the same areas in a descending time-scale. The record of the Yadava lineage terminates with the Mahabharata war but references surface later in the south Indian tradition, where there is revival of a Velir-Yadava connection, in conjunction with association of the Black-and-Red Ware with the Megalithic culture (Thapar 1975-76: 91-93). Therefore, working from different points both scholars use circumstantial evidence that Black-and-Red Ware presents to link historical communities/entities with archaeological data.

The use of newly emerging dating techniques in India have also given rise to some diffusionist theories such as the 'recoil' route of dispersal of the Black-and-Red Ware as envisaged by Agrawala (1971:106-108), which was charted on the basis of progressively younger dates as one moves eastwards from Lothal. However, with calibration and new data, this theory does not stand anymore, but is worth citing as it reveals the unilinear model of explanation with scientifically obtained data.

The appearance of white painted Black-and-Red Ware, akin to the types at Ahar and Lothal, in the late period IC at Surkotada has been interpreted by the excavator as an influx of a new people, who had had contacts with south-east Rajasthan. Certain rubble structures constructed in this phase are also assigned to them. The amount of white Painted Black-and-Red Ware mentioned is on the contrary, quite low, forming 4.5% of the assemblage in this period. The increase in the frequency of Harappan pottery like goblets from certain levels of Period IC shows that it received a fresh lease of life, possibly due to a fresh wave of Harappan immigrants (Joshi 1990: 18-19).

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Speaking of archaeological cultures and ethnic communities synonymously, Soundara Rajan (1962-63) delineates five chronologically and spatially separated proto-historic cultural currents in India represented by the Indus Valley Culture, Painted Grey Ware Culture, Black on red using communities (Central Indian and Deccan Chalcolithic cultures) and Southern Neolithic/Neolithic Chalcolithic spread, with the Black-and-Red Ware forming the fifth cultural current that played the role of 'intermediary' amongst them, 'hob-nobbing' with the other four units (Soundara Rajan 1962-63: 72-73). Identifying it with the Dravidians he traces its origin to Rajasthan, from where it moves in two prongs – one into the Gulf of Cambay and coastal and interior Saurashtra co-occurring with Harappan, late Harappan and later iron using communities and second through north Rajasthan to Yamuna and Gangetic valleys with Painted Grey Ware and Northern Black Polished Ware, moving south to Narmada and Tapi basins and finally to the southern Megalithic. He envisages a struggle in the south where after iron-metallurgy and Black-and-Red Ware combined to "make a powerful tribal unit" which ultimately led to "social and cultural harmony if not ethnic integration of the north and south almost at a national level, producing the federal entity that is called India" (Soundara Rajan 1962-63: 82). Such were the far-reaching conclusions drawn by the widespread occurrence of pots and pans, black and red in colour.

A notable exception is Srivastava (1971, 1980), who adopted a regional approach in studying the ware by dividing the area where Black-and-Red Ware occurred into zones, on the basis of associated material culture remains, geographical area and chronology. Through a systematic comparative study of the Ware, he demonstrated how tenuous the typological similarities, which had so far been cited, really were. In addition, by looking at the associated material equipment he argued against the identification of the Black-and-Red Ware as a 'Culture' or with a people, stressing that a particular ceramic industry cannot by itself constitute a culture. Thus ruling out migration of 'people' as a cause of the spatial distribution of the ware, he advocated instead, a migration of 'ideas'.

Singh (1982) attempted a similar holistic approach, but his final assessment is confusing in its ambiguous use of terminology and separation of archaeological constructs, which are essentially embedded in each other. In the course of his assessment, he negates

every position he takes. He says that Black-and-Red Ware "...is noted for its poignantly diverse and varied typological, technological, contextual and material personality" (Singh 1982: xix), but later also says that it is devoid of cultural personality. Elaborating on the differences and lack of typological identity of the Black-and-Red Ware, he dismisses it as merely a firing technique (so by implication it ceases to be a 'ware') yet says that this 'ware' is characterised by 'trait diffusion' (Singh 1982: 424). He states that the nature of the diffusion is "multi-directional and multi-dimensional" (Singh 1982:425), but he does not care to elaborate the probable routes it could have taken or the possible modes that such diffusion might have embraced. Hence, the Black-and-Red Ware, as he portrays it, is many things and at the same time it is nothing.

