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*Foreword by*  
SHRI LAL BAHADUR SHASTRI  
PRIME MINISTER OF INDIA

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*To those  
who have made eager enquiries  
of the writer,  
on planes, in trains or at tea-parties,  
about what archaeologists in India  
have been doing since Independence,  
is this booklet dedicated*



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PRIME MINISTER'S HOUSE  
NEW DELHI-2

12th August, 1964.

## FOREWORD

Archaeology is a scientific and analytical study of human antiquities undertaken to form an idea of the people who existed at a particular period, their customs and way of life and the stage of civilization that they had reached. Although Archaeology in India was formally established a little over a hundred years ago, it has already played a vital role in unfolding our ancient culture and civilization and in this task it has been greatly helped by the wealth of legends and traditions in which our country abounds. Any scientific study undertaken to put before the general public the data in a simple and non-technical style is to be welcomed. Keeping this in view, Shri B. B. Lal has tried to give in this book an account of the work done by archaeologists in India since Independence in a lucid manner and I congratulate him on his effort.

*Lal Bahadur Shastri*





## P R E F A C E

In May 1962, at the invitation of the British Council, I delivered a series of lectures in the United Kingdom, one of them being on 'Recent Archaeological Discoveries in India', held at the Society of Antiquaries, London. After the lecture, some amongst those who attended it suggested to me that, as the topic was of a general interest, I might publish a booklet for wider circulation.

Last year, amidst other work, I could reduce to writing the subject-matter of the talk referred to above. However, it was felt that 'discoveries' alone may not fully represent our archaeological activities, which are concerned as much with standing monuments as with buried remains. Accordingly, other items like conservation of monuments, chemical preservation, museums, etc., have also been included. Something has also been said about the organizational aspect of archaeology in India, about which very little seems to be known abroad, particularly on the continent. Finally, since Independence a new phase of Indian archaeology has been developing, viz. the sending of Indian archaeological missions abroad. Thus, a small chapter has been added about it as well.

This rapid survey of archaeological activities in India since Independence is not addressed to the specialist, but to the lay reader having a general interest in Indian Archaeology. For his convenience are appended a Glossary of technical terms used in the booklet, and a Bibliography in case he chooses to delve deeper into the subject.

## PREFACE

That the Prime Minister of India, Shri Lal Bahadur Shastri, has been able to find time, amidst his heavy, multifarious activities, to go through this narrative is a matter of immense satisfaction. I am indeed deeply beholden to him for his generous Foreword.

I take this opportunity to thank Shri A. Ghosh, Director General of Archaeology in India, Dr. (Mrs.) Grace Morley, Director, National Museum of India, New Delhi, and the Editor, *Cultural Forum*, Ministry of Education, Government of India, for the loan of blocks used in this publication. Thanks are also due to Professors H. D. Sankalia, G. R. Sharma, K. G. Goswami and R. N. Mehta for permission to utilize photographs relating to their respective excavations. I must also record with gratitude the kind help given to me at various stages by my Director General Shri A. Ghosh and junior colleagues Sarvashri J. P. Joshi, B. M. Pande and B. B. Datta.

Lastly, mention must be made of the great enthusiasm and willing cooperation of the publishers who have done their best to overcome many a handicap in bringing out the booklet in a reasonable form.

New Delhi :  
15th August (Independence Day), 1964

B. B. L.

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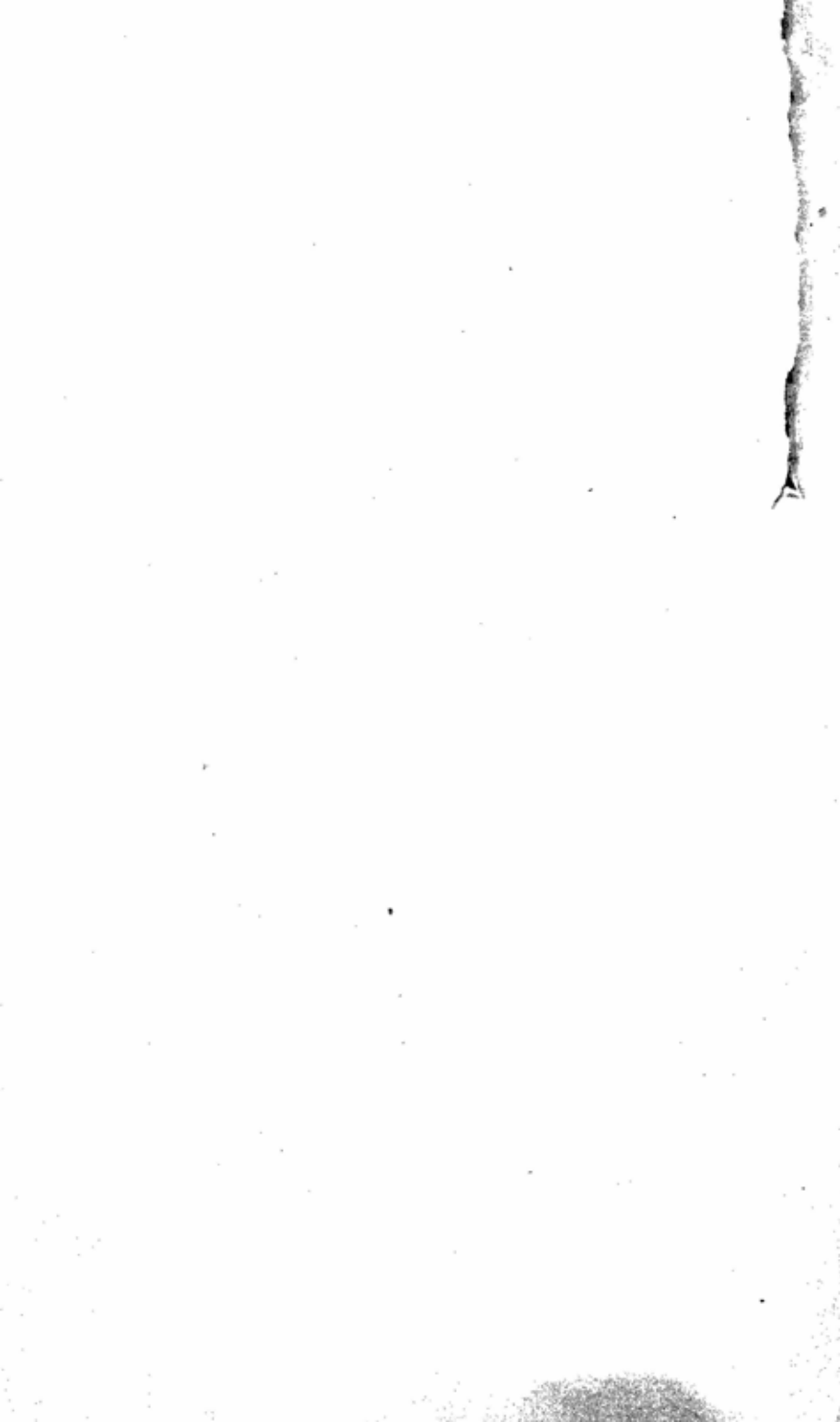
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- Archaeological Survey of India, New Delhi : for blocks relating to plates I-IV, VI, VIII, IX, XII, XIII, XVI-XXXI, XXXIII-XXXV, XXXVII, XXXVIII, XLII and XLIV and figures 2-7; and for photographs or drawings relating to plates V, X, XI, XIV, XXXII, XXXVI and XLIII and figure 1
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- National Museum, New Delhi : for blocks relating to plates XXXIX-XLI



## CHAPTER I

### THE DISCOVERIES AND RESEARCHES

#### A. THE STONE AGES

Partition (1947) took away from India all the sites of the Sohan Culture—one of the two Early Stone Age cultures of the subcontinent, the other being 'Madrasian' of the south. Taking this, as if, a challenge, an enthusiastic band of prehistorians has, by now, put on the map of India over a score of sites of the Sohan Culture, the more noteworthy being Bilaspur, Daulatpur, Dehra, Guler and Nalagarh (pl. XLIII). At Guler has also been observed a series of five terraces, of which the upper four are associated with tools. The latter (fig. 1) comprise unifacial 'choppers' and 'pebble-handaxes', bifacial 'chopping-tools', and a variety of cores and flakes including the levalloisean ones. There is no bifacial handaxe or cleaver, which factor marks the Guler industry off from the Madrasian.

Of the Madrasian Culture, characterized, as already indicated above, by bifacial handaxes and cleavers, many a new site has been discovered. In fact, in certain cases altogether new grounds have been broken, for example in south-western Rajasthan and central Kathiawar.

#### *New chapter added*

But by far the most important achievement in the Stone Age archaeology of recent years is the discovery of the Middle Stone Age tools. Made of fine-grained stones like chert, jasper, chalcedony, etc., the tools include points, sometimes with an incipient tang, borers and a variety of scrapers—round, hollow, convex, straight-sided, etc. (fig. 2). At



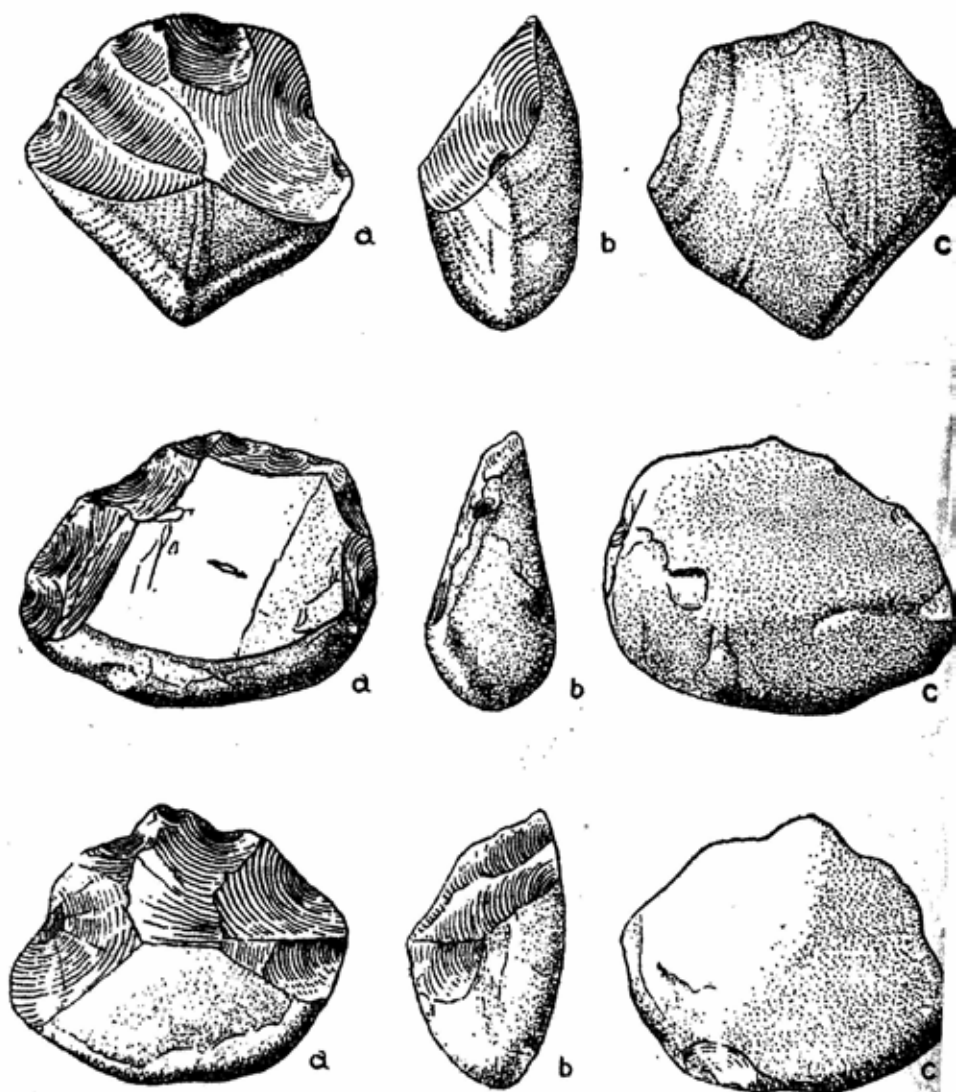


Fig. 1. Guler : unifacial pebble-tools. Scale : approx. 1/3.

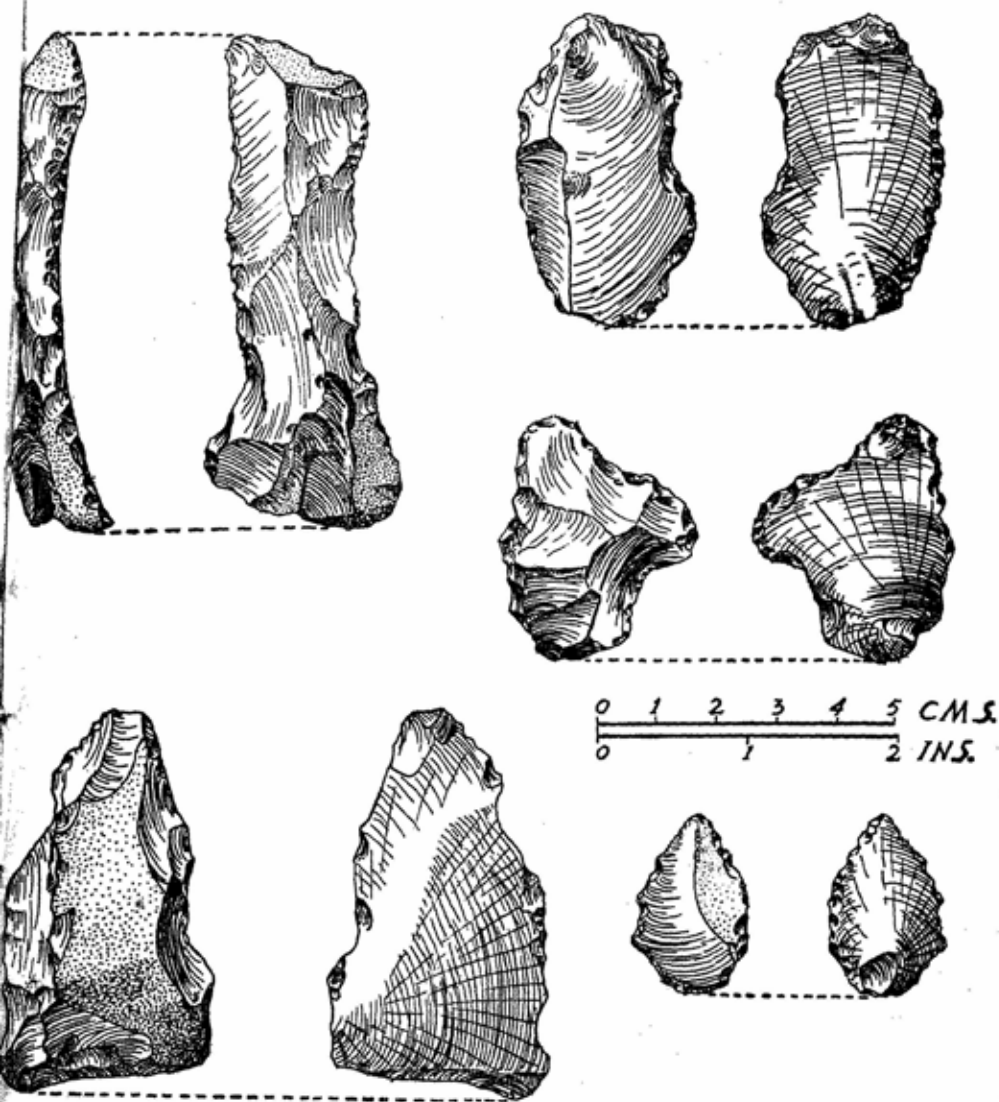


Fig. 2. Middle Stone Age tools from the Tapi valley

Maheshwar and Hoshangabad in Madhya Pradesh, in fact at quite a few other sites elsewhere too, the tools have been found in a clear-cut stratigraphic sequence, which assigns to them a place posterior to the handaxe-cleaver assemblage of the Early Stone Age. At Nevasa and Kalegaon, both in Maharashtra, the tools have occurred in association with *Bos namadicus* Falc., signifying that they are well within the Pleistocene, maybe in its last quarter.

*Microliths no longer 'only recent'*

The microlithic industries of India have often been pooh-poohed, dubbing the lot as only a very recent affair. While in certain areas of cultural backwaters microliths have no doubt continued to be manufactured in comparatively recent times, it has now been proved beyond doubt that in origin the Indian microliths may well be over six thousand years old. At the Teri sites in south India, there is evidence to correlate the microlithic industry with an ancient sea-level. And from eastern India—Birbhanpur in West Bengal—also comes definitive geological evidence of a similar antiquity. Indeed, evidence even tends to suggest that the microlithic industry may have had its roots in that of the Middle Stone Age.

As regards subsequent developments, excavations at Morena Pahar and Likhania, District Mirzapur, Uttar Pradesh, show the following sequence : non-geometric microliths; geometric microliths; and geometric microliths, with pottery appearing for the first time.

#### B. FROM THE DAWN OF CIVILIZATION TO THE THRESHOLD OF HISTORY

But of how the Stone Age man later on domesticated himself little consistent evidence is available in India. Langhnaj in Gujarat has given some inkling, but indeed much more data are needed. In the neighbouring country of Pakistan, however, one has a somewhat more cogent story of the dawn of civilization : for, at Kili Ghul Mohammed have been encountered four successive Periods, the earliest of which showed mud-brick houses associated with chert and bone tools, there

also being some evidence of domestication of animals and of agriculture. Period II revealed pottery, and III metal as well. Roughly equivalent to this third Period, we have in India the recently-discovered pre-Harappan levels at Kalibangan in Rajasthan. Over here have been brought to light well laid-out houses (pl. I), chalcedony microliths, copper axes, etc., and a characteristic red ware with black-cum-white painted designs (pl. II) of these pre-Harappans.

*Partition's loss made good*

However, it is the Harappa Culture, better known as the Indus Civilization, that marks the apogee of the protohistoric Indian civilization. Partition took away practically all the sites of the Civilization from India, including, of course, the two famous ones, viz. Harappa and Mohenjo-daro. This, however, did not dishearten Indian archaeologists who have since discovered over a hundred sites, flung far across the Indian subcontinent—from Rupar in Panjab on the north to Bhagatpura in Gujarat on the south, and up to Alamgirpur in Uttar Pradesh on the east. Indeed, the last-named site, situated in the Ganga valley, sets one re-thinking about the appropriateness of the very nomenclature, viz. the 'Indus' Civilization.

Of the Harappa Culture, three sites have extensively been excavated : Rupar, Kalibangan and Lothal. While Rupar has produced a very good stratigraphic sequence (fig. 7, pp. 28-29), from the Harappa Culture up to medieval times, with, no doubt, occasional breaks in between, Kalibangan and Lothal have thrown fresh light on the Harappa Culture itself.

*Fresh light on Harappan religion*

At Kalibangan, the Harappan settlement comprised two parts, the western of which was the walled acropolis and the eastern the township proper with the usual criss-cross street-pattern. The discovery of what look like fire-altars with a central 'stele' in the Harappan levels (on both the mounds) throws fresh light on the rituals practised by the people. On the western mound, a row of these altars (pl. IV) occurred on a mud-brick platform and not far off were a well and a bath-

platform—the whole picture being that of an area specially marked out for religious purposes.

*Direction of Harappan Script settled*

Amongst the finds recovered from Kalibangan particular mention may be made of certain inscribed potsherds (pl. III), the overlap of symbols clearly demonstrating that the direction of writing was from the right to the left—indeed a positive step in the tackling of the yet-undeciphered Harappan script.

*Dockyard—an altogether new feature*

Lothal, in Gujarat, has brought to light a burnt-brick dockyard, measuring  $218 \times 37$  metres (pl. VI). Evidence has also been obtained regarding a 7-metre wide channel that connected it with the ancient course of the nearby Bhogavo river which, in turn, discharged into the Arabian sea. Capping all other complementary evidence is that of a seal (pl. V) found at the site, which was otherwise at home in the contemporary townships of the Persian Gulf. One may now, with confidence, visualize Indian and West Asian trading ships moving up and down the Arabian coast late in the third millennium B.C.

Until the late forties of this century, the period between the end of the Harappa Culture (*circa* 1700 B.C.) and the invasion of Alexander the Great (326 B.C.) was regarded as the veritable 'Dark Age' of India's past. Within the last two decades, however, so much welcome light has been thrown on this Dark Age that it is now possible to draw the principal lines of the picture, though for details we have still to wait.

*Chronological horizon of Copper Hoards fixed*

In the past, Copper Hoards comprising flat, shouldered and bar oelts, hooked spear-heads, antennae swords, harpoons, rings, anthropomorphic figures, etc. had been discovered from a large number of sites in the Ganga valley, with an extension through the Vindhyan plateau even up to the Deccan, but their cultural *milieu* and chronological horizon have alike been matters for guess. Field-work during the past decade or so has given a reasonable inkling that the Hoards are likely to

have been associated with a red-ware industry, a few types in which, e.g. the dish-on-stand or knobbed lid, are reminiscent of the Harappa Culture. However, as the pottery has been found in a rather worn-out condition—to the extent that the surface rubs off by mere handling, leaving an ochrous colour<sup>1</sup> on the fingers, it is difficult to say if it bore any painted designs, a feature so typical of the Harappan pottery. Be that as it may, the find of a fragment of what is most likely to have been an anthropomorphic figure in Phase IV at Lothal shows, if nothing else, at least that the Copper Hoards were in existence as far back as the late Harappan times. Carbon-14 determinations assign to this Phase a horizon in the nineteenth century B.C.

### *The elusive Indo-Aryans*

After the Copper Hoards, in the Ganga-Yamuna valley one comes across the Painted Grey Ware (pl. X) Culture, which may broadly be dated to the first half of the first millennium B.C., with a probable margin on the earlier side.<sup>2</sup> At Rupar and Alamgirpur it has been found to post-date the Harappa Culture, while at Hastinapura it post-dated the 'Ochre Colour' Ware and ante-dated the Northern Black Polished Ware of the second half of the first millennium B.C. The available evidence shows that the Painted Grey Ware people lived in houses of wattle-and-daub, carried on agriculture and domesticated animals amongst which particular mention may be made of the horse. To begin with, they seem to have used only copper, but not very late in the day did they start using iron.<sup>3</sup> At Hastinapura, the Painted

<sup>1</sup> In the absence of a more suitable term, the ware has provisionally been called 'Ochre Colour' Ware.

<sup>2</sup> From Atranji-khera in Uttar Pradesh comes the earliest Carbon-14 date for this Ware. It is  $1025 \pm 110$  B.C. However, below the layer which yielded this sample there was a further deposit of 1.40 metres associated with the P.G.W. Culture. (Information from Prof. Nurul Hasan.)

<sup>3</sup> On the basis of Atranji-khera evidence, the earliest iron in India would appear to date around 1000 B.C.

Grey Ware settlement came to an end as a result of a devastating flood (pl. XI) in the Ganga, on whose bank it stands, and the archaeological evidence seems to affirm the *Purāṇic* regarding the washing away of Hastinapura by a flood and the subsequent shifting of the capital to Kausambi (below, p. 31). Though definitive proof is still lacking, circumstantial evidence seems to suggest a correlation of the Painted Grey Ware Culture with the Aryans, or at least a branch thereof.

