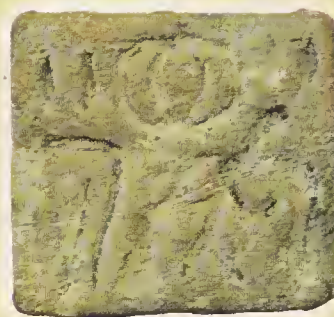


**EXCAVATIONS AT
TARKHANEWALA-DERA & CHAK 86
(2003-2004)**



Pramod Kumar Trivedi



MEMOIRS OF THE
ARCHAEOLOGICAL SURVEY OF INDIA
No. 99

EXCAVATIONS AT
TARKHANEWALA-DERA
AND CHAK 86
(2003-2004)

P.K. TRIVEDI

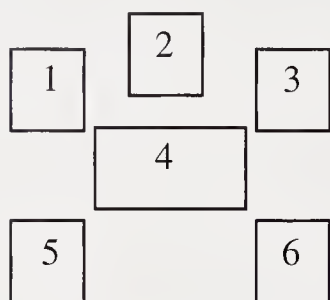


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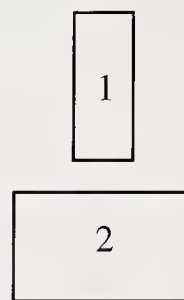
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Front Cover Photo



- 1-3. Harappan Seals
4. Structure 4 (potter's kiln)
5. Terracotta lump bearing impression of Harappan seal
6. Fragment of a storage - jar bearing pre-firing graffiti

Back Cover Photo



1. Harappan Human Figurine
2. Painted Grey Ware, Bowl

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FOREWORD

In 2003-04 the Ministry of Culture, Government of India launched "Sarasvati Heritage Project" and identified sites *viz.* Tarkhanewala-Dera, Chak 86 and Baror in Rajasthan; Adi Badri, Hansi and Bhirrana in Haryana and Junikuran in Gujarat located along the palaeochannels of the River Sarasvati for large-scale excavations by Archaeological Survey of India. Tarkhenewala-Dera and Chak 86 in District Ganganagar, Rajasthan were excavated by the Excavation Branch-IV, Bhubaneswar, of the Survey established two separate and isolated cultural settlements *viz.* Mature Harappan and Painted Grey Ware respectively. This work by Shri P.K. Trivedi and his team is likely to be followed by other reports taken up under this programme.

I take this opportunity to express my gratitude to all others associated with the production of this report especially Dr. R.S. Fonia, Director (Publication); Dr. Arundhati Banerji, Superintending Archaeologist (Publication); Shri Hoshiar Singh, Production Officer (Publication); Dr. Piyush Bhatt and Miss Tajinder Kaur, Assistant Archaeologists (Publication). M/S Aravali Printers & Publishers Pvt. Ltd. deserves appreciation for publishing this volume.


New Delhi

20.03.2009



(K.N. Srivastava)

Director General



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PREFACE

During the early twentieth century the area down the Ghaggar to Anupgarh was explored by an Italian scholar, L.P. Tessitori, who is said to have picked up a stone blade from the ancient mound at Baror (spelt by him as *Varoavali theri*) situated 12 km south of Tarkhanewala-Dera and Chak 86. Recently excavated site of Baror has yielded the remains of Early and Mature Harappan cultures. Tessitori who was on the mission of compilation of bardic tradition and a list of archaeological remains in Bikaner area visited Kalibangan (1917,1918) twice but could not identify it as a Harappan site. It is only in 1921 (Harappa) and 1922 (Mohenjo-daro) the great Indus civilization was recognized. Subsequently, in 1940-41 Sir Marc Aurel Stein who was associated with the Survey, took up exploration of Bikaner and Bahawalpur (Pakistan) regions along the dried up course of Ghaggar but failed to locate any protohistoric site in Bikaner division. In 1950-53 Shri A.Ghosh resurveyed the area and palaeo-channels of River Sarasvati (known as Hakra in Pakistan) and discovered many Harappan, PGW and early historic sites including Tarkhanewala-Dera and Chak 86. The material culture associated with this river (now known as Ghaggar), suggests that the river was rejuvenated at least three times, i.e., in and around 800-1000 BC as indicated by PGW settlements and again during the Christian era as testified by Rangmahal sites. Ghosh had taken up sondages at Tarkhanewala-Dera and Chak 86, respectively unveiling the remains of Mature Harappan and Painted Grey Ware cultures. The present field-work was taken up on a large scale under 'Sarasvati Heritage Project' at the instance of the Director General, Archaeological Survey of India, New Delhi. These excavations commenced in February, 2004 and continued upto May, 2004.

Bhubaneswar

April 12,2006

P.K.Trivedi

ACKNOWLEDGEMENTS

During the financial year 2003-2004 the present excavator had to take up large scale excavations at Udayagiri, Barabati Fort (both in Orissa), Ayodhya (U.P.) and Tarkhanewala-Dera and Chak 86 in Bikaner division of Rajasthan. In this period no other officer was posted in this Branch and one Assistant Archaeologist Shri G.L. Katade was transferred to Nagpur in the midst of the excavation. Notwithstanding this a preliminary report on the excavation at Tarkhanewala-Dera and Chak 86 was published in *Puratattva*, no.34 in December, 2004 itself but the excavated material could not be completely analyzed. As per the advice of the then Director General, instead of taking up any other site, the work of preparation of detailed report was taken up. Shri R.K. Sharma, the then Joint Director General was kind enough to spare the services of Dr. J.K. Patnaik, Assistant Superintending Archaeologist, promoted to join Konark Museum, Konark as he was the only archaeologist left nearby, associated with these excavations. Shri K.N. Srivastava, Director General has taken warm interest in the publishing of this work. For this report drawings were prepared by Sarvashri S.K. Dey, and B.B. Badamali and photographs by R.N. Sahoo. Shri S.K. Bhoi and B.K. Das assisted in running the camp. The manuscript was typed by Shri S.K. Mishra, Stenographer and Shri A.K. Sasmal, L.D.C. Sarvashri Sarat, Bansidhar, Bibek and Bahadur looked after me during my frequent illness. They deserve my thanks.

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INTRODUCTION

1. THE SITE AND ENVIRONS

Tarkhanewala-Dera and Chak 86 (Lat 29° 14' N, Long 73° 14' E) are two separate ancient mounds located in the dried up bed of River Sarasvati in Anupgarh tehsil District Ganganagar in Bikaner division of Rajasthan. Both these centrally protected sites are situated at a distance of about 6 km north of Anupgarh on the State Highway No.3 leading to Ganganagar. Both these settlements are at a distance of 250 m in the same locality. The marginal ridges of accumulated sand seem to represent the ancient river-banks as indicated by the occurrence of freshwater shells which got deposited on the banks of the river when it was alive. The area is ill watered and sandy but becomes a vast green pasture land covered with rich succulent grasses during the rains. There are no high ridges in the neighbouring area. The soil is clayey loam to hard clay that has the quality of moisture retaining particularly suited for cultivation. The ancient flood plains of the Sarasvati contain remarkably high density of protohistoric and

early historic settlements. The archaeologists and environmental scientists have advanced various theories about the conspicuous changes responsible for wet or dry climatic conditions leading to origin, development, desertion and reoccupation of cultures in the area in different periods.¹

2. PREVIOUS WORK

A part of the Sarasvati valley in Bikaner Division as well as Bahawalpur area (Pakistan) had already been surveyed by Sir Marc Aurel Stein in 1940-41.² But because of his inference 'that there are no 'prehistoric' mounds east of Fort Abbas in Bahawalpur state with pottery of chalcolithic period' by which he no doubt meant the period represented at Harappa and Mohenjodaro. A. Ghosh of the Archaeological Survey of India took up further explorations in this area in 1950-53. As a result, in addition to several protohistoric and early historic sites, he also located two sites under reference, situated close by but separated by a canal and a road. Ghosh

¹ For various views see G. Singh, 'Indus Valley Culture (Seen in the Context of Post-Glacial Climate and Ecological studies in North-West India), *Archaeology and Physical Anthropology in Oceania*, Vol.6, No.2,1971, pp. 177- 189; G. Singh, R.D. Joshi, S.K. Chopra and A.B. Singh, 'Late Quaternary History of Vegetation and Climate of the Rajasthan Desert, India; *Philosophical Transactions of the Royal Society of London* (Biological Sciences), 267 (889), 1974, pp. 467-501; V.N. Mishra, 'Climate, a Factor in the Rise and Fall of the Indus Civilization — Evidence from Rajasthan and Beyond', *Frontiers of the Indus Civilization* (ed.), B.B. Lal and S.P. Gupta (New Delhi, 1984), pp. 461-489; and Yash Pal, Baldev Sahai, R.K. Sood and D.P. Agrawal, 'Remote Sensing of the 'Lost' Sarasvati River' in *op.cit.*, pp. 491-497.

