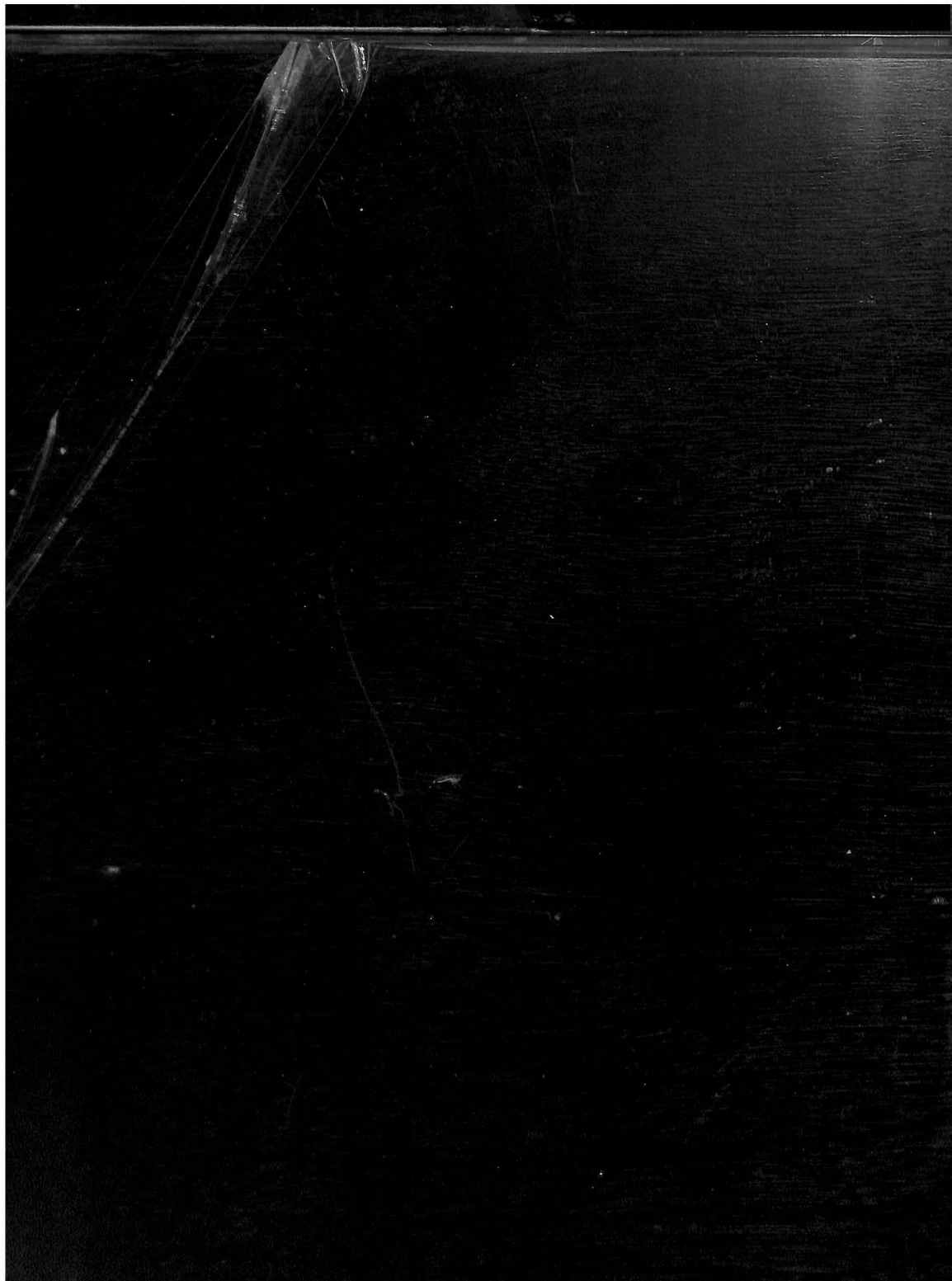




POTTERIES IN ANCIENT INDIA

EDITED BY
DR. B. P. SINHA

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POTTERIES IN ANCIENT INDIA

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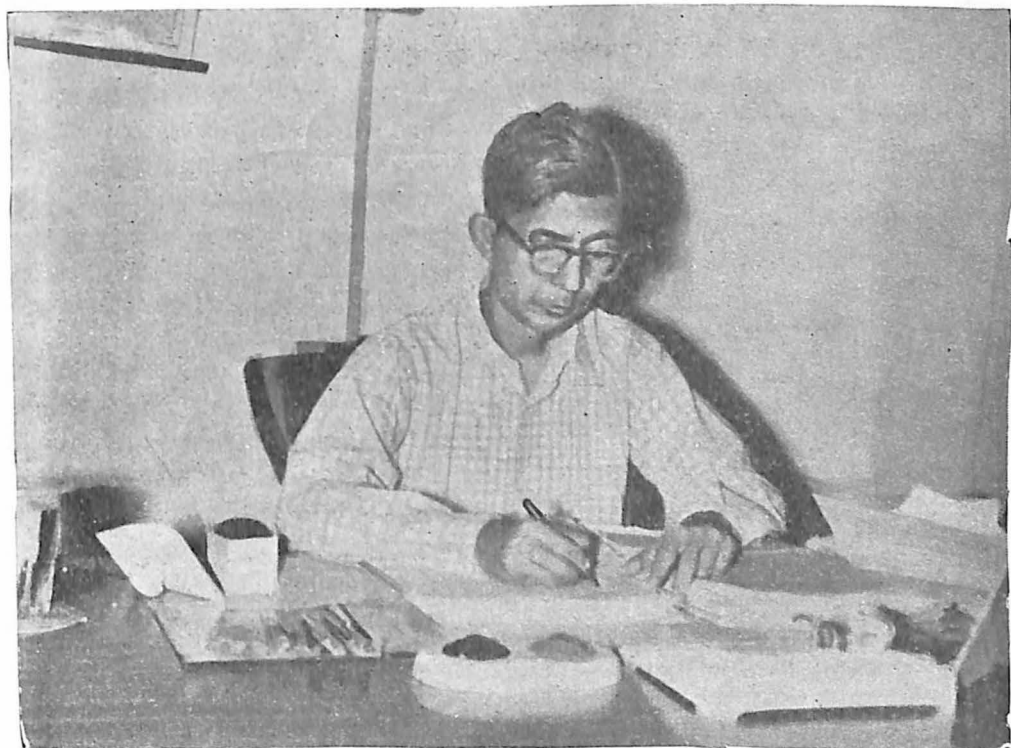


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INTRODUCTION.

There has been a tremendous spurt in archaeological activities in independent India. Many new sites revealing new cultural horizons have been excavated and explored. The legitimate anxiety to compensate for the loss of rich sites to Pakistan and to bridge the wide archaeological chasm between the Harappan and the Buddhist eras supplied the necessary stimulus to vigorous efforts in this highly exciting and rewarding field. To cope with the demand for more and more excavations, and for more and more trained scholars in field archaeology, it was rightly felt that the Archaeological Survey of India should have more sister institutions, and consequently separate directorates of Archaeology were set up in the States, and universities were encouraged to establish departments of archaeology to impart teaching and field-work training in archaeology. The Patna University was one of the first five Indian universities which was selected by the University Grants Commission to provide post-graduate teaching in archaeology and in 1959 the erstwhile department of Ancient Indian History and Culture was transformed into Ancient Indian History and Archaeology and teaching in theory and practice of Archaeology was started. There is no doubt that with the increase in the number of Institutions of archaeology, the country has a large number of important archaeological sites excavated and explored, which have thrown considerable new light on the understanding of the history and culture of the people.

About more than two decades of highly exciting and rewarding efforts have laid bare sites such as Kalibanga, Lothal, Ahar, Navda Toli, Nasik and Jorwe, Rangpur, Nagarjunikonda, Eran, Atranjikhhera, Hastinapur, Kausambi, Rajghat, Prahladpur, Sonapur, Chirand, and Pandurajardhibi and many others which have almost revolutionised our ideas of Indian archaeology. The application of C-14 dating method in India and the work of the Tata Fundamental Research Institute have added new dimension to this voyage of discovery of India's past.

Archaeological diggings throughout the length and breadth of the country, from the Sutlaj Valley and Kashmir to Malabar, from Dwarka to Pandurajardhibi and Chandraketugarh, have revealed numerous distinct ceramic cultures in stratified layers. To name a few, Neolithic *Burzhom* and Chirand Red and Grey wares, pre-Harappan Kalibangan, Malwa and Jorwe, Painted and Plain Black-and-Red, Lustrous Red, Painted Grey, etc. It was therefore thought very opportune to have a stock of the position and to exchange notes between workers in the field and universities.

With the financial assistance of the Bihar State University Commission and the University Grants Commission, the department of Ancient Indian History and Archaeology Patna University decided to organise a seminar on Potteries in Ancient India. Dr. K. K. Datta, the Vice-Chancellor and one of the most distinguished Indian historians; gave inspiring encouragement. The response from the friends of Archaeological Survey of India, State Directorates of Archaeology and Universities was more than expected. For full four days the participants in the Seminar had stimulating discussions for hours together, and returned visibly immensely satisfied with the results of their labours. It was a treat to see young workers rubbing shoulders with senior colleagues in the discussions. This is what should be in a seminar of researchers and workers in the field.

We are extremely grateful to Sri B. B. Lal, Director-General of Archaeology, scholar-cum-administrator, to have found time in the midst of his heavy and pressing duties to come and inaugurate the seminar. Our thanks are also due to Shri Badri Nath Verma, Vice-Chairman of the Bihar State University Commission, and one of the leading old educationists in the country to open the Exhibition of Potteries arranged on the occasion. We are very grateful to Dr. K. K. Datta, the Vice-Chancellor of the University to have presided over the inaugural session. Many, many thanks are due to the members of the Archaeological Survey of India, the State Directorates of Archaeology and the Universities, for contributing informative and critical papers and for participating in stimulating discussions. Thanks are also due to organisations and authorities for sending their exhibits for the Exhibition, which gave so to say flesh and bones to our discussion on the subject. It was only because of their unstinted support and cooperation that the seminar, first of its kind in India, on an obtruse subject, could be a success.

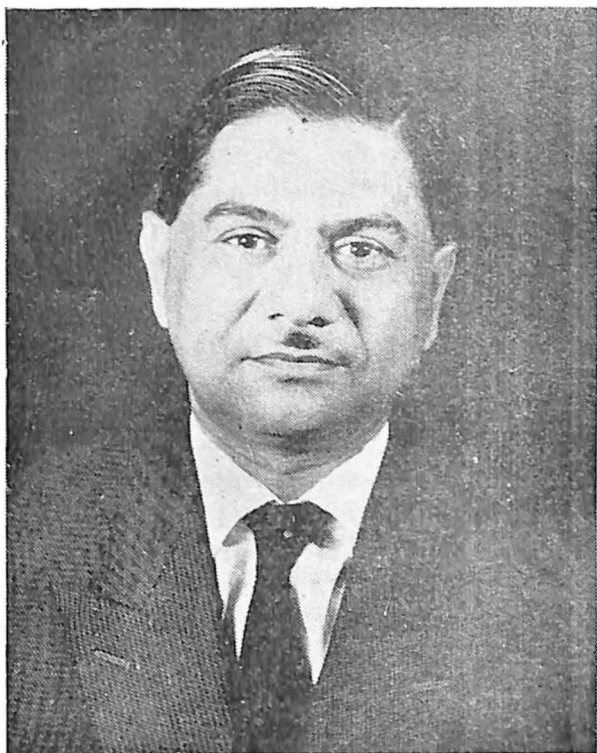
But behind all this success and organisation lay the hard and sincere labours of my fellow members of the Department, of the staff of all categories who worked literally day and night for the successful run of the seminar.

It is not possible to discuss the papers here. They are for the readers to judge. The Seminar largely interested itself with potteries down to the early centuries of the Christian era. Later potteries were not discussed.

Our thanks are due to Mr. Kuruvilla, the Superintendent of the Patna University Press, without whose personal interest and initiative, the work would not have seen the light of the day so early. Sri Basudeva Narayan, Dr. S. N. Sahay, Dr. B. Sahay and Dr. O. P. Jaiswal deserve appreciation for seeing the proofs and offering such necessary help in getting the volume printed in a short time.

B. P. Sinha

Director of the Seminar



Sri B. B. Lal,
Director-General of Archæology,
Govt. of India

INAUGURAL ADDRESS

B. B. LAL,

(Director-General, Archaeological Survey of India)

I have indeed no words to express my deep sense of gratitude to the Patna University and in particular to Professors K. K. Datta and B. P. Sinha for asking me to inaugurate the seminar on pottery in Ancient India. This is indeed 'greatness thrust' upon me, for I know full well that there are many distinguished colleagues in the gathering here who know much more about pottery than I. Anyway, it was the behest of these two professors that I must do the ritual of inauguration and here I am for the purpose.

I suppose I would be forgiven by my colleagues and co-workers in field archaeology if I withdraw for a while from them and first addressed my other friends present here. For, more than any thing else, it is their sympathy and subsequent co-operation that I would like to enlist. No doubt, the fact that they are present amongst us shows their interest in the subject, but it should, I suppose, be our effort to make them interested further and further so that they may be so filled with enthusiasm for the subject that they may, on their own volition, tell those whom they meet thereafter that we, who are dubbed as 'potsherd-hunters', are not really wasting our time and energy and the nation's money in the chase of broken fragments of pottery discarded long long ago and mostly forming parts of rubbish heaps.

The pottery, like any other source-material known to historians, throws light on almost every aspect of the past-social, cultural, religious, economic, political and what not! In fact, I might go even a step further and declare that in recent years pottery has helped us even in solving riddles which other sources just could not. I shall substantiate these statements with a few examples.

Amidst the pottery found in the excavations at Arikamedu, near Pondichery in south India, there were two varieties which call for special attention. One of them is the Arretine. It is known to have been produced in Italy at a place called Arezzo, from which it derived the name. This pottery originated some time in the first century B.C. and was driven out of the market by its rival potteries about the middle of the first century A.D. Its occurrence at Arikamedu, therefore, not only proves a trade-contact between Rome and India but also pin-points it in time; it could not have been later than A.D. 50, by which date the manufacturing itself of the Arretine had ceased. Such

a precise dating is not possible sometimes even with the help of coins, as these can continue to be treasured for a couple of centuries after the concerned king or queen has ceased to rule : Did we not have in our houses the coins of Queen Victoria until the other day ? But an earthen pot, being breakable, would not normally be in use beyond a few years of its manufacture. Hence the advantage of a closely-dated pottery over even coins. The Arretine Ware also confirms the historical indication that Roman trade with the East was in all likelihood the result of the unification of the Western World under Augustus who ruled between 23 B.C.* and A.D. 14.

The Tamil literature of the early centuries of the Christian era makes a reference to the importation of Roman wine into India. Now, while literature give only an inkling which may or may not have been believed—pottery has given it a concrete shape, namely how, when and what kind of wine was imported. At Arikamedu, already referred to, have been found tall conical jars with hefty handles, called amphorae (pl. 1). These jars are known to have been used in Italy for the transportation and storage of wine. And lest there should remain any doubt about the fact that it was wine and nothing else that was imported in these vessels from Italy, the chemical analysis of the incrustations on the inner walls of these vessels has proved the presence of resin, a prominent constituent of the Roman wines of the early centuries A.D.

The pottery may well be regarded amongst the most important keys that the archaeologist has, for it has unlocked many a secret of the past, which would otherwise have remained unknown. For example, who could have imagined that some of the stories narrated in the *Pancha-tantra* are as old as four thousand years ? On a jar found at Lothal, the famous site of the Indus Valley Civilization in Gujarat, occurs a painting (pl. 2) in which two birds are seen perched on a tree, each holding a fish in its beak. Below is an animal with a short thick tail, which Shri Rao, the excavator of Lothal, is inclined to identify as a fox. He also refers to the presence of a few fish on the ground. If this identification be correct, here we have the kernel of the story of the cunning fox who flattered the crow and managed to pinch away the morsel from its mouth.

The painted designs on the Harappan pottery include a variety of flora and fauna. While evidence in respect of the latter is also obtainable from the actual animal remains, the evidence regarding the former, viz. the flora, is not easily to be had from the material remains, except perhaps for the wood which may be identified through the charcoal. But I don't think there is any evidence other than that of the painted pottery to establish the plantation of the

banana by the Harappans, On other aspects, too, of the life of the Harappans does the pottery throw singular light. For, what other evidence but the painting on a potsherd from Harappa is there to establish the use of the *dhotī*, the typical Indian lower garment, as far back as the middle of the third millennium B.C. ?

It is a pity that the Harappan script has not been deciphered so far. But more pitiable than this was the fact that until a few years ago there was no agreement amongst scholars even on a basic point, *viz.* whether the script was to be read from the right to the left or *vice-versa*. The excavation at Kalibangan in Rajasthan brought to light in 1961, amongst other inscribed potsherds, two specimens (pl. 3) which helped solve the riddle. On these sherds there occur overlaps of the incised symbols; and the incisions show that the symbols on the right were successively cut by those on the left. This proved beyond any shadow of doubt that the direction of writing in the Harappan script was from the right to the left. Hasn't the pottery scored over other source-materials in this battle of wits ?

The pottery also throws indirect but much welcome light on the food-habits of the people. The *thālī*, which is a must in every household in northern India and can be seen as a proud possession of an upcountry labourer squatting on the pavements of Calcutta, at once reminds one of its prototype found in the painted Grey Ware complex (pl. 4) at the beginning of the first millennium B.C. I would have no objection if some one further imagined the Painted Grey Ware people eating *dāla-bhāta* (lentil and rice) in these dishes just in the same way as our common folk do even to-day in Bihar or Uttar Pradesh. In fact, I should even place in one of the hands of the Painted Grey Ware person taking his or her meals the *lotā* found at Rupar, which is, again, more or less similar to its present-day counterpart in northern India. In this context it may well be affirmed that the shape of the modern Gujarati *lotā* (pl. 6) can boast of even a greater antiquity : its proto-types (pl. 5) have been found at Prakash in Khandesh in deposits ascribable to the middle of the second millennium B.C.