*Pit-dwellers of Kashmir*

In the extreme north-west, at Burzahom in the valley of Kashmir, a neolithic culture has been brought to light in the last few years.<sup>1</sup> Dating back to *circa* nineteenth century B.C., these neolithic folk lived in pits provided with landing steps and possibly also with thatched roofing. They used, besides polished axes, pounders, etc., of stone, bone tools comprising awls, harpoons, burnishers and needles (pl. IX). Their pottery was a characteristically mat-impressed grey ware.

In north-western India, another important protohistoric culture has been brought to light during the last decade : it is the Banas or Ahar Culture of which two major sites, Ahar and Gilund, both in Rajasthan, have been excavated. The characteristic ceramic industry of the Culture was a white-painted black-and-red ware, although other wares were also in existence. The people lived in houses of stone-rubble, wattle-and-daub or mud bricks, enclosing hearths with multiple units. Carbon-14 determinations indicate that this culture goes back to *circa* eighteenth century B.C. and may have thus coexisted with the Harappa Culture towards the latter's far-end.

*Antiquity of civilization in West Bengal thrown back by centuries*

In eastern India, two important excavations throwing light on the protohistoric period have been carried out during recent years : at Pandu-rajar-dhibi in West Bengal, and at Kuchai in Orissa. In the lower levels of the former site has

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<sup>1</sup> Although polished stone axes had been recovered in a small-scale dig at the site even earlier, the picture was far from clear.

been encountered a culture associated with white-painted black-and-red and black-on-red wares which are reminiscent of their prototypes in Rajasthan and central India. A Carbon-14 determination indicates that the culture may well be earlier than 1000 B.C., which throws back the antiquity of civilization in West Bengal by several centuries.

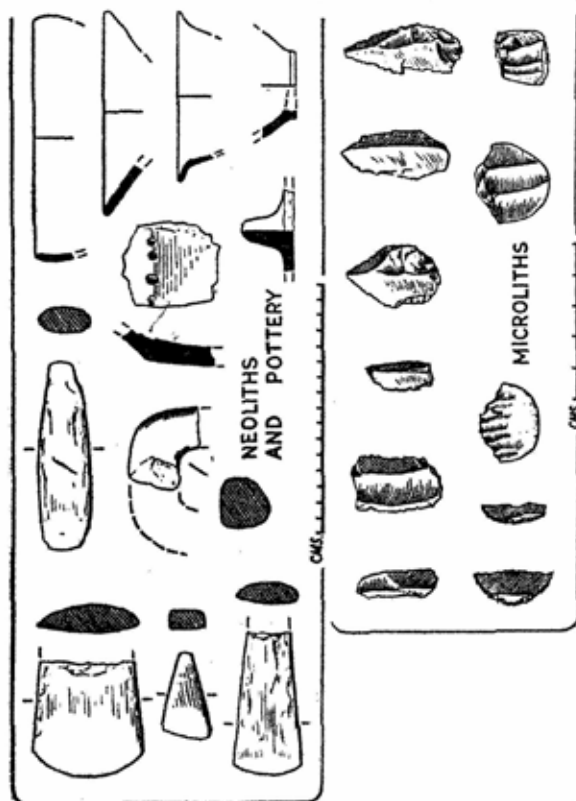
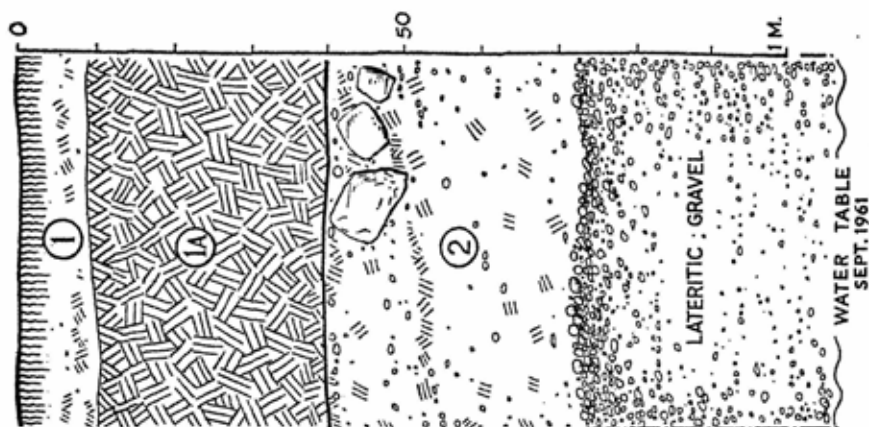
The excavation at Kuchai has established what had earlier been surmised from surface-explorations, viz. the association of the eastern variety of polished stone axes with a coarse brownish-red ware, occasionally slipped and incised (fig. 3). Preceding this Eastern Neolithic Culture and without any overlap with it were non-geometric microliths bereft of any associated pottery, corroborating the evidence from Birbhanpur (above, p. 16).

#### *Earliest rice in the country*

Prior to the fifties, central India was a *terra incognita* in so far as protohistoric archaeology was concerned. During the past decade, however, a large number of sites, some dating back to the first quarter of the second millennium B.C., has been brought to light. Quite a few of them, for example Awra, Nagda, Eran, Tripuri, Navdatoli, etc., have also been subjected to excavation, revealing a chalcolithic culture characterized by microliths, copper axes and black-on-red pottery called the Malwa Ware. Basing his arguments on the possible similarity of some of the more outstanding shapes, e.g. the stemmed chalice, channel-spouted bowl, etc. (pls. VII and VIII), in this Ware with their counterparts in Iran, the excavator of Navdatoli is inclined to see in them an influx of the Indo-Aryans. May it, however, be observed that none of these chalcolithic sites has so far yielded the remains of the horse—an animal invariably associated with the Indo-Aryans? Navdatoli, it may incidentally be remarked, has produced the earliest (*circa* sixteenth century B.C.) definite example of rice in the country.

Moving southwards, one comes across the sites of Prakash and Bahal in the Tapti system, both yielding useful evidence regarding chalcolithic and subsequent early historical cultures.





KUCHAI,  
MAYURBHANJ DISTRICT, ORISSA, 1961

Fig. 3. Culture-sequence at Kuchai

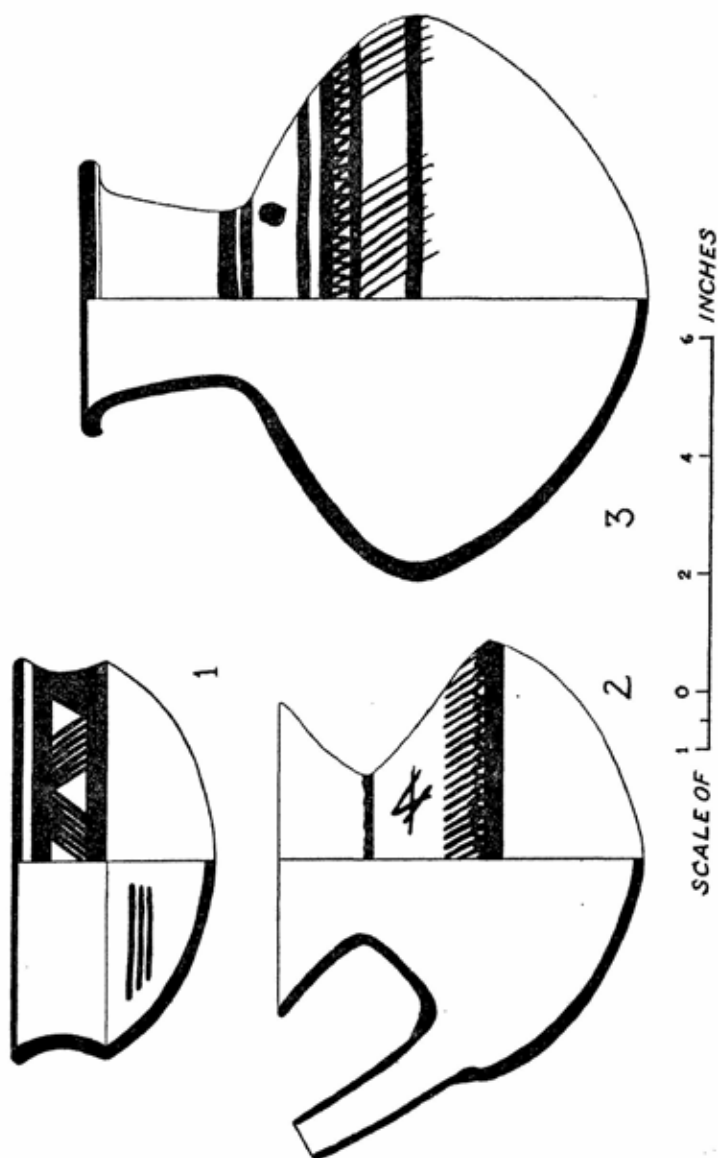


Fig. 4. Typical vessels of red pottery with designs in black paint, from Jorwe.

*Another earliest*

Further south, in the northern Deccan has been encountered a variant chalcolithic culture, the more noteworthy sites being Nasik, Nevasa, Jorwe, Daimabad, Chandoli, etc. Later than the Central Indian Chalcolithic Culture by about three centuries, this Northern Deccan Chalcolithic Culture is characterized by, besides microliths and copper tools, a matt-surfaced black-on-red pottery called the Jorwe Ware (fig. 4), occasional polished stone axes and the practice of urn-burials, the last two traits having been obtained perhaps as a result of contact with its southern neighbour, viz. the Southern Neolithic Culture (below). From a burial at Nevasa comes the earliest (thirteenth century B.C.) example of silk so far found in India.

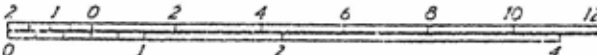
*Cattle-hoofs*

Not many sites of the Southern Neolithic Culture have been excavated since Independence, but what has been done is of utmost significance. The cumulative evidence from Maski, Piklihal, Utnur, Nagarjunakonda, Sanganakallu and T. Narasipur (pl. XLIII) shows that, to begin with, there was a 'true Neolithic' culture, dating back more or less to the Harappan times and it was only at a later stage, perhaps as a result of contact with the Northern Deccan Chalcolithic Culture, that black-on-red pottery and copper made their appearance in the south. The excavation at Utnur has also demonstrated that the controversial 'ash-mounds' are, in all likelihood, cattle-pens, the excavator's knife also bringing to light interesting hoof-marks.

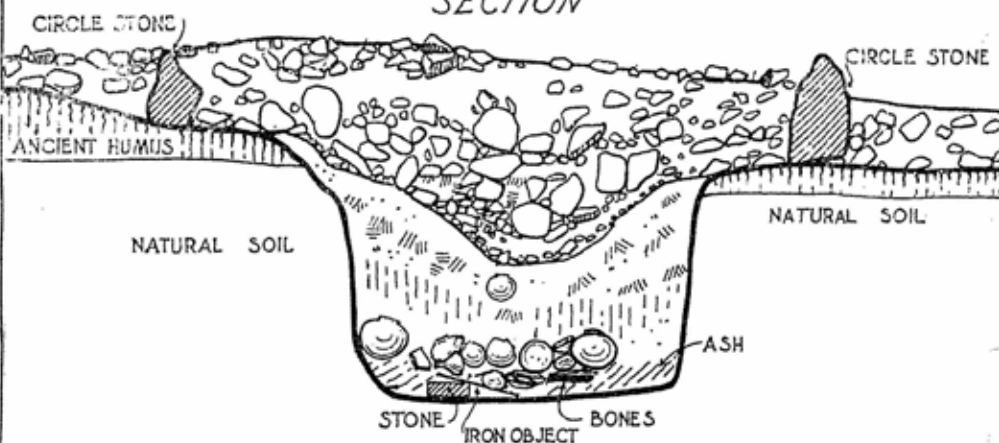
*Skeletons, one over another*

On the Megalithic Culture that followed the neolithic-chalcolithic amalgam, much welcome light has been thrown by the excavations at Junapani, Maski, Yaleswaram, Nagarjunakonda, Jadigenahalli, Kunnattur, Sanur, Sengamedu, T. Narasipur, Porkalam, etc. (pl. XLIII). Besides the Black-and-red Ware, fractional burials with lithic appendage are regarded as characteristic of the Megalithic Culture. Maski,

# MASKI, 1954: MSK MEG-2 (PIT CIRCLE WITH CAIRN)

SCALE OF  12 FEET  
METRES

## SECTION



## BURIAL CLASS (V)

## PLAN

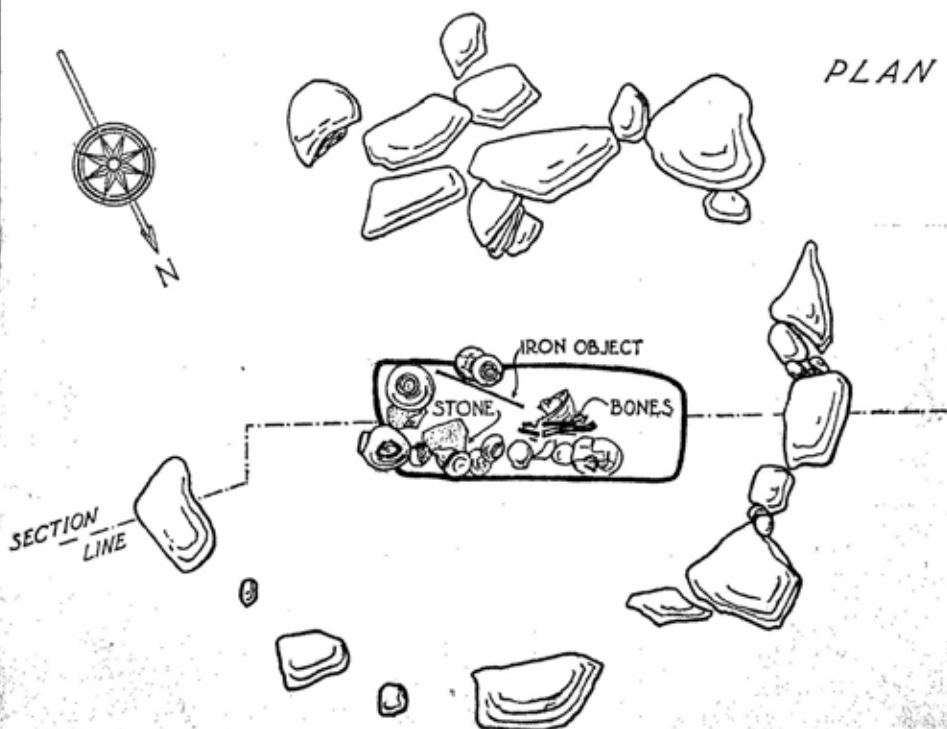


Fig. 5. Maski : section across and plan of a megalithic pit-burial.

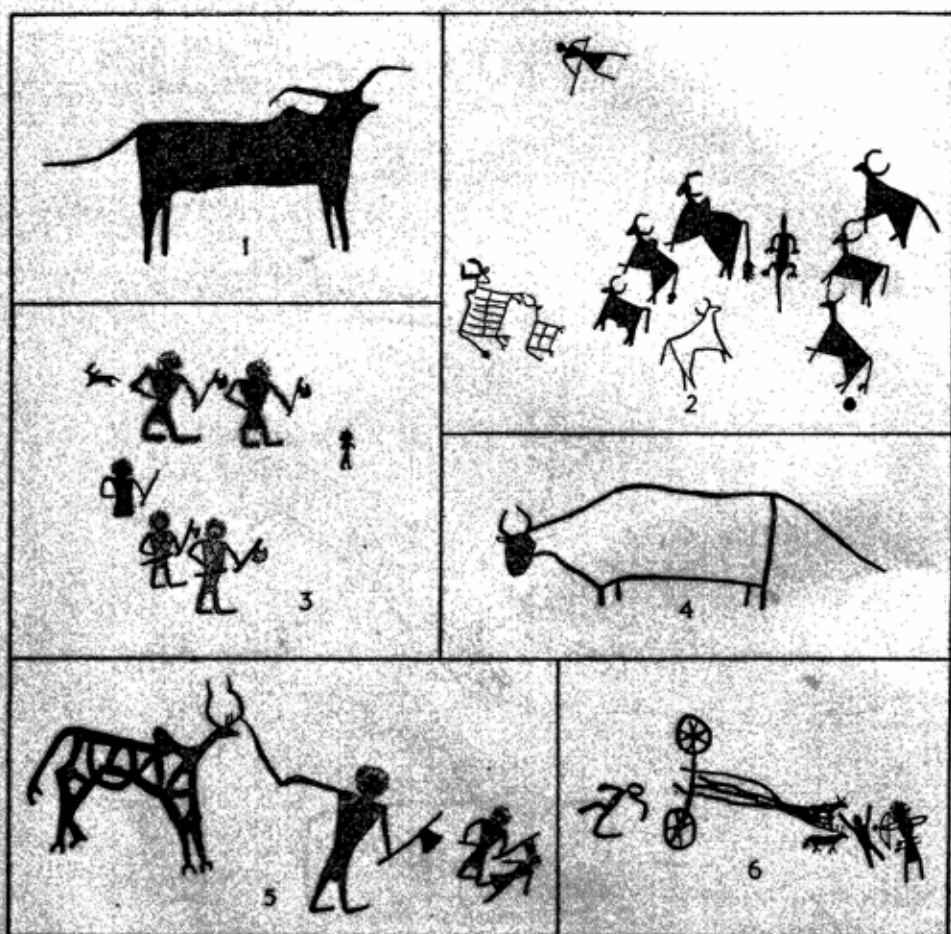


Fig. 6. Chhibbur-nala : paintings in rock-shelters.

however, has shown that there could be noteworthy variations : fractional burial with (fig. 5) or without lithic appendage and complete inhumation, again with or without the lithic element. From Yeleswaram comes a unique example of an extended double burial, the skeletons lying one over the other.

Junapani is to be noted as an important northerly site of the Megalithic Culture. Mention must also be made of the excavation of megaliths further to the north—in Districts Mirzapur and Varanasi of Uttar Pradesh—but their exact relationship with the southern examples still remains to be ascertained.

### *Systematic study of Central Indian cave-paintings*

The paintings occurring in the rock-shelters of central India have in the past been a matter of great controversy in so far as their chronological horizon was concerned. To some they were as old as the Palaeolithic paintings of western Europe, while to others they did not seem to go back prior to the Christian era even. The gross fact is that these paintings are not of a single period : in fact, in certain caves as many as six 'strata' can be made out. A systematic study of these paintings is, therefore, a great desideratum and the same, one is glad to note, is underway. In addition, excavations of the cave-floors are also being undertaken in the hope that some clue might be found in the deposits, for example the painter's paraphernalia or a fragment of the peeled-off rock-surface bearing some painting, indicating the cultural horizon of the paintings. In this hunt have also been brought to light quite a few new caves with paintings, for example at Chibbar-nala in Madhya Pradesh (fig. 6).

### C. HISTORICAL ARCHAEOLOGY

Although an all-out effort to throw light on the Dark Age of India's past (i.e. the period between the end of the Harappa Culture and the beginning of early historical times in the second half of the first millennium B.C., above, p. 18) has been the main aim of archaeological explorations and excavations since Independence, historical archaeology has also

FIG. 7

*Sequence of cultural Periods at Ruḥar*

*Period VI (circa A.D. 1300-1700)* : 1 and 2, plain pottery-types; 3, medieval glazed ware; 4, coin of Mubārak Shāh; 5, decorated head of a *surāhi* (water-vessel).

*Period V (circa A.D. 800-1000)* : 1-3, pottery-types; 4, ivory bangle; 5, bone die; 6, ivory stylus.

*Period IV (circa 200 B.C.-A.D. 600)* : 1-3, pottery-types; 4 and 5, potsherds with impressed or incised designs; 6, terracotta lid (?); 7, terracotta votive tank; 8 and 9, terracotta human figurines; 10, coin of *Soter Megas*; 11, coin of Vāsudeva, Kushan king; 12, terracotta inscribed sealing; 13, silver utensil.

*Period III (circa 600-200 B.C.)* : 1 and 4-6, plain pottery-types; 2 and 3, types in Northern Black Polished Ware; 7, terracotta sealing; 8, carved ring-stone; 9, decorated stopper of ivory; 10, inscribed ivory seal and its impression; 11, ivory pendant; 12 and 13, silver punch-marked coins; 14, uninscribed copper cast coin; 15 and 16, iron implements; 17, copper dish; 18, bone stylus.

*Period II (circa 1000-700 B.C.)* : 1-8, Painted Grey Ware; 9-11, beads; 12, bone stylus; 13, bone hair-pin (?).

*Period I (circa 2000-1600 B.C.)* : 1-4, pottery-types; 5-12, designs painted on pottery; 13 and 14, beads; 15, inscribed seal; 16 and 17, faience bangle and bead; 18, 20 and 21, bronze implements; 19, chert blade.





received its due share of attention—no doubt sometimes in the process of an investigation of a Dark Age site, but not unoften as a part of deliberate planning.

### *The lyre-player*

To begin with the north. The excavation at Rupar in Panjab, as already stated above (p. 17), revealed a good sequence of cultures. There were six Periods in all: I and II, relating to Harappa and Painted Grey Ware Cultures respectively; III, yielding the Northern Black Polished Ware, punch-marked coins, etc.; IV, remains from Sunga to late Gupta times, including some very fine terracottas, e.g. a lyre-player (pl. XXIII); and V and VI ascribable respectively to *circa* A.D. 800-1000 and 1300-1700 (fig. 7).

The general evidence of Rupar was repeated at Alamgirpur, though the remains of the early historical as also of the medieval times were not sizable.

Hastinapura (above, p. 19) is another site where the hunt for the Dark Age remains brought in fruitful results in respect of historical archaeology as well. Of the five Periods identified at the site, the first two from bottom were associated with the Ochre Colour and Painted Grey Wares respectively. Period III yielded the Northern Black Polished Ware, punch-marked coins, etc., associated with structures of large-sized bricks and terracotta ring-wells. In Period IV, ranging from Sunga to Kushan times, seven structural Sub-periods were noted; while Period V, with an appreciable gap from the preceding one, yielded early Muslim coins and glazed wares. The Hastinapura sequence is corroborated at Atranji-khera, some 200 kilometres to the south-east of the former.

### *They sacrificed the horse*

But dug for purely historical purposes was the site of Jagatgram in the upper reaches of the Yamuna (pl. XLIII). It yielded the remains of inscribed (pl. XX) burnt-brick altars, associated with the performance of horse-sacrifices (*asvamedhas*) by a king, Silavarman, in the third century A.D.

Before proceeding eastwards, attention must be drawn



to a site called Rang Mahal, in Rajasthan, where sizable remains, including richly painted pottery, of Kushan times have been unearthed.

In the middle Ganga basin, that is in eastern Uttar Pradesh and Bihar, quite a few historical sites have been excavated since Independence, the more noteworthy being Kausambi, Rajghat, Sravasti, Sohagaura, Vaisali, Chirand, Kumrahar, Sonpur, Rajgir and Antichak.

*'Sky-scraping' defences*

Famous as the capital of Vatsa, one of the *Mahājanapadas* (Great Kingdoms) during the time of the Buddha (6th-5th centuries B.C.), Kausambi has yielded inscriptional evidence identifying the spot, Ghositarama, where the Buddha stayed during his visit to the place, at the invitation of the then king, Udayana. The excavator also seeks to identify in a colossal stone-built palace the probable abode of Udayana himself. No less impressive than the palace are the fortifications that girdle the site, the burnt-brick revetment of which may still be seen shooting skyward to a height of over thirteen metres (pl. XV). Associated with these defences is a corbelled drain, again of burnt bricks (Cover), which is teasingly reminiscent of its counterpart in the Great Bath at Mohenjo-daro.