² Marc Aurel Stein, *An Archaeological Tour along the Ghaggar-Hakra River* (ed.) S.P.Gupta (Meerut,1989), pp. 1-97. Also see, Nayanjot Lahiri, *Finding Forgotten Cities: How the Indus Civilization was Discovered* (Delhi, 2005) pp. 145-147.



A. Ghosh



Sir Marc Aurel Stein

took up a few small exploratory trenches to ascertain the nature of their deposits. Tarkhanewala-Dera yielded remains of mature Harappan settlement and Chak 86 brought to light relics of the Painted Grey Ware using people. In this particular area, both the cultures never came in contact with each other; nay each settlement originated and died out in its own time, entirely independent of each other.¹ During the excavations conducted by A.Ghosh at Tarkhanewala-Dera “ A made-up platform, on which stood a modest Harappan settlement, was noticed, by excavation, and oblong standing cremation-ground marked off by flatly-laid mud-bricks, in which there had been at least five cremations (Pl. I). After each cremation, marked by ashes and bits of charred bone (sometimes collected in pots), the ground or mud-bricks within the enclosure wall was levelled by a coating of clay or mud-bricks for the next cremation to take place. That the Harappans cremated at least five of their dead at this place seems established; but the conclusion that

extended inhumation was the normal practice of the Harappans need not be prejudiced by this single isolated instance”.²

Because of a large brick kiln, sandy deposit, State Highway No.3 and cultivation of crops the dimension of the ancient settlement of Tarkhanewala-Dera could not be ascertained. The old people of the neighborhood, however, informed that local farmers have reduced it from 4.0 m to the present level for cultivation purpose.

3. PRESENT FIELD WORK

The excavations were taken up with a view to ascertain the cultural sequence of the above two sites and establish relationship with the neighbouring sites located in the ancient dried up course of River Sarasvati by the Excavation Branch-IV, Bhubaneswar, under the direction of P.K.Trivedi, assisted by J.K.Patnaik, P.K.Dikhit, G.L.Katade, S.K.Dey, B.B.Badamali, S.K.Khuntia, R.N.Sahoo, S.K.Bhoi, S.K.Mishra, B.K.Das and A.K.Sasmal.

¹ A. Ghosh, 'The Rajputana Desert — Its Archaeological Aspect,' *Bulletin of the National Institute of Sciences in India*, 1, 1952, pp. 37-42

² A.Ghosh, 'The Archaeological Background', *Human Skeletal Remains from Harappa*, Memoir No. 9, Anthropological Survey of India, with a foreword by Nirmal Kumar Bose (Calcutta, 1962), pp. 3-4. While sifting through the field notes of A. Ghosh, Jagat Pati Joshi, former Director General has recently noticed that remains of a furnace were also found. I am grateful to him for this information.



Pl. I. Tarkhanewala-Dera : Cremation ground, Harappan period (After A. Ghosh). See p. 3



Pl. II. Tarkhanewala-Dera : A view. See p. 17



Pl. III. Tarkhanewala-Dera : Excavated trenches. See p. 17

TARKHANEWALA-DERA, (2003-2004)
DISTRICT GANGANAGAR, RAJASTHAN
CONTOUR AND SITE PLAN

Scale 0M 2 6 10M 50M 100M

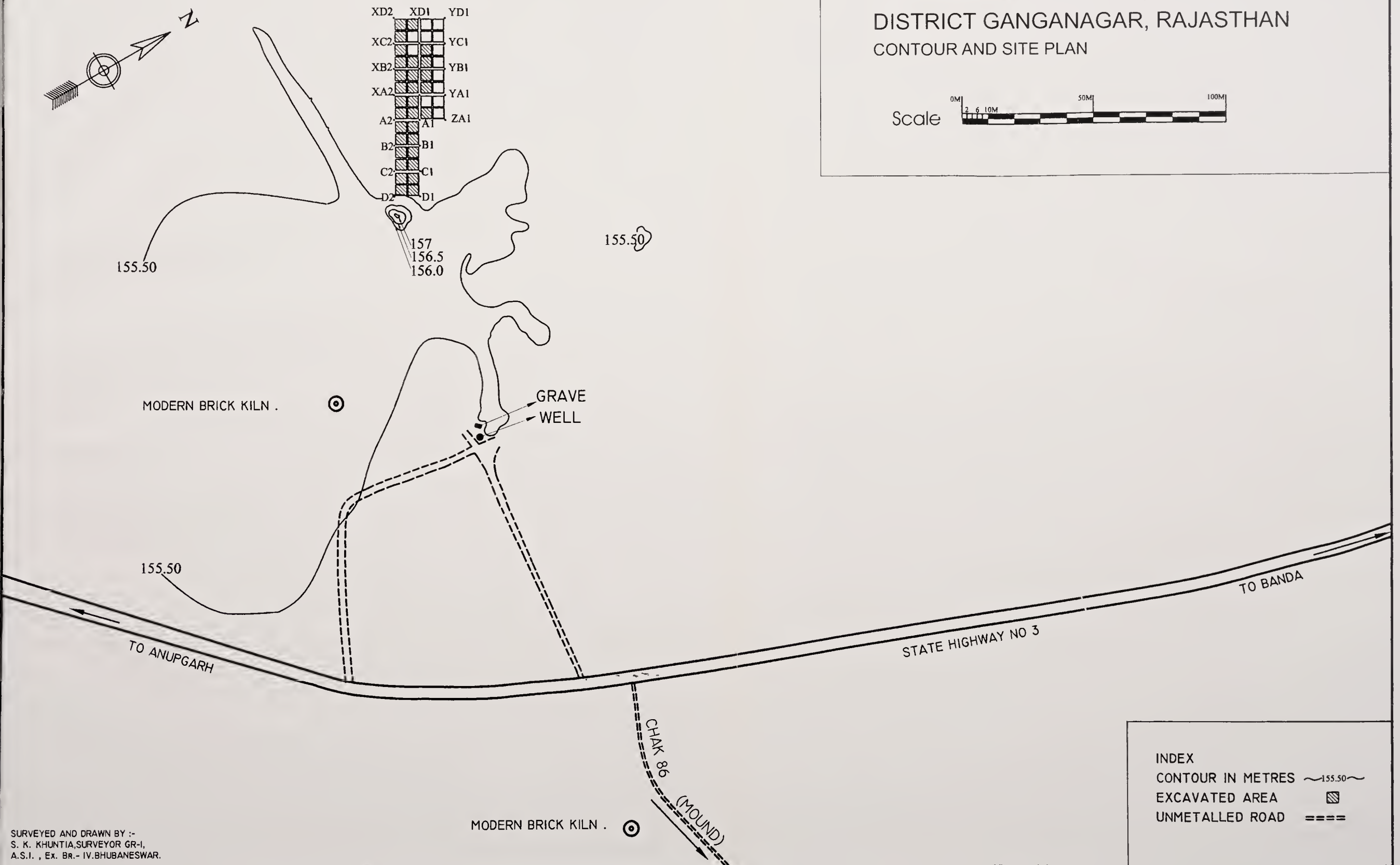


Fig. 1

TARKHANEWALA-DERA (2003-04)
DISTRICT GANGANAGAR, RAJASTHAN
TRENCH XD1, Qd 3; XC1, Qd 3-4 AND XB1, Qd 4
Section Looking North - East