Lest one should go away with the impression that the pottery is capable of throwing light only on an odd bit here another odd bit there, may I now refer to something which can definitely be regarded as of far-reaching significance. One is pained to find that in the third decade of Independence we have to plead for an emotional and cultural integration of India, as if it is something new, something that has to be imposed now. Such an exhortation has become necessary evidently because there is a tendency amongst certain class

of people to over-emphasize regionalism even at the cost of nationalism. But let every Indian know that though there may have existed in the third-second millennia B.C. broad regional divisions in the pottery of the country, namely the Harappan black-on-red ware and its ramifications in the Indus valley and Gujarat, the Ochre Colour Ware in the Ganga Valley, the neolithic burnished grey ware in the south, at the beginning of the first millennium B.C. a great ceramic unity had begun to emerge, and by about the middle of that millennium there was a complete cultural intergration of India. Did not the Northern Black Polished Ware cover the entire length and breadth of the sub-continent from Charsada in West Pakistan in the north-west to Amaravati in Andhra Pradesh in the south and to Tamluk in West Bengal on the east ? It was more than two thousand years ago that we, the sons and daughters of Mother India, had learnt to eat from the same plates and drink from the same cups. Then what is it that should separate us now ? Let us reflect coolly over things and learn the lesson that ancient Indian pottery has to teach us even in its muteness.

May I now have a few words with my professional colleagues and draw their pointed attention to some of the more important problems facing us in the field of ancient Indian pottery ?

There is first of all the problem of the black-and-red ware—or, shall I say, wares ? Now, whereas there is no black-and-red ware in the Harappan context in the Indus Valley and Rajasthan, there does occur a black-and-red ware in the same context in Gujarat. Wherefrom did the Gujarati Harappans pick it up ? Or, did they originate it ? This ware continues into the Late Harappan levels at Lothal (Lothal B) and becomes a dominant industry in the still later ramifications, viz. those of Rangpur IIC and III, when it also shows marked white-painted designs. But while a white-painted black-and-red ware does occur in the Banas valley of Rajasthan about the time of Lothal B and Rangpur IIC, there is not much similarity in the pot-forms of the two regions. Can we then conceive of the black-and-red ware technique having originated independently in the two regions ? Perhaps not. Again, we find the occurrence of a white-painted black-and-red ware as far east as Pandu-rajardhibi in West Bengal, towards the close of the second millennium B.C. Wherefrom did it come ? From the Banas valley, through central India ? How did it penetrate into Bihar ? Through the Son valley ? Should not then the valleys radiating from the central Indian plateau be thoroughly explored for the purpose ? A plain black and-red ware also occurs alongside the Painted Grey Ware and continues up to the times of the Northern Black Polished Ware. What is the exact relationship between the black-and-red ware and the Painted Grey Ware ?

Looking southwards, Bahal and Tekwada in the Tapti basin have shown the existence of a white-painted black-and-red ware in a chalcolithic context. Some of these pots also bear graffiti which indubitably tie them up with the megalithic black-and-red ware. What, then, is the real story of the black-and-red ware which ranged in time from the second half of the third millennium B.C. down to the beginning of the Christian era and which encompassed the whole country during a major part of the first millennium B.C. Does the ware represent a single culture, with evolutions and devolutions in point of time and space ? Or, is the similarity confined only to the technique of manufacturing, there being local adaptations by the concerned cultures ? Indeed, is it not high time that a thorough, analytic-*cum*-synthetic, study was made of this ware ?

Then there is the problem of the Ochre Colour Ware. Is it Late Harappan ? Or, is it an altogether different industry dominating the Ganga Valley, there being, however, interactions between this Ware and the Harappan ? There is another and, I dare say, a no less important aspect of the problem of the Ochre Colour Ware. At a number of places, for example Bahadradabad, Nasirpur, Jhinihana, Hastinapura, Noh, Ahichchhatra, Artanji-Khera, etc., this ware has been noticed to occur sporadically in a matrix of otherwise clean earth which imperceptively merges into the natural soil. Indications are that these deposits may be water-lain. Are we then faced here with a huge deluge covering hundreds of miles of the Ganga-Yamuna basin ? Chronologically, this deluge may have to be placed some time about the middle of the second millennium B.C. Again, though there is a strong circumstantial evidence that this Ware may have been associated with the copper Hoards, unimpeachable evidence has yet to come.

There are two other noteworthy aspects of our studies in ceramics. In the first place, detailed technological studies, supplemented with actual experiments in re-production, ought to be made of the various kinds of pottery. No doubt some thing has been done in respect of the Northern Black Polished Ware, but the truth is still far from the sight. Should not one also contact the local potters in eastern Uttar Pradesh and western Bihar who still manufacture a pottery not very dissimilar to the Northern Black Polished Ware ? Another question : Is the black-and-red effect in pottery always the result of inverted firing ? For example, while in the megalithic Black-and-red Ware the interior as well as the portion near the rim on the exterior are black and the lower exterior red, the same is not the case in certain grey-and-red ware dishes of the north. In these the interior is grey or greyish black but on the exterior the rim-portion is red and the base grey or greyish black. Is the latter variety the result of what is known as 'sagger-firing' ?

In the context of technological studies, the archaeologist has to extend his begging bowl before the specialists in natural sciences, for who else but the chemist could have identified the resin in the incrustations on the Roman amphorae or who else but the botanist could have pointed out the existence of rice in the Harappan context at Lothal, by indentifying the husk used as a *degraisant* in the pottery as that of paddy? I am sure it is in the very nature of the natural scientists to extend their co-operation to the needy.

The other aspect I had in mind was the correlation of the ceramic evidence with that from the literature. I am sure there are words in the various ancient texts—Brahmanical, Jain and Buddhist—referring to many of the pottery forms we have encountered in our excavations. Is it not meant that the two types of evidence were duly correlated? God willing, the efforts may more than amply be rewarded. For, this correlation might give a clue to the vexed problem of the Indo-Aryans. I know that some efforts, deserving praise, have been made in this direction but these have not touched even the fringe of the problem. Much more concerted efforts are needed.

Lastly, I would plead for the fulfilment of two great needs. One primarily concerning the student of pottery and the other the student as well as the layman. The former need relates to the preparation of a comprehensive corpus of pottery. In the process of its preparation, the lacunae in our knowledge will also be highlighted, and this would whip us up into greater activity. For example, very little is known of the pottery used during the time of Harsha or thereafter up to the Muslim conquest. In the south there are many more gaps. The corpus will also force on us the adoption of a common terminology, particularly in respect of the description of the shapes.

The other need relates to the establishment of a museum where the visitor may have a complete picture of Indian pottery from the third millennium B.C., down to almost recent times. No doubt the Archaeological Survey of India has a collection of pottery in one of the Baradaris of the Tomb of Safdarjang at Delhi, but it has very many limitations, both regarding the contents as well as the display. At present the Survey only runs what are known as Site Museums, which, as the nomenclature shows, are attached to an excavated site or to a monument and contain material only from the place where they are located. Whether or not it would be jurisdiction of the Survey to establish a Museum of Ancient Ceramics is a matter of fresh thinking. Anyway, whosoever puts up the museum, it is doubtless a great desideratum.

I am afraid I have taken too much of your valuable time and beg your pardon for the same. I once again thank Professors Datta and Sinha, for the kind invitation, and hereby declare the seminar 'open'.

PLATE 1



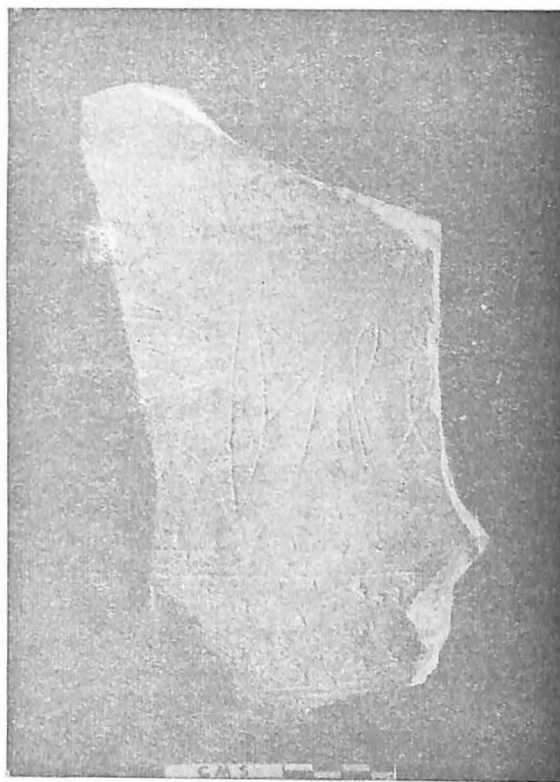
Arikamedu, Pondicherry : bottoms of amphorae in which Roman wine was kept.

PLATE 2



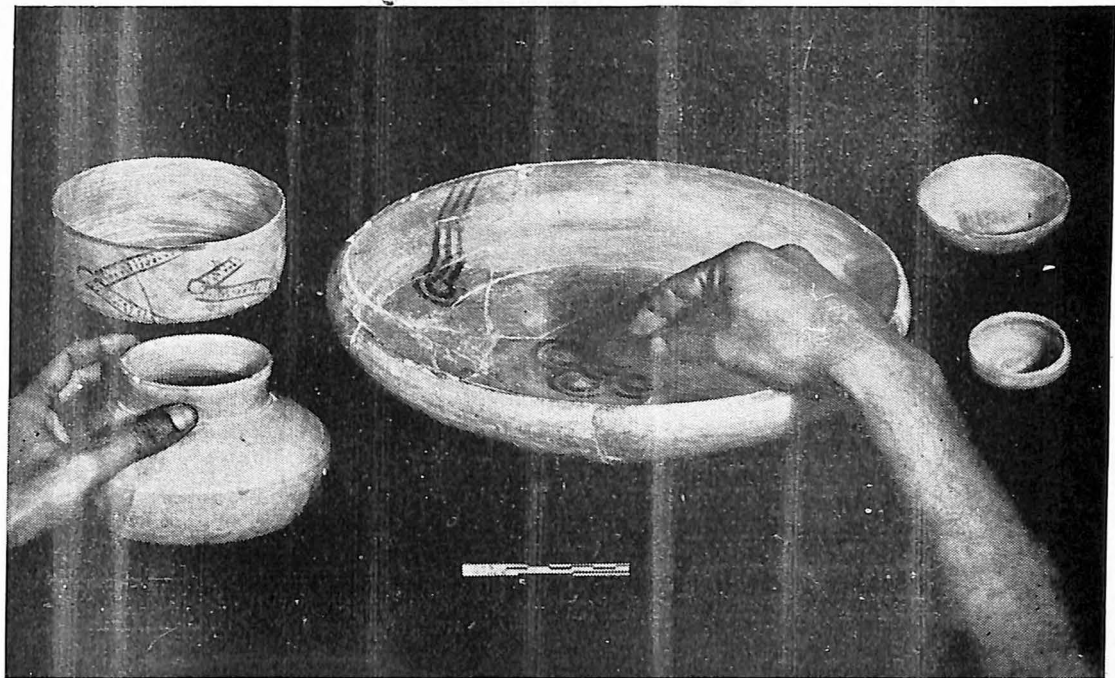
Lothal, Gujart: painting on a jar showing two birds perched on a tree, each holding by its beak a fish. Below is an animal with a short thick tail.

PLATE 3.



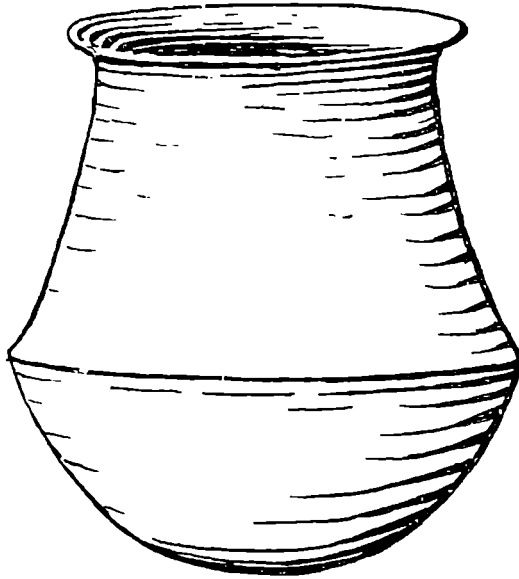
Kalibangan, Rajasthan : an inscribed potsherd.
The overlap of the symbols shows that
the direction of writing was from the right
to the left.

PLATE 4



A 'dining set' of the Painted Grey Ware, beginning of the first millennium BC.

PLATE 5



Prakash, Maharashtra : an earthen *lota*, found in a level datable in about the middle of the second millennium B.C. Typologically, it may well be regarded as the ancestor of the modern Gujarati and Maharashtrian *lotas* (cf. plate 6)

PLATE 6



Ahmedabad, Gujarat : a Girl holding a modern *lota* which is similar to that found at Prakash and other sites in the lower Narmada Tapti valleys, in levels ascribable to the middle of the second millennium B.C.

SOME PROBLEMS OF ANCIENT INDIAN POTTERIES

Dr. B. P. SINHA

Archaeological excavations and explorations in recent years had led to the discovery of numerous ceramic-ware types; some of these are apparently local and some have wide distribution. Different interpretations regarding the authors of these wares, the probable lines of their extension and their relative and absolute chronology have been put forward. It was, therefore, felt that the time has come when an up-to-date stock of the position be taken and problems relating to the ancient Indian potteries be discussed and tackled by scholars from different angles in a concentrated and co-operative way. This Seminar therefore is first of its kind to focus attention on one of the many source-materials of our ancient material culture. It is rightly held that the Indian culture is synthetic in character and there is unity in diversity. The study of the evolution of ancient Indian pottery, the examination of the different characteristic shapes of ancient pots, and a comparative evaluation of the technique followed in different places even for such ancient period for which literary and monumental evidences are extremely meagre, have also led to the same conclusion that the Indian cultural scene even from the view point of ceramic history is also mosaic in character—different pieces are weaved into a variegated colourful picture.

Coming to some specific problems that have been engaging the attention of the archaeologists and historians. Of late I would only mention a few. India's literary heritage is extremely rich, but unfortunately most of our ancient literature bears no absolute dates about its composition, and one has to guess about their dates by reference to their style, stray references to historical events corroborated by non-literary evidences. Epigraphy and numismatics have tried to lay some bricks for bridging the gap, no doubt, but the problem is still challenging. What material culture assemblage should be correlated with specific periods and peoples known from literary traditions. What pottery can be associated with the Vedic Aryans. What material culture unearthed can be related to the Epic period? Can we attribute—some pottery types to Asurs, Dasyus, and Panis of our literature? Often some historians in despair declare that our literary traditions stored in the Puranas and the Epic are mere flights of imagination of our brilliant dreamer poets. While we must concede that conditions in India and Western Asia and Egypt differ but some of us like Schlimann should start with the blind faith and following

traditions that have so powerfully moulded our life and thought for thousands of years discover our ancient Troys—Ayodhya, Hastinapur, Dwarka, Indraprastha, and the like. Some work in this direction has already begun but still we are literally in the stage of gathering pebbles on the sea-shore. Only a fringe of the vast and sacred task has been touched.

Since 1921, Harappa culture was regarded as the most ancient culture. But now we have Kalibanga, Kot-Digi and Amri Wares. What is the relation between them? Is Kalibanga ware the same as Amri? Probably not. And thus we have in Sindh and Rajasthan two distinct cultures superseded by the Harappan. Can a coherent explanation be given to this phenomenon? Then coming to the Harappan Ware. Its extent, as is well known, is much widespread now from Western U.P. to the Punjab, and down to Gujarat. Harappan ware has raised many problems. Was it indigenous or foreign? Has it evolved from Kalibanga? What is its relation with the painted ceramics in Afghanistan, Baluchistan, Iran and Mesopotamia? In a paper contributed to the Journal of the Bihar Research Society in 1960 I had tried to indicate the similarity between some characteristic painted designs and technique of the Harappan pottery with the Halafian and Arpachian or Samarra. It is rather not easy to explain a whole series of identical or very similar potteries observed on vases of different countries as absolutely un-related. Some of the painted designs such as the Fish-scale pattern, intersecting-circles, four-petalled rosette and multi-rayed sun-motif are found almost in identical representations in Harappa and Halafian wares. The use of Reserved-slip, Knobbed ware, particular types of pottery stoppers point to connection between the Harappan and the Uruk and Jemdet Nasr Wares. However there is a large gap between the chronology assigned to Halaf, Samarra, Uruk, Susa-I and Hissar and Harappan in Indian sub-continent. Carbon-14 dates do not go beyond 2,600 B. C. for the Harappan. Then often the painted designs of Harappan and Halafian are met with in the intervening regions.