*Where Buddha's remains rest*

Rajghat, Sravasti, Rajgir (New) and Vaisali have also yielded evidence of flourishing townships with defences belonging to early historical times. At the last-named site have also been encountered the remains of a *stūpa* which the excavator is inclined to identify with the one built by the Lichchhavis over their share of the relics of the Buddha.

Sohagaura and, to some extent, Chirand are to be noted for the occurrence of a white-painted black-and-red ware, which sets one thinking about the ware's ancestry. In this context, one has also to take cognizance of the occurrence of plain black-and-red ware in the pre-N.B.P. Ware levels at Sonpur. The work at Kumrahar has thrown additional light on the Mauryan site already known from earlier excavations, while

that at Antichak has revealed a massive brick structure, in all probability a *stūpa*, associated with bronze and stone images of the Pāla period.

In the deltaic region of the Ganga, noteworthy are the excavations at Tamluk, Chandraketugarh, Bangarh and Chirunti.

*Eastern-most Indo-Roman trading-station*

With a pretty early beginning, as evidenced by the occurrence of an ill-fired pottery and polished stone axes in the earliest levels, Tamluk has yielded, through its middle levels, ✓ profuse quantities of the Rouletted Ware, regarded as the product of the Indo-Roman contact around the beginning of the Christian era, thus confirming the literary evidence of the site having been an important trading-station. It has also yielded lovely terracottas of the Mauryan, Sunga, Kushan and Gupta times, as also fine sculptures of the Pāla and Sena periods.

Chandraketugarh and Bangarh date from pre-Mauryan to early medieval times. Chandraketugarh has also yielded the Rouletted Ware. Amongst the structures exposed at this site, particular mention may be made of the lower part of a large-sized brick temple and a seven-metre deep brick-lined pit (pl. XII).

*Capital of king Sasanka identified*

Chirunti has yielded inscriptional evidence to identify it with Rakta-mrittikā, an adjunct of Karnasuvarna, capital of king Sasanka.

To continue with eastern India. In Orissa, three sites deserve special mention: Sisupalgarh, Jaugada and Ratnagiri.

Dating back to *circa* fourth century B.C., Sisupalgarh is to be noted for its fortifications—square on plan, with each arm measuring a little over a kilometre and pierced by two large-sized gateways (pl. XIV) at regular intervals. The enclosed township appears to be planned on a grid-pattern, the arterial streets connecting the opposite gateways. There is circumstantial evidence to suggest that the site may be identified with both Tosali and Kalinganagara, mentioned in the neighbouring inscriptions of Asoka and Kharavela respectively.

Jaugada also yielded evidence of fortifications, the additional interest being the presence of polished stone axes in the lowest levels.

*The largest in eastern India—monastic settlement of Buddhists*

The excavation at Ratnagiri has yielded a very rich harvest of Buddhistic images, inscriptions and structures, ranging in date from Gupta to early medieval times. The images, variously in bronze and stone, display a large variety of the Buddhist pantheon and indicate that the Mahāyāna-Vajrayāna development took place, at least in this part of the country, somewhat earlier than is generally thought. Inscriptional evidence confirms the name of the site, while the structures, massive but tastefully constructed (pl. XVI), include *vihāras*, *stūpas* and the like.

In central India, besides Eran (above, p. 1), Ujjain and Sirpur deserve special mention.

*Bead-making in ancient India*

Like other *Mahājanapada*-capitals of the north (above, p. 31), Ujjain has also yielded the remains of massive fortifications. Beads in various stages of manufacture together with the concomitant equipment (pl. XIII) have thrown valuable light on the technique of bead-making in ancient India.

At Sirpur have been encountered the remains of several monasteries ranging in date from *circa* fifth to eleventh century A.D. Of special interest amongst the finds is a copper coin of Kai Yuan (A.D. 713-41), indicating perhaps that Chinese visitors were also attracted to the site.

In Western India, Amreli, Devnimori and Shamalaji have yielded important results.

Ranging in date from *circa* first century B.C. to fourth century A.D., Amreli is to be noted for the occurrence of Red Polished Ware, Kshatrapa coins and post-cremation burials.

*Atlas in western India*

At Devnimori have been encountered sizable remains of a monastic establishment of the Buddhists, the relic casket in

the *stūpa* bearing an inscription of the time of Sri Rudrasena III of the Western Kshatrapa dynasty. The sculptures recovered from the site are reminiscent of the Gandhara school. No less interesting is the discovery, from the bed of the nearby Meshvo river, of a bronze figure of Atlas (pl. XXI) — an import from the Mediterranean world, possibly *via* Barygaza (modern Broach) of Classical geographers. The complementary township of Shamalaji revealed massive burnt-brick fortifications.

Proceeding south of the Narmada-Tapti basin, one comes across two important historical sites : Kaundanpur (ancient Kaundinyapura) and Ter (ancient Tagara), both in Maharashtra. The former has yielded remains of six cultural Periods, with a black-and-red ware (in pre-N.B.P. Ware levels) at the base and medieval remains at the top. From Ter come very fine ivory figurines and terracottas, the latter showing unmistakable Roman influence.

Though not an excavation in the normal sense of the term, the systematic clearance of the débris in the forecourts of the caves at Pitalkhora (ancient Pitangalaya), District Aurangabad, Maharashtra, has brought to light beautifully-sculptured facades (pl. XXII) as well as a large number of loose sculptures some of them being the earliest (second century B.C.) in the round in the Deccan.

Before going further south, mention must be made of Salihundam in northern Andhra Pradesh. The inscriptions recovered from here show that the site was anciently known as Salipetaka (emporium of rice).

In southern Andhra Pradesh, Amaravati, Dharanikota, Nagarjunakonda and Yeleswaram deserve special mention.

#### *And Roman glass too*

The recent excavation at Amaravati, already known as an important Buddhist centre, has yielded amongst other items five crystal caskets of high workmanship, besides a large number of pre-Christian inscriptions. Dharanikota (probably ancient Dhanakataka) has revealed massive fortifications. Amongst the finds from the latter site, particular mention may be made of the Rouletted Ware and several specimens of Roman glass.

*The only amphitheatre in the country*

With the coming up of the Nagarjunasagar Dam on the Krishna, the twin sites of Nagarjunakonda (right bank) and Yeleswaram (left bank) will go under water. Of these, Nagarjunakonda had partly been dug long back. The renewed excavations, however, aimed at exhausting the doomed sites completely. Both have yielded relics right from the Stone Age down to medieval times, of which something has already been said above (p. 24). Belonging to the historical times (early centuries A.D. onwards) were, at Nagarjunakonda, innumerable *stūpas* (pl. XXV), *chaityas* and *vihāras* of the Buddhist creed, a few temples of the Brahmanical faith, a citadel of the Ikshvaku kings, a stepped and balustraded *ghāta* (bathing-place, pl. XXVI) on the Krishna, and an amphitheatre (pl. XXIV), the last being the only example of the kind discovered so far in the country. Yeleswaram, a small adjunct across the river, has yielded the remains of quite a few structures including a *ghāta*.

In the State of Madras, Tirukkambuliyar and Kaveripattinam are amongst the latest to be excavated. The former has brought to light the remains of a culture associated essentially with the Black-and-red and Russet-coated Painted Wares ascribable to a few centuries before and after Christ.

*A sea-port of the south : corroboration of Tamil literature*

The excavation at Kaveripattinam has yielded evidence of occupation from the beginning of the Christian era to early medieval times. Amongst the pottery and finds from early levels mention may be made of the Black-and-red and Rouletted Wares and punch-marked coins, while from later levels came coins of Rajaraja Chola the Great (A.D. 985-1016). However, most noteworthy was the discovery of an 'I'-shaped platform projecting into the back-waters of the sea. It had a central channel lined with wooden posts. For all one can guess, the structure could very well be a wharf meant for loading and unloading boats. Such evidence is fully in line with what the Tamil literature has to say about the site, viz. its being a great port of the eastern coast.

No account of historical archaeology would be complete without a pointed reference to important inscriptions and coins, although incidental mention has already been made of some of them in the preceding pages.<sup>1</sup>

*Asokan inscription in Greek and Aramaic*

To begin with Sanskritic and Dravidic inscriptions. Of the great Emperor Asoka (269-32 B.C.) five inscriptions have been discovered since Independence : four in India, viz. at Gujarra, Rajula-Mandagiri, Sopara and Ahraura, respectively in Madhya Pradesh, Andhra Pradesh, Maharashtra and Uttar Pradesh, and one abroad—at Kandahar in Afghanistan. Of the former, the one at Gujarra mentions the name Asoka, thus confirming the evidence of the Maski edicts. The Kandahar inscription, in Greek and Aramaic, throws light not only on the possible extent of Asoka's empire but also on the great breadth of vision the Emperor had. Mention must also be made of the only Asokan inscription on a bowl, now lodged in the Prince of Wales Museum, Bombay. Written in Kharoshthi and an exact copy of the seventh rock-edict at Shahbazgarhi, the bowl is reported to hail from the Gandhara region (now in Pakistan).

*Earliest inscription on wood*

Amongst inscriptions of the second century B.C., special mention may be made of one on a wooden rib of the ceiling in a cave at Bhaja, Maharashtra (pl. XVIII). Not only does it supply added evidence for the dating of the Bhaja caves, but is also to be noted as the earliest inscription on wood in the country.

Records preserved in the Allahabad Museum bring to light for the first time two new rulers of the Mitra dynasty of Kausambi, viz. Varunamitra and Rajamitra, assignable respectively to the century before and after Christ.

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<sup>1</sup> Here the author wishes to thank Drs. G. S. Gai and Z. A. Desai for their kind assistance in compiling the data relating to their respective fields.

In Gujarat, the Khavada rock-inscription throws valuable light on the genealogy of the Western Kshatrapa king Rudradaman I.

Found at Nagarjunakonda, Andhra Pradesh, an inscription of Gotamiputra-Sri-Vijaya-Satakarni is the only known record of the king and, incidentally, the only Satavahana epigraph from the site.

Recorded in Tamil language but in Brahmi characters, the third century-A.D. cave-inscriptions at Arachchalur, Madras State, are of great palaeographic value, as they form a kind of link between the earlier cave-inscriptions and later inscriptions of the region.

The Modasa (Gujarat) copper-plate charter of Bhoja Paramara furnishes the earliest known date (A.D. 1011) for the king.

The existence of a new Bhoja dynasty ruling in Goa and North Kanara region in *circa* sixth-seventh century A.D. is brought out by the find of certain copper-plate grants.

Of the Pallava dynasty, several noteworthy inscriptions have been discovered. Issued by prince Simhavishnu in the sixth regnal year of his father, the Pallankovil copper-plate grant is perhaps the earliest known Tamil charter. The Jalalapuram charter of Simhavarman is not only the earliest but also the only one issued by the king from Kanchipura.

#### *The weightiest charter*

Belonging to Rajendra I of the Chola dynasty, the copper-plate charter from Karandai (Madras State) comprises fifty-seven leaves weighing well over a hundred kilograms.

Further south, the Malaiyadiikkurichchi cave-temple inscription of the seventeenth regnal year of king Maran Sendan is the earliest known epigraph of the Pandya dynasty.

#### *Fresh light on Indo-Muslim history*

To come to Arabic and Persian inscriptions, of which a considerable number throwing useful light on the various aspects of Indo-Muslim history have been discovered in recent years. For example, inscriptions of Alau'd-Din Khalji,

Ghiyathu'd-Din Tughluq and Muhammad bin Tughluq, found in Districts Chitorgarh and Nagaur, necessitate a re-valuation of the history of the concerned regions of Rajasthan. At Daulatabad, District Aurangabad, Maharashtra, has been found the only complete record of Muhammad bin Tughluq. An epigraph found at Depara, District Hoogly, West Bengal, is the earliest record of Alau'd-Din Husain Shah of Bengal. Belonging to the time of his son and successor, Nasiru'd-Din Nusrat Shah, is an inscription (pl. XVII) which refers to the construction of a mosque in A.D. 1527 by Khan-i-A'zam Mukhtiyar Khan (Bakhtiyar Khan), who is mentioned as the *sarlashkar* of the valley of Kharid. A record from Ahmadabad settles once for all the royal titles of Bahadur Shah of Gujarat. Unique in their own way are also the inscriptions of : Queen Radiyya, found at Bulandshahr, U.P.; Mubarak Shah Sayyid of Delhi, from Budaun, U.P.; and Kalimu'llah Bahmani, from Kumbhavi, Mysore.

. A *qaulnāma* (A.D. 1513) from Maliabad, District Raichur, Mysore, is of administrative-cum-human interest as it announces a reduction in local taxes on village communities like farmers, oil-sellers, weavers, tailors, etc.

*Live and let live—an eternal Indian motto*

Quite a few epigraphs throwing light on religious toleration have been discovered. An inscription (A.D. 1807) from Merta, District Nagaur, Rajasthan, refers to repairs to an old mosque, carried out by a Hindu chief, Raja Dhonkal Singh of Jodhpur. According to another inscription (A.D. 1813), from Nawai, District Tonk, Rajasthan, a Muslim official of Tonk State, Nawab Mukhtaru'd-Daula, issued express orders to officers and soldiers of his army not to violate in any way the sanctity of a concerned Hindu temple.

On language and script too the recently-discovered inscriptions throw valuable light. For example, an inscription (A.D. 1677-78) from Bijapur provides an early specimen of old Urdu in the form of a small poem. Dated A.D. 1483, in the reign of Bahlul Lodi, an epigraph from Nagaur seems to make a bid for being the earliest in India in *Nasta'liq* characters.



*Coins*

To turn to coins. Of the punch-marked variety, two major hoards have been discovered during the period under review : one, from Eran, District Sagar, Madhya Pradesh, comprising three thousand two hundred and sixty-eight coins, and another, from Amaravati, District Guntur, Andhra Pradesh, consisting of nearly eight thousand coins.

Amongst the tribal coins of the pre-Christian era, particular mention may be made of copper coins of three hitherto-unknown Panchala rulers, viz. Rudraghosh, Asvameha and Yugasena.

From Bindwal, District Azamgarh, U. P., come one hundred and ten copper coins of the Imperial Kushans, amongst which there is a rare coin depicting Huvishka holding a bow and arrow.

In Ongole Taluk of Guntur District, Andhra Pradesh, has been found a hoard of two hundred and seventy-seven coins of the Ikshvakus of Nagarjunakonda. Of these, a coin of Vasishthiputra Chamtamula shows 'a horse standing before a *yūpa*'. Does it, then, commemorate the horse-sacrifices performed by the king, for which inscriptional evidence comes from Nagarjunakonda ?

Though discovered in 1946, the Bayana hoard, consisting of one thousand eight hundred and twenty-one gold coins of the Guptas, was thoroughly studied and commented upon after 1947. It was found to contain a hitherto-unknown type, viz. *chakravikrama*, of Chandragupta II (pl. XIX). The Bharata Kala Bhavan acquired two gold coins of Budha-gupta, there being so far no known coin of that king. Important also is the discovery of coins of the Imperial Guptas, including that of Samudragupta, from Kumarkhan in District Ahmadabad, Gujarat.

Amongst the post-Gupta coins of the Hindu Period, particular mention may be made of a coin, from Madhya Pradesh, of a hitherto-unknown Paramara king, Jagdeva. Found in the Qutb area, Delhi, was a hoard of coins of Govinda Chandra of Kanauj, which also included those of Muhammad bin Sam.

*More coins*

To pass on to Muslim coins. At Kapura, District Surat, Gujarat, has been found a hoard of nine hundred and sixty-seven silver coins, variously of Aurangzeb, Shah Alam Bahadur, Farrukhsiyar, etc. From Kalewadi, District Poona, Maharashtra, came a hoard of four hundred and fiftysix copper coins assignable to Balban, Muhammad II Khalji, Mubarak Khalji and Ghiyathu'd-Din Tughluq. With it was also a silver coin of Muhammad bin Tughluq. A hoard from Vemalwada, District Karimnagar, Andhra Pradesh, contained one coin of the Qutb-Shahi dynasty and six hundred and twentythree of the Asaf-Jahi. In terms of weight, interesting was a fifteen-kilogram hoard of copper coins of the Bahmanis of Gulbarga, found at Dhotra, District Amraoti, Maharashtra.

Lastly, mention must be made of a hoard of nine hundred and twentythree thousand, and one hundred and twentyseven silver coins, variously of Shah 'Alam II, William IV and Queen Victoria, from Hathwa, District Saran, Bihar.

*Systematic surveys of temple-architecture*

In a short summary like the present one, it is well nigh impossible to deal with all the aspects of archaeological research. Thus, while it may perhaps suffice here just to say that studies have been carried out and valuable papers and monographs published on items like sculptures, bronzes, terracottas, paintings, manuscripts, etc., it would be doing injustice to the concerned researchers and Projects if a specific mention was not made of the planned surveys that are being carried out since 1953 of temple-architecture in various parts of the country.<sup>1</sup>

As a preliminary to the surveys, the Project-officers compiled standard lists of architectural terms on the basis of ancient texts and inscriptions, incorporating, where necessary, the terms that are still being used by traditional *sthapatis* and *silpis*. On the field, comprehensive drawings have been made

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<sup>1</sup> The author's grateful thanks are due to Shri K. R. Srinivasan and Shri Krishna Deva for their help in compiling the data relating to their surveys.

and detailed photographs taken, besides, of course, thorough scholarly studies of the concerned monuments having been made.

In the north, the famous Chandella temples at Khajuraho, Madhya Pradesh, have been studied, and a monograph on them is ready for publication. In other parts of Madhya Pradesh, as also in Rajasthan and parts of Gujarat, temples of dynasties contemporary with the Chandellas such as the Solankis, Kalachuris, Kachchhapaghatas and Paramaras have been studied. In this context, particular mention may be made of the Siddhesvara temple at Nemawar—the tallest and, indeed, a most exquisite edifice of the Paramaras (pl. XXVIII). The Gupta and post-Gupta temples up to A.D. 800, of north India as a whole, have been surveyed and a monograph on them is under preparation.

In the south, about three hundred temples, dating from *circa* third to tenth century A.D., have been surveyed. They include temples made of bricks or of stone or cut into or out of the rock, ascribable variously to the Ikshvakus, Early Chalukyas, Pallavas, Early Pandyas, Eastern Chalukyas, Rashtrakutas, Telugu-Cholas, Muttaraiyars, Gangas and Early Cholas. In the course of the survey some new monuments have also been brought to light, for example a late Pallava temple at Tiruppattur (pl. XXVII). A monograph on the Pallava rock-cut cave-temple is under print, while another on the monolithic temples of the same dynasty is under preparation.

As a result of these surveys, considerable light has been thrown on many an aspect of temple-architecture both in the north and the south. For example, it is now possible to put in a sequence *inter se* the various temples at Khajuraho, or to work out an evolution of the temples in western India from pre-Solanki to Solanki times, or clearly to see the emergence of two divergent lines of evolution of the south Indian temples, the one initiated by the Pallavas and followed up by their successor dynasties in the far south, and the other initiated by the Early Chalukyas and carried on by their successors in the more northerly regions, viz. the Deccan and Mysore. The survey has also afforded an opportunity to cross-check on the field the literary data regarding temple-architecture.

## CHAPTER II

### THE CARE OF THE HERITAGE

As would be seen from the foregoing, India's vast treasures are lying buried, awaiting the spade. But in no way less important than these are the treasures that stand above the ground. Indeed, today Archaeological Survey of India looks after over three thousand and five hundred monuments and sites and not a very different number would be under the care of the various State Governments, put together. To preserve this great heritage is a big enough job, and in doing so the number alone is not the problem. It is the varying climate—from snow-clad Kashmir to sun-burnt south and from the dry deserts of Rajasthan to rain-soaked Assam—that makes the problem worse. And the worst comes when monuments falling in the seismic zone—from Kashmir to Assam—are razed to the ground by devastating earthquakes. Yet with great determination, technical skill and all the financial resources that they can muster, the Central and State departments are engaged on this task, as if with a missionary zeal. Below we shall cite a few examples to demonstrate the same.

#### *Dear old Taj*

To begin with the world-famous Taj, built by Shah Jahan between A.D. 1631 and 1648 to house the mortal remains of his beloved wife Mumtaz Mahal, on the bank of the Yamuna at Agra. With the waning of the glory of the Mughuls, the monument also went into oblivion and it was only in the last century that it was 'discovered'. Since then constant care has been bestowed on it, which has grown manifold after Independence—a

statement easily borne out by the fact that during the fifteen years that have elapsed since Independence a sum of about sixteen lakhs of rupees has been spent over the monument as against only two lakhs for the same length of time prior to it. The work carried out includes, besides the general maintenance and improvement of the surroundings and the gardens, careful and detailed structural repairs to the great mausoleum itself. The roof and the marble facade have been rendered completely watertight. The inlay pieces of semi-precious stones, which on a moonlit night twinkle like stars, bewitching and whisking off the visitor to a fairy-land, had become loose through time and neglect. They have been re-set, providing, where necessary, fresh but matching pieces.

To allay fears caused by ill-founded reports that the Taj had developed cracks, a body of engineers was commissioned in 1956-57 to examine the monument in detail. The experts were perfectly satisfied about its stability. In the following year, the levels of the plinths and platforms and the verticality of the Minars were again checked by the Survey of India, confirming the earlier findings. Indeed, it can well be said that the Taj is in as sound a condition today as it was when first reported upon by Prince Aurangzeb to his father within four years of its completion.

#### *Mother rock dins the secret*

To take up another group of world-renowned monuments, viz. the painting-bearing caves at Ajanta and their counterparts at Ellora noted for the biggest monolithic temple, the Kailasa. Hewn into or out of the mother rock, these caves and temples present conservation-problems which differ basically from those of built-up (structural) monuments, in regard to both technique and aesthetics. For instance, in the past the worn-out pillars, parts of plinths, etc., had been repaired with masonry-work, no doubt using the ashlar variety for a trimmed-up look. As, however, the entire monument was non-structural, the structural restorations, howsoever fine, stood in jarring contrast. And here lay the crux of the problem. Experiment after experiment was made, and, as if herself wor-

ried by the worries of her dutiful sons, the mother rock dinned into their ears : 'You are pining to heal my scars. Look at me where Nature has been benign to spare my youth, and you shall get the answer.' The secret thus revealed was translated into action. The pillars and other relevant members were repaired not with blocks of stones but in reinforced cement-concrete, grained, tinted and amassed to merge in texture, colour and monolithic character with the original (pls. XXIX and XXX). Indeed, the similarity was so close that, to save a would-be enquirer from being duped, ochrous outlines (unobtrusive, of course) had to be given to demarcate the new from the old.

Once the technique was evolved, it became easy, with suitable modifications, to extend it to the finer components of the monuments, e.g. carvings and sculptures, of course not unless it had become a crying necessity on aesthetic grounds. In their case, the damaged or worn-out portions were done in matching cement-sand plaster, tugged on to the extant surface with the help of copper pins. Strict care was, however, taken not to reproduce any part for which the authority of a counterpart did not exist.

The paintings, both at Ajanta and Ellora, were subjected to chemical treatment. The shellac varnish, which had been applied years ago over the paintings on the walls of the Ajanta caves, had collected a good deal of accretion, apart from imparting a false shiny surface to the paintings. It had, therefore, to be removed and the paintings cleaned and suitably preserved. The painting-bearing plaster on the ceilings of these caves had loosened its grip on the rock. It is being duly consolidated, and the paintings are being cleaned and preserved. At Ellora, soot and oil are being removed from over the paintings, in which process a new school of brightly-coloured paintings has been brought to light in one of the caves.