Hooja (1988) says that Black-and-Red Ware is really a technique of pottery treatment and that its use is a widespread phenomenon occurring even in non-Indian contexts. Archaeologists have, however, tried to use it diagnostically to explain cultural zones and culture variations. The important point is that the commonality between Black-and-Red Ware in various cultures lies not in its form (as one specific form of Black-and-Red Ware) but in the technique and technology of its manufacture. Apart from this distinctive firing, there is little in common between Black-and-Red Ware of various places in form, fabric, colours etc. Going beyond this to search for more meaningful interconnections between every Black-and-Red Ware using 'culture' opens up innumerable problems and pre-suppositions (Hooja 1988: 78-80).

A Reassessment

Most of the approaches outlined above seem to assume a simple and straight forward connection between the pottery being studied and the 'people' who made and used them. The issues of identity/origin and the spread of Black-and-Red Ware were infused with cultural meaning, while treating it as a diffusion of technique rendered it devoid of cultural meaning. The issue for explanation then, was the difference in its shapes in different contexts. Workers who sought the cultural identity and the spread of the Black-and-Red Ware makers utilised the concept of acculturation to understand these dissimilarities. The scholars who believed it to be a technique that diffused over time and space propounded that it was not a culture by citing these same dissimilarities. This

pan-Indian scale at which the Black-and-Red Ware was viewed was too wide a scale of observation in which to look at such issues and it partially obscured the meaning that might have been derived by looking at the same phenomena at the scale of macro and micro regions.

Looking for the identity and/or origin of material correlates involves ethnic and cultural issues. Tracing the physical spread of material correlates needs the invoking of concepts of migration and/or diffusion of ethnic and/or cultural entities and/or ideas. There has been a search for authors of archaeological cultures in one or the other historically known social groups ever since the discovery of Mohenjodaro and subsequent finds (Marshall 1931, Wheeler 1947, Lal 1954-55, Subbarao 1958, Sankalia *et al* 1969, Agrawal 1966). This is linked with the 'retrospective method' in which the historically documented past is used to infer a situation in prehistory [Veit 1989 (reprint 1994: 39)]. That this trend has occurred throughout the history of the discipline is expressed by Ucko [1989 (reprint 1994)] who speaks of how material culture and its distribution pattern has been taken to reflect the activities and movement of specific social groups, whose supposed physical or ethnic identity have also often been assumed to correlate with such artefactual groupings.

Hence, the above-mentioned theories of the Black-and-Red Ware seem to be congenial with the academic and socio-political climate of the times they were propounded in. Many of the conclusions they reached may even be accurate but in light of the changing academic environment, archaeological concerns, rigorous internal reassessment and growing maturity of the discipline in India (Malik 1968, 1972-73, 1979; Agrawal and Chakravarti 1979; Paddaya 1990; Ratnagar 1991, 1994, 1998, 1999), the manner in which they arrived at the conclusions warrants a re-evaluation.

To sum up, the crux of the older approaches was the treatment of the Black-and-Red Ware as a single culture complex identifiable with an ethnic group, despite the stated diversity of temporal, spatial and material contexts and its own variable nature in them. Acculturation, contact and migration of people or ideas were the themes evoked to explain the change in forms in different contexts, the route of which was charted by its occurrences (mere presence noted and absence ignored), and chronology. At the other

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extreme the same variability led to a dismissal of the Black-and-Red Ware as 'just a firing technique' with no cultural or typological identity, following the shapes of the major wares it was associated with in the different contexts.

Several points emerge from the above:

Underlying the choice to look at the similarities without assessing the differences along side, is the assumption that archaeological evidence possesses the potential of effectively providing a simple and straightforward picture of past spatial organisation. Thus efforts are directed towards defining areas of 'cultural' similarity that are then interpreted as ethnic, tribal and language groupings and discrepancies in the material data are explained by historical movements of people (Hodder 1978:3). The simplicity of these explanations undermines the complexity of archaeological data. Archaeological distributions and spatial variations are products of a variety of past behavioural processes and the same type of artefact in different contexts could have served a different social or functional role and held different meaning. Thus, the spatial patterns produced by artefact distributions are so many and varied that it is meaningless to regard them as evidence for a coherent cultural tradition (Shennan 1978). So, to view them in an undifferentiated manner and transfer observations about an entity that is a part of one system to that which is part of another, leads to a loss of potential information as it is the association rather than the mere presence of a particular item which is significant (Binford 1962, Clarke 1968, Shennan 1978).