And then the discovery of Black- and -red Ware in many sites in North India has raised a series of knotty problems. Black-and-Red Ware is found with the Harappan at Lothal. It is found in both white-painted and plain types in Ahar and Gilind. It is found in Navada-Toli and Maheshwar. It has been reported from Eran, and from Bengal at Pandurajardhippi. In Bihar both at Chirand and Sonapur it is found at the lowest occupational layer. In Chirand a few white-painted black-and-red ware in few pieces were also found which in technique and quality resembles Ahar types. A white painted black-and-red ware spouted sherd has been found at Oriup in East Bihar. It has been found at Atranji Khera in occupational layer following Ochre-washed

ware and is succeeded by the P. G. W., It has been found in Rajghat again at the lowest occupational level. Thus it is clear that Black-and-Red ware is a widely distributed ceramic culture. Who were the people who used this ware? They can not be just a localised group. I had suggested in a paper read at the Aligarh Session of the Indian History Congress in 1959 that a branch of the Aryans who came to India across the sea to Gujrat were responsible for this pottery. The fact that the Aryans came in numerous waves is attested to by the Vedic literature. In historical times the Sakas came from two directions—one through the N. W. F. passes and the other across the sea to Sindh, Malwa, and Gujrat. In Bihar archaeologically they formed the earliest settled groups. Can they be identified with the Vratyas who were earlier Aryans who in contact with non-Aryans had given up their religious traditions and even modified their speech, and that is why as fallen brethren they could be taken back after undergoing some purificatory rites! The Vedic and Puranic literature do contain definite allusions to some Aryan tribes siding with non-Aryan against other Aryan tribes. Lothal finds do corroborate co-existence of the two peoples—Harappan and Aryan. But I am aware of the difficulties of this solution. What was the direction of the migration of these early Black-and-Red people? We have numerous C-14 datings for this culture. On the basis of this Agrawal suggested that from Central India this group went eastward following a narrow strip to Bengal and then turned east and came to Bihar and then eastern U.P. But from Chirand while we have a date in 9th century B.C., we also have 1600 B.C., from a pit-material dug from the lowest Black-and-Red ware strata. Historically also the route of migration has generally been from west to east. But if the Black-and-Red ware people were co-existing at Lothal with the Harappan, which was extensively spread in Rajasthan, why we do not have Black-and-Red ware in Kalibanga and other Harappan sites with the Harappan ware. At Chirand in Bihar we found at the lowest occupational layer crude Black-and-Red ware with copper and microliths, but in period IB we find iron with Black-and-Red ware. This is significant. Iron is not found at Atranji Khera with Black-and-Red ware. Iron has been found with PGW at Hastinapur and Atranji-Khera. From where and when did Iron technology begin in India? We know that iron was first developed in the Iron-region of the Hittite land in Anatolia. The PGW people might have brought the knowledge of iron from outside. But it is only thorough examination of iron in PGW layer and Black-and-Red ware level, respectively, which might settle the point, as to the source of Iron for the PGW people. We know that Bihar and Orissa have iron mines which have a long history of exploitation.

The Ochre-washed pottery is another enigma. It is found in Atranji-

Khera in layer anterior to the Black-and-Red Ware. But it is found only in small quantity and that also in sparse distribution. It had been suggested that the Ochre-washed ware should be associated with the copper-hoard people of U.P. However more reliable archaeological setting is required to support this thesis. In the Patna Museum we have numerous copper objects found from different hoards. But their archaeological setting is not known. What is the connection, if any, between the copper-hoards of Bihar and U.P., and again a Chemico-Geological comparative analysis of the material may throw light on the source of the copper.

The painted Gery ware has been much talked about pottery. It certainly flourished between 1100—800 B.C., and continued later with N.B.P. Except for some degenerated form in Kausambi and a few sherds in Vaisali, it is not found in Eastern U.P. and Bihar or Bengal. It has not been reported from the West Punjab, but I am told that a few sherds were found in Sindh. If it was the Aryan-pottery, then it should have been found with the Harappan, if co-existence of the two people is to be accepted, and certainly should have closely followed Harappan, but it is not so. The problem needs more thorough investigation.

The N. B. P. is the prince among potteries in India. Its chronology is 700—200 B.C. In Chirand and Sonapur, it is found in association with the later layers of the Black-and-Red ware. It is found in abundance in Bihar. In any important historical place and near mounds, one can pick up N.B.P. in different hues. From Sonapur and Oriup, we have beautiful pieces. It is obvious then that this region was the home of this ceramic industry. It might have spread from here with Buddhist and Jain missionaries and with the political expansion of Magadha. This pottery was definitely aristocratic and could not have been used by the common people. Who were the people who introduced it? Was it the result of evolution from Grey Ware and black-slipped ware? Or was it introduced by some distinct group of people?

Then we have many wares which have generally local distribution. We have Cemetery H, Jhukar, Jhangar, Malwa-Jorwe to name a few. Their comparative study is a great desideratum.

Another problem is the foreign influence on Indian pottery of foreign intrusion in the Indian scene. What is the relation between the Central and North Indian Black-and-Red Ware and the Megalithic ware of South India? How to explain the great gap in time sequence? Then can it be related to the Badarian (Egypt) Black-and-Red Ware or Black-topped Ware? If so, what is the route of the migration into India? How to bridge the chasm

in time and space. Some have suggested Iranian intrusion in the Chalcolithic pottery assemblage in Central India. Can this be substantiated from excavations of other Chalcolithic sites in North India? Why Black-on-Red is conspicuous by its absence in the Gangetic Valley, while other wares of Central India are found here? Fortunately, we have definite proofs of Roman potteries in the Deccan. Was North India sealed to this influence? India's contacts with the Western Asia, Greece and Rome extend to many millennia B.C. Should we not have some evidence of these in pottery types? This leads us to an aspect of Indian pottery which has not been given due attention. It is the comparative study of the evolution of distinct pottery-forms and their distribution in India in stratigraphic sequence, and then an attempt to connect these with the evolution or distribution of the distinct forms or shapes of the pots in West Asia. This helps in the solution of the problem of Cultural diffusion.

Pottery is only one of the aspects of material culture, though a very important one. We have to study the associated wares and other material finds related to a distinct ceramic culture to have an integrated picture of cultural development of any region. It may be that an excellence in ceramic industry had its counterpart in other aspects of material culture. But it may be that with the development of metal technology, pottery began to lose its prominence and degenerate. The Classical writers while mentioning rapturously of the golden vessels and palanquins of Chandragupta Maurya, make no mention of even beautiful lustrous N.B.P. which was in a flourishing state at this time. Kautilya refers to potteries and earthen pots casually. Did potter's art lose patronage of the royalty, nobility and the elite in general? It became the poor men's possession mainly. But could the rich dispense with the pottery? If in religious rites, copper vessels are still regarded pure (Pavitra), did not the earthen pots in traditional society like the Indian regain their importance, as to-day, in the past? Then why the deterioration? What was the relationship with the development in metallurgy and ceramics. Whether earthen vessels were proto-types of the copper vessels or vice-versa. What are the pottery forms, shapes and sizes which are not found in copper or iron or bronze vessel assemblage or vice-versa? Again a history of ceramic technology in India is to be attempted at.

These are some of the problems which have arisen in my mind casually. I have not attempted a scholarly discussion of those issues. I am aware that I'm not quite competent to do this. I have pleaded before you the doubts and questions that arise in the mind of curious dabblers in archaeology like

me, and I have placed before you, experts in the field, some of my ideas, which might appear naive to you, with the full hope that this seminar will help in clearing some of these doubts and answer some of the questions. It is obvious that in the seminar lasting for hardly more than 20 hours, all aspects of pottery may not receive due share of attention. There is not, and should not be an attempt at general consensus in scholarly pursuits. Different heads are free to hold different opinions. But I am sure that we will be immensely profited by the discussions in the seminar.

SOCIOLOGY OF POTTERY : CHIRAG DILLI, A CASE STUDY

S. P. GUPTA

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"I am in this locality of Malviya Nagar, on the out-skirts of the city of Delhi for the last nine years; and every year I purchase water-pitchers in the local market which is fed by the traditional potter-houses from villages almost within a radius of seven kilometres. On the 4th of April 1968 at about 8 A.M. when I heard the voice of a hawker of the earthen vessels, I felt like buying one here rather than going to the market. I did that for just fifty five paise but with a little dialogue with the vendor.

"What is your name?"

"Devi Ram, and I come from Chirag Dilli, just two km. from here" was his prompt reply.

"Is that so, then one day I would like to come to your house and see you working" I said.

"Why not, do come Babu ji"

"Your pots are beautifully painted but tell me why is that that the design over them is the same as it was years back, really I don't see any change in it. Can you not draw other floral and faunal designs?" I enquired of him.

He laughed a little and replied in a soft voice, "You have rightly observed so, but let me tell you very frankly, it really does not occur to us that we should paint differently. Painting is usually done by women at home who have always to do so much in the house that quickly they want to do the job and finish with it. They are now so adept in preparing this design that believe me in an hour or so, one woman can paint upto forty pitchers."

With a little pause and smile he added, "Don't think that our women cannot paint a tree or parrot or peacock or even men, they do all these on the walls of the house on Karwa Chauth and other festive occasions like Diwali, but that is a different story. With the every-day pottery they can't devote more time. And then what if even they paint them differently and more beautifully the pots are not going to fetch more money. You are the first person who is taking so much interest in it, for others it is just a water-vessel, it is sold for a higher price not because it is better painted

but because it is bigger in size to accommodate more water. Come some day to my house, it is quite near," saying so he whipped the donkey and went ahead followed by his five-year old child in rags, weeping and crying.

The whole thing gave me a jolt. As I relaxed in my chair, questions flowed in from all directions, and I was getting agitated for their answers.

Here is a man who tells me that a pitcher is painted in less than two minutes; how can it then be an art in the real sense? For the last nine years not a single item of the design has changed; what a conservatism? Will they ever change? Will these forms and designs ever give place to new ones? Not the paintings but the size of pots determine the price line, and it is the price line that determines the amount of time and energy the potters would like to put in making the pots. The carriers of the pots are donkeys even in 1968. The potter's son is in rags; the father cannot afford new clothes for him. Why are they so poor?

It at once became clear that with pottery are associated some of the vital questions of socio-economic life of the people. "In examining the voluminous ethnographical literature describing the manufacture of pottery, one notes with surprise how little attention has been paid to the social, cultural, and economic settings in which the work is done. Most descriptions deal with techniques and processes of manufacture and with design elements."¹ It is really true, that "beyond telling which sex makes pots, most accounts reveal little about such things as the status of the potter in his or her society, how potters look upon their work artistically and economically ...the process that contributes to stability in a tradition, which make for change, and which may be involved in the dying-out of a style ...from the standpoint of archaeological interpretation, these and other "sociological" points are just as important as are styles and construction methods."²

In order to find out the answers of these questions, next day early in the morning, I visited the house of Devi Ram in the village of Chirag Dilli. There are about 10 more houses in the row Devi Ram has his house. It has two rooms and a big back-yard in which he has his work-shop in the open with a partially underground open-kilns. I also met Shri Banwari Lal and a dozen other potter-men, women and children—the oldest of them, about 64 years old Kuda Ram was extremely helpful in answering questions. The results of my investigations are as follows :

The village attracted different people from neighbouring places only in 1857, purely for safety reasons, since, the war of India's Independence

was fast spreading. Their family also came from a village about 40 kms from here. For the last 60 years Kuda Ram has not seen any change either in painted designs or in pottery shapes. According to him, the pigments come from the following sources :

(1) Red for an overall wash comes from Lal Kuan, at a distance of about 8 kms. It is the disintegrated quartzite with a high amount of iron, used as 'bajari' for the pavements along the Delhi Roads. In a vessel it is soaked in standing water about 16 cm. higher than the level of the raw material. After repeated stirrings for 2 to 3 days, the quartz and other mineral particles settle down with fine red silt and red water over the whole deposit. This is used as colour.

(2) White for making designs comes from Basantpur and Mahipalpur, about 12 kms. from the village. There is a white kaolin deposit near these villages.

(3) Black for preparing designs comes from Alwar, about 140 kms. from Delhi in Rajasthan. It is from the rock deposits. Thus all the pigments used are minerals and not organic substances.

Peculiarly enough, the black paint on the pot purchased was so soft that on a slight touch it was removed with a trail of black streak. Was it a case of post-firing painting, as we the archaeologists may conclude. No, it was not. It was the usual case of pre-firing painting. The reason for this anomaly was given to me like this :

"Use the pot for two days and it will be alright. Once it is soaked in water, it is permanent."

He was right. The mineral particles which could not penetrate into the pores, got in with the capillary action. Let us now re-examine the Neolithic-Chalcolithic grey ware of the Deccan in the light of this observation and see if the red ochre paint over them falls under this category or under the post-firing paintings as claimed.³

The sources for the pigments show something interesting. The paints used are inorganic and come from a distance. Even the industry of pottery is not solely local in character; it has to depend on long distance commercial contacts for the raw material. A study of pigments and their places of origin for determining the nature of trade and commerce in this new field, and cultural contacts through it, might change our ideas regarding the dynamics of pottery in the past.

Once the colours are thus collected, now-a-days from regular dealers, the black at the rate of 25 paise per kg., white at the rate of 20 to 25 paise per kg. and red is brought on donkey backs, the paints are prepared in water and the actual work of painting done.

On the technological grounds I asked Somavati, 15 years old girl from the neighbouring potter's house as to how she paints two wavy lines making a running chain. She was amused at my ignorance, laughed a little, and then picked up a 'two-in-one brush' lying in a corner.

"Look here Babuji, in a short single handle of a margosa or 'neem' twig two tails of hair are tied up. Both are dipped in colour and then used simultaneously as a single brush; with a little swing in the hand, the chain is produced in a few seconds." And then she demonstrated it to me. She further pointed out to me that the brush may even be 'several-in-one' if required. It appears that the 3, 5 or more parallel lines seen in panels over the white painted Black-and-Red Ware of the Banas culture and over the Painted Grey Ware might have been made in this fashion.

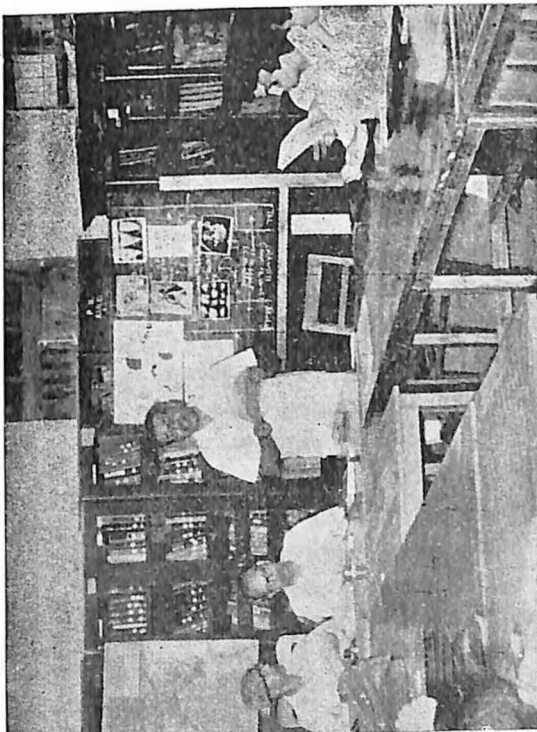
Devi Ram then took me to the kiln and the heap of cow-dung—to be used as fuel and said, "Now-a-days the cost of cow-dung has considerably gone up and the profession is not at all paying. Even the clay has to be purchased at the rate of Rs. 50 a truck."

"But then why not change over to other methods of firing?" I asked him.

"Once we did it using saw-dust in place of cow-dung but probably it could not retain the temperature sufficiently long and the pots were not of standard baking. It was a dead loss. Quietly, we reverted to our old ways."

He was right, pottery-making is a tricky affair, and there are literally hundreds of points at which a slight variation, may adversely affect the result which may mean that a week or a months labour is in vain. Economic security to him lies in following the tried processes. He becomes a traditionalist.

But in recent years with some of the potters in the city the forms of some of the pots have changed, and so the designs. The new types can be found in big shops visited by the foreigners, e.g. the Cottage Industries Emporium in Cannought Circus. Similar changes have been observed in Mexico also. Foster ascribed them to the demands of the market, and not to the genius artist who experimented for pleasure sake.⁴ Although it is true that in modern times demands of the tourists induce the dealers to ask the potters to produce new types but in the remote past such artificial demands were hardly there. The stimulus largely came either from the patronage of land-lords or abrupt inflow of a new people or new social



SEMINAR IN PROGRESS

or religious functions or all in one. It is a complex process and it gets a big push when it becomes commercialized and a single centre of production starts feeding different markets.

Basically, the painted pots are of two types : One has only plain extra broad band round the neck, made with the help of a piece of cloth, and the other has intricate geometric designs made with brushes. However, the shapes and the designs remain the same. The reason given for it was revealing : "the former is meant for the Muslims and latter for the Hindus. The Muslims feel that we use pig-nair for the brushes, although it is wrongly assumed, we use only the nair or the tail of 'Jhatikar,' a wild small animal, still they do not purchase the painted vessels."

In fact, before this enquiry I never knew that earthen pots have their separate religions, and they are divided into the Hindus and Muslims. This communal aspect of pottery bears great possibilities in our objective studies in the sociology of pottery so far as it concerns the effects of religion on pottery. Probably, it can be used as an important source of information by social historians. In the case of prehistoric potteries, however, it cannot be used so safely.

While moving in the courtyard, I observed that some of the water-vessels have short necks while others have comparatively high ones. The reason given to me was again quite interesting from the sociological point of view, "Sir, the vessels with shorter necks are for the local population while those with higher necks are for the Punjabis who have come from Pakistan soon after the partition", explained Devi Ram. The local women arrange their vessels one above the other when they bring water from the well, but the Punjabi sisters carry them on their hips. For the former, the height of the neck is immaterial but for the latter it is of prime importance, the four fingers must conveniently support the pitcher with its neck." It is an interesting evidence of pottery giving clues for the study of different social groups in a society, each having its own habits of the way of using the pots. We, the professional archaeologists divide our pottery first into major types and then each one of them into sub-types, calling them variations. The basis of the sub-types is variations in the profile and the section. Although we do indicate these variations, we have never tried to interpret them in terms of social-structure and group behaviour, which a social historian would very much like to understand and in which studies in pottery can contribute a lot.

Devi Ram is quite energetic and takes his goods to other localities also. But when I asked him to name them, I found that none of them

is beyond 6 to 8 kms. from his village. "Only this much of distance can I cover in a day as a hawker" was his reply, "although on festive occasions I take my things even to Chandni Chowk, about 20 kms. from here, because the capacity of the local markets is limited for the mass production of these days, but that is only once in a year: after all it involves three day's of our being out of the house, staying in the market even during the night."

"But can you tell me the longest distance from where pottery comes to Delhi?" was my question.

He thought a little while and then said, "Gurgaon in Hariyana, about forty kms. from here. The pots are brought in carriages drawn by horses or mules. Normally, we want to finish one transaction in a single day and return home the same night; and it is only rarely we stay over-night."