#### *Time's testimony*

Though a little out of the way for the tourist, the Gol Gumbad (literally 'Round Dome') at Bijapur, Mysore State, is all the same a well-known monument. The great hall over

which the dome is raised has the largest domed space in the world. The chief attraction of the monument, however, has been its acoustic property. Due to natural wear and tear the extrados of the dome had developed a number of cracks, with the result that water seeped through them down to the intrados moistening the plaster at several places. Under the fear that this might affect the acoustics, the extrados was made watertight in 1937. The treatment, however, had its own adverse reactions. With the exterior having been rendered impervious, the interior began to dry up and in the process the plaster began to lose contact with the brick-core of the dome, which also began to develop transverse cracks. Thus, in the attempt to save the acoustic properties, not only were these themselves considerably lost but the structural stability of the dome was also greatly endangered.

The matter was examined in all its aspects and a bold step was decided upon, viz. to strip the entire plaster off the intrados, to pressure-grout the cracks from the interior and to gunite the entire intrados. In actual execution—spread over three years from 1949—a four-and-a-half inch thick reinforced gunite shell was provided all over the intrados, the reinforcement, however, being doubled up in the basal two feet (pl. XXXII). To interlock the reinforcement with the brick-core, stainless steel dowels were used. The gunite shell was coated with fine, suitably tinted plaster which followed minutely the contour of the original dome. Courage, patience and hard work paid their dividend, and today the Gol Gumbad has better acoustics than what it had some twenty years ago : a word uttered now reverberates twelve times, as if Time through its twelve months of the year is holding out a testimony to the skill of the conservators.

### *The Black Pagoda*

Let now an example be taken from the east. Overlooking in the distance the sea-shore, in District Puri, Orissa, is the Sun Temple at Konarak, known to ancient mariners as the Black Pagoda—a marvel of temple-architecture and of sculptural art. But the hard-hearted elements must have

their toll, even if it be the most charming damsel trying to put them off with her music from the temple-top. The beautiful setting of the temple became itself the enemy : the proximity of the sea turned out to be a major cause of the ruin. Winds blowing from the sea made a two-pronged attack : not only did they impregnate the stone of the temple with injurious salts, thus pulverizing it, but they also blasted it off with sand particles, the result being the defacement, sometimes verging on complete obliteration, of the sculptures and other carvings. Rains and heat added their quota to the decay, the former penetrating into the body of the temple through open joints and like voids and making damp the mass of sand and other fillings that had been shoved into the *Jagamohana* (the front component of the temple) at the beginning of this century with a view to providing a support from the inside.

Thus, the conservation-problems were many and varied and called for individual solutions, with the proviso that no two solutions should be mutually antagonistic. For example, a mere watertightening of the entire surface would have for ever entrapped humidity inside the *Jagamohana*, which would have had deleterious effects. To harmonise the two, therefore, while the roof and facade are being water-tightened, with cement-sand-ironite mixture, sizable vents are also being provided in the walls to let the inner moisture come out. Care has also been taken to introduce shutters in these vents so that during the monsoon the ingress of humidity from outside could be prevented.

But these were comparatively simple problems. The one posed by sand-blast required some extra ingenuity. To encase the colossal temple in a glass-case being out of the question, a cheap yet effective shield had to be thought of. And a study of the surrounding landscape, again, provided the answer. Casuarina and cashew-nut trees—natives of the land—have been planted in a series of belts outside the compound-wall of the temple and they seem to have done the trick. Suitable chemicals have been commissioned to clean the salt-laden surfaces as also to render them impervious for the future.



## THE CARE OF THE HERITAGE

In spite of all these seemingly satisfactory steps, constant vigil is being kept, for no one should underrate the enemy.

### *Up again*

To take another example from the east—this time from Assam where torrential rains, luxuriant vegetation and not infrequent seismic disturbances play havoc with the 'aged' monuments. A case in point, for example, is the Sibdol Temple at Sibsagar—the largest and highest in Assam—shattered by the ravaging earthquakes of 1947 and 1950. The conservation-measures naturally had to be elaborate and began with the initial sorting out, from the débris, of members which could be re-used, for an original piece is any day better than a new one. However, most of the fallen stones, carved or uncarved, had been damaged to such an extent that their replacement became absolutely necessary. Hunt had thus to be made for the hills, often far off, from where matching stone could be quarried, in which job help had also to be obtained from engineers and geologists outside the Survey. Once the right stone was obtained, repairs were easy. They included : the grouting of cracks, the resetting of dislodged masonry using new stones where necessary, the pointing of open joints and, last but not least, the re-installation of the copper *Kalasi* (finial) which too had toppled down. Accompanying the last-named item was perhaps another—unrecorded in the conservators' log-book—viz. mute prayers to Seshanaga to spare the monument and the rest.

Because of the limited space at disposal it is obviously not possible to go into the details of repairs—structural, chemical or both—in respect of even the most outstanding monuments in the country. One can, therefore, do no better than just enumerate a few other monuments that have received special attention since Independence : Tomb of Zainu'l Abidin's mother, Srinagar, and Mughul Arcade, Verinag, both in Jammu and Kashmir; Fort Temple at Baijnath, Panjab; the Tughlakabad complex, Qutb Minar, Humayun's Tomb, Red Fort, etc., in Delhi; monuments in Chitor Fort, Rajasthan; Akbar's Tomb, Sikandara, monuments at Fatehpur Sikri, the

*Asvamedha*-site at Jagatgram, Buddhist remains at Kusinagar, all in Uttar Pradesh; the world-famous *stūpa* at Sanchi and temples at Khajuraho, both in Madhya Pradesh; Buddhist remains at Nalanda, Bihar; monuments at Gaur and Pandua, and temples at Bishnupur, all in West Bengal; temples at Bhubaneswar, and excavated remains at Ratnagiri, Orissa; caves at Karla, Bhaja and Elephanta, and Mahakali Temple (pl. XXXI) at Chanda, all in Maharashtra; Sun Temple, Modhera, and Tambekarwada, Baroda, both in Gujarat; Virabhadra-swami temple at Lepakshi, Andhra Pradesh; the 17-metre high statue of Gomateswara at Sravanbelgola, and Darya-Daulat-Bagh at Seringapatam, both in Mysore; and monuments at Mahabalipuram, and Brihadisvara Temple at Tanjore, in Madras State. At the last-named monument, the superimposed Nayaka (seventeenth century) paintings have skilfully been removed from over the Chola (eleventh century) ones, in order to bring out the latter which are of a high artistic order. The former paintings have been mounted separately and preserved.

But no account of the care bestowed on our heritage since Independence would be complete without a specific mention of two noteworthy salvage-operations, one in the lap of the Himalayas and the other down in the south.

#### *A bold venture*

Nestling amidst snowy surroundings is the town of Chamba in Himachal Pradesh. Over here, in the first half of the last century had been constructed a palace, its plastered walls carrying some of the finest paintings in the region. Cracking and crumbling due to Nature and neglect, the palace is threatening to collapse any day. The situation placed the caretakers on the horns of the dilemma. The paintings—the prime attraction of the monument—could not be preserved unless their carrier, the plaster, which had loosened itself was tugged back to the stone-work of the walls. The stone-work, on the other hand, had bulged out so much that its re-setting called for prior dismantling at quite a few places. And any dismantling of the stone-work meant nothing but a sheer des-

truction of the paintings. The only course thus left open was to remove the paintings bodily—a task requiring supreme technical skill. The Preservation Department of the National Museum, New Delhi, rose to the occasion and has brought over to the Museum one hundred and thirtyfour panels of paintings, the larger ones measuring about  $3 \times \frac{1}{2}$  metres each. The panels are now receiving careful chemical treatment and being suitably mounted.

### *The Indian Nubia*

Of the other salvage-operation, something has already been said in the preceding pages. To recall, with the construction of the 100-metre high Nagarjunasagar Dam on the Krishna in Andhra Pradesh, an area of about 190 square kilometres will go under water, submerging, amongst others, the sites of Yeleswaram and Nagarjunakonda. As a first part of the operation, the spade went into action in 1954, bringing to light during the years that followed infinite remains ranging from the Old Stone Age down to the medieval times. Of these, brief mentions have been made on pages 24 and 35.

Now while the small finds from the dig posed no further salvage-problem, for they could easily be transported and displayed in a museum elsewhere, the structural remains did. They included items like *stūpas*, *chaityas*, *vihāras*, temples, an amphitheatre, a bathing-*ghāta* on the Krishna, etc., some being colossal indeed. But summing up its financial resources (over forty lakhs of rupees has been spent on the salvage-operations at Nagarjunakonda), administrative experience and technical skill, the Survey has not merely transplanted most of the noteworthy monuments, but has done so with a touch of imagination. For example, the amphitheatre (pl. XXIV) has been reconstructed in more or less the same setting—against the slope of a hillock—so that even today it retains its original acoustics. When the dam-water reaches its maximum, a hill would still be jutting out in the middle of the lake. On this would-be island—to be made accessible from the mainland by a regular boat-service—have been transplanted the *chaityas*, *stūpas*, *vihāras*, etc., recreating their serene atmosphere. The

bathing-*ghāta* (pl. XXVI) has been so placed on the periphery of the island that sitting on its lower steps one may frolic about with the lashing waters in the same way as the ancestors must have done, at the original position of the *ghāta*, some seventeen hundred years ago. On the island has also been constructed a museum displaying the excavated treasures. Also on show are large-scale models of monuments which had deteriorated beyond transplantation. The salvage-work has long been over : the dam has yet to be completed. Archaeology can well claim to have won the race, in the Indian Nubia at least.

### CHAPTER III

#### ARCHAEOLOGY'S INCREASING INDEBTEDNESS TO NATURAL SCIENCES

A scientist colleague of the author, engaged primarily on archaeological chemistry, has recently expressed his strong resentment over the notion that 'science is the handmaid of archaeology'. While the author fully appreciates the resentment—in fact, no archaeologist worth his salt would ever make such an irresponsible and offensive pronouncement, and one wonders wherefrom the notion has sprung up—the colleague's another assertion that for 'unequivocal solution of *all* important archaeological problems' (*italics* of the present author), the archaeologist is 'dependent on the natural scientist' may not be wholly true.

Be that as it may, archaeology being the study of ancient remains is concerned with every aspect of human creative genius in the past. Thus, not only has it unearthed and preserved, amongst others, scientific objects and structures—a scale or a plumb-bob from Mohenjo-daro or a Jantar Mantar at New Delhi—but has also helped the enquirer, not excluding the scientist, in the understanding and appreciation of these scientific remains against the perspective of time and space. In gratitude, may it then be assumed, the various scientific disciplines—grown-ups and the growing ones—are helping old archaeology to solve some of her own problems? But no risks of assumptions: the author would enter in his registers the scientist colleague's help, and of other scientists of course, not as the clearing up of an old loan given but as a fresh debt incurred.

Thus, in India since Independence, not only has the chemist continued to clean and preserve monuments, paintings, textiles, manuscripts, bronzes and the like or to analyse ceramics and glass-work, or the anthropologist, zoologist or botanist continued to report upon the excavated remains falling within his respective jurisdiction, but the radio-physicist has also come out with his help. The Tata Institute of Fundamental Research, Bombay, has started a Carbon-14 laboratory and within hardly two years of its existence now it has measured a large number of samples from various sites—in India as well as abroad. In this task, the Physics Department of the Jadavpur University has also begun contributing its mite. The Carbon-14 determinations have lent an absolute chronological setting to quite a few protohistoric cultures of the country, which were otherwise 'shunted', backward and forward, by many a century (cf. pl. XLIV). To cite an example, the Southern Neolithic Culture (above, p. 24) need no longer fight shy of being a contemporary of the Indus Civilization on the north-west. Or, duels should now cease regarding the antiquity of the culture encountered in the lower levels of Pandurajardhibi (above, p. 20).

Another noteworthy innovation in the country since Independence is the study of archaeomagnetism, just begun by the Tata Institute. Experiments with pottery and like objects are being made and data collected, which, it is hoped, will be of immense value.

It would be doing grave injustice to the scientist friend referred to in the opening paragraph, and to his colleagues, if a specific reference was not made to the environmental and geochronological investigations that are being carried out by them. Noteworthy indeed are the results of such investigations, already published, in regard to the microlithic site of Birbhanpur.

In reaffirming, then, that archaeology is greatly indebted to natural sciences—physics, chemistry, geology, anthropology, zoology, botany and what not—it has to be emphasized that this indebtedness is increasing day by day. Perhaps the only course left open to poor archaeology would be quietly to declare herself insolvent one day !

## CHAPTER IV

### DISSEMINATION THE PRIME ROLE—MUSEUMS AND EXHIBITIONS

No longer the abodes of *disjecta membra* from dilapidated monuments or of antiquities extracted from the *terra firma*, museums in India have acquired or are in the process of acquiring a new outlook since Independence. This is in a large measure due to what may be called the urge to democratize; for, breaking the barriers and vulgarizing all knowledge and art is one of the slogans of independent India. The *objet d'art* is no longer there for the pleasure of the selected few or for an erudite dissertation by a grey-haired scholar; it is there for the enjoyment and instruction of the common man. As educational toys are to a kindergarten child, so are the exhibits in a museum to the lay visitor. They elate, edify and educate.

And indeed the above is not an idealized picture, far away from reality. For, any one who had visited the Government Museum, Madras, or the Indian Museum, Calcutta, prior to 1947 and happens to do so now will not fail to mark the change these museums have since undergone. New show-cases have been installed, dioramas have come into being, colour-schemes and lighting have been given due consideration and, above all, explanatory charts, drawings and photographs, as also pithy texts, have been put up to complement the attractive display.

#### *The Capital no longer 'uncultured'*

No visitor to the capital of India can now condemn it for being 'uncultured'—a cryptic comment one had to put up with

a decade and a half ago. It is now bustling with cultural activities of all descriptions and tastes, in which archaeology is regarded not as a mere passive participant but as one leading the way. Situated at the meeting point of Rajpath and Janpath, the National Museum<sup>1</sup> has become, as it were, the meeting ground of the *Rāja-pathikas* and *Jana-pathikas*, that is to say of the elite and the common man—both equally proudly gloating over the tasteful presentation (pls. XXXIX-XLI) of their cultural heritage.

The Museum, only partly executed so far, has three storeys. On the ground floor are displayed, in separate galleries : prehistoric and protohistoric tools, allied artefacts and pottery; stone sculptures; terracottas; bronzes; etc. The first floor carries galleries of : paintings; manuscripts; and a special collection of Central Asian antiquities inherited by the Museum; there also being in reserve a large gallery for temporary exhibitions. Decorative arts like textiles, wood-carvings, costumes, etc., and Anthropology find a place on the top floor. In display, due consideration is given to each object so that its individuality is not lost; at the same time, the individual is imperceptibly made to serve the overall cause of its class. Solo display, spot-lighting, etc., are some of the means adopted for bringing out an individual object, while its place in the general run of objects signifies the part the piece plays in the chronological scale or aesthetic evolution.

On the educative side, besides providing the facility of guide-lecturers at specified hours, the Museum organizes occasional film-shows and lectures of a popular kind, in an auditorium specially designed for the purpose. A rich library and reading room are also there to be utilized by the more inquisitive. The latest publications are on show and sale.

The Museum has a well-equipped Chemical Laboratory to deal with the preservation of the treasures it possesses. Lastly, mention must also be made of the Modelling Department of the Museum, which tries to cope, as far as it can,

<sup>1</sup> Established in 1949 under the aegis of the Archaeological Survey of India, but now functioning as an independent institution.



with the unending orders placed on it by individuals and institutions for the supply of casts and models. In the drawing-rooms of many a house in India and abroad can now be seen some of these casts, the house-lady proudly pointing them out to a newcomer.

In this context, another National Museum deserves special mention. It is the Salarjang Museum, Hyderabad, which, to use commercial parlance, has only recently come over from the 'private sector' to the 'public'. Specializing largely in modern art-objects from here, there and everywhere—an inevitable outcome of enlightened nobility getting interested in 'curios'—the Museum also contains objects of great historical value, e.g. swords and daggers variously of Nur Jahan, Jahangir, Shah Jahan, Aurangzeb, etc., and Arabic and Persian manuscripts, some of them excellently illuminated.

*Museum-fever overtakes the country*

This museum-fever has overtaken not merely a few select towns, the entire country seems to be in its grip. For, since Independence nearly two scores of archaeological museums have come into being. Amongst them, particular mention may be made of what are known as site-museums, looked after by the Archaeological Survey. Four of them, displaying relics excavated from the respective sites, are located at Amara-vati, Kondapur and Nagarjunakonda in Andhra Pradesh, and Bodh-Gaya in Bihar. (A scheme is also underway to have shortly museums at three more excavated sites, viz. Lothal in Gujarat, Rupar in Panjab and Ratnagiri in Orissa.) Another four, housing relics of a specific period in the appropriate historical environment, are located at : Halebid (Mysore), containing the sculptural wealth of the Hoysala period collected from the surroundings; Hampi (Mysore), housing the remains from the Vijayanagara capital; Serinagapatam (again Mysore), dealing with relics associated with the great Sultan Tipu; and Fort St. George, Madras, specializing in objects of the early British period in the south.

Amongst other museums which have made noteworthy progress since Independence mention must be made of : Prince

of Wales Museum, Bombay, Asutosh Museum, Calcutta, Allahabad Museum, Allahabad, State Museum, Lucknow, Bharat Kala Bhavan, Varanasi, site-museums at Nalanda and Sarnath, and the important but less-frequented Mahant Ghasidas Memorial Museum, Raipur. In the offing or in infancy are museums at some of the universities engaged on archaeological excavations and explorations, e.g. Allahabad, Sagar, Baroda, (Deccan College) Poona, etc.

Museums, in a way, are permanent exhibitions. But not unoften have specially arranged temporary exhibitions been found to create a more permanent impression than the permanent ones. Perhaps the world is too busy, and even Beauty needs advertise herself to solicit its attention.

Thus, since Independence, many an exhibition has been held of the archaeological beauties of India, both in the country itself as well as abroad.

*'By far the largest in Europe'*

Closely following the former rulers back to their home was a consignment of 239 cases from India, containing select sculptures, bronzes, terracottas, manuscripts, paintings, brocades, etc., representing various facets of Indian art from the middle of the third millennium B.C. to almost modern times, meant for an exhibition that was held between November 1947 and February 1948 at Burlington House, London, under the auspices of the Royal Academy of Arts. The Indian consignment was supplemented with a few other objects, of Indian origin of course, variously from Great Britain itself, France, Holland and the United States of America. The Exhibition was acclaimed as 'undoubtedly by far the largest and most comprehensive Exhibition of the arts of India and Pakistan that has ever been seen in Europe'.

About the middle of 1948, when the above-mentioned masterpieces sailed back to India, the Government, through its Archaeological Survey (then temporarily wearing a 'Department'-mask) organized their exhibition at the Rashtrapati Bhavan, New Delhi. The exhibition was so much appreciated by Delhites and all concerned with the cultural life of the capital,

that the Government was faced with the dilemma of whether or not to disperse the objects back to the respective museums in the country. The die was ultimately cast in favour of retaining most of the material in Delhi, and, thanks to the generosity of all concerned, the seed of the National Museum, New Delhi, was sown (above, p. 54)

*Buddhism—the motive force*

In November-December 1954, the second session of the Sixth Buddhist Synod and the World Fellowship of Buddhists Conference were held at Rangoon. On this occasion, the Union Government of Burma invited the Government of India to send out to the former country an Exhibition of Buddhist Art of India—evidently because of the pre-eminent position India occupied in the history and art of Buddhism. Owing, however, to unforeseen reasons, delay occurred at various stages and the Exhibition materialized somewhat late—during January-February 1955. All the same, it was received with great enthusiasm by the swarming visitors—Burmese as well as foreign. Displayed at the Exhibition were not only sculptures, bronzes, stuccos, relic-caskets, seals, etc. from various parts of India, but also a large number of objects, including a few paintings, from Central Asia, collected at the beginning of this century by Sir Aurel Stein.

In the year that followed, 1956, India observed the 2500th Death Anniversary of one of her greatest sons—Buddha, the apostle of peace and tolerance. Buddhists from all over the world participated in the functions. The opportunity was also taken to organize an Exhibition of Buddhist Art in which, besides India, many a country from both the hemispheres participated, sending either the art-objects themselves or their casts, copies or photographs. With a start at New Delhi, the Exhibition went round the country : to Varanasi, Patna, Calcutta, Madras and Bombay.

In connexion with the same celebrations, Indian Museum, Calcutta, also organized a special exhibition of Buddhist Art, taking out for display many a fine piece from its reserve collections as well.

*European memory refreshed*

The London Exhibition of 1947-48 had not given full opportunity to many a Continental person to see for himself the cultural heritage of India—a country whose individuality had begun to kindle his imagination more and more year after year. Thus, hardly had a decade passed that a second round of Indian Art Exhibitions commenced in Europe. To be the first on the list was West Germany whose interest in Indological studies is no secret. Between May and September 1959, Villa Hugel at Essen donned an Indian look, with nearly a thousand select pieces of 'Five thousand years' Art from India'. Kunsthaus in Zurich, Switzerland, followed suite—from November 1959 to February in the following year. And then came Paris, where the large-hearted but modestly-named 'Petit' Palais took upon itself the job of introducing the vying-one-with-the-other Parisians to 'tresors d'art de l'Inde'. And lastly was Rome where has been at home the Indian culture from about the birth of Christ. For, who is there who is not familiar with the visit of the Indian goddess of good luck, Lakshmi, in her ivory-garb, to Pompeii prior to A.D. 79?

*To the Land of the Rising Sun*

And now (October 1963), the sons of the land are on their way to the Land of the Sun—Japan—to unfold before the Sun's own light the enlightening panorama of Indian Art.

But let not in the talk about exhibitions abroad sight be lost of the home-front. Most of the important museums and other institutions in the country have been organizing from time to time specialized exhibitions of one kind or another, mention of three of which has already been made above, viz. the Indian Art Exhibition of 1948 at New Delhi, and two Exhibitions of Buddhist Art, both held in 1956, the one exclusive to the Indian Museum, Calcutta, and the other travelling from place to place in the country. There are at least two others which call for special attention, both held in December 1961. One of them was organized by the Archaeological Survey of India on the occasion of its Centenary Celebrations, and more

will be said about it later (below, p. 67). The other was an Exhibition of Coins, put up on the occasion of the Golden Jubilee Celebrations of the Numismatic Society of India, at Bharat Kala Bhavan, Varanasi. The first of its kind, the Exhibition displayed a large number of coins ranging from the earliest times down to the modern.

Though mentioned at the end, yet in no way less significant are the exhibitions that are held every year on the occasion of the meeting of the Central Advisory Board of Archaeology. The spade's output for the year throughout the country is brought together under a single roof, for both the layman and the specialist. The lively symposia that are held on the basis of these yearly hauls are the hall-mark, may it be added, of the dynamic character of the subject and, incidentally, of its protagonists, not unoften accused of having a static outlook?

## CHAPTER V

### BEYOND THE FRONTIERS TOO

#### A. OUR NEIGHBOURS—INDONESIA, AFGHANISTAN AND NEPAL

It was just half-a-century ago (1913-14) that the famous expeditions of Sir Aurel Stein to Central Asia came to an end. With Independence, however, it was but natural that India's interest redoubled itself in the archaeology of the neighbouring countries with which it has had intimate relations from centuries before the Christian era. Thus, just a year after Independence, the Government of India sent out to Indonesia, in response to an invitation from the Government of that country, two officers of the Survey, one of whom prepared a detailed report on the condition of the Borobudur monument, suggesting measures of conservation, while the other studied the art of the great monument pointing out new identifications of some of the sculptures.