Equating archaeological data with culture also reveals a tendency to forget that the term 'Culture' as used in archaeology, is only an archaeological entity, restricted in scope "and consisting of a variety of types of material remains known to be contemporary, associated with one another and occupying a continuous geographical area" (Shennan 1978:113). As an archaeological construct, it is useful for summarising spatial variation and for ready descriptive purposes, but not to delimit real entities or groups [Shennan 1989 (reprint 1994)]. Thus, no single artefact type (like pottery) or any of its attributes (like surface colour) can form an archaeological culture. Moreover, much of what distinguishes an actual culture (such as language, beliefs, morals, customs, law) does not survive in the archaeological record and to equate material remains with actual

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culture is too simplistic and creates problems like looking for origins of what is just a formal category (Shennan 1978).

Miller looks at the direct equation of archaeological entities with past living societies as posing a subtle danger for the mental processes involved in archaeological explanations. The substitution of material relations for social relations may cause a symbolic inversion to occur wherein the name of the society may come to act merely as a label while the actual subject of the study remains at the level of objects. Thus superseding the symbolic process of archaeology, the emphasis shifts from a study of ancient society and its objects and the processes involved therein to a study of society mediated through its objects and so movement of style and the like is assumed to represent directly movements of peoples and cultures (Miller 1985:2-3).

The identification of the Black-and-Red Ware with anciently known communities is problematic from its very inception. Ancient Indian texts attest to the existence of several ethnic/social groups, but they are not clearly defined in the texts in terms of their material remains or physical characteristics. These groups have come down to archaeology and anthropology as linguistic labels and thus, their identification with archaeological remain or physical types is admittedly speculative (Thapar 1975-76). This is evident in the above theories where the Black-and-Red Ware is treated, almost unequivocally, as a single cultural phenomenon and then, identified, with equal forcefulness, with several groups. Secondly, genealogies and events mentioned in traditional literature were often compiled several years after the actual events took place, containing many elements of public memory and other accretions (Thapar 1975-76). Thus, ancient texts do not lend themselves to injudicious application for purposes used in archaeology. Moreover, the archaeological methods prescribed even then for making such connections were far more rigorous than those employed above. Gordon Childe posited the equation of societies with archaeological evidence of material culture only when more than one regularly associated 'type' of object occurred with another. The existence of a specific past human society was therefore assumed only when there was a demonstrable association between certain kinds of material culture evidence [c.f. Ucko 1989 (reprint 1994: xiv)].

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There is also the thorny subject of ethnicity itself and its material correlates. These are intertwined with complex questions of self-conscious identification with a group, creation of a group identity and whether this identity is gendered by birth or by political and social contingency, and what the group considers is crucial to maintain and convey its distinctness from other groups [Shennan 1989 (reprint 1994)]. Relevant to the issue at hand is that the larger question as to how the existence of particular social groups can be attested to by their material remains. Several ethnographic parallels drawn from a study of present day social groups emphasise the fluid nature of group perception and the difficulties in distinguishing material markers of these divisions. Thus, as many scholars echo, the route from artefact to ethnicity is far from straight and considering the fragmentary nature of archaeological evidence, one is not in a position to pinpoint ethno-specific artefacts using typological methods that partition material data sets [Hodder 1978; Ucko 1989 (reprint 19940); Ratnagar 1999; De Corse 1989 (reprint 1994); Balint 1989 (reprint 1994)].