"But then is there anyone in your knowledge who is more adventurous?" I asked him.

"There used to be one", said another potter standing near by, "He was then unmarried. He could go upto Brindaban, some 100 kms. from Badarpur, his native place. But then don't think that all the way he carried the pots made in his house. He was no more a potter. He became a trader. His own goods he will sell in the first market he gets, and then purchased a new stock in the village for the next market, and so on. But it could not work for long. The earnings were not proportionate to the trouble taken, after all potters are everywhere".

These answers are very revealing so far as they are concerned with the problem of diffusion of pottery. The actual manufactured earthen pots can hardly travel long distances, with probably, a single exception. Certain types which serve some religious purpose may travel with devotees, as the tin bottles for the Ganga water travel all the way from Varanasi to Rameshwaram, a distance of more than 2,000 kms. In the past a few Northern Black Polished pots travelled upto Amravati and Nasik, probably, as religious ware used in specific rituals. We are, therefore, pressed to think that in our archaeological interpretations regarding the diffusion of pottery over long distances, the mechanism of trade and commerce played a part certainly, but not much. Wine vessels like the amphorae constitute a different variety called "trade-potteries" and not household wares. The household wares move only with people, and migrations are certainly involved in such cases where a variety of household pottery of one place is found at another. But when the dis-

tance is more than a hundred kms., it should normally be assumed that it was the case of 'Chain-migration' rather than 'Direct-Migration'.

The problem of diffusion of the painted designs and techniques of paintings, is closely related with the entire group of pots in a ware. Since it is done by women, the marriage pattern plays a great role in it.

"How far is your father-in-law's house?" I asked Devi Ram.

"It is in a village near Ballabhagarh, some 30 kms. from here", replied he, "we cannot afford going to far off places. All our near relatives live in villages within a radius of 60 to 70 kms.

Obviously, the painted designs should normally show distinct changes beyond this radius and if they do not show it, the act of migration of people should well be imagined. Probably, too much credence has been given to the Wheeler's dictum of 'ideas have wings', and it is used and abused in all circumstances wherever we want to give short-cut explanations without toiling hard to work out the problems in details.

As a matter of fact, basic techniques of levigating the clay, wheel-rotation, firing, incision, stamping, moulding, burnishing, wash, slip, etc. travel more widely with 'wings' than the pot forms and designs which are more homogeneous and group-oriented. The latter, therefore, afford a sounder basis for regional studies. I, therefore, make a plea for sociological studies of contemporary potteries round every excavated and explored site first, and then extend it in towns and villages, so that we understand ancient India in terms of regional potteries. Studies in the potteries of modern India may be the preface for the former. A beginning has been made by Shri Baidya Nath Saraswati of the Anthropological Survey of India, only it should be more analytical, and followed by more work.

My further queries centred round the social status of the potters. "What social status, Sir, we are hardly equal to an agriculturist. We might not be untouchables like cobblers and scavengers but our work is with clay and cow-dung and, therefore, dirty. We do it because we can't do anything better. We have no land; in fact very few of our relatives are having some land, but that too does not raise the status of our relatives. First of all, the rigid caste system does not allow us to rise above a particular level in the line of hierarchy and, secondly, as a group our economy is at a very low level." That was the reply of Devi Ram. Almost similar answers were given to Foster when he interviewed some potters at Tzintzuntzam in Mexico. One of them said "ES NUESTRO DESTINO" (It's our destiny).⁶

But while I discussed this problem with B. B. Lal, Director-General of Archaeology in India, the latter pointed out to me that today we are all in the metal age and, therefore, the role of pottery in our life is much less than what we can imagine in a non-metallic context. It is a very pertinent point and I wish someone gets an opportunity to work out the status of potters in societies not still using metallic pots and pans. However, the Caste system in India determined the potter's status from time immemorial.

Closely connected with it is the problem of marketing. The potter has to orient his product according to the demands, but it is equally conditioned by the monetary return. The demands are various because the needs are various—cooking, religious ceremonies, containers, etc. Similarly, the return is also different. While a water vessel is sold for 50 paise, a much smaller but sturdier milk-pot is sold for 75 paise. In the courtyard I saw both the types painted equally well, but the paintings on the latter was more elaborate, and the reason for this differential emphasis on paintings done on two different types given to me by Devi Ram lies in the differential monetary return, rather than in anything else.

But in spite of it except a few, the paintings do not rise to the level of art. It is artisanship. It has degenerated to a 'job in the routine.' No pleasure is derived out of it. It is just a profession for earning livelihood. Value is attached to the size and for pots used for preparing costly things than to the paintings. Because bigger the pot, more the purchase value or specialized the use, more the money.

This is the real reason behind conservatism in pottery shapes and designs. And I have a feeling that in places where the pottery types and decorated designs are stable over a longer period, seen often in the archaeological context, the art of pottery had degenerated to artisanship. The reason in all probability was 'lower monetary return' from the sale. If that were so, the social status of the potters in most of the societies, even in the remote past, must have been awfully low. The Harappan potters' status could not be very high.

E. A. Hooton^a once said "When different peoples come into contact, they may fight, but they will always breed. But can this inter-marriage be recognizable in the pottery of a single site? Solheim gave a good example to show that it is recognizable. In a burial site of A.D. 600—1100 in the Sarawak delta of Borneo he discovered that for a brief period, pottery forms, especially the handles, were copies of Chinese types but were made locally. The handles did not adhere well to the vessel walls, and their production

soon ceased. In the local historic situation, women have traditionally made the pottery and Chinese men have often come into the area and married local women. Solheim suggested that perhaps the local wives struggled to imitate Chinese styles in a technique unfamiliar to them and that subsequently local born offspring had no interest in the Chinese styles, which soon died out' H. J. Fleure (1962) wrote, Early arrivals (perhaps Roman mercenaries and migrants escaping slave pressure) were some times young men who took to wife native women, so that one gets Roman features on Saxon pots.⁸

Such hybridization in pottery forms and designs are visible in the areas of overlap in India also, e.g. in Maharashtra the Southern Grey Ware shows elements of Northern Chalcolithic types and designs; recently S. B. Deo found some Malwa type designs on a local pottery near Nagpur.⁹ I do not know if Malwa Channel spouted bowls can also be included into this category. So also may be the case with Painted Grey Ware, Northern Grey Ware and N. B. P. Ware. Examples from contemporary history may be found out. One has to work it out and see if Solheim's observations can be applied in all these cases also. Cross breeding in human society resulting in the hybridization of pottery forms and designs is a very interesting observation for Sociology of pottery dealt by ethnologists and Archaeologists alike.

As I was leaving the place for my return journey, I enquired of Devi Ram if his pottery forms and designs will ever die out or they have taken a doze of Amrit, nectar, and shall remain so far ever.

He laughed a lot and said, "They may die out but not with me, but perhaps with my children, who have started going to schools and aspiring for becoming 'babus like you'!"

Is he not right ?

The effects of cultural contacts of these folks with the neighbouring urban communities will certainly bring about the end of this folk-art, for nobody wants to remain at a low status, more so, when he sees that men like him lead a better life by adopting clean jobs. Those who still remain uneducated may not be able to leave this work for sometime more, but they too may search out new ways and means to earn more. And this they can do by fulfilling the new demands of the cities which require new forms, new designs and new techniques. However, in course of time, they may not be able to compete with the factory-produced ceramics of better quality and at cheaper rates.

It will be quite revealing for an archaeologist if he excavates a big city site and then digs smaller village—sites round it to observe the changes in

pottery forms and designs of the village sites. The cultural contact may account for the changes.

Acknowledgements

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Discussions

Sri Krishna Deva :

Whether Pottery is an art or craft? What factors are responsible for the colour of a pot? Is it due to mineral contents in the soil or is it due to firing in different condition? At Mohenjo-daro it has been observed that different colours were achieved due to variation in temperature and slip. The importance of regional variations in pottery with a view to finding out whether basic elements of a pottery travel long or near is to be stressed. Certain aspect

of pottery inspired their functional aspects such as a Handi with carinated neck and a sagsar base. Shapes and designs are important for archaeologists. Pottery of cemetery H and habitational area of Harappa showed differences in designs and certain types. It is perhaps the forms and decorative elements which guides in detecting the differences.

Sri S. R. Rao :

Technique of manufacturing pottery was experimental at Lothal. Clay is itself very fine in alluvium, so levigation was not needed at all. Amount of labour spent in manufacturing pottery should also be recognised. In the matured Harappan period, a potter could sit for a long time and paint much elaborately with great care. In the later phase they could not spend much time. It is thus time factor which makes the difference between mature and degenerate Harappan pottery, though the painting continued in somewhat the same manner. The painted pottery were mainly ritual pottery. Funerary pottery in Mysore is painted; for auspicious occasions even to-day preference is given to painted vessel. In this way the painted pottery atleast for auspicious use continued but for ordinary use unpainted simple pottery continued. Certain pottery shape and designs guide to trace the diffusions of culture. About 1,000 from Indus, Late Harappan pottery has been found in Kurnool. It is only degenerated style of painting like Lothal. Harappan ceramic style is widely distributed.

Sri M. N. Deshpande :

As regards the painting of the Neolithic-Chalcolithic Grey Ware of Deccan, this was a post fire painting. Normally the pottery itself could not travel further. People may go to long distances and produce the pottery which they made at their regional places. So some of the shapes will be the same though the technique may differ. The occurrence of Malwa ware at Daimabad may be taken for example. When Romans came to India they wanted certain pottery shapes. Local potters made them to satisfy the needs and requirements of foreign settlers.

Dr. P. L. Gupta :

The source of pigments used in painting should be studied, whether it is local or imported. The different classes of people—social or religious groups used different kinds of pottery. Muslims used Badhana and Hindus use Garuas. So pottery may represent several religious group in the Society of a certain archaeological strata.

Dr. R. C. Agrawal :

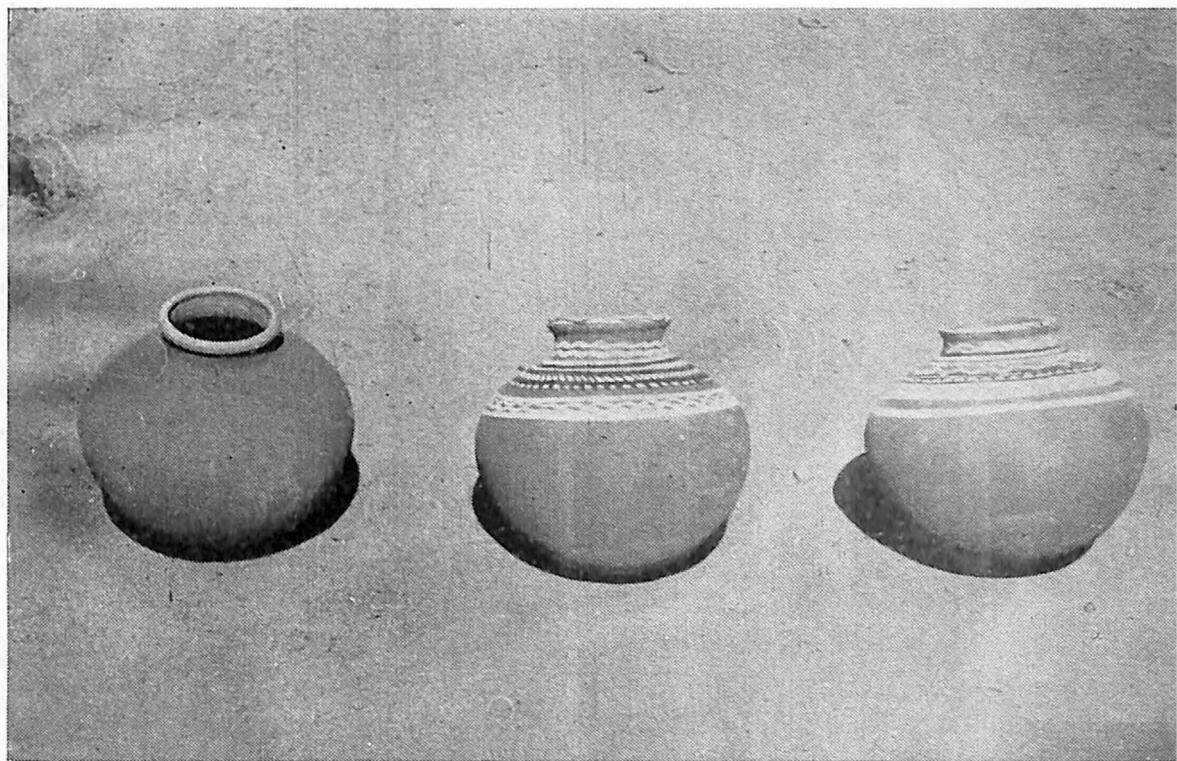
The conservative nature of pottery should be emphasised. Contemporary artistic trends or folk art might have influenced certain pottery shapes and designs.

Dr. R. C. Gaur :

The status of potter in different periods should be studied. Literary works may give guidance in this aspect of study. The Buddhist literature points out about Potter's guild. Potters appear to have attached certain importance to designs and colours, whether it signifies any religious aspects is worth considering. A Potters kiln has] been exposed in P. G. ware level at Atranji-Khera. The same type kiln still continued in the locality.

Sri S. P. Gupta :

Variation in pottery shapes and designs is perhaps due to regional taste. Funerary pottery of the Baluchistan and cemetery-H are painted whereas those of R-37 are unpainted. Pottery designs moved, perhaps ideas and people moved to long distances. The Harappan culture has a national as well as international importance, as it is diffused even upto Soviet Central Asia.



Water Vessels of three types

- (1) Plain, with only a coat of red slip painted over 3/4th of the pot.
- (2) Painted, for the Muslims with high neck; meant for the Punjabi women.
- (3) Painted, with short neck; meant for the local women.

From Chirag Dilli

Photographed on 8-4-68. (Author)



Pots being arranged in the Kiln with Sri Devi Ram.

Observe the Cow-dung and old Shoes placed over one layer of pots; the second layer is being arranged. At Chirag Dilli.

Photograph on the 8th of April 1968 (Author)



Somvati at work

Observe the frieze of peacocks which she painted at my request. She has promised to prepare one with more floral and faunal designs at a cost of Rs. 2/- since according to her it will involve at least 1/2-an-hour to do that (Chirag Dilli).

STUDY OF POTTERY—A NEW APPROACH ABC OF ARCHAEOLOGY OF A TO Z OF ARCHAEOLOGY

M. D. KHARE.

Archaeological Survey of India.

रे माटी के कुल्हड़े, तोरा डार्ले फोरवाय।

ओठ बनें हैं पीव को, त कस चूसे जाय ॥

—जायसी

How many of us in this distinguished gathering have tried to pose even a much simpler question to a potsherd, than that has been attempted in the above quoted copulet ? If a poet could find philosophy in it, can we not at least ascertain its make and purpose by intimate handling of a vessel ?

A Seminar on pottery was over due. The University of Patna deserves compliments to have realized its urgency. Since the study of pottery had all through these years been my favourite subject, I am putting forth some of the observations, reduced to writing hurriedly, which I hope, might be of some use to the present gathering of archaeologists and historians

It is merely a repetition to say that pottery is A. B. C. of archaeology. But most of us have also felt that treatment of the subject in course of a decade of archaeology in India has been rather far from satisfactory, because of its monotonous geometrical description of the types and a note on its general features. Very rarely conclusions based on the study of pottery have helped in giving a detailed picture of the day-to-day life of its users, or in co-relating it with the social and economic conditions. It does not, however, mean that the attempts made so far in this regard are less praiseworthy. The use of chemical analysis and other examinations conducted in the science laboratories have also proved to be of enormous help.

With some of these advancements in the field of science, where a few more laboratories specifically for research work in pottery alone are of a dire necessity, a very careful, systematic and perhaps statistical study may be useful. Most rewarding result, however, in my view could be had only when the student of pottery handles each sherd patiently for a longer time than spent so far and devotes more attention in finding out its specific use.

So far, the broad classification of pottery is based on typology, leaving aside, of course, the surface treatment. New details have to be studied and worked out. Just as a bulk of potsherds, recovered from outside a wall would indicate a dump, abundance of cooking utensils in a restricted area suggest a kitchen or huge troughs found lying near a drain supposed to be a bath room, each sherd from respective groups or complexes should be studied individually and then collectively to find out, for example, as to how many of them could have been used as milk, oil or water containers.

If the number of vessels, displaying the use of the milk is more, we could safely deduce that the occupant's diet contained more of milk and its products. Similarly the use of fat or oil would suggest the taste of the people besides getting the information of the source of fat or oil. The evidence of milk, fat or oil would unfold many other associated details i.e. the occupants of this particular structure are likely to be richer in cattle or in wealth than those in whose houses such containers are less. No wonder, we might be able to prove that a milkman lived in a particular structure just as potters Kiln or goldsmiths furnace are determined. This type of study would not give a picture of the whole of the township, from one individual to the other in a distant corner of an ancient city, but would also reflect on the economic and social condition of the people in general.

The frequency of huge jars and troughs in one place and their non-availability in the other could also be due to several reasons, which may not be far to seek when studied in the context of their location, horizon, condition, contents etc.

Again, the evidence of each sherd, whether to be selected for the purpose of illustration or not, should be studied thoroughly before discarding it. Also it may not be very difficult to find out from a total number of cooking vessels, recovered from a site, to say, as to which one was used more frequently and perhaps for which type of cooking. The sootstains on the body of such a vessel, confined to a portion or otherwise extended over the surface would suggest the type and condition of the fireplace and also the type of fuel used, even when the fireplace could not be located due to restricted dig.

Similarly the variety in lids, spouts, handles should speak of the types of vessels, on which lids were used, to which the spouts or handles were attached. They should further be illustrated by the probable conjectures of their contents,

While coming to stratigraphy, we find that change in the pottery types and also the other associated finds, if any, usually indicates a change of the layer as well. But proper emphasis on the fact necessitating such a change in the pottery types has rarely been laid-nay seldom studied thoroughly. Does it not signify an advancement in the richness of diet, convenience of drinking or fetching water, introduction of sophisticated living with a pleasing variety of spouts and handles, storage of grains, etc. ?