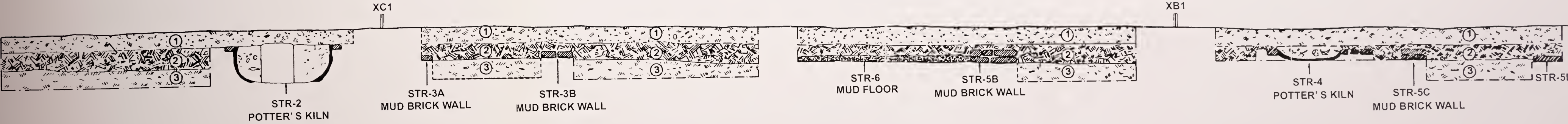


Fig. 2

TARKHANEWALA-DERA, (2003-2004)
DISTRICT GANGANAGAR, RAJASTHAN
TRENCH XB1, Qd 2; XA1, Qd 1 AND 2; A1, Qd 1
Section Looking North - East

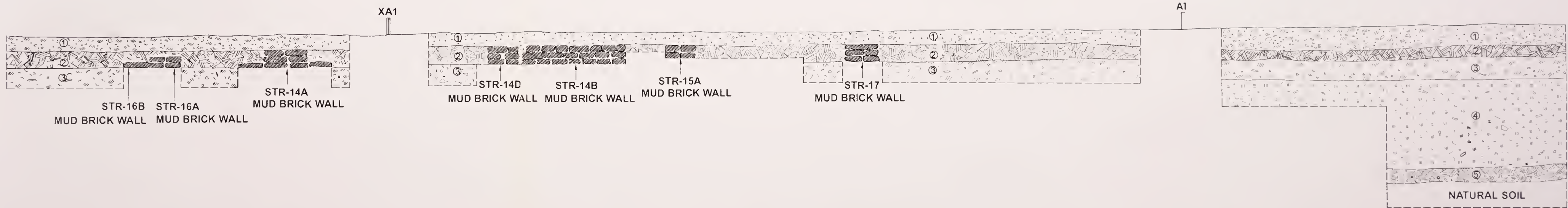


Fig. 3

TARKHANEWALA-DERA, (2003-2004)
DISTRICT GANGANAGAR, RAJASTHAN
HARAPPAN STRUCTURES

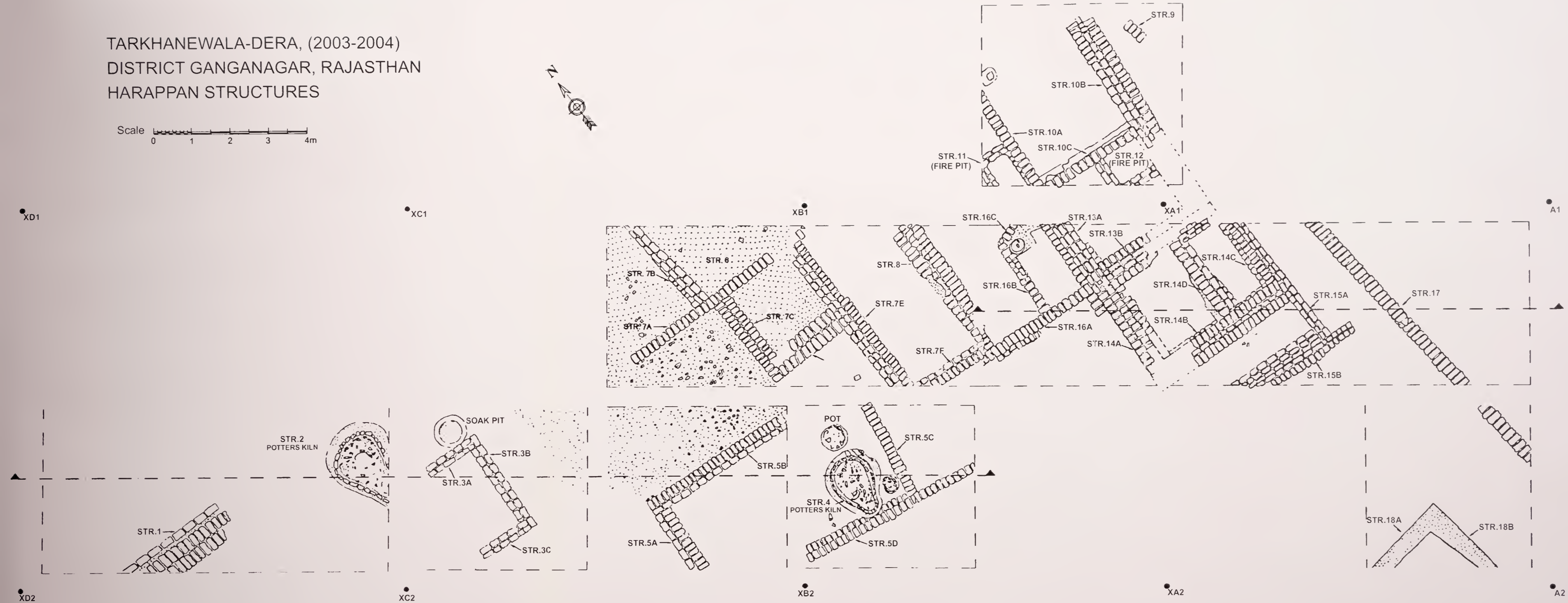
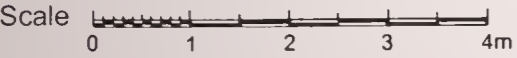