#### *A rich experience*

In 1956, the Government sent out another Delegation, this time to Afghanistan, with a view to studying the archaeological wealth of that country in general and those remains and antiquities in particular which showed Indian affinities. In this task the Royal Afghan Government rendered all possible help.

The Delegation made an extensive tour of the country, visiting Kabul, Ghazni, Kandahar, Farah, Herat, Mazar-i-Sharif, Haibuk, Kunduz, Bamiyan, Begram, etc. It also studied the rich collection in the Kabul Museum. Noteworthy amongst the sites, monuments and objects visited or studied

were : stone implements from Karakamar, petroglyphs near Khak-i-Ghulam Ali, protohistoric (Zhob-like) terracottas from Deh Morasi Ghundai, *stūpas* at Hadda and Haibuk, Buddhistic caves at Bamiyan, defences at Balkh, the fortress at Lashkari Bazar, the famous towers at Ghazni, Chehl Zina at Kandahar, the expansive arches at Qala-i-Bust, the Jama Masjid at Herat, and Indo-Greek coins, paintings from Fundukistan and a large number of Buddhistic and Brahmanical images lodged in the Kabul Museum. The Delegation acquired an experience which is indeed a valuable asset and may turn out to be of practical use one day.

#### *Katmandu valley and Nepalese tarai*

In partial fulfilment of the recommendations of the Director General of Archaeology in India, who had been requested, through the Indian Aid Mission, Katmandu, to advise His Majesty's Government of Nepal on archaeological matters, two Expeditions were sent out to that country during 1961-62.

One of the Expeditions was charged with the task of exploring the Katmandu valley for possible Stone Age remains. And let it at once be stated that the answer was in the negative. It must not, however, be left unstressed that the Expedition collected much valuable data relating to the Pleistocene geology of the valley.

The other Expedition took up the *tarai* region for historical remains. It explored a large number of sites in Districts Bhairwa and Taulihawa, ranging in date from *circa* fifth century B.C. to *circa* fifteenth century A.D. In continuation, it excavated two sites, Tilaura-kot and Kudan, both in District Taulihawa.

Tilaura-kot, as the very name implies (*kot*=fort), was expected to contain the remains of defences. And so it was. The excavation revealed a massive mud wall with a possible burnt-brick revetment. Though the site might date back to about the middle of the first millennium B.C., the defences do not seem to be older than the beginning of the Christian era. Amongst the finds from the site particular mention may be made of punch-marked coins, terracotta human and animal figurines and sealings, a rich variety of objects of iron, copper,



glass, etc., and, last but not least, the Northern Black Polished Ware.

At Kudan were excavated two massive temples (pls. XXXVII and XXXVIII) of burnt bricks, assignable to the period around A.D. 1000. They were built and re-built, but indeed their exquisite carving remained a matter of pride.

From the foregoing it would be seen that the archaeological remains of the Nepalese *tarai* during the historical periods were in no way different from those in the adjoining territories of India.

In pursuance of another recommendation of the Director General of Archaeology in India a comprehensive sculptural and iconographic survey of the Katmandu valley has just (1963) been made, by an officer of the Survey, due cooperation being received from the Directorate of Archaeology, Government of Nepal.

#### B. PARTICIPATION IN AN INTERNATIONAL VENTURE—THE NUBIAN SALVAGE

As is well known, India has always been willing to play its rôle in all international schemes of merit. Thus, when the call came from UNESCO for lending a helping hand in the salvaging of the vast archaeological treasures located in the Nubian valley which is to be submerged soon under the waters of the Aswan High Dam, India was the first Asian country—nay the *only* Asian country—to have come forward and thrown itself heart and soul into the task. During 1961-62 it sent out an Expedition to Egyptian Nubia and, had the Emergency resulting from the massive Chinese invasion not come in the way, it was to have sent another Expedition, to Sudanese Nubia, in 1962-63. In fact, it has not yet given up the hope in regard to the latter.

The 1961-62 Expedition's work fell into three parts : (i) exploration of the terraces of the Nile near Afyeh, a site nearly 15 kilometres downstream from Aneiba, the headquarters of Egyptian Nubia; (ii) excavation of an A-Group settlement-site at Afyeh itself; and (iii) excavation of a C-Group cemetery at Tumas, about a kilometre further downstream from Afyeh.



From the Nile-terraces were recovered tools of the Middle and Late Stone Ages, which, it may incidentally be remarked, had never previously been collected from around Afyeh. The Middle Stone Age tools, it may also be added, seem to resemble those coming from a similar chronological horizon in India, although for a full equation, no doubt, a further comparative study is necessary.

At the settlement-site of Afyeh were brought to light houses of stone-rubble set in the Nile mud. The finds included: serrated blades, borers, etc. of chert, polished axes of diorite, awls and needles of bone, a chisel of copper, a rich variety of beads of various semi-precious stones, painted and incised pottery and charred cereals including wheat, barley, peas, lentils, etc. The A-Group Culture is usually taken to date around 3000 B.C., but Carbon-14 determinations carried out on charcoal samples recovered from this site show that the settlement may not have come into being before the beginning of the second quarter of the third millennium B.C.

In the cemetery at Tumas, over one hundred and twenty graves were excavated (pl. XXXVI), most of which, however, were found to have been plundered. An average burial consisted of a crouched skeleton (pl. XXXIV) placed on the floor of an oblong pit, the latter filled up with earth and surmounted by a circular tumulus of stone-rubble. The grave-furniture included, besides personal ornaments and cosmetic articles of the dead, a large amount of pottery including bowls of black-and-red ware (often with pleasing incised decorations, pl. XXXV), jar-stands of red ware and vases of red and buff wares. The black-and-red ware bowls and jar-stands of red ware as well as the circular stone wallings enclosing the graves are all reminiscent of what obtains in the Megalithic tombs of south India (cf. pl. XXXIII). But the points of difference are also very many. Thus, before attempting a detailed correlation between these two 4000-kilometre-apart cultures, would it not be worth while to explore the coastal regions of south Arabia and south-eastern Iran?

## CHAPTER VI

### AND NOW ABOUT OURSELVES

#### A. THE NEW SET-UP

What has been described in the preceding pages is not, and obviously cannot be, the work of a single individual, nay even of a single organization. Behind it all lie the unflinching and combined efforts of all the archaeological organizations in the country, which have practically doubled up in number since Independence, there also being a marked increase in the strength of the existing ones.

Prior to the enforcement of the Constitution of India (1950), Archaeology was essentially a Central subject, there being no archaeological department in what were then called the Provinces. Only the princely States, which were outside the archaeological jurisdiction of the Centre, could have their own departments, but in fact only a few had them. After Independence, however, started the process of integration in which the princely States merged with the adjoining Provinces which themselves were geographically reorganized and redesignated as 'States'. Applicable to this new set-up, the Constitution lays down that—

- (1) ancient and historical monuments and archaeological sites and remains declared by or under law made by Parliament to be of national importance should be in the charge of the Central Government;
- (2) ancient and historical monuments not belonging to the first category should be in the charge of the State (Provincial) Government; and

- (3) both the Central and State Governments will have jurisdiction over archaeological sites and remains not belonging to the first category.

As a result, in 1951, Parliament passed an Act declaring to be of national importance all the monuments and sites which had previously been protected under the Ancient Monuments Preservation Act, 1904, adding to the list a large number of important monuments and sites situated in and consequently falling under the jurisdiction of former princely States. To this list are being added, year after year, more monuments and sites.

Just this year (1963), the provisions of the Ancient Monuments and Archaeological Sites and Remains Act, enforced in the rest of the country in 1959, have also been extended to the former French and Portuguese territories, viz. Pondicherry and Goa, Daman and Diu.

With this increased responsibility of the Centre, it was but natural that the concerned organization, viz. the Archaeological Survey of India, should expand. It has today, besides the Directorate at New Delhi, ten Circles sharing amongst them the entire country, and six specialized Branches with all-India jurisdiction, relating respectively to Excavations, Prehistory, Epigraphy, Archeological Chemistry, Museums and Gardens. Charged with specific jobs are three additional Projects—two relating to survey of temples and one to the preparation of an exhaustive archaeological atlas. Last but not least, the Survey runs a School, of which more will be said below (p. 66).

To come back to the Constitution. The aforesaid provisions implied that the State (former Provincial) Governments should also have their own archaeological set-up in order to be able to discharge their new obligations. And indeed the States did in no way lag behind, for today most of them do have their own archaeological departments, the strength, of course, varying in proportion to finances and needs.

To add to the output of these Government departments are universities and research institutes. The University Grants Commission have given special financial assistance to the

Universities of Allahabad, Patna, Calcutta, Baroda, Poona (Deccan College Post-graduate and Research Institute) and Madras to organize their archaeological activities. Other universities, e.g. Aligarh, Banaras, Gorakhpur, Nagpur, Saugar, etc., are also coming up in the field. Lastly, mention must also be made of the enthusiastic participation in this great task by institutes such as the K.P. Jayaswal Research Institute, Patna.

To the Indian resources have also been added those from abroad. In this context, particular reference may be made to the work done by individuals or organizations, singly or in collaboration with an Indian agency, from Australia, France, Japan, Sweden, the United Kingdom and the United States of America.

#### B. THE SCHOOL OF ARCHAEOLOGY

The vast expansion of archaeological activities since Independence naturally brought in its wake many a problem, one of them being that of getting trained personnel. While in the past some kind of an arrangement did exist for imparting training—mostly in the technique of excavation—the training at best was of a sporadic nature. Thus, Government of India became anxious to organize systematic and comprehensive training in various branches of Archaeology so that fully-trained personnel might regularly be available to meet the needs of the Central and State departments and museums as also of universities and research institutes. The result was the creation, in October 1959, of the School of Archaeology, at New Delhi, under the auspices of the Archaeological Survey of India.

The key-note of the course at the School is practical training : intensive in the case of exploration, excavation and preservation of monuments, and sufficient, to the extent necessary for a field-archaeologist, in the case of photography, drawing, surveying, modelling, museum-methods, chemical preservation of monuments and antiquities and, last but not least, publication including block-making and printing. On the theoretical side, besides traditional subjects like art, architecture, palaeography and numismatics, are taught, with

considerable emphasis, prehistory and protohistoric and early historical archaeology, supplemented by elementary geology, anthropology, environmental archaeology, etc. The teaching of Antiquarian Laws is another speciality of the School. At the top of it all, comes an all-India tour during which the students are taken round most of the important monuments, sites and museums. The twenty-month training is followed by an examination and successful candidates are awarded a post-graduate Diploma.

That the School has met a much-felt need is shown by the fact that during the four years of its existence have come on its roll students not only from various parts of the country itself but from abroad as well—once from Burma and twice from Nepal, deputed by their respective Governments.

### C. THE CENTENARIAN

As already stated elsewhere, it was in 1861 that official archaeology took birth in the country. The babe was none other than the Archaeological Survey of India. Growing slowly yet steadily, by the turn of the century the Survey became an able-bodied adult, being vied, one may well imagine, by others in the field. To the octogenerian, Independence came as a rejuvenator, and, in 1961, the centenarian could easily boast of being 'one without others', not merely on the national plane but—one fights shy of saying so—on the international as well. It was thus in the fitness of things that the country celebrated the centenary of its Archaeological Survey with great gusto, congratulations and good wishes pouring in from far and near, big and small alike.

The occasion was marked by, besides the usual celebrations, two major events : a large-scale exhibition and the first-ever International Conference on Asian Archaeology.

The Exhibition presented a panoramic picture of India's past, right from the Stone Age to the dream-in-stone Taj. Besides actual objects, charts, photographs and models, on display were casts of some of the monuments or parts thereof, making one feel as if a Musée des Monuments Français had come out on New Delhi lawns (pl. XLII).

The International Conference on Asian Archaeology was attended by over two hundred delegates, variously from the United States of America on the west to Japan on the east and from the Union of Soviet Socialist Republics on the north to Indonesia on the south. With Shri A. Ghosh, Director General of Archaeology in India, as the General President and the present writer as the General Secretary, the Conference was divided into four Sections : (i) General Archaeology and Archaeological Methods, ( ii ) Archaeology of the Stone and Bronze Ages, (iii) Archaeology of the Later Ages—General, and (iv) Archaeology of the Later Ages—Art and Architecture, presided over respectively by Sir Mortimer Wheeler, and Professors Robert J. Braidwood, Tatsuro Yamamoto and S. Paranavitana. While in a general survey like the present one it is impossible to go into the details of the papers read at the Conference, it must not be left unsaid that the whole thing was so stimulating that the delegates present, led by Professor M. E. L. Mallowan, resolved that the Conference might be held quinquennially. All eyes are thus turned to 1966.

## CHAPTER VII

### BEFORE THE BELL RINGS OUT THE SIXTIES

The nineteen-sixties seem to be of significance in the annals of Indian archaeology. In 1961, the Survey became a centenarian, which occasion was also used to hold the first-ever International Conference on Asian Archaeology. In 1962, the country sent out three Expeditions abroad, which did much valuable work and brought home—may we say—laurels? God willing, an Expedition is expected to go out to Nubia again this year (1963). Also this year, an exhibition of Indian archaeological treasures is being held abroad (Japan). Thus, there is a steady growth in the country's external activities. Where all this would lead us no body can foretell. But, even granting that indulging in prophecies is bad, there seems to be nothing wrong in expressing one's wishes—good wishes.

As is well-known, the archaeology of the neighbouring countries—east, west, north and south—is so intimately connected with that of ours. In fact, evidence shows that there have been, right from the Stone Age times, contacts, nay even exchanges of ideas and materials, with countries far beyond the frontiers. Is it not then meet that we had at least one specialist in the archaeology of each concerned country? In fact, for a better understanding of the archaeology of these countries it would be desirable to have stationary Indian Archaeological Missions over there. The Government is keenly aware of these pressing needs. Indeed, had not the Emergency come in the way, a first step in the direction might have been taken by now. Anyway, let it be hoped that the dark clouds will soon clear off the northern horizon and in the ensuing

light archaeology will shine with a redoubled glow, in which process not only will there be a further augmentation of the work at home, but also may come into being the aforesaid Missions abroad. But time always is of essence, and an independent India cannot afford to lag behind others in this respect. May it then be hoped that these wishes would be fulfilled before the bell rings out nineteen-sixties? Or, would these wishes remain a wishful thinking?



## EPILOGUE

*What has been done is but a part*

*Of what remains, things all apart.*

*Let not a praise then make us burst,*

*Complacency the spade nor rust.*



## GLOSSARY<sup>1</sup>

With a view to assisting the non-specialist, for whom this booklet is primarily meant, a glossary of archaeological terms used in it is appended hereto. The glossary is a rough and ready one; and so are the dates which show, within wide brackets, the *approximate* chronological horizon of the concerned culture or object.

**A-GROUP CULTURE.**—Name given, for convenience, to a culture of Upper Egypt and Nubia. *Distinctive cultural traits* : polished stone axes; chert blades; copper and bone tools; painted and plain red pottery; houses of stone rubble; crouched human burial. *Date* : about 3400-2700 B.C.

**AHAR CULTURE.**—Named after the type-site Ahar in Rajasthan. Also known as the Banas Culture, after the river of the same name. *Distinctive cultural traits* : white-painted black-and-red pottery; copper implements; houses variously of wattle-and-daub, stone rubble, mud bricks and kiln-burnt bricks. *Extent* : mainly south-eastern Rajasthan. *Date* : about 1800-1200 B.C.

**ANTENNAE SWORD.**—Sword with the hilt bifurcating like the antennae of an insect. Found as a distinctive item amongst 'Copper Hoards' (below, p. 77). *Date* : about 1900-1300 B.C.

**ANTHIROPOMORPHIC FIGURE.**—(From Gk. *anthropos* = man, and *morphe* = form.) Representation of human form, found

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<sup>1</sup>. In the preparation of this glossary, assistance has been received from Shri B. M. Pande. The terms 'Archaeomagnetism' and 'Carbon-14 dating' have been defined in consultation with Professor D. Lal of the Tata Institute of Fundamental Research, Bombay, and Dr. B. B. Lal, Archaeological Chemist in India, Dehra Dun.

Carbon-12 in a fixed proportion and that the latter does not decay, forms the basis of the method of radiocarbon "dating". The "dates" of organic objects are, in turn, the dates of the archaeological cultures in which the objects occur.

**C-GROUP CULTURE.**—Name given, for convenience, to a culture of Upper Egypt and Nubia. *Distinctive cultural traits* : black-and-red pottery with white-filled incised decorations on the exterior; circular huts of stone rubble; tools of copper; crouched human burial. *Date* : about 2300-1600 B.C.

**CELT.**—(From Latin *celtes* = stone-chisel.) Chisel, axe or adze of stone, bronze or iron. The one in stone is a type-tool of the Neolithic times. It was made by chipping, pecking and grinding, the last-named process giving it a smooth (polished) surface. It has a sharp, usually convex cutting edge. The butt may be pointed or square and the section oval or rectangular. Used either by holding it direct in the hand or by hafting it to a wooden handle. It has many varieties, for example, bar-celt, shouldered celt, trunnion celt, shoe-last celt, etc.

**CENTRAL INDIAN CHALCOLITHIC CULTURE.**—So called due to its area of occurrence. *Distinctive cultural traits* : black-on-red pottery known as the Malwa Ware; microliths; copper implements; wattle-and-daub and mud-brick houses. *Extent* : mainly southern Madhya Pradesh. *Date* : about 1700-1200 B.C.

**CHALCOLITHIC.**—(From Gk. *khalkos* = copper, and *lithos* = stone.) The age when both copper and stone were in use. It succeeded the Neolithic, retaining all the latter's features, but was marked off by the appearance of copper.

**CHOPPER.**—An Early Stone Age tool, made on pebble by flaking a part of the periphery on the upper face. Used for cutting or scraping.

**CHOPPING TOOL.**—An Early Stone Age tool, made on pebble by flaking a part of the periphery on both lower and upper faces. Used for cutting.

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**CLEAVER.**—An Early Stone Age tool having a wide chisel-edge formed by the intersection of two large flake-scars.

**'COPPER HOARDS'.**—Name given, for convenience, to a characteristic group of copper objects, found mostly in hoards. They comprise flat, shouldered and bar-like celts, rings, harpoons, antennae swords, anthropomorphic figures, etc. *Distribution* : mainly Uttar Pradesh, Bihar, Orissa and Madhya Pradesh, but extending up to Gujarat and Mysore. *Date* : about 1900-1300 B.C.

**'DARK AGE'.**—Name given by earlier writers, owing to paucity of data, to the period between the end of the Harappa Culture (about 1700 B.C.) and the beginning of the historical period (about the middle of the first millennium B.C.).

**EASTERN NEOLITHIC CULTURE.**—So called due to its area of occurrence. *Distinctive cultural traits* : polished stone axes, mostly with a rectangular section; occasional occurrence of shouldered hoes; coarse, brownish-red pottery. *Extent* : Assam, West Bengal, South Bihar and Orissa. *Date* : not yet determined, but may be around 1000 B.C.

**EXTRADOS.**—Exterior curved surface of arch, dome, etc.

**GROUTING.**—Process of injecting fluid cement mixture into voids in masonry for strengthening purposes.

**GUNITE.**—(Also known as shot-crete.) Pneumatically-placed concrete. In this process, to the dry sand-and-cement mixture water is mechanically added at the nozzle of the gun.

**HANDAXE.**—Almond- or pear-shaped tool, made by removing flakes usually from both upper and lower faces. Found mostly in Early Stone Age context. The term has gained currency, though the tool need not necessarily have been used by hand alone; nor is the working edge (generally pointed) like that of an axe.

**HARAPPA CULTURE.**—Named after the type-site Harappa in West Pakistan. Also known as the Indus Civilization,

after the principal river of the region. *Distinctive cultural traits* : sturdy, red pottery, with designs painted in black; terracotta figurines and 'cakes'; vessels and implements of bronze; blades and weights of chert; seals and sealings bearing script; discoid beads of steatite; structures of mud bricks and kiln-burnt bricks, with systematic town-planning; extended human burials. *Extent* : from Baluchistan to western Uttar Pradesh, and from Panjab to Gujarat. *Date* : about 2400-1700 B.C.

**HARPOON.**—Missile of bone, antler or metal, comprising a barbed, pointed head and a barbed shaft. Used for capturing under-water mammals and fish, by tying it (the harpoon) to a rope or string and throwing the same either direct by hand or with the help of a throwing stick.

**HOLOCENE.**—(From Gk. *holos* = whole, and *kainos* = recent.) Geological period following the Pleistocene, and extending up to the present. It began about 10,000 years ago.

**INDUSTRY.**—An assemblage of tools or other artefacts of a similar kind found in the same culture-context.

**INTRADOS.**—Interior curved surface of arch, dome, etc.

**JORWE WARE.**—Named after a site of the same name in Maharashtra. Red pottery, often with matt surface, bearing paintings in black. Typical shapes include sharply-carinated bowls and vessels, the latter having long tubular spout. It forms a characteristic industry of the Northern Deccan Chalcolithic Culture. *Date* : about 1600-1000 B.C.

**KHAROSHTHI.**—A script prevalent in north-western parts of the Indo-Pakistan subcontinent from the third century B.C. to the third century A.D. In the neighbouring countries, it seems to have persisted even later. It was written from the right to the left.

**LEVALLOISEAN.**—Special technique in the making of Stone Age tools. First the core was carefully trimmed and a plat-

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form prepared. Then, by striking at the platform a large flake was removed from the core. Named after a locality near Paris where flakes made by this technique were first recognized.

'MADRASIAN'.—Early Stone Age culture of southern India, characterized by bifacial handaxes and cleavers. So called due to the first discovery of such tools near Madras.

MALWA WARE.—Named after the region, Malwa (an old geographical name for south-western part of Madhya Pradesh), where this typical pottery is found. It has a pale-brown to red surface and is painted with designs in black or chocolate colour. Typical shapes include the channel-spouted bowl and stemmed chalice. It forms a characteristic industry of the Central Indian Chalcolithic Culture. *Date* : about 1700-1000 B.C.

MEGALITHS.—(From Gk. *megas* = great, and *lithos* = stone.) Funerary or commemorative monuments characterized by the use of large stones in the make-up. They are of various types, for example, dolmens, dolmenoid cists, pit-burials, urn-or sacrophagus-burials 'umbrella'-stones or 'hat'-stones (Tamil *topi-kal*), hood-stones, multiple hood-stones, menhirs, etc. Many of them are superficially demarcated by a circle or circles of stone. While the cultural association of megaliths in eastern and north-western India has yet to be worked out, those in the south are associated with iron implements and Black-and-red pottery and are datable approximately to 400 B.C.-A.D. 100

MICROLITHS.—(From Gk. *mikros* = small, and *lithos* = stone.) Tiny tools made on fine-grained stones like quartz, chalcedony, jasper, agate, carnelian and chert. On the basis of shape, these are classified into two categories : non-geometric, comprising blades, borers, points, etc., and geometric, marked out by trapezes and triangles. Available evidence indicates that the former category might be earlier, going back to about 6000 B.C.

MIDDLE STONE AGE.—Part of the Stone Age falling between

the Early and the Late. It is characterized by medium-sized tools made on fine-grained stones, such as jasper, chert, etc., and comprising points, borers, a variety of scrapers and occasional blades and burins.