A word about the standardization of the terms used in the description of pottery may not be out of place. It would be worth-while to take the help of sanskrit words for equivalent types, used in the literature implying a definite use. It would be easier to write and also to understand such uniform terms.

Further, the study of modern pottery is equally very essential. There are many sherds, which are classified, as indeterminate or whose functions are not known. The study of modern pottery of the concerning region where the earlier types with a little or no change continued to be in use, would be helpful in determining the exact use and the type of the ancient pottery. It may not even be difficult to say, after seeing the modern pottery of a place whether an ancient site exists some where in the vicinity or not. Again, the source of clay for modern pottery in the nearest habitation should be found out if necessary with the potters help and the clay subjected to detailed experiments.

Such experiments could be done in the modern laboratories, specially available for this purpose. During my short stay in West Germany, I had an occasion to take up some practical training, when I myself was able to give a sherd the appearance of N. B. P. with its ringing sound.

Since the pottery always outnumbered the other finds, serious attempts have to be made by us for deducing more and more information, which would go a long way in reconstructing the past. Such deductions, in many cases might prove to be subjective in the early stage of our adventure but will turn out to be objective with the increasing interest and subsequent confirmations made through experiments carried out in the laboratories.

Because of only one day's notice to me about this seminar, I could not arrange my thoughts in order nor devote time to the analytical aspect of pottery. However, I have ventured to give the subject a new approach, by which the pottery would not be A.B.C. of Archaeology, but also ultimately prove to be A to Z of this science. The associated antiquities should only confirm our conclusions. We are still far away from the pottery. We have to go much nearer to it, so that the past could come to present.

THE DEVOLUTION OF THE PENINSULAR 'NEOLITHIC' CULTURE— AN ANALYSIS OF CERAMIC INFLUENCES

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The effect of recent archaeological field investigation in the different parts of the Peninsula—as related to what we knew and now know in the central and northern India—is a re-assessment of our very basic outlook on the rise of semi-urban or what might be called viable and cohesive societies or communities. The Neolithic period in India—as in the rest of the world—had been taken essentially as constituting the use of polished stone tools, domestication of animals, incipient agriculture or at least foraging of edible grains, and use of pottery, hand made first and then wheel made. It was, however, only in the recent decade that it was shown that polished celt need not alone be an invariable index of the lithic tool outfit of such a community, and that a microlithic outfit seemingly functionally geared to a specific planned purpose involving collection and storage of food and animal husbandry could also come under the purview of Neolithic communities. Of course, the advent of metal (copper or bronze) would imply a revolutionary change in the set-up, but this by itself or by the concomitant painted pottery, need not water down the functionary or epochally 'Neolithic' age. By this term we are not referring to a specific tool kit but to the sum total of achievement at that time. It is, therefore, necessary to apply these principles and expedient standards to the advent of the 'Neolithic' or the early farming communities. The very absence of a truly nomadic life, notwithstanding use of stone tools alone, could indicate a positive progress. The meagre presence of pottery might confer upon such a culture situation an inchoate and indeed transitional hue, but would not place the culture context itself out of bounds to a well knit and larger community life.

In the ages before the 3rd millennium B.C., we have practically no visible sign of a truly semi-urban or advanced and gregarious social picture of human groups. The stage is usually ascribed to the fag end of the late Stone Age and Microlithic tools, if only found, were taken as the symbol of early man not given to the leisure and organisation of settled life. While certainly all microlithic cultures are not amenable to a categorisation under the progressive 'Neolithic' outlook but only to an atavism of the truly stone Age propensities with only the climate and change, resulting in a shift of the phisiography of the habitat and the material and size of the tool-kit—we are still not likely to be fair to culture context like those of Langhnaj in Gujarat or the 'Teris

of Madras State, if we relegate them to a dead end of Late Stone Age hunting rigmarole. The very topographical set-up, the character of the tool-types and the subdued but extant nature of a formative organic social entity, would preclude such a sweeping dismissal. If this were so, we may have to validate their role into a forward looking and progressive format and anticipate the later vestiges of stone-metal (copper first and iron later)—outfit and painted and graffito-marked pottery, in these barbaric Late Stone Age 'proto-neolithic' societies.

It is now being realised more and more that India did not have any truly early metallic Age, either of copper or its alloy bronze. In fact, any deliberate alloying has not been indicated even in such of the tools as are truly of the bronze category, and it would seem that quite a few of such bronze objects, excluding the Indus sites including the Chalcolithic sites, could be imported or in the 'secondary' contexts. Only the copper tools, ingots and others unwittingly alloyed by the presence of ore impurities are the common finds. Only after the Indus civilization, a real hunt for exploitable copper in India seems to have taken place in some of the Chalcolithic culture communities. This casts a significant onus on the archaeologist to assess whether a given assemblage is truly chalcolithic (metallic) or only 'neolithic' (pre-metallic). The problem is not just a matter of the presence or otherwise of a few nondescript lumps or even finite objects of copper or bronze. Their employment as an integral part of the culture would not be taken for granted, but would have to be established on other independent grounds. The large scale occurrence of microlithic tools along with such sparse availability of metal (copper), has, in addition to facilitating an orientation for the culture context, had complicated the situation further. Their use, while highlighting the paucity of copper (as tool or as metallurgical know-how), would seem to bear evidence of culture-trait, by the typical and technically mass-produced character of some of its types like the ribbon flake. But, when these are found in a Neolithic context and with the use of painted pottery, we have a confused picture, which does not resolve itself into basic ingredients for the culture—situation, but rather suggests a synthesis of culture-elements, due as much to the evolution of the neolithic, agro-pastoral base into something else, as the migration of mere stone or painted pottery using industries, devoid of a culture matrix of a stable kind, to absorb these elements. This temporal conjunction of two culture stages, one primarily primitive and functional group trying to raise its sociological personality to a higher order by imbibing technical differentiate that would be adequate for this, and the other, primarily technical industries or specialised groups seeking material fulfilment by being admitted into a self-sustaining society. If this principle,

as the basis, is accepted, we might visualise the pattern of diffusion of the Peninsular Neolithic culture with barely the basaltic celts, burnished grey (mostly hand-made pottery) and microliths of a lesser order—the remnants of Late Stone Age industrial survivals—becoming a comprehensive chalcolithic entity in various parts of Deccan, absorbing in each zone, the typical borrowal-traits of the area, making variant combinations, thus, with the Jorwe ware, Black and grey (or red) ware, Malwa ware, etc. The further north it goes, the more complex it becomes, although it could be maintained in some cases, that the impact of the borrowal elements was made in primary or secondary or derived contexts. For instance, in a classic site of the Tapti valley at Prakash, where as many as six different pottery fabrics had been identified by the excavator, and their horizontal strata-wise relative count with their other contemporary wares given, it is seen that the Black and grey wares (painted) get diminished in bulk from base (35 per cent in layer 53) to top 12.50 per cent in layer 45), while 'Malwa ware' shows at the base 43 per cent and registers a spurt upto even 73 per cent (in layer 50) in middle levels, and diminishes later to 55 per cent (in layer 45). Jorwe ware, on the other hand, is seen augmenting itself from a mere 5 per cent (in layer 48) to 15 per cent (in layer 45), but this ware is restricted to the upper levels alone. Lustrous red ware has barely a medium of sherds, but is found to coincide with the time range of Jorwe ware. Other 'coarse, burnished and plain wares show a continuous provenance throughout the layers 53 to 45, although they are the densest in the much lower levels, and show some foreign impact (from Iran) in their mid-level, around layer 49.

The table supplied by the excavator, has, thus, a scope for meaningful application—though mainly for the vertical range of the pottery types—per se, and in combinations, which of course, would be the best use of them in a vertical excavation. The above table of Prakash Period I would show that.

(1) In the Tapti valley, around 1600 B.C. (on the basis of author's dating), there was only Painted black and grey ware, Malwa ware and coarse burnished and plain wares in the area around Prakash.

1. As a matter of fact, however, we have to give a correction in all such cases to the fact that, since mounds as a rule tend to get slopy as we go up, the area of the layerwise vertical dig becomes progressively less and less; as such, the area-incidence ratio of pottery (and for that matter of antiquities) also) should also become somewhat distorted, in the statistical sense. The horizontal relationship of pottery mutually will have less significance because of the unknown potentialities of the different areas of the same mound which a single slit trench could by no means represent, and thus the occupational characteristics of the society, as reflected in the layer and their pottery and antiquity density, would be better displaced only in a horizontal dig.

(2) The incidence of the peak of Malwa ware was only much later, say around 1500 B.C. in that area.

(3) Jorwa ware is at its peak only around c.1300—1200 B.C. in the Tapti valley and actually thins out in the next few centuries in the Narmada valley where, at Mahesvar, it is found in the upper levels of Period I.

(4) There was a Sialk or say North Western Indian element at Prakash, around 1400 B.C.

(5) That painted Black and grey ware is indigenous or at least well entrenched at the time of the very inception of Prakash settlement, and was co-existing with Malwa ware there, which had been in thinner strength at the beginning. But later Malwa ware starts dominating the scene, as compared to every other ceramic.

(6) Around layer 49 and 50 (c.1500 B.C.) there is the greatest spurt of activity in the site, as noted from sherd incidence of most of the categories. The decorated and burnished wares, since they get depleted after this stage, were perhaps auxiliaries to the burnished grey, painted pottery industry.

This study suggests that at least in the Tapti valley the painted Black and grey ware gets ousted by the Malwa ware very soon after inception, and the latter is indeed the chief ceramic culture of the site, except in so far as the advent of the painted Black and grey ware here from elsewhere (probably Rajasthan) goes. Thus, either way, these two pottery media were actually filling a vacuum in this area. The cultural level of the area prior to their arrival can only be guessed, and what we might possibly be somewhat sure about is that the peninsular Neolithic culture had certainly been in some shape in this area in the early stage of Period I, as suggested by the coarse, burnished and plain pottery types. If this has any meaning, it could only be that the stamina of the Malwa ware was greater here than that of the 'neolithic affiliated burnished ware. Thus, we might think that the indigenous community at a lesser urban cultural level was intruded into by the semi-urban painted pottery-using, and copper using communities from further north, already around c.1700 B.C. This is more or less the time of the Harappan culture end and dispersal of its elements elsewhere, along with the technologically skilled but unemployed groups. The Prakash pattern was taken, primarily to show what happened at a reasonably northern latitude of the Deccan, and also largely because we have very careful and scientific documentation of the material by the excavator. But the picture is certainly well supplemented by the scene observed in the Narmada valley further north at Navdatoli, in the lower Tapti valley itself at Bahal, in the Godavari valley at Chandoli, on the Bhima, at Daimabad, and further down at Maski, Tekkalakotta and Hallur, in the Krishna Basin, and even further south as on Kaveri as at T. Narasipur, and the Palar basin as at Payamapalli. Every where, we see

two striking phenomena, that there is a basal matrix, affiliated in differing degrees with a peninsular 'Neolithic' culture essentially of agro-pastoral type, and this is peacefully intruded into by copper using and painted pottery using culture groups of various categories, which certainly do not deluge the area with more metal, but rather with more stone and which do not produce, again any lasting painted tradition in the lower Deccan but rather develop into highly isolated local *milieu*, one of which is witnessed in the Cuddapah-Kurnool area at Sangnapalle, Patapadu, Pusalapadu etc. But to the extent the 'Neolithic' base gets watered down but rises seemingly in material level, we are actually witnessing a transformation of a truly 'Neolithic' society into a sophisticated semi-urban community groups. These communities, doubtless, had the best scope for appreciating Iron Age technology when it was introduced into lower Deccan, further down the corridor of time, around c.800-700 B.C., until which stage, they continued to thrive in colourful localisation and nondescript sophistication, shining, as it were, on borrowed feathers. Their own stamina for raising their level was effectively subdued by the extant chalcolithic elements in the society, involving living groups and not simply impulses. This analysis would seem to lead to the logical conclusion namely (a) that at a reasonably early stage, say, around c.1800-1700 B.C., the 'Neolithic' way of life was widely obtaining over a large part of the peninsular, particularly from Salem in the south to Eran and Banda in the trans-Vindhyan region, and as a logical metamorphosis from its survival instinct, it started accommodating the dispersals of the upper Indian areas in the Late and post-Indus civilisation schedule; (b) The Jorwe-ware by its seemingly higher chronological priority in the Narmada valley, was perhaps at its 'terminus post Quem' in the type region. It was one manifestation of the chalcolithic melange, another being that of Daimabad on the Bhima, and a third in the Kurnool area as at Sangnapalle; (c) All these were only differential processes of regional groupings, but the true 'Neolithic' pattern of culture also continued in degeneration upto the close of the first millennium B.C. in many areas; (d) No direct cultural impact of the Indus civilisation could be postulated to any of these, although it is implicit that the carriers of these 'Indus' traits had a dynastic link with the late Indus groups of both Sind-Rajasthan and Saurashtra; (e) While, strictly speaking, an advancement or spread of the peninsular 'Neolithic' may not be acceptable, since in every part of the Peninsula the 'Neolithic' culture pattern was of a resident category already between 1800-1400 B.C., the advent and diffusion of the painted pottery using communities from the north, would on the other hand, be demonstrable. In their culture-outfit, copper metallic know-how was progressively minimal and degenerate as one advanced further south, but stone element by its familiarity over a

wider area and span of time in Late Stone Age, was more evident; (f) The arterial waterways to some extent helped in the grouping of the zonal assemblages, but other factors like the physical barriers, the flora of the terrain, calling for heavier or lighter stone tools, mattered a great deal. The concentration of the more evolved and elaborate painted variety like the Nasik-Jorwe and other types in western Maharashtra is probably due to the fact that the head-waters of the rivers were more easily crossed than the lower reaches; (g) What is the most glaring of all the results is that but for quick dispersal of a variety of chalcolithic culture communities physically into Deccan, the area might have been continuing in atavism for a longer period, except in the coastal zones, and would have actually resulted in an interior versus littoral culture differentiation in its structure. The pure 'Neolithic' culture did not certainly have in it the making, sufficient for material progress. The situation is not very much different from what obtained in the early Painted-Grey ware period, particularly in the western Uttar Pradesh and Punjab, and its late manifestations when Iron had certainly become accepted as of far-reaching importance for a variety of activities in the material life of the society, and conduced to a phenomenal shift for the better, in corporate urban maturity and well being;

Thus, given two major zones of culture spread, namely, the Indus culture zone of admittedly accomplished urban prosperity and progress in Punjab-Sind-Rajasthan-Saurashtra area, and the 'Neolithic' agro-pastoral way of life in the entire Peninsula, the advent of the skilled citizens of the former into the latter produced a better application of tool-technology than what happened in the Ganga-valley in pre-Painted grey ware. The impact of Iron metallurgical mastery on both the early painted-grey ware of the Ganga-valley and the Peninsula, though similar was different in degree. It was more readily received in the Deccan and central India, as seen at Hallur or Ujjain, than the Ganga-Jamuna valley, as seen at Hastinapura or Alangirpur. It required some time by which the physical ore-centres of the Bihar region could receive attention for exploitation. It is not established also that this exploitation of the first Iron source in eastern India was only by the Painted Grey ware people. What we, however, know is that this had taken place, already perhaps around c. 700—800 B.C. On analogous grounds, Iron ore centres in the peninsular south (as in Mysore) also should have been tackled around this time, which is why we get a reasonably early c 14 date for Iron, as at Hallur which certainly did not have anything to do with Painted Grey ware for its advent of Iron. The reorientation of conventional approaches to the interpretation of archaeological data has at no time been more strongly indicated than now.

RAJASTHAN'S POST-HARAPPAN POTTERY

Black and Red ware from Ahar and Noh—

A study in its types, fabrics etc.

S. P. Srivastava

Ahar, a village situated about three furlongs from the old Udaipur Railway station, experienced the scientific use of spade at one of the mounds for several seasons. As a result of excavations conducted there, the first occupation, which started over a thin sand deposit of natural soil underlain by the rock-beds of the Arevalli system, revealed black and red pottery as the characteristic industry of the area. This pottery had a long life at Ahar, although it has been found at several sites in Central and Western India, one of which is Navdatoli, where this pottery occurs towards the top of Period I

The period I at Ahar may be subdivided into IA IB and IC with a view to study Black and red ware and its associated wares. IA at Ahar has in it the cream slipped, the buff, blotchy grey and red slipped with variations like orange, tan & chocolate, the coarse black and red besides painted black and red. Black and red ware, here, is very distinctive in the sense that it is painted with diverse designs in white lines, both on the exterior and the interior. IB also shows presence of all such wares, with the absence of the cream or buff ware & with only one shed of the Jorwe ware.

IC shows red washed, painted black on red, black and red, coarse red, the Lustrous Red and the blotchy grey wares. Black and red ware in the lowest phase has the texture and fabric rather coarse and the pots are polished on the exterior only. In the middle phase, this ware is finer and polished both in the interior and the exterior. A large number of them is usually painted in white but at times in black also with patterns of parallel lines and dots. In the last phase, a devolution in the ware is noticed to have set in.

In this very phase a red ware painted in black on a slipped surface appears to have been in use. Throughout this period the black and red ware was associated with a plain red ware painted with incised designs on shoulders. The pottery of period I is mostly wheel-made. It shows different techniques in shaping. Besides wheel-made pottery certain hand-made vessels, which include the storage jar with applied bands and roundels, were also recovered from here. Some of the pots revealed combination of both wheel-made and hand-made techniques. In these wares, the neck and the upper parts were wheel-turned but the rest were hand-made.

Some of the blotchy grey and red wares were very thin in fabric in the lower positions. The bottoms in several cases were made rough with the application of powdered quartz and sand. In the earliest stage, the black and red ware evinced certain special features. Dry grass or split bamboos appeared to have been used in giving effect to scooping, discernible in a uniform manner in the pottery with rounded or sagged bases.