Fig. 4

TARKHANEWALA-DERA, (2003-2004)
DISTRICT GANGANAGAR, RAJASTHAN
HARAPPAN STRUCTURES

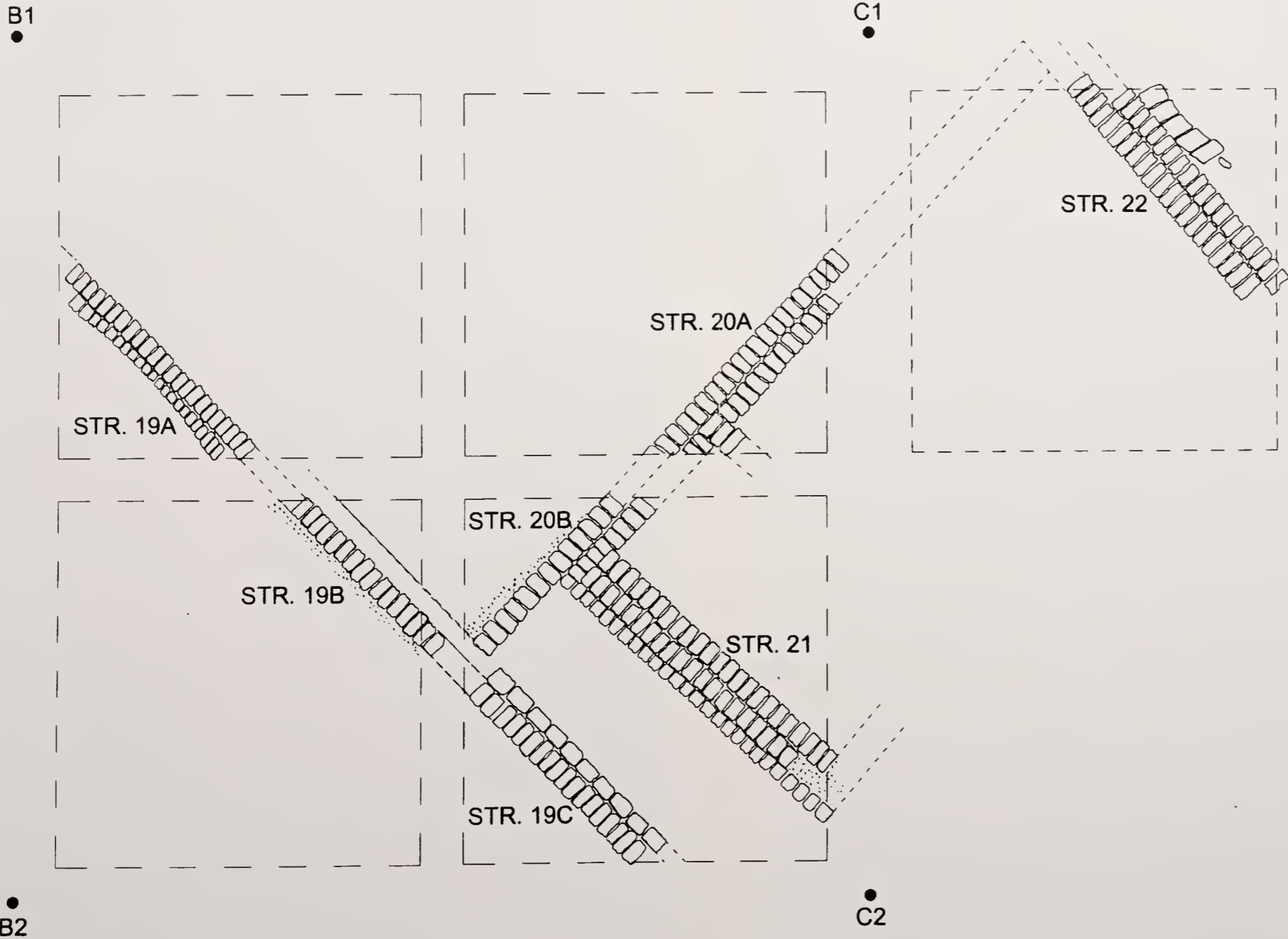


Fig. 5

TARKHANEWALA-DERA

1. THE CUTTING AND STRATIGRAPHY

Originally, the ancient mound was about 4m high. Consequent upon brick manufacturing and cultivation, it has been reduced to the present level (Pl. II). Because of a large modern brick-kiln, accumulation of sand and a number of pits, its extent could not be worked out beyond an area of 4.5 hectares. As many as eleven trenches (10 x 10m) viz., A1, B1, C1, XA1, XB1, XC1, XD1, YA1, YB1, YC1 and YD1 were taken up in the available space (Fig. 1; pl. III). The exclusive Mature Harappan settlement represented by a single phase of structural activity is denoted by mud-brick structures, mud floor, mud walls, potter's kilns, fire-pits etc.

Trench XD1; Qd3; XC1, Qd 3-4 and XB1; Qd4 Section Looking north-east (Fig. 2)

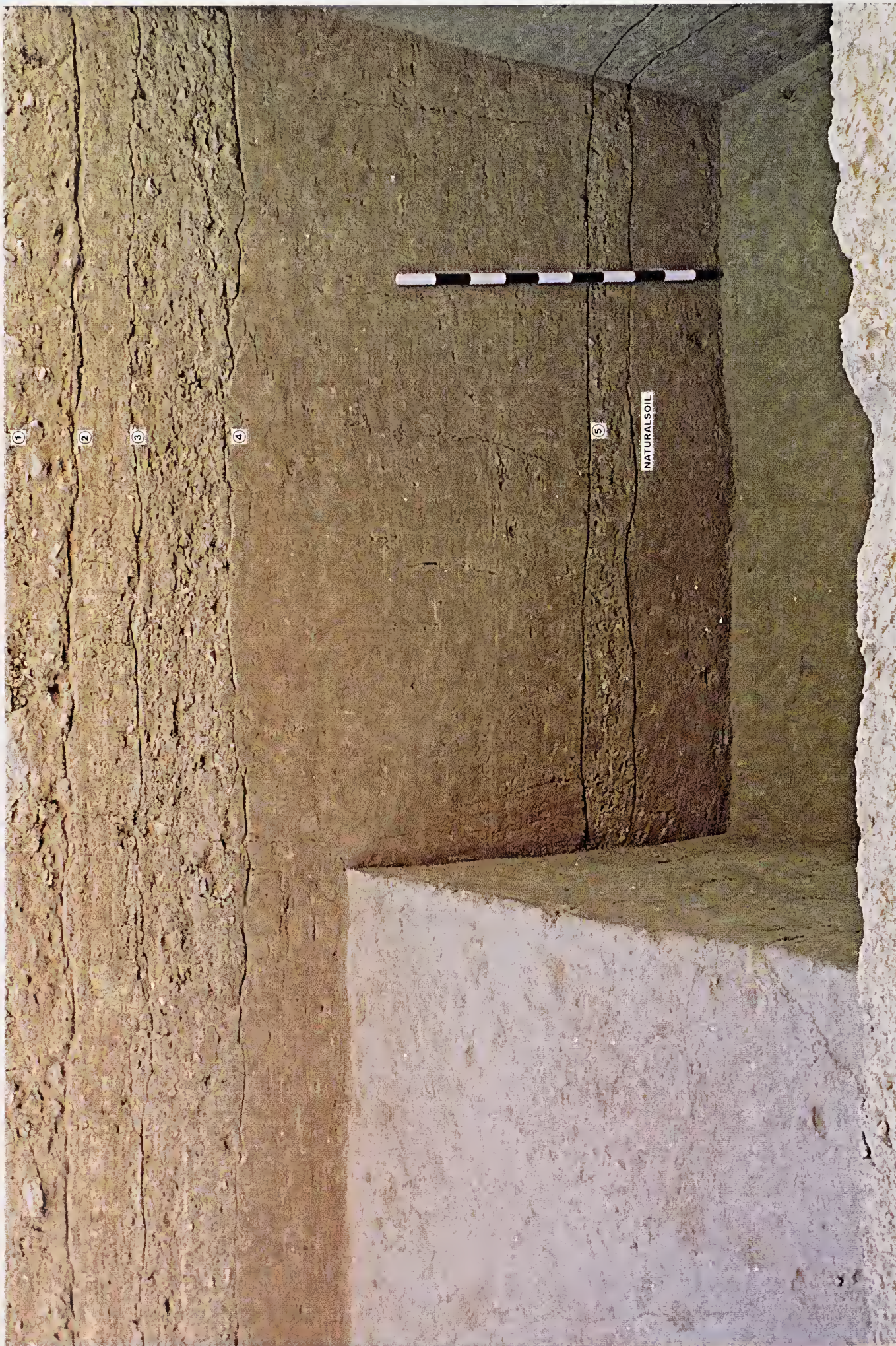
The section shows that layer (1) is composed of loose, grey-white sandy soil badly disturbed due to tillage. It runs all around in all the quadrants. The 20 cm thick stratum yielded pottery, brickbats, terracotta cakes, bangles, morsels and mud lumps. This layer seals STR 2 (pyriform kiln), STR 3 A and 3B (wall), STR 4 (pyriform kiln), STR 5 B,C and D (walls) and STR 6 (mud floor). Layer (2) is contemporary to these structures. Its average thickness is about 25 cm. It is represented by a compact grey deposit containing the finds similar to layer (1). This layer runs uniformly in all the trenches. Layer (2) is preceded by layer (3) which is semi-

compact and greyish. It has yielded copper implements, chert blades, amulets, pottery, animal bones, terracotta bangles, terracotta cakes and other antiquities commonly found in the Mature Harappan levels. It is about 23cm in thickness. On top of layer (3) were built the above structures.

Trench XB1, Qd2; XA1, Qd1 and 2; A1, Qd1, Section Looking north-east (Fig. 3, pl. IV)

In the trenches XB1, Qd 3 and XA1, Qd 4 were not excavated. The layers (1), (2) and (3) as described earlier, continue in these trenches. Layer (1) represented by loose greyish, sandy soil varies in thickness from 20-25 cm. It seals the Structures 16B, 16A, 14A, 14D, 14B, 15A and 17 resting on layer (3). Layer (2) is light grey and compact in texture. This deposit is contemporary to the above mentioned structures. Its average thickness is 15 cm. Layer (3) varies from 20-25 cm in thickness and is compact and grey. It yielded charred animal bones, pottery, terracotta cakes etc.

Trench A1, Qd 1 was excavated so as to reach natural soil (Pl. IV). Here layer (4) underlying layer (3) was found to be composed of sticky, hard greyish clay. About 1.04 m thick accumulation yielded a terracotta seal besides a few potsherds and animal bones. Layer (5) is about 20 cm thick and is made of hard, grey compact earth mixed with *kankars*, calcrete nodules and stray tiny sherds. Below this deposit was found natural soil (Table 1).