**NASTA'LIQ.**—A decorative style of the Arabic script. It came into being in the fourteenth century A.D., evolving from the Naskh and Ta'liq styles. The letters in it are rounder than those in the Naskh.

**NEOLITHIC.**—(From Gk. *neos*=new, and *lithos*=stone.) Also called the New Stone Age. It followed the Late Stone Age and preceded the chalcolithic. In contrast to earlier Stone Ages, it is characterized by : the polishing of stone tools; settled, community living; agriculture; domestication of animals; and, not unoften, pottery. Although elsewhere the neolithic stage had been reached by about 7000 B.C., on the Indo-Pakistan subcontinent the corresponding stage might not be earlier than 4000 B.C.

**NORTHERN DECCAN CHALCOLITHIC CULTURE.**—So called due to its area of occurrence. *Distinctive cultural traits* : matt-surfaced red pottery, with paintings in black (Jorwe Ware); microliths; copper implements; polished stone axes; urn-burials. *Extent* : mainly Maharashtra. *Date* : about 1500-1000 B.C.

**NORTHERN BLACK POLISHED WARE (N. B. P. WARE).**—A distinctive pottery with a highly lustrous surface, usually black but sometimes steel-grey, silvery or golden. It is wheel-made, normally thin-sectioned and well-fired, giving a metallic ring. The more common shapes are bowls and dishes, though lids, sharply-carinated *handis*, etc., also occur. *Distribution* : main concentration in northern India but found as far away as Afghanistan, Orissa, and Andhra Pradesh. *Date* : about 600-200 B.C.

**NORTH-WESTERN NEOLITHIC CULTURE.**—So called due to its area of occurrence. *Distinctive cultural traits* : polished stone axes; bone tools; mat-impressed grey pottery; dwelling-pits. *Extent* : Kashmir valley. *Date* : about 2000-1000 B.C.



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**'OGHRE COLOUR' WARE.**—Orange- to deep-red pottery, found so far mostly in worn-out condition—to the extent that the surface rubs off by mere handling, leaving an ochrous colour on the fingers. Hence the name. *Extent* : upper Ganga valley. *Date* : prior to 1200 B.C.

**PAINTED GREY WARE.**—Pottery of grey colour painted with linear and dotted patterns in black. It is wheel-made, thin-sectioned and well-fired, the more common shapes being bowls and dishes. *Distribution* : mainly Panjab, Delhi, Uttar Pradesh and northern Rajasthan. *Date* : about 1100-600 B.C.

**PAINTED GREY WARE CULTURE.**—Named, for convenience, after the Ware. *Distinctive cultural traits* : Painted Grey Ware; copper in early stages, but soon supplemented by iron; wattle-and-daub houses; rice; horse. *Extent* : mainly Panjab, Delhi, Uttar Pradesh and northern Rajasthan. *Date* : about 1100-600 B.C.

**'PEBBLE-HANDAXE'.**—Made on pebble, it differs from the hand-axe (above, p. 77) in that the upper face alone is flaked, of which the butt-end also remains unworked.

**PLEISTOCENE.**—(From Gk. *pleistos* = most, and *kainos* = new, recent.) Geological period immediately preceding the present (Holocene). It was in the earlier part of this Period that man appeared. The Period is also marked by the appearance of the true ox, true elephant and true horse. Possible duration : 500,000 to 1,000,000 years.

**POINT.**—Tool of stone, bone or metal, having a sharp end, and presumably used as arrow-head.

**POLISHED STONE AXE.**—Stone tool having a sharp, usually convex, cutting edge, and pointed or squarish butt. Made by chipping, pecking and grinding, the last-named process giving the tool a smooth (polished) surface. Used either by holding it direct in the hand or by hafting it to a handle. Characteristic tool of the Neolithic times.

**POST-CREMATION BURIAL.**—Burial of charred human bones after cremation.

**PREHISTORIC PERIOD.**—(From Latin *pre* or *prae* = before, and

history.) The period before the beginning of recorded history. Usually, the Stone Ages are covered by it.

**PROTOHISTORIC PERIOD.**—(From Gk. *protos* = first, and history.) Literally, the period of first, i.e. earliest, history. In India, the term is vaguely but usually applied to the period falling between the end of the Late Stone Age (which itself is not a well-defined point but might be around 4000 B.C.) and the beginning of regular history with the Mauryas in the fourth century B.C. Thus, in it are included not only the Indus Civilization, in which the art of writing (leading to documentation) was known, but also other cultures, though materially less advanced, which preceded the historical period.

**PUNCH-MARKED COINS.**—Squarish or oblong coins of silver or copper characterized by a series of punched symbols.  
*Date* : 600-200 B.C.

**QAULNĀMA.**—Treaty; written agreement.

**ROCK-SHELTERS.**—Places sheltered by overhanging rocks, including natural large-sized cavities in rock-faces, used as dwellings by prehistoric man.

**ROULETTED WARE.**—Pottery characterized by concentric dotted bands produced with the help of a roulette (a toothed wheel). The characteristic shape is a dish with incurved rim, the rouletted pattern occurring on the interior of the base. The Ware is wheel-made, fine-grained, and grey to black in colour. It is well-fired, often giving a metallic ring. The rouletted design was probably copied from its counterpart on contemporary Mediterranean wares.  
*Distribution* : mainly south India, but examples found along the coast up to West Bengal. *Date* : from about the beginning of the Christian era to A.D. 200.

**RUSSET-COATED PAINTED WARE.**—Pottery having rectilinear or curvilinear designs in lime or kaolin paste over which was applied a coating of russet-coloured ochre. The main shapes are bowls and dishes. *Distribution* : mainly south India. *Date* : about A.D. 50-200.

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**SCRAPER.**—Implement of stone, bone or metal, having a specially-prepared scraping-edge. Used for scraping hides, smoothening wood, etc. It has many varieties, for example, straight-sided, convex, round, keel-shaped, hollow, etc.

**ŚESHANĀGA.**—Also known as *Sesha* or *Ananta* or the World Serpent. This mythical serpent is believed to carry the Earth on his head whose slightest movement causes earthquakes. He is also associated with Vishnu who rests on the former's coils, shaded by canopy-like hoods.

**SLIP.**—Liquid clay of a creamy consistency, applied as a coating on pottery before firing. Hence, slipped pottery.

**SOUTHERN NEOLITHIC CULTURE.**—So called due to its area of occurrence. *Distinctive cultural traits* : polished stone axes, mostly with pointed butt and oval section; burnished grey ware; microliths; human burials—extended for adults and urn-burials for infants; houses of stone rubble or wattle-and-daub. *Extent* : Andhra Pradesh and Madras and Mysore States. *Date* : about 2300-1000 B. C., but continued, with the amalgamation of chalcolithic traits, to the middle of the first millennium B. C.

**TERI-SITES.**—Sites associated with dunes of reddened sand, located in the coastal district of Tinnevely, Madras State. Found on the dunes are microliths of the Late Stone Age.

**TERRACOTTAS.**—(From L. and It. *terra* = earth, and L. *cocta* and It. *cotta* = baked.) The term connotes statuettes and figurines made of baked clay.

**UNIFACIAL.**—Flaked on one face only.

**WARE.**—The term is used to denote any specific kind of pottery. It is also used to denote the fabric.



## BIBLIOGRAPHY

A reference to the *Annual Bibliography of Indian Archaeology* published by the Kern Institute, Leiden, would show that between 1948 and 1957 nearly three thousand articles and books had been published. Another two thousand are likely to have been published since the latter date, making a total of over five thousand items since Independence.

Thus, the bibliography given below can hardly do any justice to the subject. All that is aimed at here is to mention such items as might usefully be referred to in case a reader feels like checking up what has been stated in the foregoing pages, or is interested in knowing more about the concerned items.

If in this process of elimination, an injustice has been caused to any author, the present writer begs his pardon. On the other hand, if the non-specialist reader, to whom this booklet is primarily addressed, feels that the bibliography is too long, the writer craves his indulgence as well.

The bibliography begins with some general publications which include matter relating to more than one of the chapters. Thereafter, a chapter-wise list is given.

### GENERAL

*Ancient India*, nos. 5-19, published by the Director General of Archaeology in India, New Delhi.

(No. 9 gives a convenient summary of the work done up to 1953.)

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<sup>1</sup>. Prepared by Shri J. P. Joshi, under the author's general guidance.

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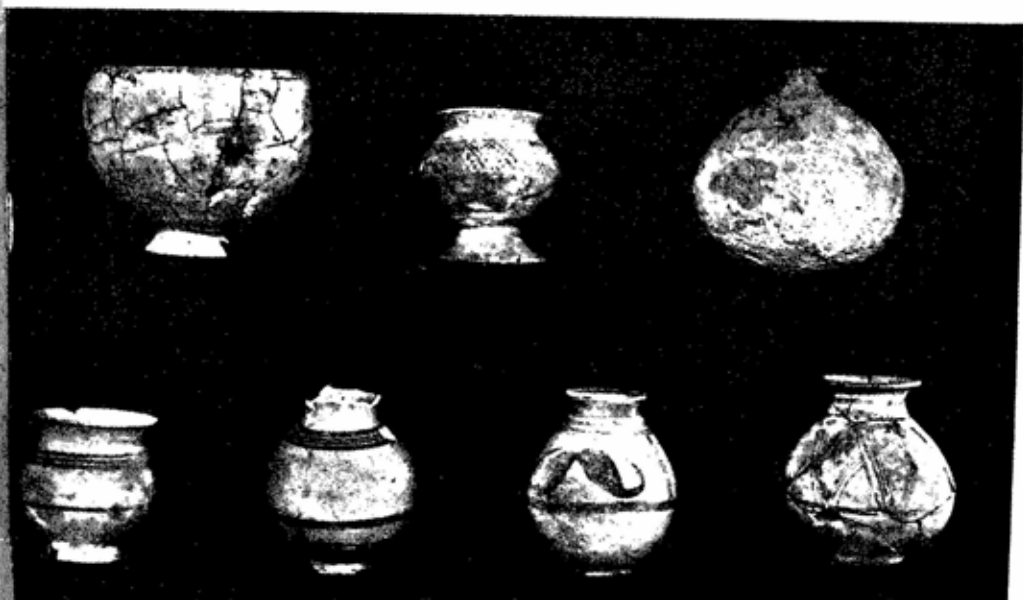
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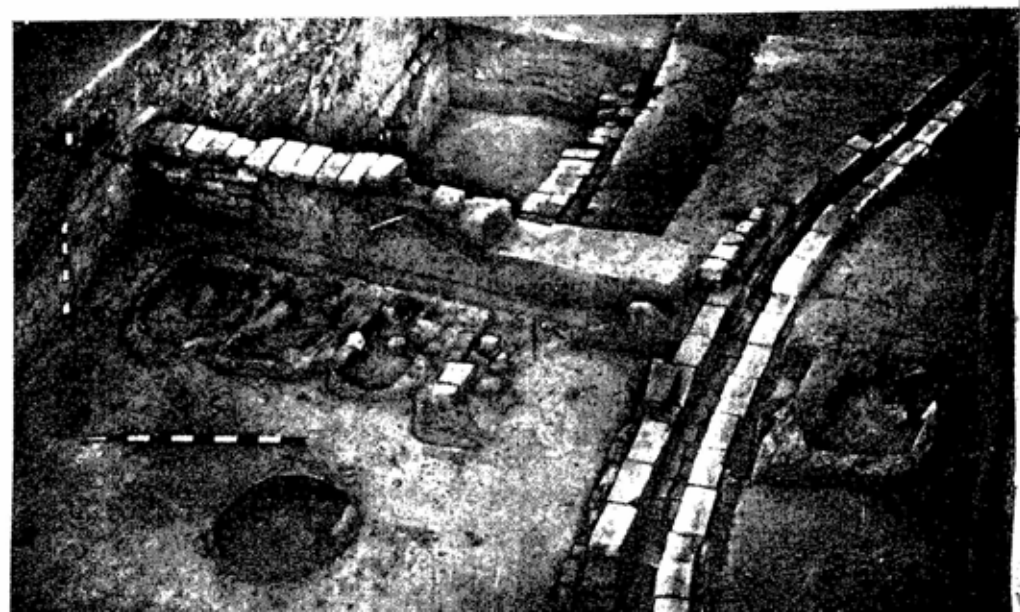
Pls. I and II. Identified for the first time on Indian soil is the *pre-Harappa* culture at Kalibangan (Rajasthan). Here are seen the well laid-out houses (above) and pottery (below) belonging to this third-millennium-B. C. culture. See p. 17.





Pl. III. Kalibangan : a potsherd bearing an inscription in the Harappan script. The overlaps of letters show that the direction of writing was from the right to the left. See p. 18.

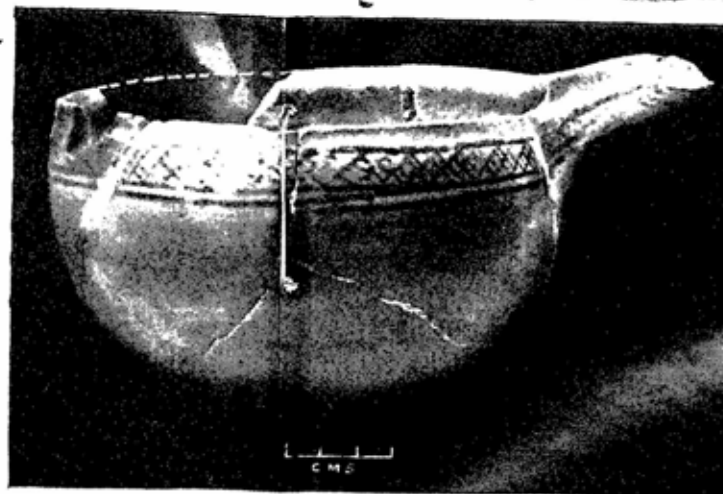
Pl. IV. These fire-altars, discovered at Kalibangan, throw new light on the religious practices of the Harappans. See p. 17.





Pls. V and VI. Little doubt should now remain about the maritime activities of the Harappans. Below is a view of the dockyard discovered at Lothal (Gujarat) and, above, a seal (with cast) from the same site. The seal is of a type found commonly at Persian-Gulf ports around 2000 B. C. See p. 18.

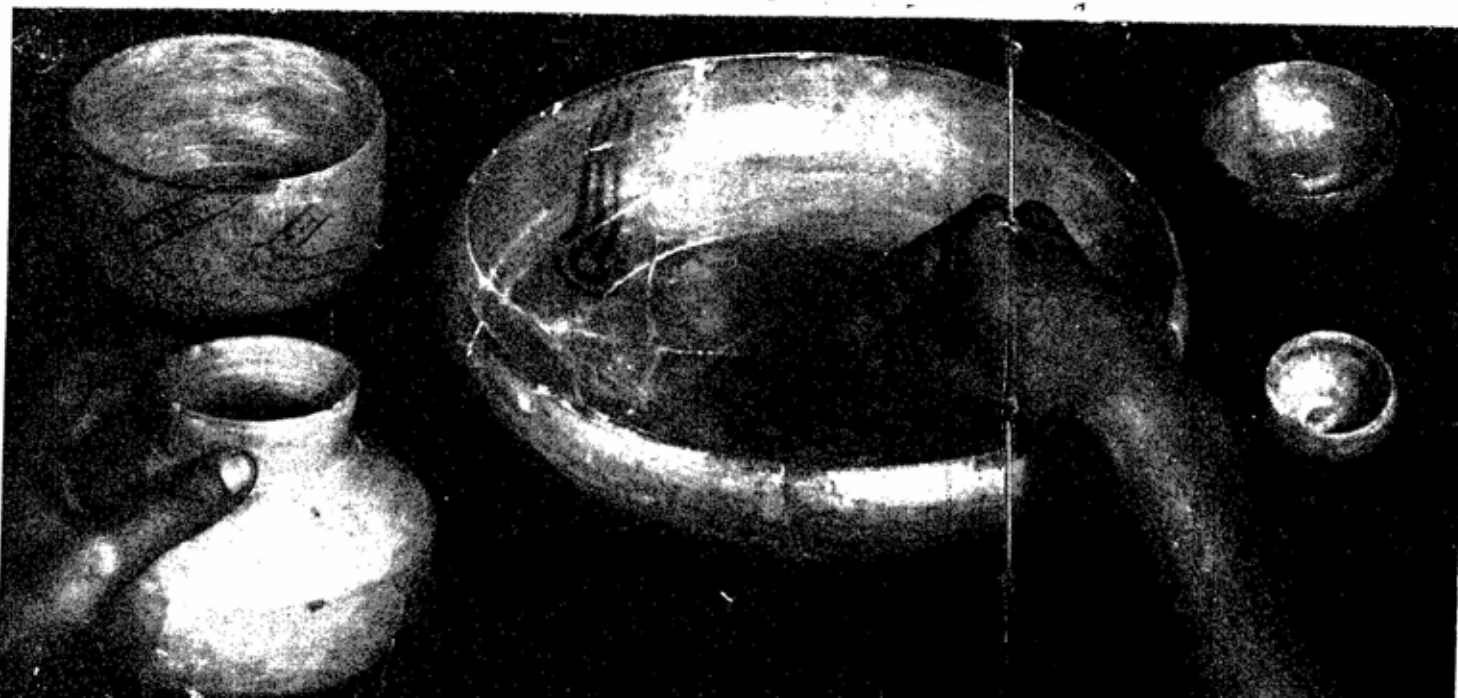




Pls. VII and VIII. The stemmed chalice (left) and channel-spouted bowl (above), found at Navdatoli in Madhya Pradesh, have suggested an influx of people from Iran about the middle of the second millennium B. C. See p. 21.

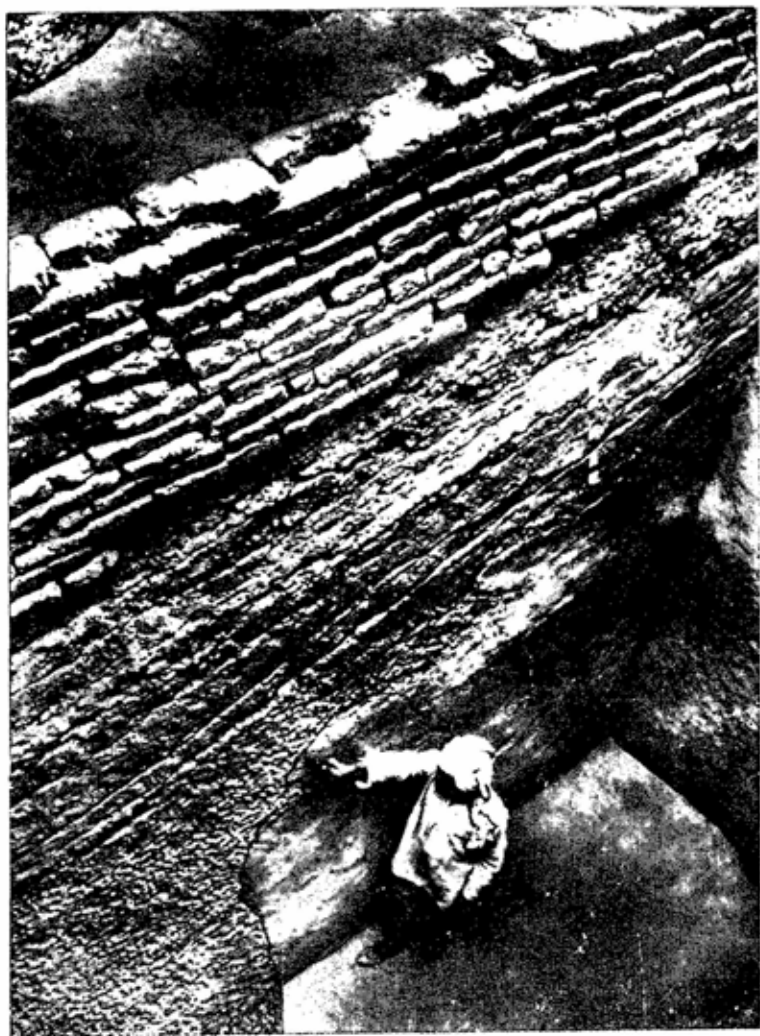


Pl. IX. From the cold climes of Kashmir (at Burzahom) comes, for the first time, the evidence of a neolithic folk who lived in pits and used polished stone axes and bone tools (above), about the middle of the second millennium B. C. See p. 20.

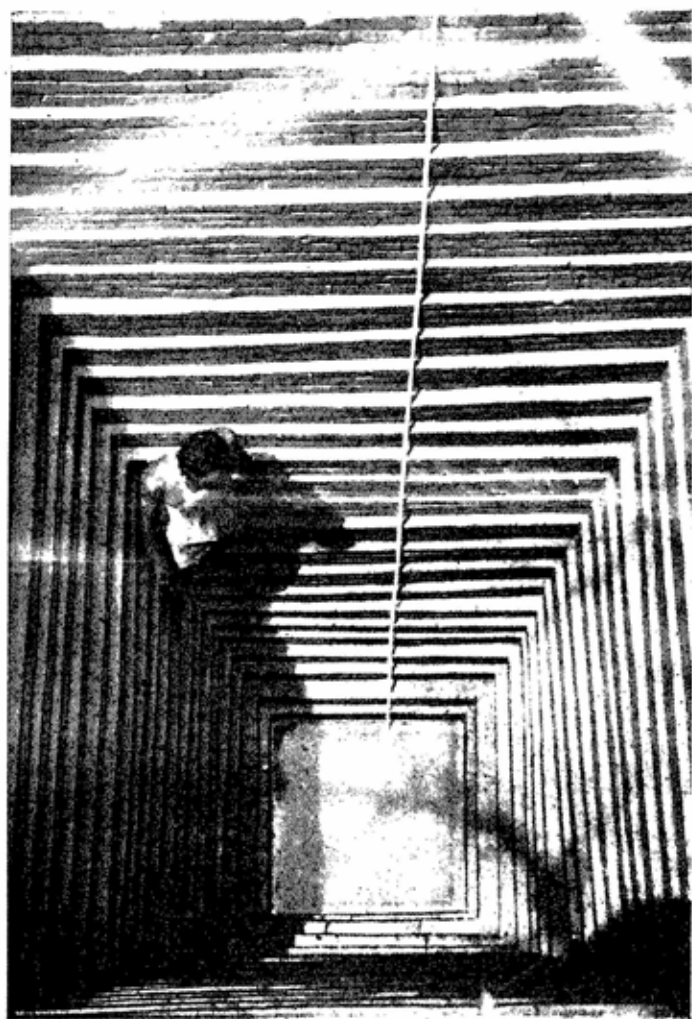


Pl. X. A 'dining set' of Painted Grey Ware, from Alichchhatra and Hastinapura (U. P.), and Rupar (Panjab). Found at Mahābhārata sites, the Ware might well have been associated with the Aryans. See p. 19.





Pl. XI. Hastinapura (Uttar Pradesh): the figure points to the erosional scar 1 ft. by a heavy flood in the Ganga which washed away a major portion of the Palatial Grey Ware settlement. The flood finds an echo in the *Parāś. s.* *Siv.* p. 20.