Migration, diffusion and acculturation are commonly cited to account for spatial distribution and changing contexts of Black-and-Red Ware. However, the themes revolve around noting the absence or presence of chosen traits that are not always even clearly stated. The explanations are merely stated without further clarification. For instance, Singh envisages a "unbounded, multi-directional and multi-dimensional" proliferation, but does not elaborate routes or the mode it could have taken (Singh 1982: 425). Thus, while using migration, diffusion, and acculturation as explanatory models, their larger implications are not appreciated. Diffusion, migration, acculturation and assimilation, though important processes of culture change, form the starting point of investigations rather than the explanation, as they are themselves complex processes needing to be demonstrated (eg. Shennan 1996). Citing them to account for spatial distribution of an artefact or style gives rise to many related questions about the mode and nature of interaction. For instance, it could have accompanied a physical movement of people from one area to another (which could be many small scale movements or a large scale one), it could denote some form of exchange and it could be by imitation or it could signify learning by intensive interaction (Hegmon *et al* 2000: 218). In addition is the question of how one artefact can signify movement. Hodder

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cites several instances from other works where historical evidence of migration and acculturation did not reflect in the archaeological record (Hodder 1978: 4-7).

A final observation that follows from the above is, that, in their zeal to explain the spatial and temporal variation in forms and occurrence of Black-and-Red Wares by extraneous processes, previous workers based their interpretations on a technology of firing which could produce a two colour surface effect. It was considered the most crucial attribute and all other variation was examined in relation to it. In this manner, the type definition of Black-and-Red Ware was diluted to denote just the two colours effect. This is probably what prompted Ratnagar to comment that Black-and-Red Ware did not even qualify to be an artefact type (Ratnagar 1994).

Black-and-Red Ware: a Type

As applied to archaeology, a Type is a sorting category, which includes the distinguishing physical features as well as the associative meaning of a group of entities that makes it possible to think of them in a collective way, under a collective label, and differentiate them from other types. Thus, an ideal type must possess intrinsic attributes of distinct identity and the extrinsic attributes (beyond the criteria of its identity) of Meaning, which is both contextual (distribution in time and space, association between other things found with them) as well as inferential (the ideas about the objects being classified - presumed function, or other significance attached to it) (Adams and Adams 1991).

By the above definition, when the Black-and-Red Ware was identified as an integral part of the South Indian Megalithic assemblage, it formed a well-defined 'Type'. It was diagnostic by its intrinsic attributes of surface treatment (black inside and often extending over the rim and top edges on the exterior, and red outside), finish and manufacture (slipped and polished, usually fairly thin and turned on a slow wheel, believed to be salt-glazed, with a resultant shining and crackled surface), distinctive shapes (tulip shaped vase, funnel shaped lid, elongated vase with carinated shoulder and long tapering body, carinated bowl with almost pointed base, sagger based bowl with slightly incurved or carinated short sides) and also carried contextual meaning, being consistently associated with Megalithic burial and habitation sites in peninsular India,

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along with Iron implements and other wares (Polished Red Ware, Black Ware and Unslipped Red Ware), and occurring within a specific region (almost universally found in south Indian Megaliths, not associated with Megaliths in other regions of India) and representing a specific time bracket (3rd Century B.C. to 1st century A.D.). This was the case in 1947 when Wheeler excavated Brahmagiri and even today, this definition of Megalithic Black-and-Red Ware stands in its context, though nomenclature and time span has changed (Hallur was excavated in 1965 giving a C^{14} date of 1000 B.C. or maybe more) with new research.

It is therefore clear that whatever meaning the Black-and-Red Ware may have carried in its different contexts was obliterated by its collective treatment.

An Alternate Approach

The constant refrain about the Black-and-Red Ware, whether it was identified with a culture or completely negated, was that it follows the shapes of the major wares with which it is associated (implying adaptation, emulation and several such processes of change). Rice (1984) quotes ethno-archaeological examples of how identical pottery may be produced by groups with very different linguistic or cultural heritage (Rice 1984:235). Similarities in shapes however do not preclude a difference in production techniques. As Rye says, technological traditions may not be synonymous with typological traditions and different techniques may be employed to produce vessels with similar form and decoration, just as a single process can be used to produce distinct forms (Rye 1981). Ethnographic studies have revealed a complex relationship between potters and the production techniques they employ. The technological choices that a potter makes (the clay/s he chooses, the paste he creates, the tools he uses, the forming techniques he follows etc) seem to be 'embedded' (Sillar and Tite 2000) in a much wider context than merely the technological and economic activity of production (Nicklin 1971; Rice 1984; van der Leeuw *et al* 1991; van der Leeuw 1993). Thus, 'technological style' (Hegmon *et al* 2000) becomes an important area of investigation.