Pl. IV. Tarkhanewala-Dera : Trench A1, Qd1, section looking north-east. See p. 17

Table - I
Concordance of Layers of Harappan Levels
Maximum Deposit 1.80 m

Square/Quadrant

A1	B1				C1		XA1		XB1		XC1		XD1			YB1		YC1	
	Qd1	Qd2	Qd3	Qd4	Qd1	Qd2	Qd1	Qd2	Qd1	Qd2	Qd2	Qd3	Qd1	Qd2	Qd3	Qd3	Qd4	Qd3	Qd4
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2					2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3					3	3	3	3	3	3	3	3	3	3	3	3	3		
4																			
5																			
Natural																			

2. STRUCTURES

Salient Features of Structural Activity

The excavation taken up in the trenches *viz.* A1, B1, C1, XA1, XB1, XC1, XD1, YA1, YB1, YC1 and YD1 brought to light the evidence of structural activity of the Mature Harappan period. The main features of the settlement are as below:

1. No structural phases could be ascertained.
2. No gateway or street was found.
3. For building mud-brick structures, Mud-mortar containing charcol, ash and husk was used.
4. The sun-dried bricks measure 28x14x7 cm and 32x16x8 cm following the Harappan practice of 1:2:4.
5. No burnt-brick structure including the well, drain etc., was found.
6. Usually bricks were laid as per English bond system.
7. The mortar used is usually sticky clay, grey in colour.
8. Most of the structures follow the north-south and east-west cardinal direction but some run slightly oblique.
9. Walls having a width of one, two or three bricks have been found.
10. No foundation trenches were found, however, the structures were raised on the spread footing of mud-bricks.
11. Evidence of firing is available.
12. Two pyriform potter's kilns lined with single course of sun-dried bricks and two fire-altars lined with mud-bricks filled with charcoal, ash, terracotta cakes and potsherds were exposed immediately below the surface.
13. Mud-walls plastered with greyish mortar were found.

14. The structures are square or rectangular in plan. They represent residential area.
15. No evidence of cremation of the dead could be attested to during the present field-work. Not a single example of burial was found.

Catalogue of Structures

Figs. 4-5; pls. V-XIX

1. Structure 1

1. Location : Square XD1, Quadrant 4
2. Type of structure : Wall
3. Stratigraphic position : Built on layer (3) and sealed by layer (1)
4. Period and structural phase : Harappan period
5. Measurement of structure : (a) length 2.80m
(b) width 1.00m
(c) height 0.08m
6. Number of courses : One course
7. Masonry and bond : Two rows of header with 10cm thick mud filling veneered by a third row of half size bricks on the northern side.
8. Composition of mortar : Grey mortar composed of sticky clay and fine grained sand
9. Orientation of longer axis : East-west
10. Nature of bricks used : Mud-bricks
11. Dimension of bricks used : 32x16x8 cm (1:2:4)

- | | | |
|--|---|---|
| 12. State of preservation : | Preserved | clay mixed with |
| 13. Shape and other distinguishing feature : | The wall might have formed a part of some civil structure. Its further nature could not be ascertained. | husk contained a square (36 x 36 cm) terracotta stele (55cm high) plastered with clay showing finger marks on the upper portion and installed in the centre to maintain uniformity of the temperature during firing. The top of the kiln is lined with a single course of bricks. The kiln contained pottery, terracotta cakes, morsels, ash etc. |

2. Structure 2

- | | |
|---|--|
| 1. Location : | Square XD1, Quadrant 3 |
| 2. Type of structure : | Potter's kiln |
| 3. Stratigraphic position : | Built on layer (3) and sealed by layer (1) |
| 4. Period and structural phase : | Harappan period |
| 5. Measurement of structure : | (a) length 2.10m
(b) width 1.50m
(c) height 0.54m |
| 6. Number of courses : | Single course around the top of the pyriform kiln |
| 7. Masonry and bond : | Stretcher |
| 8. Composition of mortar : | Mud-mortar turned reddish due to firing |
| 9. Orientation of longer axis : | North-south |
| 10. Nature of bricks used : | Sun-dried bricks baked during the firing activity of the kiln. |
| 11. Dimension of bricks used : | 24x12x6 cm (1:2:4) |
| 12. State of preservation : | Preserved |
| 13. Shape and other distinguishing feature: | The pyriform kiln made of |

3. Structures 3 A, 3B and 3C

- | | |
|----------------------------------|---|
| 1. Location : | Square XC1, Quadrant 4 |
| 2. Type of structure : | Three walls of a room |
| 3. Stratigraphic position : | It is built on layer (3) and sealed by layer (1) |
| 4. Period and structural phase : | Harappan period |
| 5. Measurement of structure : | 3A (a) length 1.55 m (b) width 0.30 m (c) height 0.09 m; 3B(a) length 2.90 m (b) width 0.30 m (c) |



Pl. V. Tarkhanewala-Dera : Structures 1; 3A, B, C. See pp. 20,21,24



Pl. VI. Tarkhanewala-Dera : Structure 2 (potter's kiln). See p. 21

	height 0.09 m; 3C		the pyriform kiln
	(a) length 1.60 m,	7. Masonry and bond :	Mud
	(b) width 0.30 m	8. Composition :	Mud-mortar
	(c) height 0.09 m	of mortar	turned reddish
6. Number of courses :	One course		due to firing
7. Masonry and bond :	Two rows of	9. Orientation of :	North-south
	stretcher	longer axis	
8. Composition :	Grey coloured	10. Nature of bricks used :	No mud-bricks
of mortar	sticky clay		were used, instead
9. Orientation of :	3A east-west, 3B		fine clay plaster
longer axis	north-south, 3C		was applied over
	east-west		the inner side of
10. Nature of bricks used :	Mud-bricks		the kiln.
11. Dimension of :	3 6 x 1 8 x 9 c m ,	12. State of preservation :	Damaged. The
bricks used	2 8 x 1 4 x 7 c m		mud lining being
	(1:2:4)		eroded, it has also
12. State of preservation :	Preserved		lost the central
13. Shape and other :	The structure	13. Shape and other :	The pyriform
distinguishing feature	represents plan of	distinguishing	kiln is made
	a square or	feature	of mud mixed
	rectangular room.		with husk. It
	To its north was		c o n t a i n e d
	found the base of		potsherds, beads,
	a large pot with a		t r i a n g u l a r
	hole in the		terracotta cakes,
	bottom, probably		morsels, ash etc.
	used as a soak pit.		To the north and

4. Structure 4

1. Location :	Square XB1, Quadrant 4
2. Type of structure :	Potter's kiln
3. Stratigraphic position :	Built on layer (3) and sealed by layer (1)
4. Period and structural phase :	Harappan period
5. Measurement of structure :	(a) length 1.68 m (b) width 1.50 m (c) height 0.15 m
6. Number of courses :	Single course around the top of