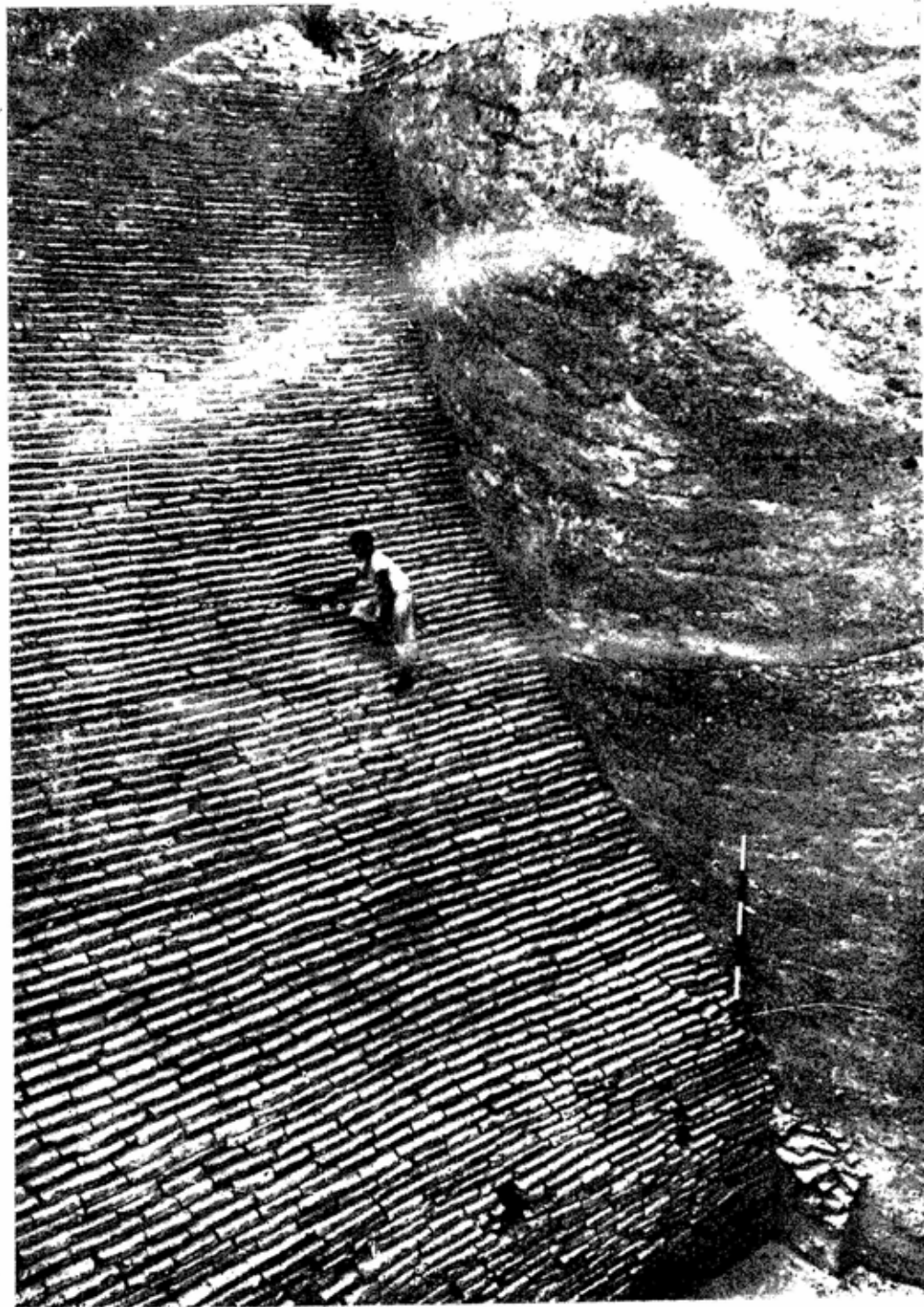
Pl. XII. Chandraketugarh (West Bengal) : at this early historical site have been excavated several exquisitely-planned structures including a temple. Here is seen a 7-metre deep pit with offset brick-lining, located within the temple-complex. See p. 32.



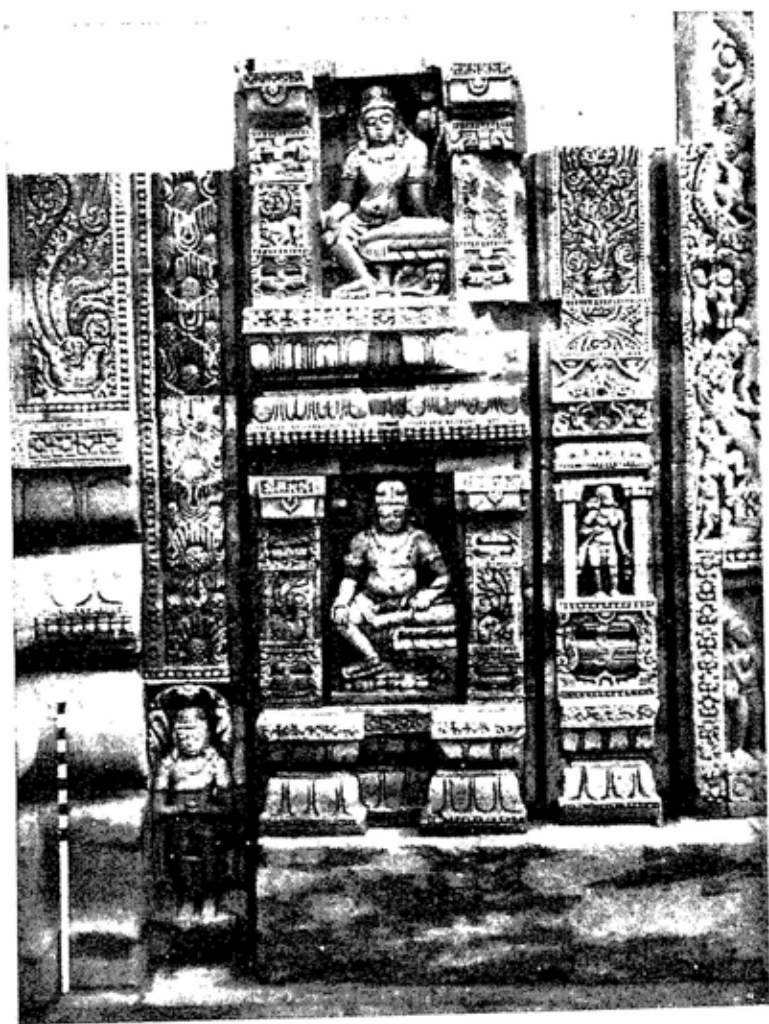
Pl. XIII. Excavations at Ujjain (Madhya Pradesh) have thrown invaluable light on bead-making in ancient India. The pot in the picture had been used for heating the raw material, while the grooved stone is the one on which the beads were ground. See p. 33.

Pl. XIV. Sisupalgarh ( Orissa ) : a gateway-complex of early historical fortifications. There is circumstantial evidence to identify the site with Kharavela's Kalinganagara and perhaps with Asoka's Tosali. See p. 32.

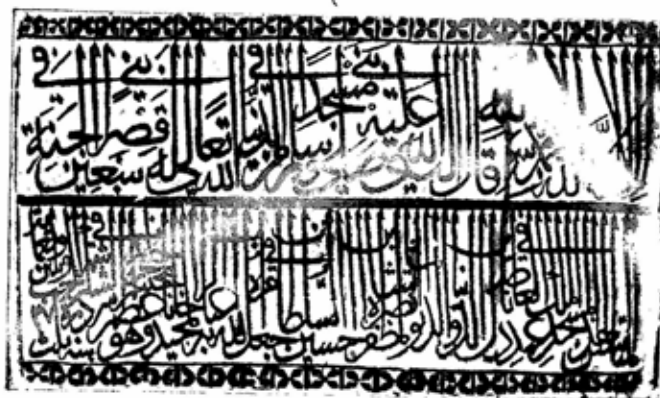




Pl. XV. The highest amongst the burnt-brick revetments of defences so far excavated in India is this one at Kausambi (U. P.)—a *Mahājanapada*-capital visited, at the invitation of its ruler, by Buddha. See p. 31.



Pl. XVI. Part of the sculptured facade of Monastery 1 at Ratnagiri (O issa)—the largest excavated monastic settlement of the Buddhists in eastern India. See p. 33.



Pl. XVII. Found at Kharid in Uttar Pradesh but of the time of Nasiru'd-Di. Nusrat Shah of West Bengal, this beautiful inscription records the construction of a mosque by Khan-i-A'zam Mukatiyar Khan in A.D. 1527. See p. 38.



Pl. XVIII. Recorded on a wooden rib of the ceiling at Buaja Caves (Maharashtra), this is the earliest (second century B. C.) wood-inscription in India. See p. 36.





Pl. XXI. An obvious import from the Mediterranean world, this bronze figure of Atlas has been recovered from the bed of the Mesthvo river near Devnimori (Gujarat). See p. 34.



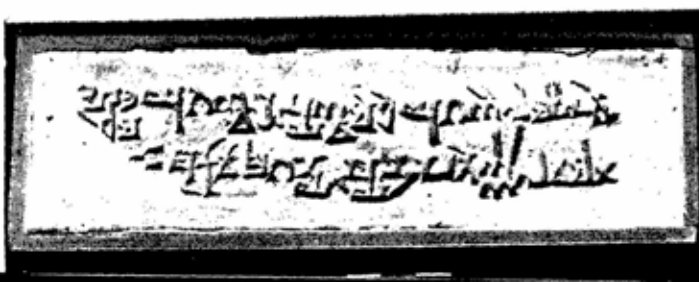
Pl. XXII. Not unoften has mere debris-clearance led to interesting discoveries. Here is the beautifully-sculptured entrance to a newly-cleared second-century-B.C. vihāra at Pitalkhora (Maharashtra). See p. 34.

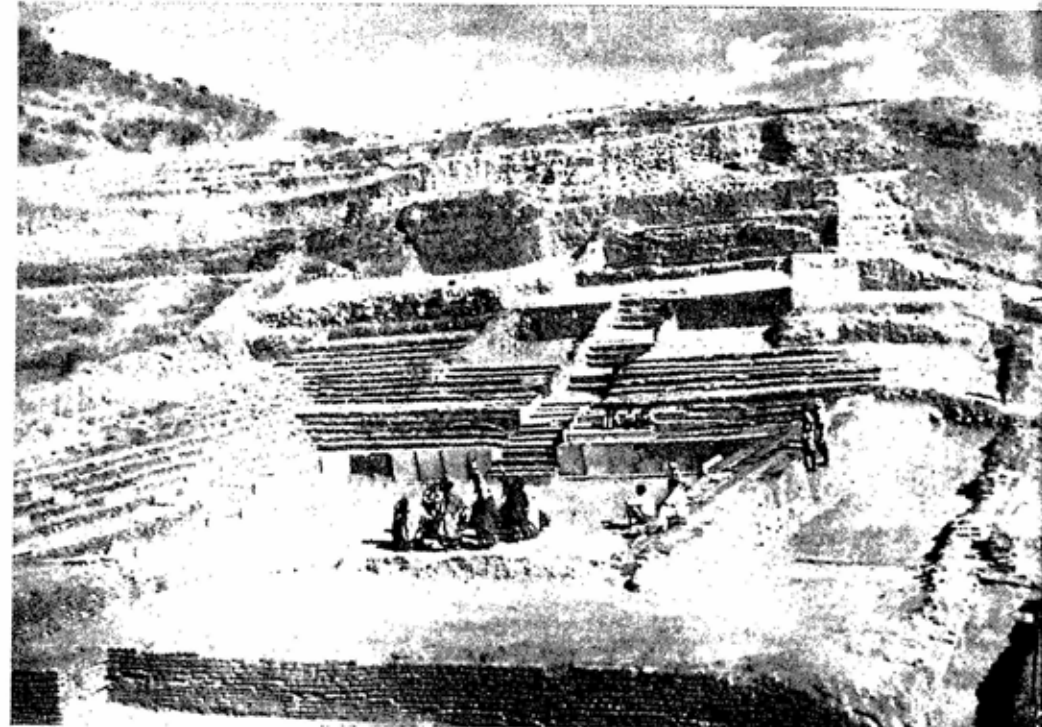
Pl. XX. Recorded on a brick altar at Jagatgram (U. P.), this inscription bears testimony to the horse sacrifices performed by a king called Silavarman in the third century A. D. See p. 30.

Pl. XIX. From the famous Bayana Hoard, a hitherto-unknown (*chakravikrama*) type of coin of Chandragupta II (A.D. 375-414). See p. 30.



Pl. XXIII. Though in terracotta, this fifth-century-A. D. lady from Rupar (Punjab) should restore confidence in the present-day local populace in music traditions. See p. 30.





Pl. XXIV. Nagarjunakonda : the only amphitheatre in the country.

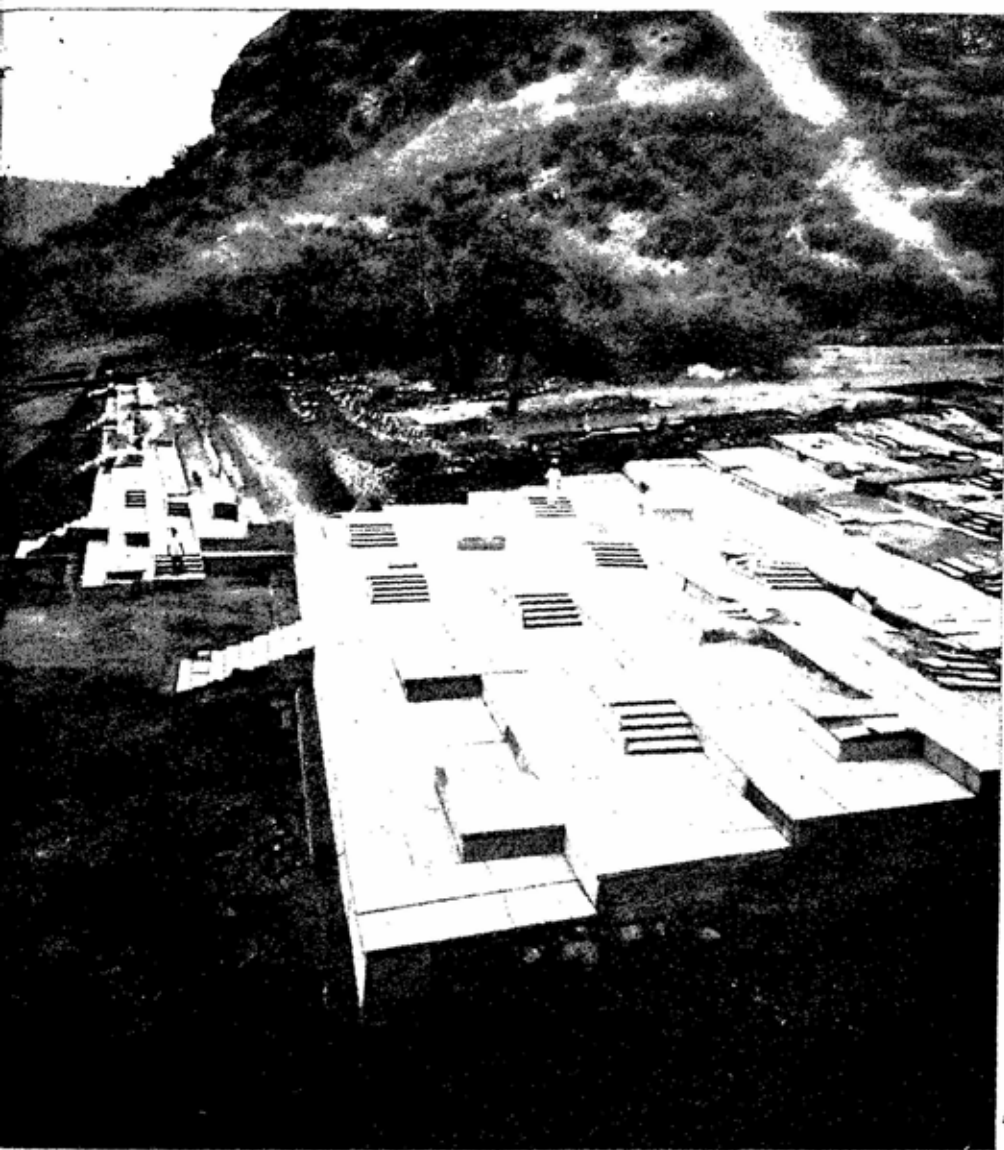
(See page opposite for story)

Pl. XXV. Nagarjunakonda : multi-spoked base of a *stūpa*.

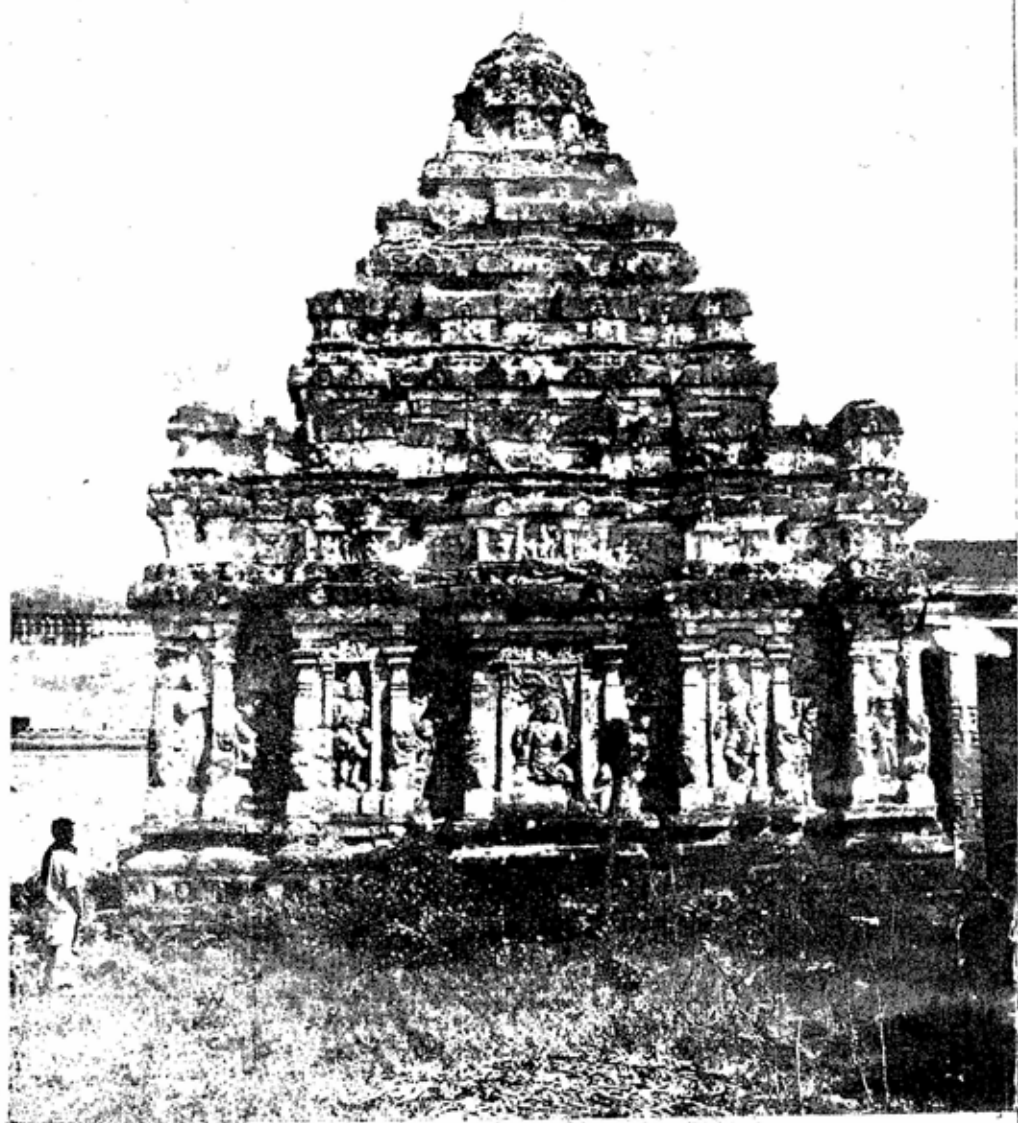




Pl. XXVI. Nagarjunakonda : a bathing-ghāṭa on the Krishna.

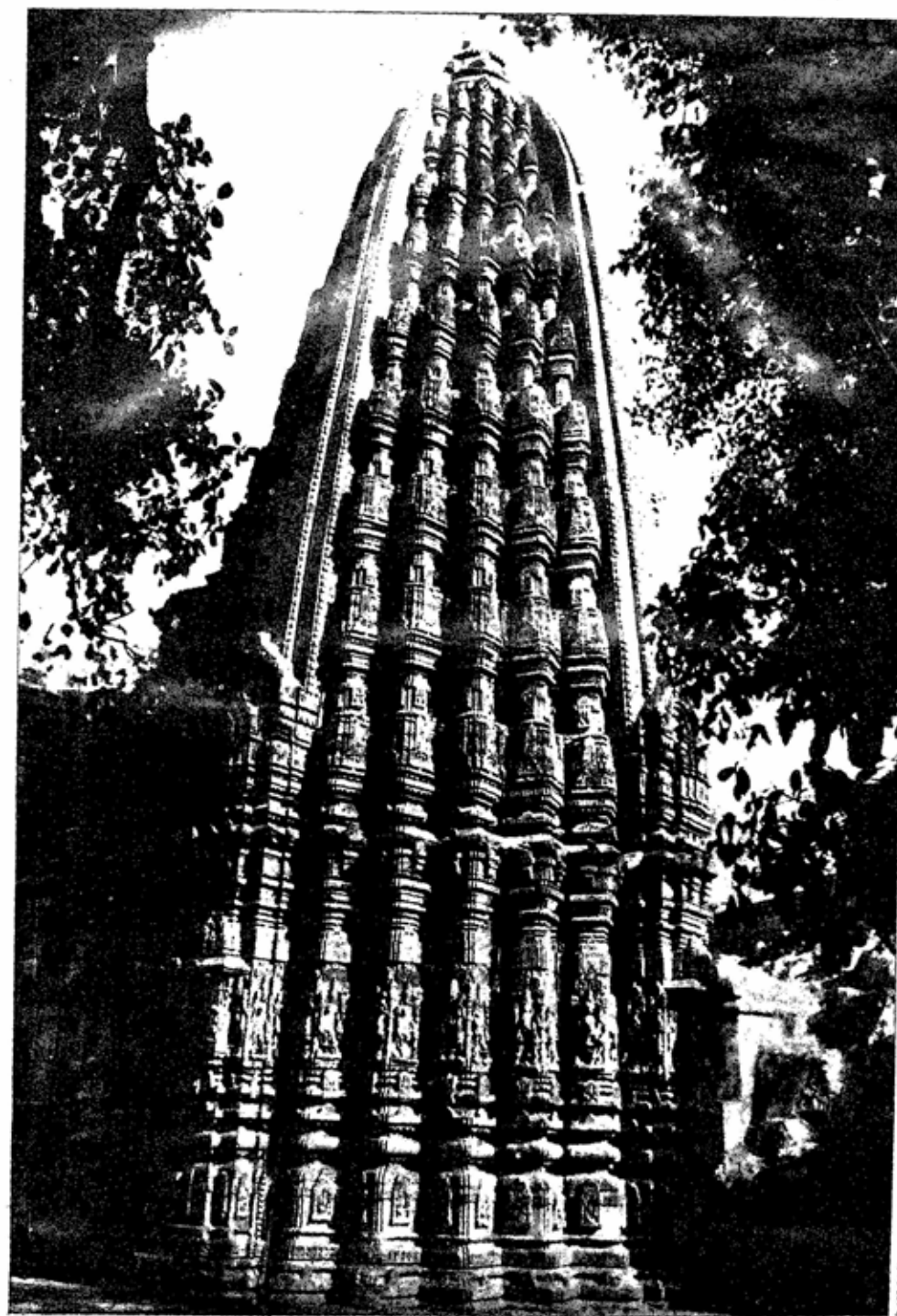


THE INDIAN NUBIA : The construction of the Nagarjunasagar Dam on the Krishna in Andhra Pradesh threatened with submergence the early-centuries-A. D. site of Nagarjunakonda. Rising to the occasion, the Archaeological Survey of India has not only excavated the entire site but also removed the more important remains, including the ones shown here, to above the would-be water-level. See pp. 35 and 49-50.