The painted black and red is represented in the bowl with rimless straight or with convex sides. IA and IB phases present the bowl also with ribbings near the edge and also the shallow bowl with an external edge, and flared edge. These phases also present several specimens of the shallow pan and basin in them. The painted black and red ware in these two earlier phases has a variety with a brown slip.

From the point of view of decoration, the ware presents the following picture. The decoration may be classified as (a) painted (b) incised and (c) applied. The first may, again, be subdivided into two classes (a) dull white on the black and red ware and (b) black on the red washed or slipped ware. The former consists of linear patterns-strokes, lines, spirals, wavy lines, hatched diamonds and banners. These decorations are all found in phases IA and IB. The other are panelled dotted chevrons, which are found in Phases IC. The black painting on red ware shows only bands, wavy lines and loops. This is confined to IC.

Incised decorations also occur on grey and red wares. These decorations are in the form of slanting or wavy lines, supposed to have been caused with the help of split bamboo strips.

The applied decorations on wares show either wavy or plain bands and roundels mostly to the red slipped and grey wares. This type of decoration is found mostly in the wares recovered from phase IB. These decorations are either cut or excised. These are restricted mostly to red slipped and grey wares. These were probably caused by applied hands excised in a regular manner on the pots. These produced the effect of a cog wheel with sharp ends.

The black and red pottery was also recovered from the lowest phase of Navdatoli-a chalcolithic settlement on the bank of Narmada in Madhyapradesh. The carbon dating of the material at the site could place the pottery in the 18th century B. C. Again the carbon date for Ahar has also come to be 1878 B. C.

There is one more important thing to be studied with regard to black and red pottery. This type of ceramics as well as others found with it came to be associated with the material remains of the people who know copper smelting. The inhabitants of Ahar in the earlier phases were, thus living in the copper age and black and red pottery at Ahar comes to be the pottery of the copper age people. This is the cultural importance of the black and red pottery from Ahar.

Though the application of slip and the method of firing according to Dr. S. B. Deo, turned out several subdivisions among the red and the black and the pots as were fired inversely resulted in the combination of these two colours in one and the some vessel having a red outer bottom and the rim and inner surface black, the firing, in some cases, though executed in the inversed way, was not congenial to fall oxydization with the result that such pots turned black and blotchy grey in parts. The grey ware represents a stage in which the Kiln allowed neither full oxydisation nor complete non-oxydisation. The relative abundance of the red-ware over the rest (according to Dr. Deo) suggests the adoption of the open Kiln than the closed one. The reaction of the constituents of the slip to the nature of firing resulted in the change in the form of pots, which are with deep red slip, those with a red slip highly burnished and hence very shining or glossy and those with a dull red slip. A word may be said here about the paintings on the pottery.

Paintings occuring on painted sherds in all the three phases are of three types. These are in (i) dull white on black and red (ii) black on red (iii) black on cream or buff.

The sherds painted black on red are from the top most phase and are restricted in quantity. The sherds painted black on cream or buff are very little in quantity and come from the earliest phase. The paintings in all these cases are geometrical but were resorted to before the pots were fired.

The thickness of the white paint can be felt by hand in the case of the black and red but in the case of the other ware it is not possible to do so. Though it can not be said definitely how the paintings on sherds were executed, it appears from study of the designs that some sort of indigenous brush was used for the purpose. Probably some sort of brush, preferably a bamboo splinter with pointed tip, was used for producing the designs found on the sherds. The even-thickness of bands and parallel symmetry of slanting lines are indicative of the skilled movement of artist's hand in his effort to keep the tip of the brush like apparatus uniform all through by using proper and even pressure in using it. This accounts for the fact that varying effects were produced by the artist in executing paintings on pottery. That is why some sherds have in them delicate split ends of strokes some excess of paint at the point of beginning (as in a spiral design) and some extra quantity of paint splashed in drops on the body of the pot. This last effect was caused on the basis of such an apparatus of painting as was not able to have the excess quantity.

Though the sherds show, in the main, geometrical patterns of decoration, dot decoration of chevrons is found on the pottery only in the uppermost portion. The bands, spiral and groups of lines occupy a majority of the space on the pot.

The chalcolithic black and red pottery of Ahar has found its counterparts at Darauli, Menal, Sialpure, Fachar, Tarawat and Joera in Udaipur district and at Undala, Viroli, Hironji ka Khera, Khor, Hingwani, Umand, Nangauli, Banseu, Sirdi and Keli in Chittorgadh district.

The usual shapes in black and red ware comprise the convex-sided bowl with a flared or everted rim and sometimes with a flanged shoulder, straight sides bowl with an everted rim, bowl with a carinated shoulder and everted rim and jar with a flared mouth-of a bright red exterior and black interior. All these pots, like those at Ahar, were also generally, painted externally and occasionally internally in various designs with a whitish pigment. The designs consist of vertical and oblique strokes, concentric circles, chevrons, dots and intersecting areas.

As has been remarked before, black and red ware has been found at Navdatoli in Malwa also. Its recovery from Ahar and other sites in Udaipur and Chittorgadh districts in fairly large quantity helps one to surmise that the south-west Rajasthan and its contiguous area of Malwa existed as one of the centres of Post-Harappan Chalcolithic cultures between 2000 B. C. and 1000 B. C. or so. Though this area has yet to know the scientific use of spade at various sites, discovery of stray black and red pieces leads us to substantiate our assumption.

The elegance in painted black and red ware, noticeable as it is on the basis of its highly burnished surface and painting in white colour makes Dr. Sankalia feel that it was the deluxe table ware of the chalcolithic period. Similar was the position with regard to the cream slipped ware. Such pots are coated with a thick slip of cream to greenish white colour. This ware has also been called the Malwa ware. It is reddish or pinkish in appearance. This ware is remarkable for the surface paintings. It is made of gritty clay but the potter takes extra care in making the surface smooth by means of a thick slip. It is adorned by painting in black colour which exhibits a wide range of motifs.

Dr. Sankalia, on the basis of some of the shapes in the cream slipped pottery and on that of designs, suggests a close cultural affinity with similar pottery and designs in Iron. This has yet to be established on the basis of further excavations in south western Rajasthan and Malwa.

As from Ahar and Navdatoli, excavations conducted at Noh 4 miles from the city of Bharatpur on Agra road also revealed from Period II black and red (in dish and bowl variety) in a limited quantity. But the black and red ware from Noh is different from the one found from Ahar and Navdatoli. Black and red ware here is, unlike the one recovered from Ahar, unpainted. It has been found occupying a separate phase just above the ochre coloured ware in between the ochre coloured ware and the painted grey-ware. The associated pottery of this period is coarse red ware and black slipped ware. No evidence of the use of copper and stone during this period is available from this level. The earliest evidence of civilisation discovered in the region is of culture represented by pottery of ochre colour which is, unfortunately, in very small pieces. This pottery, although thick and ill-fired, is nevertheless, wheel turned and has a reddish slip.

About 1500 B. C. or so, some other people came to this region and settled down. They made pottery of a superior quality, which was distinguished by the use of black and red colours which had a lustrous black slip.

Though Black and red pottery has been found extensively in central India in the Deccan, Eastern India and in south west Rajasthan, it has also been found for the first time in the upper Ganga valley, from where its use migrated through Jamuna tributaries to the Eastern Rajasthan, particularly in the Bharatpur region at Noh. This accounts for the fact that it represents for the first time in Rajasthan at Noh an independent phase intervening between the ochre ware phase and the people, who brought this culture to the upper Ganga valley came from Central India or the Deccan, and from there the use of black and red pottery was extended to the eastern Rajasthan, in the region of Bharatpur through the people of the upper Ganga valley with such modifications in fabric and designs as local conditions of the area could enforce on them. This accounts for the fact that the black and red pottery of Noh is not a slavish imitation of black and red from the Harappan sites or the chalcolithic sites at Ahar, Navdatoli etc.

We learn from other sources that towards the closing years of the 2nd millennium B. C. the Aryans reached the upper-Ganga valley and settled down there. They made their way into Rajasthan through the Jamuna tributaries. The radio carbon dating of a charcoal sample excavated at Noh has scientifically proved for the first time the Aryan settlements in the region date back to a period before 1000 B.C.

The characteristic pottery of the Aryans is painted grey and is of a superior kind. The pot-sherds reveal a super-imposition of a new technique over the previous ones. Many new types of earthen vessels, such as bowls, vases dishes and jars have been found. Painting in black lines has been used for decoration with a rich variety of designs. The black and red pottery from Noh is the precursor of that type of pottery, which, in its improved form in later times was known as the black polished and the North black polished pottery and found its counterparts in that of the Sunga-Kushan periods. In the second-third century B.C. Black and Red ware is known from Kolhapur, Nasik, Newasa etc. and this ware, with black inside and red on the outer bottom, takes shape because of the technique of inverted firing. But this ware is associated with the copper slip and the use of microliths at Atranjikhhera in much earlier levels, but it is not so with black and red ware available from Noh. The clay used in the unpainted black and red at Noh is impure and normally ill-fired. The fine levigated clay and the fine finish of the painted grey ware and the northern black polished ware is totally absent in most of the places there. The shapes in it are mostly utilitarian and the black and red effect is mainly due to the process of inverted firing. Most of these wares were used by the common man in every day life. It may be noted here that concave carinated bowls made in black and red were with paintings executed in white colour were used by people at Ahar some three thousand and seven hundred years back from now but this upright and flaring bowl

with convex sides and round base which were found in black and red and were in use in eastern Rajasthan some seven hundred years after the discovery of black and red ware from Ahar. Convex sided bowls with rounded or ring base have survived even to this day and are used in Bharatpur area and also in Uttara Pradesh with ring base.

The painted black and red ware from Ahar, in short, was the Deluxe ware of chalcolithic period while the unpainted black and red from Noh was the pottery of the common man.

So far as the chronology of Black and red ware from Ahar is concerned, the carbon dated results of the site ascribe the beginnings of Ahar culture and so also of the associated B & R to C. 1800 and these go from 1385 to 1165 B. C. on the basis of the examination of carbon contents at IC late level but in the case of B & R at Noh we have to arrive at the conclusion from the point of view of chronology in a different manner. It is not possible to determine the ceramic sequence of Rajasthan between the decline of the protohistoric culture and the dawn of the historical age owing to the fact that Ahar failed to give PG ware or Northern Black polished ware.

B. B Lal proposed in 1955 that PG ware might be placed somewhere within the limits of 600 B. C. on the one hand and 1500 B. C. on the other and equated it with the pottery of the Aryans. Hastinapur PG ware was dated by him to C. pre-1100-800 B. C. Now carbon 14 dates have firmly established a time gap of about 700 years (Cs. 1750-1000 B. C.) between PG ware and the Harappans.

The discovery of black and red ware tradition in the upper Ganga valley and at Noh in Bharatpur region in the eastern Rajasthan in pre P. G. ware horizon enhances the significance of both Aharian B & R and the B & R of Noh. An examination of the black and red wares from Ahar and Noh shows that there is a genetic relationship between the two and the B & R of Noh represents a phase assignable in front of chronology to 1100-1200 B.C.

G. R. Sharma in 1960 remarked that in Kaushambi he gets an echo of Harappan craftsmanship in the architecture of the period associated with the black and red ware. If the spread of the early black and red ware represents the early colonisation of the Aryans, which might mean the spread of Anu to the eastern India and that of the Yadus to the Deccan by the time they became regular city dwellers. B & R ware tradition being earlier than the P. G. ware tradition may be taken to be the early Aryan ware, while PG ware tradition is a late Aryan ceramic tradition. Obviously PG ware covers only the latter part of Dark ages in the north folk migrations from western Asia in the first centuries of the 2nd millenium and the end of the Harappans by the middle of 18th Century B. C. and the sudden emergence of Deluxe B & R tradition ware was, probably, responsible for the introduction of B & R at Noh in early stages of the spread of upper Ganga culture in Eastern Rajasthan.

In order to study in detail the close relationship between the B & R of Ahar and that of Noh and to study if this ware used by the Harappans could trace the contacts of the Harappans and the Banasian and those of the upper Ganga valley people, large scale excavations at Gilund and Ahar (on horizontal basis) are a desideratum. Inverted firing of pottery is a specialised technique employed in this ware everywhere and since Harappan potters at Lothal were producing it, further excavations at all such sites is likely to throw more light on this contact.

Affinities with Troy and Anav established by Dr. Sankalia strengthen the circumstantial evidence for this Aryan equation.

DISCUSSION

M. N. Deshpande :

In the context of slender evidence, it is difficult to explain the movement of people. The association of the Black-and-Red Ware with the Aryan is not yet proved. At Bahal in the Chalcolithic context we get a sort of the black-and-red ware (black-and-brownish). One of such pots bears white painting and a few in the graffiti marks. Bahal is different from Nevasa, Daimabad, etc. Spouted and carinated pots i.e. typical Jorwe type, has not been found there. Pottery shows some point of contact with Ahar. Black-and-Red Ware with white painting has also been found in the Kannatoka region. For its movement we need further investigation.

R. C. Agrawal :

Dot designs have been pointed on the Black-and-Red ware of Bahal (information given by Shri Deshpande). This feature occur at Ahar in I C. It may be suggested that they are coeval.

R. S. Sharma :

Previously, a number of cultures have been associated with the Aryans and now another culture i. e. Black-and-Red ware has been included in the list. In the Indo-European languages a common name for pottery should be searched.

Sivaji Singh :

The associaton and identification of the black-and-red ware people with Aryans is based on the word Ame Potre, Nila Lohita of Atharvaveda. Its identification with the black-and-red ware should be given up, but it does not stand with any pottery. Curiously enough, in the Kashmirian version we found Sutra Nila Lohita for Mishradhan. Nila Lohita may be identified with a thread, it has nothing to do with pottery. Pottery of the early Vedic literature should be studied and identified with Indo-European languages.

S. R. Rao:

The black-and-red ware was the cultural trait in the region, as the bulk of pottery was fired here. This may not be true in another case. It may be possible that they copied the technique only and it does not form the trait there. This pottery was known even to the early historic people and adopted in burial. Perhaps the Black-and-Red ware people came into contact with Megalithic people. On the basis of pottery only we cannot associate it with any particular people. We have to consider evidence—Iconographic Linguistic data etc.

S. P. Srivastava :

The question of identifying the Black-and-Red ware with another people remains unsolved. The people will not be satisfied simply with pottery. How the culture travelled ? What affinity they have with other culture ? Agrawal told me that the Rajadi black-and-red ware is different from earlier culture. Ahar also differs from Noh.

B. P. Sinha :

The Black-and-Red ware is really a big problem. It is high time to publish all materials that we have on black and red ware. In Bihar we have found Black and Red ware similar to Ahar. There should be study of types and frequency. Affinity and difference with each other have to be worked out. Only then we will be able to say something definite about the common cultural trait. The problem of the identity of the Black-and-Red or any other pottery with or a particular people, will not be solved merely by the study of types and fabric. It needs literary co-relation.



CHALCOLITHIC POTTERY OF EASTERN MALWA

K. D. Bajpai

The Vidisha-Dasarna area of central India, comprising eastern Malwa, is well known in the history of the country. From about 600 B. C. to the late Medieval times this region made important contributions to the political and cultural history of India.

Prior to the period of the sixteen **mahajanapadas** this region had developed a culture, the relics of which have recently come to light. The excavations conducted at Eran (Dist. Sagar) and Besnagar have shed welcome light on the protohistoric culture of eastern Malwa. The results, thereof, after a comparative study with the results of excavations at Maheshwar-Navadatoli and Kayatha, have furnished interesting account of the material-culture of eastern Malwa ranging in time from the beginning of the second Millennium B. C. to about C. 700 B. C.

The recent excavations at Besnagar have brought to light important finds bearing on the early historical period. But in so far as the protohistory is concerned, the evidence at the site, so far obtained, is meagre. The case of Eran is, however, different. The pottery and associated finds obtained at Eran, as a result of five seasons excavations work, are quite rich.

Explorations at some of the ancient sites in eastern Malwa have brought to light interesting material. At Tumain (ancient Tumbavana in the Guna district of Madhya Pradesh) early historical Black-and-Red Ware and Northern Black Polished Ware were picked up. Some of the Red sherds painted in black picked up at Besnagar. They are akin to those found from the dig at the site during 1963-64 and 1964-65, assigned to the Chalcolithic period. Due to the limited nature of excavations at Besnagar, not much could be obtained there of the proto-historic culture. A few sherds of Black-and-Red Ware, having simple horizontal bands on the exterior, are known from a painted rock-shelter called 'Putali Karar' in the Raisen district of eastern Malwa. These sherds are quite akin to the Chalcolithic pottery known from other sites.

By far the most significant discovery of the Chalcolithic pottery has come from Eran. The site has been excavated by the Department of Ancient Indian History & Archaeology, University of Saugor. During the work lasting for five seasons (1960-61 to 1964-65) twenty trenches were laid in the mounds of Eran. Out of these

four located in the main mound yielded important results pertaining in the Chalcolithic habitation. This habitation was found at the top of the black cotton soil. The maximum thickness of the habitation deposit was found 2.14 metres at the outer mounds and 9.15 metres at the main mounds.

The Chalcolithic culture at Eran was found to cover the period between C. 2000 B.C. and 700 B. C. This was followed by the early historical (700 B. C. to 1st century A. D.). These two have been called Period-I and Period-II respectively.

Period-I is characterised by the presence of microliths of various types, pottery and copper. The scarce use of copper was attested to by two fragmentary celts. A neolith piece with sharp edge was also unearthed.

The different ceramic wares of the period were dominated by the Red ware, mostly painted in black over red exterior. The painted motifs, with a few exceptions, are geometrical. A few sherds in this ware contained incised decoration. The other ceramic industry of the period was Black-and-Red Ware, painted in white over black interior, the types represented in this ware mostly being dishes. Another important ware of the period was the Grey ware which is also wheel-made. It is sometimes painted in black and rarely in red. Thinner sherds of this ware were usually of finer fabric. This Grey ware does not seem to have any similarity in fabric, types and painted motifs either with the well-known Painted Grey Ware of the Gangetic valley or with the Neolithic Burnished Grey Ware of South India. On the contrary it seems to form an integral part of the Chalcolithic Culture at the site, as it contains types and painted motifs, not different from those of the contemporary Red Ware. A few fragmentary channel spouts were also recovered. These spouts tend to indicate some sort of affiliation of these people with ancient Iran. Several types of pottery from Eran are akin to the pottery obtained from the contemporary levels at Maheshwar and Navadatoli in the Khargon district of Madhya Pradesh.