5. Structures 5A, 5B, 5C and 5D

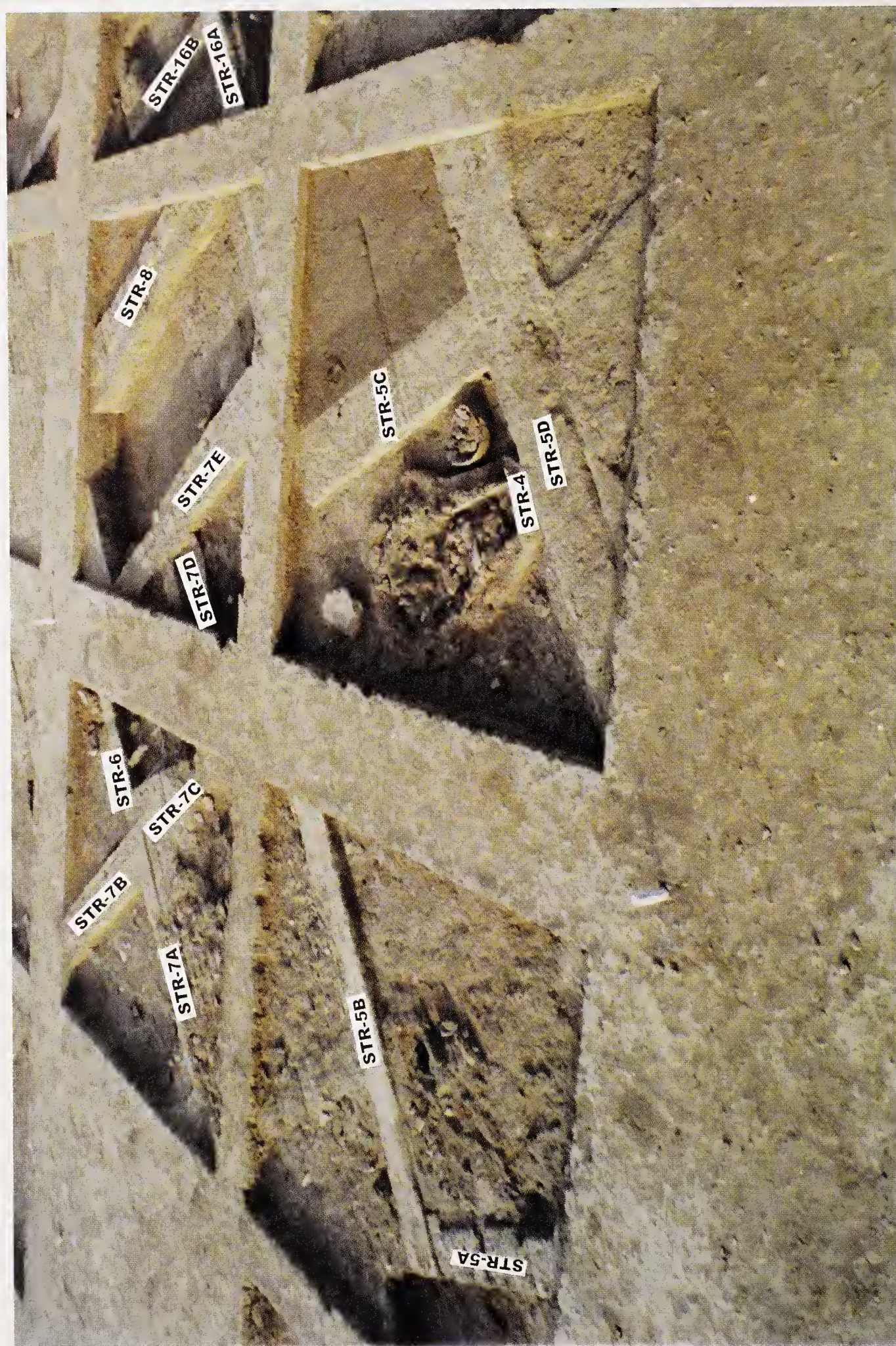
1. Location :	Square XC1, Quadrant 3 Square XB1, Quadrant 4
2. Type of structure :	Four walls of a rectangular room



Pl. VII. Tarkhanewala-Dera : Structure 4 (potter's kiln). See p. 24

3. Stratigraphic position: Built on layer (3) and sealed by layer (1) unveiled completely. Its further extension towards east-west direction could also not be ascertained.
4. Period and structural phase : Harappan period
5. Measurement of structure : 5A (a) length 2.40 m (b) width 0.45 m (c) height 0.15 m;
5B (a) length 4.50 m (b) width 0.45 m (c) height 0.15 m;
5C (a) length 2.60 m (b) width 0.32 m (c) height 0.16 m;
5D (a) length 5.0 m (b) width 0.45 m (c) height 0.15 m
6. Number of courses : 5A Two courses, 5B Two courses, 5C Two courses, 5D Two courses
7. Masonry and bond : 5(A), (B), (C) and (D) header and stretcher, English bond
8. Composition of mortar : Greyish sticky clay
9. Orientation of longer axis : East-west
10. Nature of bricks used : Mud-bricks
11. Dimension of bricks used : 28x14x7 cm (1:2:4)
12. State of preservation : Preserved
13. Shape and other distinguishing feature : The rectangular room housed a pyriform kiln (Structure 4). Its both the long arms could not be
- 6. Structure 6**
1. Location : Square XC1, Quadrant 2 and 3, Square XB1, Quadrant 1
2. Type of structure : Mud floor
3. Stratigraphic position: Built on layer (3) and sealed by layer (1)
4. Period and structural phase : Harappan period
5. Measurement of structure : East-west 7.0 m x north-south 6.5 m
6. Composition of mortar : Clay mixed with husk and tiny potsherds
7. Orientation of longer axis : East-west
8. State of preservation : Damaged
9. Shape and other distinguishing feature : The mud floor formed a part of the residential complex (Structure 7) made of sun-dried bricks.
- 7. Structures 7A, 7B, 7C, 7D, 7E and 7F**
1. Location : Square XC1, Quadrant 2, Square XB1, Quadrant 1

2. Type of structure	:	Walls of a residential complex	9. Orientation of longer axis	:	North-south
3. Stratigraphic position	:	Built on layer (3) and sealed by layer (1)	10. Nature of bricks used	:	Mud-bricks
4. Period and structural phase	:	Harappan period	11. Dimension of bricks used	:	28x14x7 cm; 32x16x8 cm (1:2:4)
5. Measurement of structure	:	7A (a) length 4.50 m (b) width 0.28 m (c) height 0.07m; 7B (a) length 2.70 m (b) width 0.46 m (c) height 0.07 m; 7C (a) length 2.30 m (b) width 0.48 m (c) height 0.15 m; 7D (a) length 0.90 m (b) width 0.70 m (c) height 0.15 m; 7E (a) length 2.80 m (b) width 0.70 m (c) height 0.14 m; 7F (a) length 2.00 m (b) width 0.47 m (c) height 0.14 m	12. State of preservation	:	Not fully exposed
6. Number of courses	:	7A Two courses, 7B One course, 7C,D,E,F Two courses	13. Shape and other distinguishing feature	:	The residential complex includes a square room with contiguous walls running in north-south and east-west directions. It was provided with a mud floor (Structure 6).
7. Masonry and bond	:	Header and stretcher, English bond	8. Structure 8		
8. Composition of mortar	:	Greyish sticky clay	1. Location	:	Square XB1, Quadrant 1
			2. Type of structure	:	Wall
			3. Stratigraphic position	:	Built on layer (3) and sealed by layer (1)
			4. Period and structural phase	:	Harappan period
			5. Measurement of structure	:	(a) length 3.00 m (b) width 0.80 m (c) height 0.08 m
			6. Number of courses	:	Two courses
			7. Masonry and bond	:	Header
			8. Composition of mortar	:	Greyish clay
			9. Orientation of longer axis	:	North-south
			10. Nature of bricks used	:	Mud-bricks
			11. Dimension of bricks used	:	32x16x8 cm (1:2:4)
			12. State of preservation	:	Good but with a crack towards the northern end.



Pl. VIII. Tarkhanewala-Dera : Structures 4; 5A,B,C,D; 6; 7A,B,C,D,E; 8; 16A,B. See pp. 24,26,27,35,37

- | | | | | | |
|--|---|--|--------------------------------|---|--|
| 13. Shape and other distinguishing feature | : | The wall runs parallel to the structure 7E and probably its southern end joins the structure 7F to form a rectangle. | | | and sealed by layer (1) |
| | | | 4. Period and structural phase | : | Harappan period |
| | | | 5. Measurement of structure | : | 10 A (a) length 2.80 m (b) width 0.32 m (c) height 0.08 m; |