Pls. XXV11 and XXVIII ( opposite )

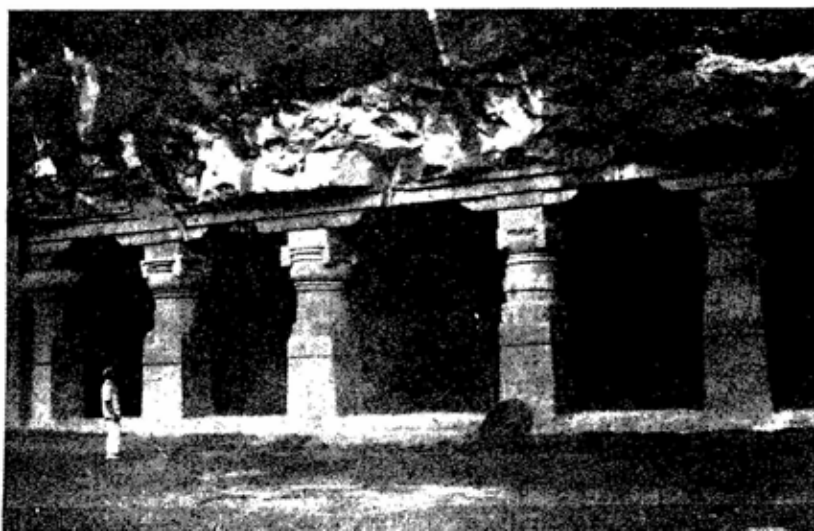
Specially organized surveys have brought to light many a new temple, besides enabling a thorough study of others.→



→Above is the tallest of the Paramara (twelfth-century A.D.) temples, at Nemawar in Madhya Pradesh, and on opposite page the newly-discovered Pallava (ninth-century A.D.) temple at Tiruppattur, Madras State. See p. 41.



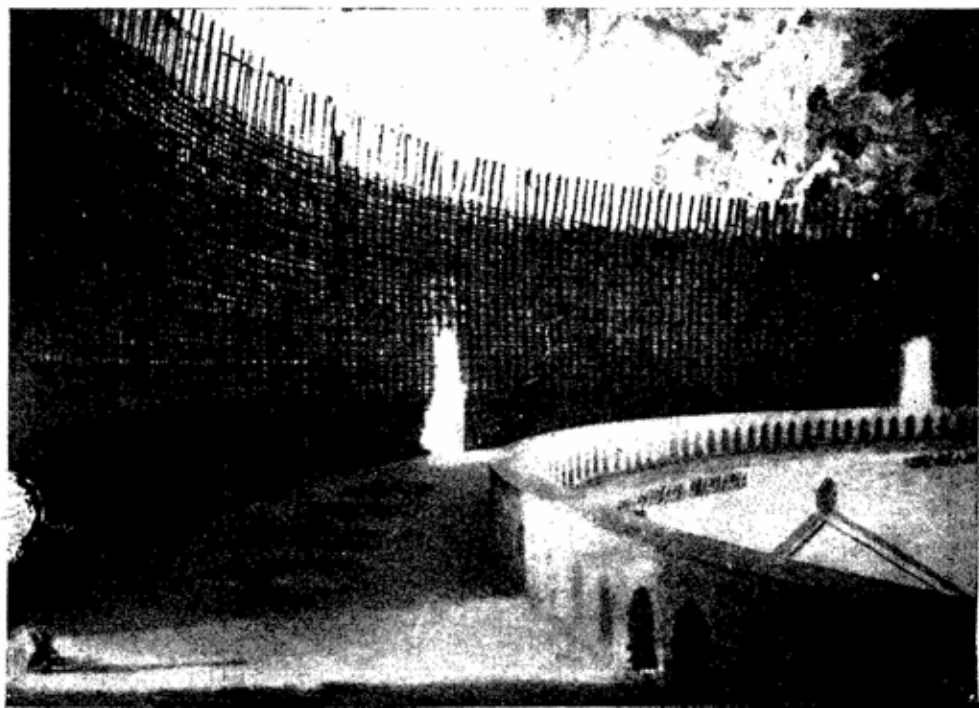
Pls. XXIX and XXX. WHAT NOT TO DO. Far from modern Public Works construction, archaeological conservation requires deep insight into the nature of the monument concerned. No doubt inspired by the best standards of the day, the former conservators of the rock-cut caves at Ellora, Maharashtra, had put up an ashlar masonry pillar ( above, centre ) in place of a damaged monolithic one (compare others in the picture). Howsoever fine, this pillar stood in jarring contrast to the rest. Thus, what had previously been done had to be undone in order to do what should have been done (below). See p. 44.





Pl. XXXI. Chemical treatment *can* do it : it brings out the original look of age-old paintings. Here is seen a mural from Mahakali Temple, Chanda ( Maharashtra ), showing the contrast between its uncleared (upper left) and chemically cleaned portions. See p. 48.

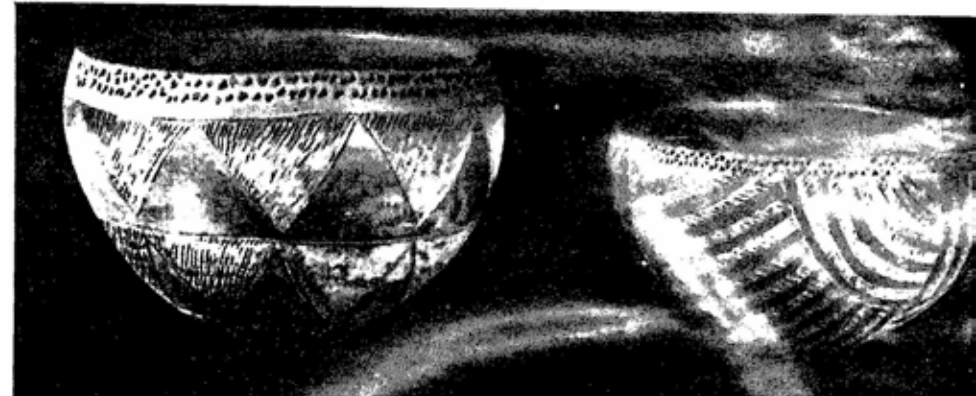
Pl. XXXII. Reinforcement of the gunite shell provided all over the intrados of the Gol Gumbad at Bijapur ( Mysore State ). With this 'operation guniting', not only was the dome fully strengthened but the lost acoustic properties — for which the monument is famed far and near — were duly restored. See p. 45







Pl. XXXIII



Pl. XXXV

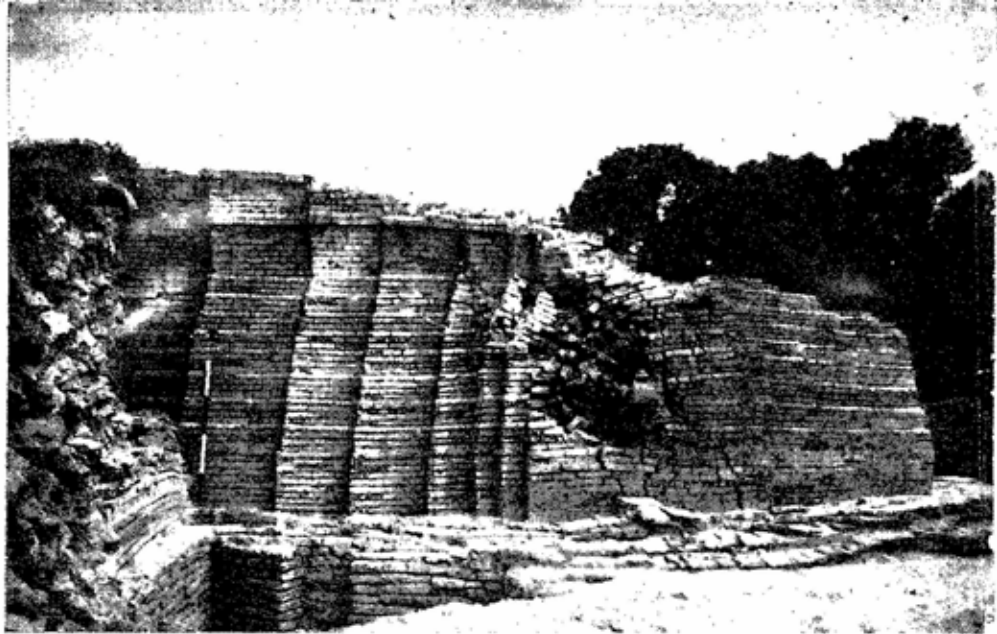
# INDIA ASSISTS IN SALVAGING NUBIA'S PAST

In response to a UNESCO appeal, Government of India sent out, in 1962, an Archaeological Mission to Egyptian Nubia to help salvage the vast ancient remains that would otherwise get drowned beneath the waters of the Aswan High Dam. Not only did the Indian Mission bring to light Middle and Late Stone Age tools, otherwise unknown from the region allotted to the Mission, but it also excavated an A-Group (third-millennium B.C.) settlement and a C-Group (second-millennium B.C.) cemetery. Below right is a general view of the cemetery during excavation, while below left is a close-up of a human skeleton in a typical crouched posture. The concomitant grave-furniture included, amongst other items, pottery with pleasing white-filled incised designs (above, right). But most interesting, yet baffling, was the similarity of bowls of black-and-red ware and ring-stands of red ware from these graves with those found in the Megalithic tombs of south India. In the picture on left (above) are two black-and-red ware bowls, the one on the left being from Tumas in Nubia and that on the right from Maski in south India. See p. 63.

Pl. XXXIV

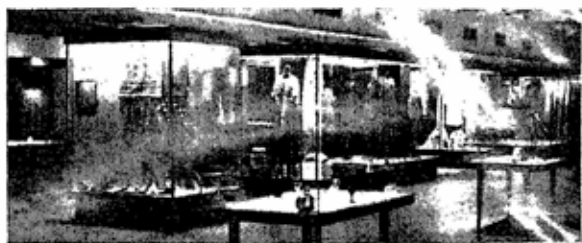


Pl. XXXVI



Pls. XXXVII and XXXVIII. Assisting a neighbour is the minimum one can do. Since 1961, India has sent out three expeditions to Nepal to work on the archaeology of that country. One of the expeditions, led by a lady, explored and excavated in the *tarai* region. Here are views of the two temples excavated at Kudan (above, Temple 2, and below, Temple 1), ascribable to *circa* A. D. 1000. See p. 62.





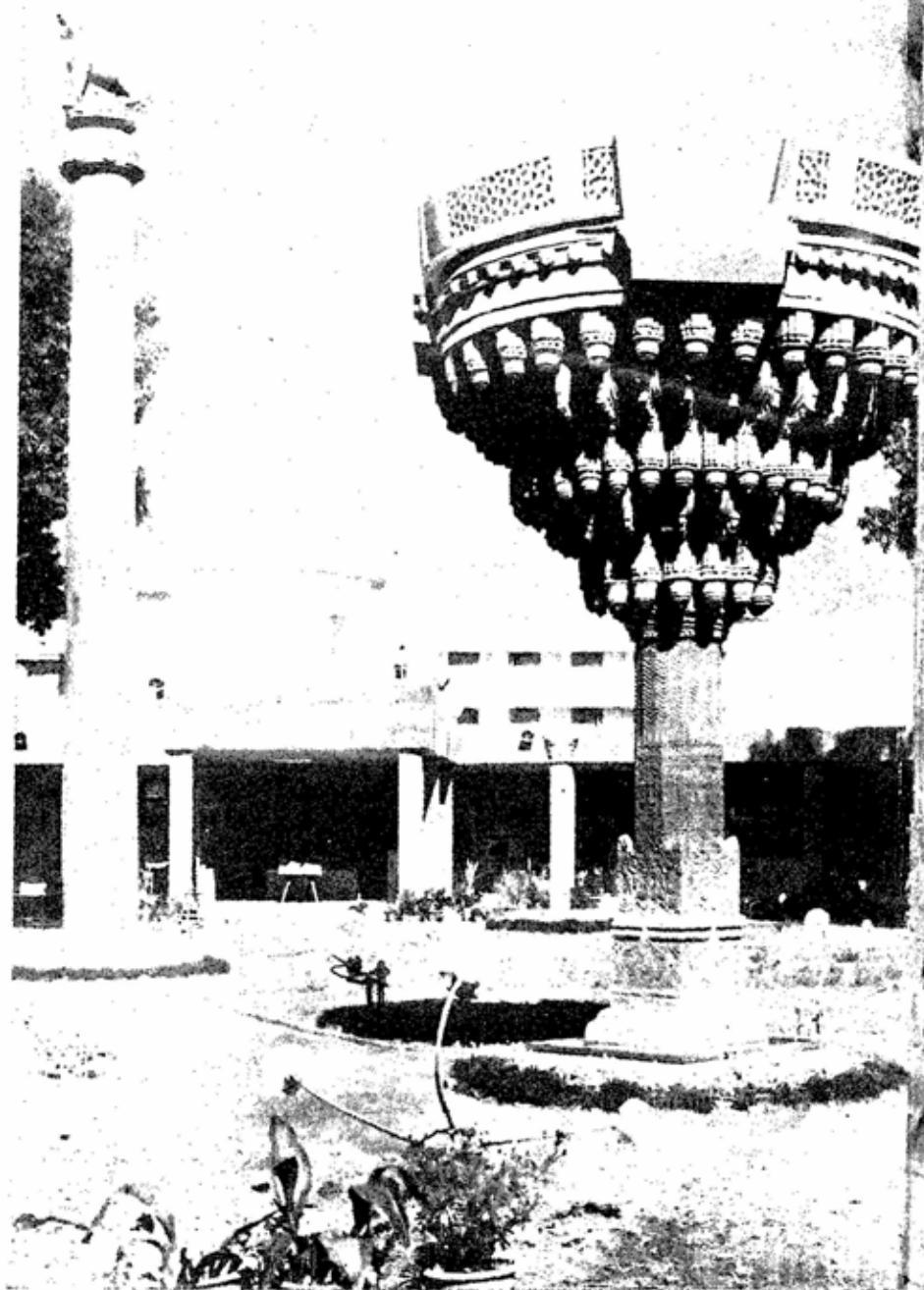
Presentation is the *soul* of museums. Here are views of three of the galleries at the National Museum, New Delhi. See p. 54.

Pl. XXXIX Decorative Arts Gallery

Pl. XL Bronze Gallery

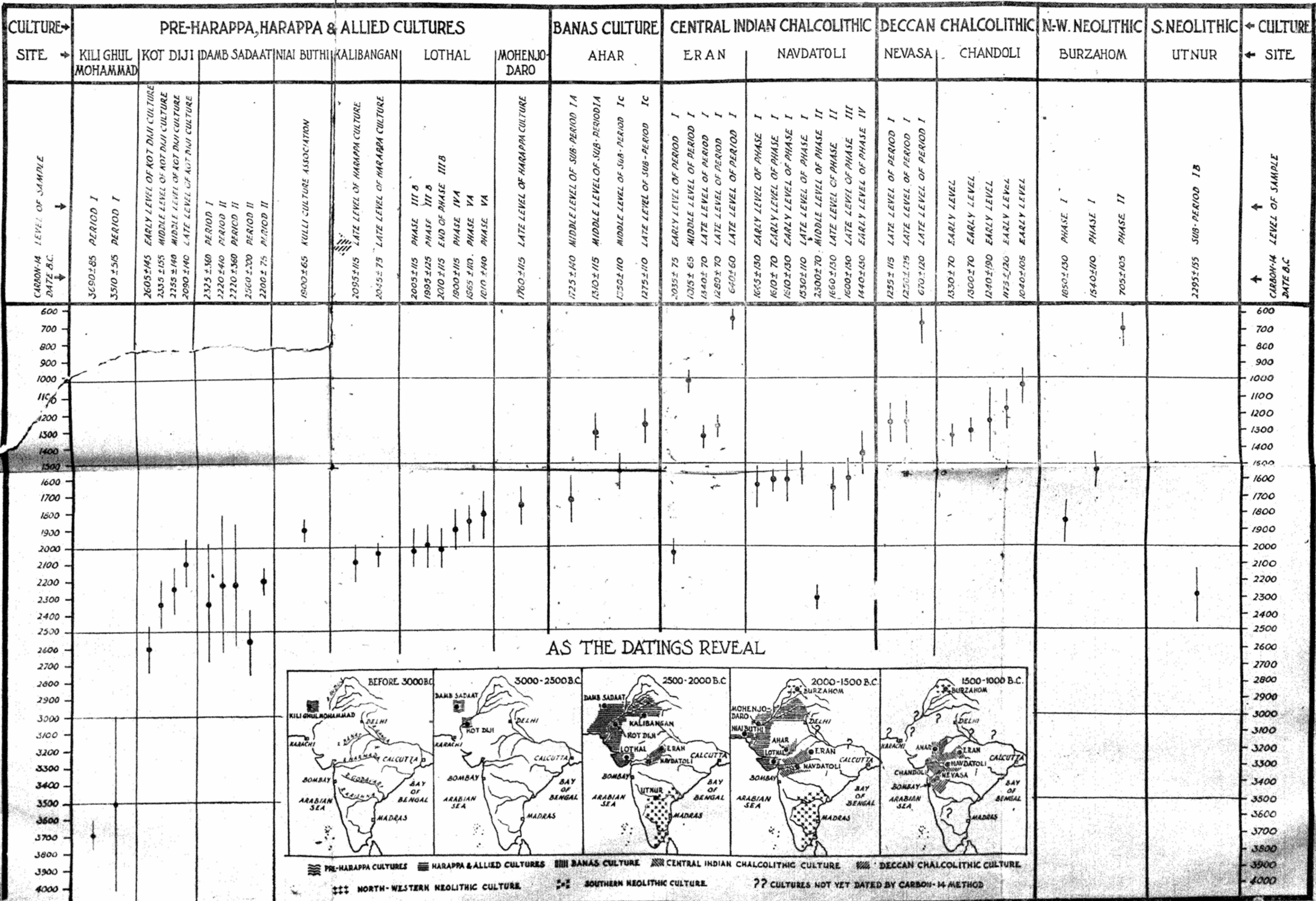
Pl. XLI Sculpture Gallery





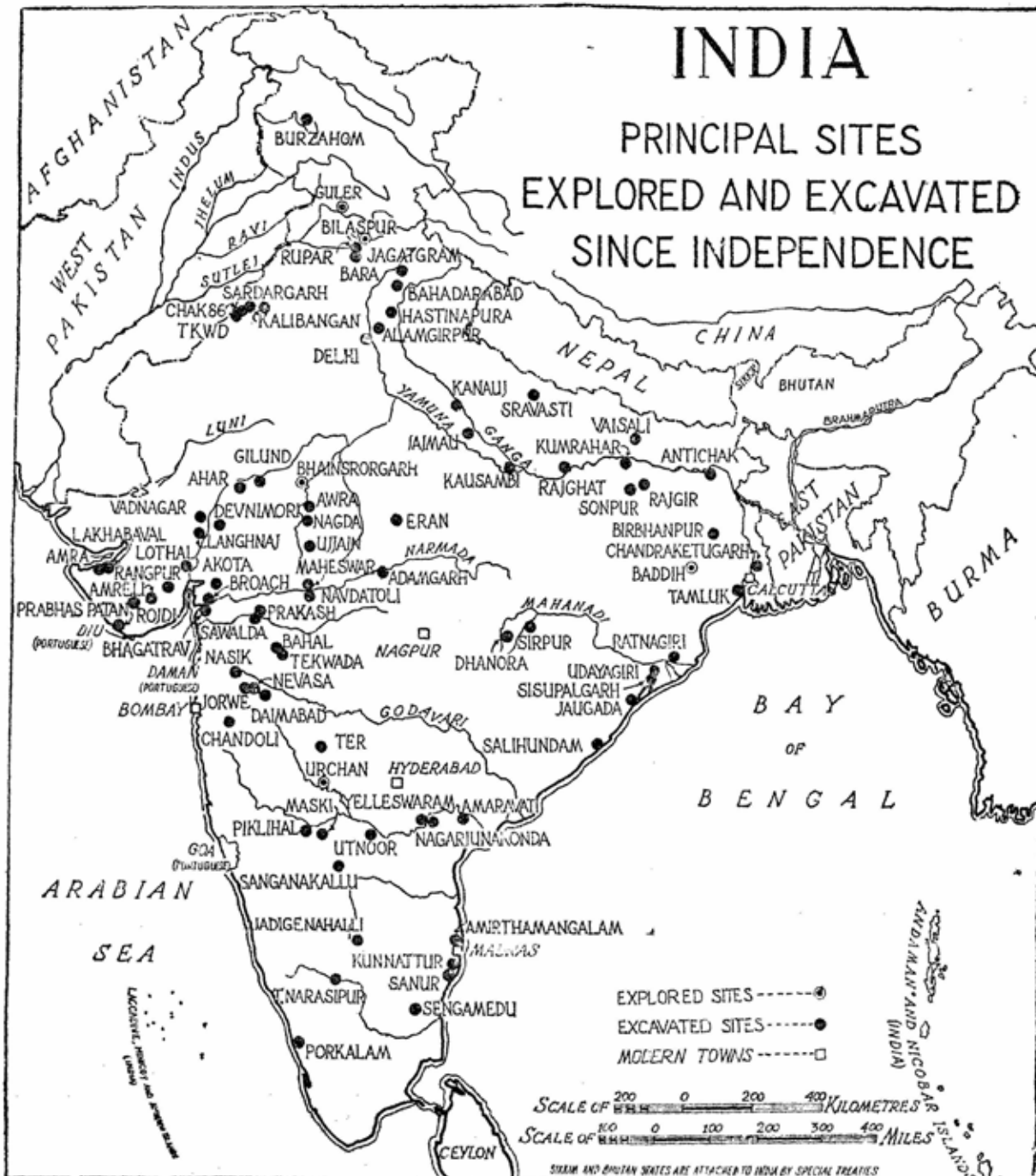
Pl. XLII. From Asoka to Akbar. Here are seen life-size casts of the pillars, respectively from Lauriya-Nandangarh, Bihar, and Fatehpur-Sikri, U. P., of the two Greats, set up at the Exhibition on the occasion of the Centenary of the Archaeological Survey of India in

# CARBON-14 DATINGS OF PROTOHISTORIC CULTURES OF INDO-PAKISTAN SUBCONTINENT



Since the preparation of this chart, two significant dates have been received. They are : 1025±110 B.C. for an early level of the Painted Grey Ware Culture at Atranjithera in Uttar Pradesh, and 1012±120 B.C. for the culture represented in the lower levels of Pandu-rajardhi, West Bengal.





Since the preparation of this map (1961) many an important site has been excavated. For example : Atranji-khera, District Etah, and Sohagaura, District Gorakhpur, both in Uttar Pradesh; Pandu-rajardhi, District Burdwan, West Bengal; Kuchai, District Mayurbhanj, Orissa; Junapani, District Nagpur, Maharashtra; Dharanikota, District Guntur, Andhra Pradesh; Kaveripattinam, District Thanjavur, Madras State.





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