The other finds of the Period include beads of stone, shell, paste, jasper, steatite and terracotta; terracotta; human and animal figurines, fragments of terracotta bangles and toy-wheels, and a very interesting circular gold piece (diam. 9"; weight 20 grains). This gold piece probably served as the medium of exchange for the Chalcolithic people. In all six floor levels were noticed in this period, the earliest one being laid immediately over the black clay. The floors of irregular shape were made of rammed yellow clay mixed with **Kankar**. Sometimes burnt clods of clay were also crushed into the floor. On the basis of other Chalcolithic sites, it can be said that the Chalcolithic people at Eran were living in ordinary huts having mud-walls. The compact floors were made with the help of mud and lime. Cow-dung seems to have been used to keep the floors smooth. The people may have been conversant with agriculture. Apart from this, they had a fairly good knowledge of pottery-making, the preparation of various types of beads of clay and some precious stones and of making implements of stone.

The most significant discovery of this period is a mud defence-wall and a moat. The defence-wall, as revealed from excavations, is 154 feet wide and 21 feet deep. This wall contained, potsherds, copper celt and beads and other objects of the Chalcolithic period only. The discovery of the wall explains the unusual depression in between the main mound and the multitudes of mounds to the south of Eran. Almost up to the end of the Period II A (c. 700 B. C.-200 B. C.) the habitation seems to have been restricted inside the mud defence-wall, with only scattered habitation outside. It was in the period III (1st to 6th century A.D.) that the area of habitation was extended towards the south. Again in period IV (16th to 18th Century A.D.) the habitation become restricted to the main mound, where, in a late phase of the period, a massive stone fortification wall was constructed to the height provided by the previously existing mud defence-wall. The defence wall served two purposes. Firstly it enclosed the town on the southern side, providing artificial protection in that direction. Secondly the depression created by diggin the nearby area for preparation of the mud wall naturally took the form of a moat. The excess water of the river may have passed through the moat and thus saved the habitation from the floods and attacks of the outward enemies. The width and maximum depth of the moat is 120 ft. and 18 ft. respectively.

By Carbon-dating this Chalcolithic period at Eran has been bracketted between C. 2000 B.C. and 700 B.C.

DISCUSSION

R. C. Agrawal :

Prof. Bajpai has thrown a welcome light on Chalcolithic complex at Eran. The painted linear designs on the Black-and-Red ware of Eran has some affinity with Ahar. They seem to be contemporary with each other as suggested by the Radio Carbon dates. The Black-and-Red Ware with type site Ahar extended in Eastern India as far as Bihar and Bengal. What was its route of movement ? Was it from west to east or vice versa ? Probably it was from west to east.

S. R. Rao :

The position of Eran is very important in Indian Archaeology. Here we have an evolution of fabric like Lothal and Ahar. Eran may be terminal station in the movement of cultures. It may be proved on the basis of Chronology also. Painted designs are similar to Ahar. There are certain Harappan traditions also as for example the conception of defence-wall. The occurrence of channel-spout is very significant. Channel spout vessel have been found in the Neolithic-Chalcolithic complex also. Its evolution may be traced back to the Neolithic period. The lipped bowls of Neolithic period were further elongated in chalcolithic phase. It has nothing to do with the Iranian specimens. Similarly wine cups were directly evolved from the Harappan period. The Neolithic fellows also

started to use black-and-red ware and black-and-red, steatite etc. of Harappan tradition.

K. K. Sinha :

The presence of defence-wall at Eran is significant. It needs further investigation for any affiliation with Harappan tradition.

R.C. Gaur :

Is there any similarity between Eran and Kaitha ?

K. D. Bajpai :

So far the question of movement is concerned it was probably from West to East. According to me the origin of channel-spout may be indigenous. A defence-wall was brought to light by Deshpande at Daimabad in a Chalcolithic period as it contained materials of the Chalcolithic period only. Painted motifs on a few sherds of Eran and Kaitha agree with each other.

B. P. Sinha :

Eran may solve the problem of the route of diffusion. At Oriup, we have found a unique channel-spouted bowl in the Black-and-Red Ware with white painting on the inner side. Chirand has yielded white painted black-and-red ware similar to Ahar. Dish-on-stand with long stem has been found both in Red-and-Black and red wares. A few of them are painted in pinkish white colour. These evidences from Bihar should also be taken into consideration.

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A NOTE ON THE PROBLEM OF THE PLAIN BLACK AND RED WARE IN NORTHERN INDIA

K. N. Dikshit

Introduction :

The problem¹ of the black and red ware was first discussed in a symposium organized by the Director-General of Archaeology in India in 1954, and thereafter many scholars like Sankalia, Subbarao, Wheeler, etc. have discussed this problem in detail. But in recent years the excavations at various sites,² notably at Atranjikhhera and Noh³ revealed, for the first time the chronological priority of this ware over Painted Grey ware in northern India. In this paper I have attempted an evaluation of the problem of the distribution, form, and chronology of the plain black-and-red ware. An attempt has been also made to discuss the Aryan problem with different known ceramic industries.

Distribution and chronology:

The researches done during the last 20 years have revealed the occurrence of black-and-red ware from the different chronological horizons besides association in the megalithic context. On the basis of these latest researches we may group the black-and-red ware into the following cultural categories :

1. **Late Harappa** (C. 2000-1750 B. C.) Rangpur, Lothal and Desalpur.
2. **Post Harappa Chalcolithic Cultures** (C. 1800-1000 B.C.) Ahar, Gilund, Navdatoli, Chirand, Rajar-dhibi,
3. **Pre-Painted Grey ware** (pre C. 1000 B. C.) Atranjikhhera and Noh
4. **Painted Grey ware and Historical period** (from C. 1000 B. C.) Hastinapur, Rupar and Khalau.

This black and red ware from groups 1 & 2 is painted with white pigment and was noticed for the first time in the riverine valleys of south-eastern Rajasthan.⁴ Later on it was encountered even in the late Harappan levels at Rangpur and Desalpur in Gujarat.⁵ This pottery further penetrated in the areas of Central India,⁶ northern Deccan⁷ and also in Tamilnad⁸.

This painted tradition on the pottery which has probably traversed from Central India, is further noticed in the belt of the Ganges in southern Uttar Pradesh,⁹ Bihar¹⁰ and West Bengal¹¹.

The pottery from group 3 & 4 is without any painting. This ware has been reported from the excavations and explorations in eastern Punjab,¹² Haryana,¹³ eastern and northern Rajasthan,¹⁴ western Uttar Pradesh¹⁵ and other parts of northern India.¹⁶ But from a majority of these sites, the other wares like slipped and Painted Grey, were also noticed.

Form :

The basic forms reported from different excavations of the typical painted black and red ware, are bowls of different sizes and depth varying from thick to thin sections, although a few restricted types already current in alien wares, were also noticed. A few selected types from different sites are mentioned below:

1. Bowl :

- (a) Shallow bowl with external ledge (Ahar)
- (b) Bowl with ridging near the edge (Ahar)
- (c) Bowl with pronounced carination and concave sides (Ahar)
- (b) Bowl with a slightly raised rim (Gilund)
- (e) Bowl or cup with outgoing sides (Navadatoli and Awra)
- (f) Ovaloid and semi-circular bowls with rounded or carinated belly and indrawn short rim (Navadatoli)
- (g) Bowl with corrugation near the top (Rajar-dhipi)
- (h) Bowl with a tongue like-channel (Rajar-dhipi)
- (i) Bowl on ring-base (Chirand).

2. Dish :

- (a) Dish (Gilund)
- (b) Doubtful fragment of a dish (Navadatoli)

3. Jar :

- (a) Jar with a short mouth and bulbous body (Gilund)
- (b) Jar looking like a rimless **batloi** (Ahar)

4. Basin:

- (a) Large basin shaped vessel with inturned rim (Ahar)

5. Dish-on-Stand:

- (a) Dish-on-stand (Menar,¹⁷ lying between Udaipur and Chitor and Chirand)

The whole complex is dominated by bowls and a few of its forms like carinated bowl found their way in successive ceramic industries but, at the same time, bowl with tongue like lip seems to be derived in later phase from Malwa ware. This form also is transformed in metal (Khurdi)¹⁸ and can still be seen persisting in the religious repertoire of modern India.

The basic forms, as reported from the excavations of groups 3 & 4, are dish and bowl. This ware is made out of well levigated clay, thin section, turned on fast wheel and well-burnt under the inverted firing technique. A few important shapes are described here:

1. Bowl:

- (a) Bowl with a vertical sharpened rim (Hastinapur II early level)
- (b) Bowl with a featureless rim (Noh and Atranjikhhera)
- (c) Bowl with slightly everted featureless rim (Atranjikhhera).

2. Jar:

- (a) Jar (Atranjikhhera)

3. Dish:

- (a) Dish with featureless rim and convex sides forming a sagger base (from nearly all the sites).

This typological comparison between painted and plain black-red ware bespeaks itself. The forms of painted black-and-red ware (Chalcolithic) were exclusively used by the other successive industries but not in the geographical limits of the plain black-and-red ware. Gaur thinks that black-and-red of Atranjikhhera has a genetic relationship with the painted black-and-red of Ahar and Gilund, but I have reasons to disagree with any such relationship on the following points :

1. The painted black-and-red bowls from Rajasthan have pronounced carination and concave sides and the fabric is also coarse whereas the bowls of plain black-and-red ware are featureless and comparatively of fine fabric.

2. The tradition of paintings on black-and-red ware was kept alive far in time and space from Rajasthan (ranging from C. 1800-1000 B. C.) i. e. Madhya Pradesh, Deccan, Bihar, and Bengal, but it is significantly absent in the neighbouring areas, in eastern Punjab, Haryana, northern and eastern Rajasthan and western Uttar Pradesh.

3. The type dish (featureless rim with convex sides) is entirely unknown to the painted black-and-red users but it was vigorously used in the region of plain and Painted Grey ware which is also the region of plain black-and-red concentration.

4. The bowls, channelled or with pronounced carination and dish-on-stand never found their way in the plain black-and-red region.

5. The Aravallies in Rajasthan has also checked the expansion of Aharians towards north and pushed them to south-east from where they got an out-let to enter in middle and lower Gangetic valley through Madhya Pradesh.

The forms in the plain black-and-red argue for a different source about the knowledge of the inverted firing and thus cannot be correlated with Ahar as postulated by Agarwal and Gaur. The bowls and dishes of plain black-and-red have a typological connection with Painted Grey ware and also reported together in excavations, so one can infer that the intrusion of Painted Grey ware was not far removed in time from plain black-and-red ware. Being technologically advanced, painted Grey ware people easily superseded the users of the plain black-and-red ware and this is the probable reason that this culture lost its entity and sank in to obscurity.²⁰

Aryan Problem :

To identify a ceramic industry with Aryans is a problem and the answer is not clear cut in the terms of any particular theory. In the absence of written records, we may go on arguing about the role of different ceramic industries in equating with Aryans but truth may remain far from us. Anyway we know about Aryan movements²¹ from literary sources but the other items of this important community are still lacking. In the beginning 27 generations of the main families of Aryans lived in the area of Sapta-Sindhu (southern Panjab and northern Rajasthan) and later on made their conquest upto Yamuna. Before I may submit my provisional observations on Aryan Problem, the current views are also mentioned here :

1. Lal has identified Painted Grey ware folk with the Early stock of Aryans.²²
2. Sankalia associated the Aryan movement with Aharians.²³
3. Sharma connected Aharians with the first wave of Aryans and Painted Grey ware as the second wave.²⁴

What is the position of the plain black-and-red ware vis-a-vis Aryans ? The following facts also bring this pottery very close to Early Aryans :

1. In northern India besides Harappan pottery only Bara ware, Ochre-coloured ware, plain black-and-red ware, black slipped ware, Painted Grey ware, etc. are found.

2. The shapes in plain black-and-red ware entirely unknown to the other earlier or contemporary chalcolithic cultures.

3. The distribution of this ware has been noticed in the valleys of Saraswati, Sutlej and Ganga.

4. The place names as mentioned in Mahabharat also revealed plain black-and-red ware alongwith Painted Grey ware.

5. It is also possible that there may not be any difference between the users of the plain black-and-red and Painted Grey wares because the latter people can also pick-up the inverted firing technique. It is only at Atranjikhhera and Noh that black-and-red ware has been noticed from pre-Painted Grey ware horizon otherwise both are reported together. Possibility cannot be ruled out that Painted Grey ware habitat at Atranjikhhera may be later in date as is evident from the full-fledged iron industry. From Hastinapur and Alamgirpur limited use of iron is known.

6. The time limits of the plain black-and-red ware fits in well, if compared with Bogaz Keui inscription (C. 1360 B. C.).

For the proper appraisal of this problem the excavations of a few selected sites in northern Rajasthan and eastern Panjab is a desideratum. The unearthed material remains might fill up the lacuna between the plain black-and-red ware and its users possibly Aryans.

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DISCUSSION

R. C. Agrawal : We may agree with the hypothesis given by Dikshit. The shapes in the unpainted Black-and-Red ware of Atranjikhhera and Noh are

quite different from the painted Black-and-Red ware of the chalcolithic period. There is an affinity with the shapes of the P. G. Ware. It is possible that the P. G. ware people at Atranjikhhera might have taken shapes of the plain Black-and-Red ware. A clear picture will emerge when more sites will be excavated. We have to find out the place where the unpainted tradition developed.

S. R. Rao : Let us take the Northern and southern plain black-and-red ware separately. In southern India, it occurred as early as 1700 B. C. It has been found at Hallur in a pre-Iranian context. The Megalithic builders used black-and-red ware and iron. They were Dravidian speaking people and seem to have come from North.

S. P. Gupta : The P. G. ware started somewhere in the west. When it arrived at Atranjikhhera, it has already developed its shapes in the Ghaggar Valley. Whether the excavation yielded plain black-and-red ware and P. G. ware side by side? Whether the P. G. ware got its shape from the plain black-and-red ware?

R. C. Gaur : The plain black-and-red ware is an earlier tradition than the P. G. ware at Atranjikhhera. Its many shapes continued in the P. G. ware. It gradually disappeared. Either it was absorbed into P. G. ware or died. There may have been derivation of shapes in the P. G. ware.

No two black-and-red ware sites are identical. At Sonpur, we have plain black-and-red ware, whereas Chirand has yielded its painted variety.

V. D. Mishra : The stratigraphical position of the black-and-red ware and P. G. ware in the Ghaggar Valley should be marked.

At Kakoria, we have collected plain black-and-red ware with OCP like sherds and microlithic blades from megalithic and habitational areas.

K. K. Sinha : From Sardargarh to Sravasti the shapes in the P. G. ware are same and the tradition continued everywhere. Atranjikhhera seems to be solitary example of its kind.

Sri K. N. Dikshit : The black-and-red ware tradition of south and north are certainly different. Knowledge of iron came from two different sources.

In the Ghaggar Valley we do not have any excavation, but the explorations show that black-and-red and P. G. ware co-existed.

At Atranjikhhera, we have developed iron tools in a good number whereas at Hastinapur, etc., only a few iron slags or tool occurred. One should not go only by one carbon date.

B. P. Sinha : We cannot definitely associate or ceramic industry with any literary known tribe. There may be first speculations then acceptance or rejection.

In Bihar, we have Black-and-Red ware from very beginning. They are plain as well as painted. Painted Grey ware has not been found excepting a few degenerated sherds at Vaisali. The Black-and-Red ware tradition continues to the beginning of the N. B. P. Ware period. Iron, which is associated with the P. G. ware at Atranjikhhera, Hastinapur, etc., appears with the Black-and-Red ware in a post chalcolithic and Pre-N. B. P. context. It is necessary to find out the sources of iron.



NATURE OF HARAPPAN WARES IN SUTLEJ VALLEY

K. N. Dikshit

Introduction :

Recent archaeological excavations and explorations carried out in northern India have presented numerous new facts and details about the distribution, form and chronology of Harappa culture, but before I discuss the nature of the Harappan pottery in Sutlej valley and assess its importance in furtherance of our knowledge, I would like to briefly put it in the broader perspective of the Harappan civilization as revealed in the excavations at Harappa, Mohenjo-daro, Chan-hu-daro, Lothal and Kalibangan. Thereafter an attempt will be made to analyse the Harappan wares of the Sutlej valley in their comparative stratigraphic perspective.¹

Extent of Harappa civilization and its salient features :

The civilization of Harappa² is known from its type site Harappa in Saiwal District of West Pakistan, but nothing is known about the makers of this great civilization which was of astonishing extent from Dher Majra in the north to Malwan³ on the south bank of Tapti estuary in the south and from Sutka-gend⁴ on Makran coast in the west to Manpur in Ganga-Yamuna doab in the east. A few traits of Harappan culture seem to have been borrowed from Kot-Dijians⁵ and other pre-Harappan peripheral cultures present in Central Baluchistan and in northern Rajasthan⁶. It cannot also be ruled out that Harappa civilization was born possibly due to a combination of technological advances plus an even more important revolution in the socio-political organizational technique of those people⁷.

The salient features of Harappa civilization are systematic lay out of the cities, well regulated drainage system, use of standard sized burnt-bricks, steatite seals depicting the animal kingdom with pictographic or ideographic script, animal and human terracotta figurines, terracotta cakes, chert blades and weights and bronze objects. The Harappan pottery is characterized by a well-burnt black painted red ware with distinctive shapes like dish-on-stand, cylindrical vase, perforated jar, goblet, big storage jar etc. The general motifs on the pottery are intersecting circles, leaf and fish-scale patterns and human and animal figurines.