9. Structure 9

- | | | | | | |
|--|---|--|--|---|--|
| 1. Location | : | Square YB1, Quadrant 3 | | | 10B (a) length 3.50 m (b) width 0.65 m (c) height 0.16 m; |
| 2. Type of structure | : | Wall | | | 10C (a) length 1.35 m (b) width 0.60 m (c) height 0.16 m |
| 3. Stratigraphic position | : | Built on layer (3) and sealed by layer (1) | | | |
| 4. Period and structural phase | : | Harappan period | 6. Number of courses | : | 10A One course, 10B Two courses and 10C Two courses |
| 5. Measurement of structure | : | (a) length 0.70 m (b) width 0.32 m (c) height 0.07 m | 7. Masonry and bond | : | 10A Header, 10B Header and stretcher and 10C Header. |
| 6. Number of courses | : | One course | 8. Composition of mortar | : | Greyish clay |
| 7. Masonry and bond | : | Header | 9. Orientation of longer axis | : | North-south |
| 8. Composition of mortar | : | Grey coloured clay | 10. Nature of bricks used | : | Mud-bricks |
| 9. Orientation of longer axis | : | North-south | 11. Dimension of bricks used | : | 32x16x8 cm (1:2:4) |
| 10. Nature of bricks used | : | Mud-bricks | 12. State of preservation | : | Eroded |
| 11. Dimension of bricks used | : | 28x14x7 cm (1:2:4) | 13. Shape and other distinguishing feature | : | The Structures 10A, 10B and 10C represent three walls of an angular mud brick-built room. To the west and south were found two fire-pits (Structures 11 and 12). |
| 12. State of preservation | : | Damaged, eroded and robbed off | | | |
| 13. Shape and other distinguishing feature | : | Portion of a wall | | | |

10. Structures 10A, 10B and 10C

- | | | |
|---------------------------|---|------------------------|
| 1. Location | : | Square YB1, Quadrant 3 |
| 2. Type of structure | : | Wall |
| 3. Stratigraphic position | : | Built on layer (3) |

11. Structure 11

- | | | | |
|--|---|--|---|
| 1. Location | : Square YB1, Quadrant 3 | 2. Type of structure | : Fire-pit |
| 2. Type of structure | : Fire-pit | 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) |
| 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) | 4. Period and structural phase | : Harappan period |
| 4. Period and structural phase | : Harappan period | 5. Measurement of structure | : (a) length 1.00 m
(b) width 0.80 m
(c) height 0.15 m |
| 5. Measurement of structure | : (a) length 1.40 m
(b) width 1.00 m
(c) height 0.16 m | 6. Number of courses | : Two courses |
| 6. Number of courses | : Two courses | 7. Masonry and bond | : Header and stretcher, English bond |
| 7. Masonry and bond | : Header and stretcher | 8. Composition of mortar | : Clay |
| 8. Composition of mortar | : Clay | 9. Orientation of longer axis | : East-west |
| 9. Orientation of longer axis | : North-south | 10. Nature of bricks used | : Mud-bricks |
| 10. Nature of bricks used | : Mud-bricks turned reddish due to fire activity | 11. Dimension of bricks used | : 32x16x8 cm (1:2:4) |
| 11. Dimension of bricks used | : 32x16x8 cm (1:2:4) | 12. State of preservation | : Eroded, its southern arm requires to be exposed |
| 12. State of preservation | : Damaged | 13. Shape and other distinguishing feature | : The rectangular fire-pit was found filled with loose earth, burnt clay, terracotta cakes, morsels, chert blades, charred bones etc. Its top has retained two courses of mud-bricks. |
| 13. Shape and other distinguishing feature | : Rectangular fire-pit lined with mud-bricks was found filled with ash, morsels, terracotta cakes, charred bones, terracotta bangle fragments, potsherds of grey and dull red ware etc. | | |

12. Structure 12

1. Location : Square YB1, Quadrant 3

13. Structures 13A and 13B

1. Location : Square XB1, Quadrant 2, Square XA1, Quadrant 1



Pl. IX. Tarkhanewala-Dera : Structures 9; 10A,B,C; 11; 12. See pp. 29,30



Pl. X. Tarkhanewala-Dera : Structure 11 (fire-pit). See p. 30



Pl. XI. Tarkhanewala-Dera : Structure 12 (fire-pit). See p. 30

- | | | | |
|--|---|----------------------------------|--|
| 2. Type of structure : | Wall | 2. Type of structure : | Room with three walls and a partition wall |
| 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) | 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) |
| 4. Period and structural phase : | Harappan period | 4. Period and structural phase : | Harappan period |
| 5. Measurement of structure : | 13A (a) length 2.0 m (b) width 0.65 m (c) height 0.16 m;
13B (a) length 3.50 m (b) width 0.80 m (c) height 0.16 m. | 5. Measurement of structure : | 14A (a) length 3.0 m (b) width 0.80 m (c) height 0.24 m;
14B (a) length 4.50 m (b) width 0.80 m (c) height 0.24 m;
14C (a) length 3.0 m (b) width 0.65 m (c) height 0.16 m;
14D (a) length 2.0 m (b) width 0.65 m (c) height 0.25 m |
| 6. Number of courses : | Two courses | 6. Number of courses : | 14A Three courses, 14B Three courses, 14C Two courses and 14D Three courses |
| 7. Masonry and bond : | Header and stretcher, English bond | 7. Masonry and bond : | Header and stretcher, English bond |
| 8. Composition of mortar : | Greyish clay | 8. Composition of mortar : | Greyish clay |
| 9. Orientation of longer axis : | 13A north-south
13B east-west | 9. Orientation of longer axis : | 14A north-south
14B east-west
14C north-south and 14D north-south |
| 10. Nature of bricks used : | Mud bricks | 10. Nature of bricks used : | Mud-bricks |
| 11. Dimension of bricks used : | 32 x 16 x 8 cm (1:2:4) | 11. Dimension of bricks used : | 20x10x5 cm, 28x14x7 cm, 32x16x8 cm (1:2:4) |
| 12. State of preservation : | Eroded and robbed | | |
| 13. Shape and other distinguishing feature : | Structures 13A and 13B form a chamber with Structure 10C. The opposite north-south arm of Structure 13A could not be excavated. | | |
- 14. Structures 14A, 14B, 14C and 14D**
- | | |
|---------------|--|
| 1. Location : | Square XB1, Quadrant 2, Square XA1, Quadrant 1 |
|---------------|--|

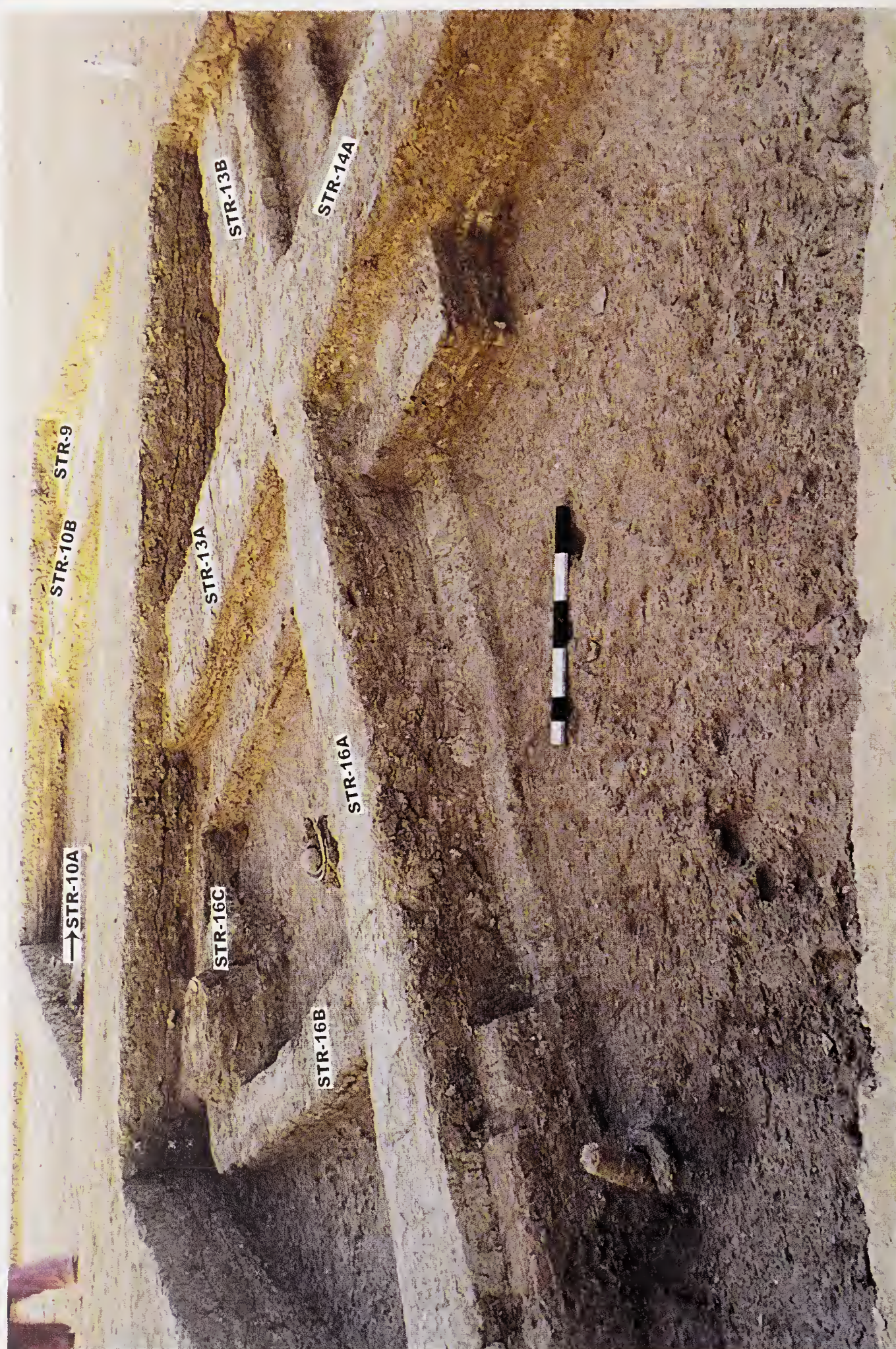
- | | | | |
|--|---|--|--|
| 12. State of preservation : | Eroded and robbed | 13. Shape and other distinguishing feature : | It forms a rectangular chamber with Structure 14B. It was possibly meant for a kitchen as testified by remnants of pots, ash, charred bones etc. |
| 13. Shape and other distinguishing feature : | It forms a rectangular room with Structure 13B. It is divided by a wall (Structure 14D) | | |