Material science techniques, especially ceramic petrography have also stepped into this area to investigate the variability in microstructural Fabrics and interpret the origin and significance of these differences with respect to technological processes (Gerrard and

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Gutièrrez 1991; Krishnan and Veena Rao 1994; Shah 1994). The use of this technique to identify 'technological style' has also been successfully demonstrated (Herman and Krishnan 1994; Krishnan and Rao 1994; Hegmon *et al.* 2000).

In light of the above, the present work proposes to evaluate the position that Black-and-Red Ware would have held in different cultural contexts. The emphasis is on examining it from the technological perspective of clay-paste preparation for which ceramic petrography has been adopted as the investigative tool.

Objectives

The primary objective of the work is to evaluate the position of the Black-and-Red Ware in the specific framework of three Chalcolithic sites, each in a different cultural and temporal context, from two separate regions. The sites are Balathal in southeast Rajasthan which is a Banas Culture site, Nagwada in north Gujarat which has been classified as an Anarta Chalcolithic site with mature Harappan affiliations and Ratanpura, a Late Harappan site, also in north Gujarat.

To gain an understanding of the different aspects of the Black-and-Red Ware and its relationship with the associated wares an integrated approach has been adopted, for which it is proposed to:

1. carry out a typological study of the Black-and-Red Ware and the associated wares at all three sites.
2. carry out Fabric characterization and textural analysis on the Black-and-Red Ware and associated pottery at the above mentioned sites to gain an insight into:
   a. the modification of the raw material and paste characteristics
   b. the relationship between different Fabric groups within each site and the position of Black-and-Red Ware in this respect
   c. the correlation of Fabric groups with specific pottery types
   d. the provenance of the raw material
3. conduct physical tests of hardness and porosity on the ceramics of the three sites to see how they relate to the manufacturing processes of the ceramics such as paste

character, surface finish and firing and how they differ in the different ceramics in this respect. Through these methods, the aim is to :

4. elucidate the position of Black-and-Red Ware at the above mentioned sites.

1A.I. 5, 1949; I.A.R.1969-70
[2]Sankalia *et al* 1955
[3] I.A.R. 1955-56, - 1957-58; I.A.R.1964-65
[4] I.A.R. 1955-56
[5] I.A.R. 1953-54 – 1966-67
[6] A.I. 10, 1954-55
[7] I.A.R. 1953-54 - 1954-55, Rao, S.R. 1962-63
[8] I.A.R. 1954-55 – 1959-60, I.A.R. 1961-62, Rao, S.R. 1979
[9] I.A.R. 1955-56 – 1956-57, I.A.R. 1971-72, I.A.R. 1975-76, Nanavati *et al* 1971
[10] I.A.R.1955-56
[11] IAR 1954-55 - 1955-56, Sankalia *et al* 1969
[12] Sankalia *et al* 1958, Sankalia *et al* 1971
[13] Joshi, J.P. 1974, 1990
[14] I.A.R. 1963-64
[15] I.A.R. 1989-90 – 1992-93, Bisht, R.S. 1998-99
[16] Rao, S.R. 1962-63
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[18] I.A.R.1954-55, Rao, S.R. 1962-63
[19] I.A.R. 1969-70
[20] Hegde *et al* 1988, 1990
[21] I.A.R. 1984-85
[22] I.A.R 1959-60
[23] Misra *et al* 1995, 1997, Misra, V.N. 1997, Shinde, V. 2000
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[25] I.A.R. 1960-61 - 1961-62
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[27] A.I. 20, 21:1964 and 1965
[28] Deo, S.B. and Z.D. Ansari 1965
[29] Dhavalikar, M.K., Sankalia, H.D. and Z.D. Ansari 1988
[30] I.A.R. 1953-54
[31] I.A.R. 1956-57, 1959-60 – 1961-62
[32] I.A.R. 1962-63 – 1971-72
[33] I.A.R. 1962-63 – 1964-65
[34] I.A.R. 1963-64