A maximum time-bracket C. 2500-1500 B.C. was proposed for this civilization but radio-carbon dates from different sites provide a shorter bracket like C. 2300-1750 B.C.⁸.

After the end of the Harappa civilization; the organized planning which was the key note of this culture, was entirely forgotten. The reasons for this sudden change must be very weighty but they have yet eluded the archaeologists⁹.
Changes in river courses :

The tract between Ludhiana and Saharanpur, about 274 metres above sea-level, forms the present water-shed which divides the drainage of the Gangetic system from that of the Indus system, but there are evidences to prove that "some interchange took place between the easterly affluents of the Indus and the westerly tributaries of the Yamuna by minor shifting of the watershed"¹⁰. It appears that in earlier times the courses of the Punjab rivers were very different from what they are today.

The river Sutlej about 1440 kms. long leaves the Dhauladhar Range near Rampur and traverses on the foot-hills of Siwalik before reaching Rupar. It joins Beas at Hari Ke Patan and then meets Indus near Mithankot. But there is evidence that in ancient times it passed by Malaut and Abhor (District Ferozepur) and joined the ancient Saraswati near Phulra, now known as Fort Abbas and then the combined rivers passed through the middle of Bahawalpur District, where it is known as Hakra or Wahind and discharged its water through the channel of the Eastern Nara into the Rann of Kutch. The river Beas also did not meet the Sutlej at Hari Ke Patan as it does now. The ancient course of this river can still be traced near Patti, Kasur, Chunian and Dipalpur through Lahore and Montgomery (now Saiwal) Districts, now both in Pakistan, where it originally used to join the Chenab near Shujabad¹¹.

The rivers of the Punjab have been depositing enormous quantity of silt brought by them from the mountains and this mechanical-process is responsible for raising their beds to the level of surrounding plain, and consequent shifting of their channels¹². In the case of Indus system of rivers they have a tendency to shift their courses towards west. Suggestions have been made that it may be connected with the rotation of the earth but the similar phenomena has not been observed in the case of all rivers in northern India¹³.

Previous Work :

Daya Ram Sahani explored Harappa on the bank of an ancient bed of the Ravi in 1921 and, thereafter, two more sites Chak Purbane Syal and Kotla Nihang were added by M. S. Vats¹⁴, but after the partition of the country in 1947, the archaeological activities were intensified in East Punjab. Y. D. Sharma, Olaf Pruefor, B. B. Lal, R. P. Das, M. N. Deshpande, Punjab University, Chandigarh, and the author explored a few Harappan settlements on the river Sutlej and its tributaries (Map. 1).

The excavations at Kotla Nihang Khan¹⁵, near Rupar in Sutlej valley revealed goblet with painted base, jar-stand, dish, trough, dish-on-stand, handle

of a cup and handi-shaped vessel with incised chevron at the shoulder. Triangular and round terracotta cakes were also noticed.

At Rupar¹⁶, 122 kms. from Ambala just on a thin deposit of sand and pebbles, a late stage of mature Harappa culture with certain new types like dish-on-stand with drooping rim; vases with beaked and under-cut rim, shallow basin, perforated jar, cylindrical-beaker, cups etc. were noticed, where as the original types recovered in the excavations at Harappa and Mohenjodaro started vanishing. The deposit of upper levels is characterized by a new ceramic tradition. The Indus goblet with pointed base is absent but a class of incised designs, noticed in profusion at Bara, begin to appear at this place. The presence of terracotta cakes is also negligible.

These early settlements have been noticed at several places in upper Sutlej valley¹⁷.

The excavations carried out at Dher Majra¹⁸, 11 kms. north of Rupar, yielded pottery identical with cemetery-H at Harappa, besides the Harappan wares in the lowest level. Mention may be made about an incised sherd having decoration on the interior (Pruefer, Excavations at Dher Majra, Type 42).

The pottery from Bara¹⁹, 8 kms. from Rupar requires a close scrutiny as the site has played an important role in forging connections with other post-Harappan sites in Indus valley on the one hand and Gangetic valley on the other. The excavations revealed an occupational thickness of about 4.5 metres. A few important types of Bara with their paintings and incised decorations on a red sturdy fabric are mentioned here.

Pottery types :

1. Narrow-necked jar with a splayed out rim, bulbous body and rounded base (displayed in Antiquity Section, Safdarjung, New Delhi).
2. Small jars of different sizes and shapes.
3. Dish-on-stand with short stem.
4. Basin with a flat projected and under-cut rim.
5. Hollow lid with a central knob.
6. Dish with a projected and out-turned rim forming a groove.
7. Miniature dish-on-stand.
8. Goblet with a button base.
9. Large storage jars and cooking vessels with rusticated surface below the body.

Painted designs :

1. Jar with neck fully painted and also having a single or a set of parallel horizontal bands on the shoulders and belly.

2. Design appearing like a trident on the shoulder of the pot.
3. Fish-like patterns with vertical hatching.
4. Leaf patterns (not Harappan pipal leaves).
5. Sigma, wavy lines, criss-cross and triangles all having hatching.
6. Looped-arm with horizontal off-shoots on the outer side of the loop.
7. Designs with boldly drawn curving lines.
8. Design consisting of a square with incomplete circles at the corners filled up with hatching (or bastion design).

Incised decoration

1. Wavy lines, sometimes single otherwise in a set of two or three.
2. Parallel horizontal lines closely knit sometimes numbering upto 15 but generally intercepted by a set of oblique lines forming compartments or by a single or multiple wavy lines probably drawn by a comb-like instrument.
3. Sometimes the parallel horizontal bands are represented in two sets and the intermediate space is filled up with deeply cut-chevrons or lozenges or wavy lines enclosed in benticulars circlets.

The incised designs are generally confined on the shoulders of the large vases and below the belly the pot being usually rusticated.

Recent Field Work :

The incised pottery of Bara Complex is further reported from Harraipur²⁰ on Rattanadi, about 7 kms. from Badi towards Nalagarh. The types reported are dish-on-stand, beaker, large storage jars and basin with projected rim. The sherds which have tendency to rub off easily are having incised horizontal or wavy lines.

Shri Das ²¹ also noticed variants of basin with raised and splayed out rim, dish-on-stand and a few painted and incised sherds from Deheru, Manupur and Kheri Nudh Singh, along a dried up bed of Budhanala, a tributary of Sutlej. Manupur has yielded in addition a few basins of ocherous fabric.

Recently Shri Deshpande²² has picked up incised and painted sherds of Bara type from Madiala- Kalan, situated about 29 kms. south-east of Ludhiana on G.T. Road. A sherd with a crane like bird is interesting. Further west this culture complex has been noticed at Kat-Palon²³ in District Jullunder. In addition to Bara pottery, a few sherds looking like ochre-coloured ware of Ganga valley were also picked up.

31 kms. south of Ludhiana on the Ludhiana-Hissar Road, an ancient mound at Rohira,²⁴ in District Sangrur, was also found to contain this pottery. Here one sherd shows cord-impression on the exterior and wavy lines in a set of four on the interior, whereas the other incised sherds have wavy lines on the

exterior. Shri B. K. Thapar is of the opinion that similar design has also been reported from Kalibangan I and also from Harappan levels at Amri.

This Harappan assemblage has been also reported from Raja Sirkap,²⁵ 3 kms. south of Faridkot. The types picked up in exploration consist of dish, basin and perforated jar.

Discussion :

A survey of Harappan settlements in Sutlej valley revealed that these are definitely later in comparison to the mature phases of the same in Indus and Ghaggar basins but at the same time Bara pottery requires careful reassessment. How, when and wherefrom the new trait of incised decorations penetrated in Sutlej valley is a matter still to be decided, for at the sites like Mohenjodaro and Harappa incised pottery was not used and the Harappans living in northern Rajasthan from where they migrated to upper Sutlej basin also had no preference for the incised pottery of their ancestors?

In the words of Dr. Y. D. Sharma, "the position of Bara is difficult to determine." He says further that "this pottery shows a family likeness with pre-Harappan pottery at Kalibangan. But among points of divergence is its thickness and sturdiness... ..Also the source of its incised decoration on cooking and storage-vessels is by no means certain, even though such decoration is not quite absent at Kalibangan. Seemingly Bara has, therefore, some affinity with the pre-Harappan Kalibangan and although influenced by that tradition appears to be later than Rupar"²⁶.

1. Comparison of Bara with Harappa, Cemetery-H and Jhukar wares. Form :

1. Except the conception of dish-on-stand (also present squatish dish-on-stand in Cemetery-H) this culture truly speaking has no Harappan forms.
2. The type I of Bara can be also seen in one of the variants in Cemetery-H deposit (Vats, Harappa, Pl. LX, No. 18 type E and Prufer, Dher Majra No. 23 and 24).
3. The Indus goblets, also reported from Bara, are present only in late phases at Harappa and Mohenjodaro which itself seems to be an intrusion from outside.
4. The miniature dish-on-stand and hollow lid with central knob of Bara, were also noticed in the upper levels of Mohenjodaro (Mackay, Mohenjodaro Pl. LV No. 2 and Pl. LVII No. 7).

Painted design :

1. While comparing the painted Bara motifs with Harappans, hardly any resemblance can be sought. The typical decor of the Harappan pottery seems to be entirely unknown to these people.
2. The full neck painted tradition on Bara pots seem to have been borrowed from Cemetery-H (Vats, Harappa, Pl. LVIII b and c No. 6) and Jhukar (Mem. Arch. Survey of India No. 48 Pl. XVI No. 17).
3. The painted design No. 2 of Bara has been compared by Gordon with Cemetery-H (Gordon, Prehistoric background of Indian Culture, Fig. 10).
4. Like Bara, Jhukar also does not contain painted bird or animal decoration (although two animal examples are known from Jhukar), whereas at Harappan sites it was a regular feature.
5. The boldly drawn curving lines of Bara have an echo of Jhukar motifs (Mackay, Chanhudaro, pl. XLVII No. 26).

Incised decoration :

1. The incised decoration has been reported from the pre-Harappan levels at Kalibangan but it was found totally absent from Harappan levels.
2. The fragmentary dishes of Jhukar levels (Mackay, Chanhudaro, pl. XLVIII), all bear incised patterns mostly on the inner sides. These decorations consist of wavy lines, horizontal bands intersected by fish patterns and a set of oblique lines forming triangles. Similar decorative patterns with a slight variation can be also seen on the exterior of Bara pots, not on dishes but on cooking vessels, because on the latter, decoration is not possible on the inner side.

II. Comparison between Bara and late Harappan and Ochre-Coloured wares in Western Uttar Pradesh

A majority of Bara types can be seen in the late Harappan and Ochre-coloured pottery complex of Ganga-Yamuna doab²⁷. This ochre-coloured ware received the first archaeological attention at Hastinapur²⁸ and Bahadarabad²⁹ but the planned survey of Ganga valley from 1962 to 1965 revealed at least a dozen sites of this ware and subsequently Ambkheri³⁰ was put to excavations. This pottery was also noticed at Atranjikhhera³¹ and Ahichhhatra,³² and has been circumstantially associated with Gangetic Copperhoard.

Form :

1. The vase with splayed out rim, dish-on-stand with drooping rim, basin, hollow lid with central knob and large storage jars with rusticated surface recovered from the excavations at Ambkheri have parallels at Bara and also at Harappan sites in District Saharanpur.

2. A miniature dish-on-stand reported in exploration from Jhinhana has a striking similarity with the one found in the excavations at Bara.

Painted design :

1. A few painted sherds have been recovered from the excavations at Atranjikhhera (other OCW site has yielded painted sherd) but its relationship with Bara on the basis of these limited number of sherds is different to establish at the moment.

Incised decoration :

1. A few incised designs like compartmented designs sigma, chevrons, wavy lines etc. from Atranjikhhera have a remote resemblance with the similar patterns at Bara. From Ambkheri-2 and Bahadarabad only Cord-impressed designs have come to light.

Conclusion :

It is difficult to say when Harappans retired to the foot-hills of Siwalik through the fertile valley of Sutlej and survived in relative isolation. From Sutlej to Ganga, the Urban Harappa culture was supplanted by inferior cultures into a rural community as is evident by the presence of the certain traits of the post-Harappan cultures of the Indus valley like Cemetery-H and Jhukar etc. Cemetery-H sites being nearer to East Panjab seem to have influenced the settlers of these region more in comparison to Jhukar.

The region between Ludhiana and Saharanpur was the only out-let for the people living in upper Ganga-Yamuna doab to exchange ideas and cultural traits with the people living in the Indus system of rivers. It was 'not unlikely that this area was the meeting point of various cultures and emergence of new pottery types (pl. 3) and the technique of incised decoration were possibly the out-come of this fusion³³.

It will not be-out of place to mention a few lines about the recent excavations at Mitathal³⁴ in Chautang valley carried out by Shri Suraj Bhan Chowdhry of Panjab University, Chandigarh. The material culture unearthed revealed three phases of cultural deposit ranging from the late pre-Harappan to late Harappan with six structural periods. The upper phase seems to have connection with Bargaon³⁵, a late Harappan site in western Uttar Pradesh.

It is just an attempt to explain under what probable strains, Harappa-culture existed in Sutlej Valley. An earnest attempt should be made to co-relate the Harappan wares of Sutlej valley with those of Indus valley at one hand and with Ganga valley on the other by taking a few selected sites in Sutlej valley for horizontal digging.

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18. Pruefer, Olaf, Nalagarh 1951, Excavations at Dher Majra, Jama Milia Islamic Historical Res. Found. Calcutta.
19. *I. A. R.* 1954-55. See also Sharma's article in *Archaeological Remains. Monuments and Museums* (New Delhi, 1964.)
20. *I. A. R.* 1966-67 (in the press).
21. *Ibid* 1961-62 P. 103
22. *Ibid* 1963-64 P. 91
23. *Ibid* p. 17. Shri H. K. Narain of the Archaeological Survey of India, later on, picked up a fragmentary terracotta cake having a pot-sherd in the core.
24. *I. A. R.* 1964-65 (in the press)
25. *Ibid*, 1958-59
26. *Archaeological Remains, Monuments and Museums* P. 9.
27. Information from Shri M. N. Deshpande. See also his comments on Shri Ghosh's paper in *Indian Pre-History* 1964, Poona.
28. Lal B. B., *Ancient India* Nos. 10 and 11, New Delhi.
29. Sharma, Y. D., Copper-hoards and Ochre.colour ware in Ganga Valley, *Summaries of Papers. International Conference on Asian Archaeology*,
30. *I. A. R.* 1962-63, 63-64 and 65-66 (in the press).
31. *I. A. R.* 1963-64, See also Shri Gaur's comments on Shri Ghosh's paper, *Indian Prehistory* 1964, Poona.
32. *I. A. R.* 1964-65 (in the press)
33. Dikshit, K. N. Exploration along the right bank of river Sutlej in Panjab. *Jour. of Indian History*, Aug. 1967.
34. Information from Shri Suraj Bhan while I had an opportunity to see the excavations at Mitathal. About a year ago, a copper harpoon and ring from this site were acquired by Acharya Bhagwan Dev of Jhajjar, District Rohtak.
35. *I. A. R.* 1963-64. pp. 56—57.
[Paper read at the Seminar on Indian Pottery organized by the University of Patna, 1968]

DISCUSSIONS

Prof. K. D. Bajpai :

It is a good and informative paper. It is desirable that detailed comparison of the Indus Valley and Ganga-Jamuna Valley Harappan materials be made. In this connection, the position of Rupar is very important and its pottery may be compared with Bara and other sites. This needs explanation as to why incised pottery does not occur at Harappa. For intensive and detailed comparative study the materials excavated at Chautha and Bara may be considered.

Dr. R. C. Agrawal :

The entire Harappan region should be intensively explored, particularly an exploration between Rupar and Kurukshetra downward, Shahjahanpur is essential and their comparison with Bara may solve the problem.

Shri M. N. Deshpande :

Incised design on pottery occurs at Bara. The region is yet to be explored. It may probably represent a reconciliation between the conquered pre-Harappan and the Pre-Harappan Kalibangan. People when conquered moved in isolation and one finds pottery with incised design. We find either Harappan form and design pre-dominant or pre-domination of pre-Harappan incised design. Bargoaan is an important station in this respect. Here we find Harappan survival along with the pottery having incised design with preference given to Harappan pottery. Incised pottery designs have been found in both exterior and interior. At Bara it was only on extensor side, whereas at Kalingbanga in pre-Harappan strata both surfaces of the pot were decorated with incised design.

Sri S. R. Rao :

The nature of the Harappan movements was peaceful and they appear to have followed the policy of co-existence, with the uses of the Micaceous red or incised wares people. The incised pottery is one of the traits of Jhukar culture. One is to separate incised pottery stratigraphically.

Sri Kirshan Deva :

Sutlej valley is going to be very important for archaeologists. Harappan settlements have been found as far as Saraswati. The Sutlej Valley has, by and large, separate traits. The incised designs which occurred in this side may have been derived from Jhukar. The Sutlej is a part of the ancient Saraswati system. It was through the Saraswati that the cultural diffusion in the Ganga-Jamuna doab took place. It was likely that the Harappan Culture spread from Rajasthan, Bikaner and Chautal to the Sutlej and from there to the East Upper Ganga-

Jamuna Doab. At Katpalon and Ludhiana region, the incised pottery was a major Ceramic industry, though certain Harappan pottery also has been found.

Sri R. C. Gaur :

The problem of incised pottery may be considered with the OCP. Along with painted OCP, incised pottery has been found at Atranjikhhera. It bears similarity with Bara pottery.

Sri S. P. Gupta :

Shri Dikshit's paper is a substantial contribution to the study of the subject. The real origins of the incised designs in this region have to be determined. What was the urge to have incised designs? The OCP originated between Kanpur and Aligarh and then moved westwards.

Sri K. N. Dikshit. :

Pre-Harappan traits are present in the Sutlej Valley, but it is difficult to be definite unless we get in chronological order. Rohisar has some similarity with Pre-Kalibangan. It is possible that Atranjikhhera derived inspiration from Bara.

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