15. Structures 15A and 15B

1. Location : Square XA1 Quadrant 1
2. Type of structure : Wall
3. Stratigraphic position: Built on layer (3) and sealed by layer (1)
4. Period and structural phase : Harappan period
5. Measurement of structure : 15A (a) length 0.90 m (b) width 0.32 m (c) height 0.16 m;
15B (a) length 3.50 m (b) width 0.80 m (c) height 0.16 m
6. Number of courses : Two courses
7. Masonry and bond : Header and stretcher, English bond
8. Composition of mortar : Yellowish clay
9. Orientation of longer axis : 15A north-south, 15B east-west
10. Nature of bricks used : Mud-bricks
11. Dimension of bricks used : 20x10x5 cm, 32x16x8 cm (1:2:4)
12. State of preservation : Good, the structure has not been completely excavated.

16. Structures 16A, 16B and 16C

1. Location : Square XB1 Quadrant 2
2. Type of structure : Wall
3. Stratigraphic position: Built on layer (3) and sealed by layer (1)
4. Period and structural phase : Harappan period
5. Measurement of structure : 16A (a) length 3.0m (b) width 0.28m (c) height 0.14m;
16B (a) length 2.0m (b) width 0.28m (c) height 0.07m;
16C (a) length 1.10m (b) width 0.10m (c) height 0.08m.
6. Number of courses : 16A One course, 16B Two courses and 16C One course.
7. Masonry and bond : Header
8. Composition of mortar : Greyish clay
9. Orientation of longer axis : 16A east-west
16B north-south
16C east-west



Pl. XII. Tarkhanewala-Dera : Structures 9; 10A,B; 13A,B; 14A; 16A,B,C. See pp. 29,30,34,35

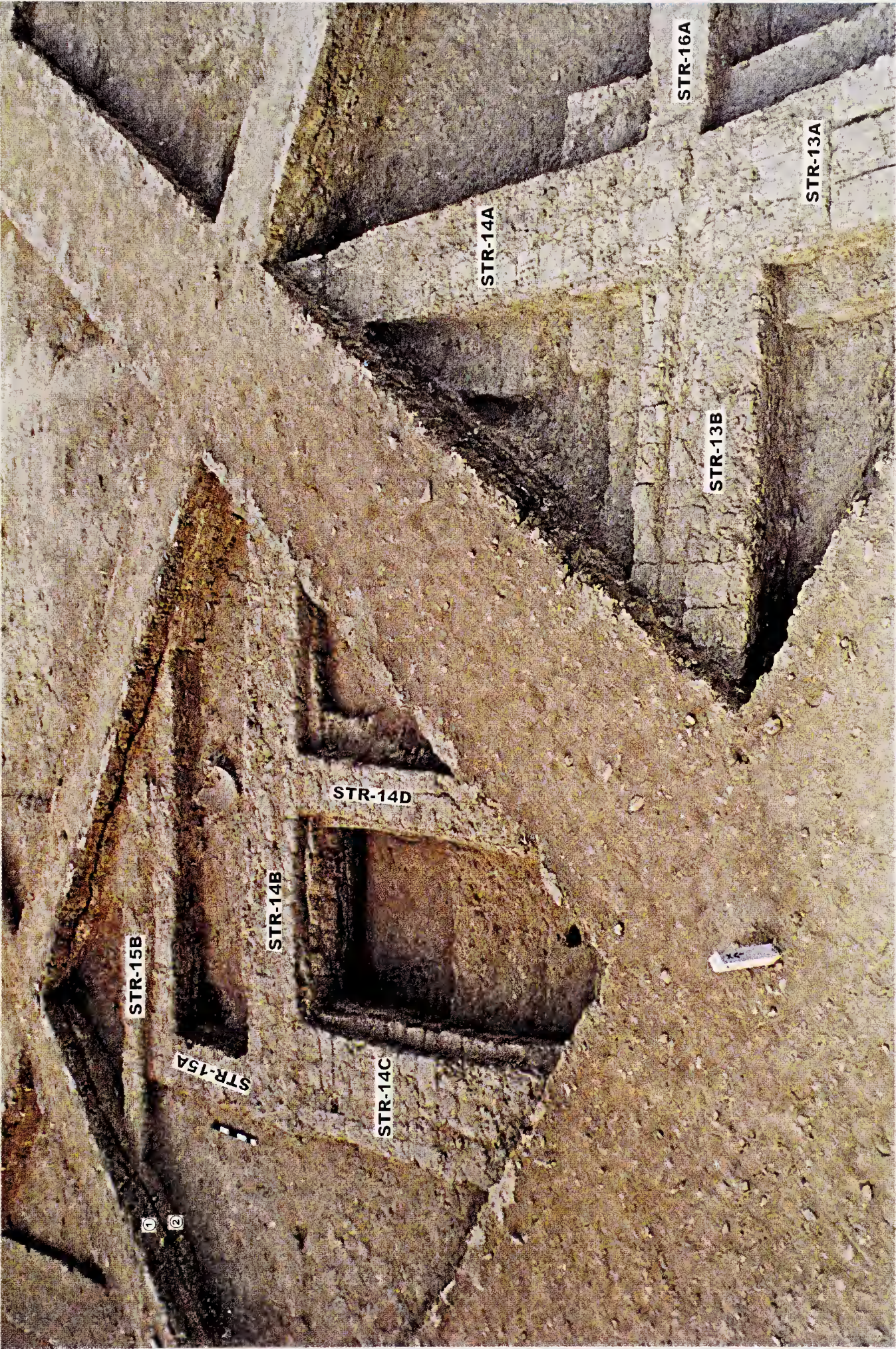
- | | | | |
|--|--|--|--|
| 10. Nature of bricks used : | Mud-bricks | 13. Shape and other distinguishing feature : | Perhaps this wall would have joined Structure 9 as it falls in the same alignment. |
| 11. Dimension of bricks used : | 28x14x7 cm (1:2:4) | | |
| 12. State of preservation : | Good | | |
| 13. Shape and other distinguishing feature : | It forms a rectangle with a mud wall 16C running in east-west direction. Near the mud wall were noticed a soak pit, burnt clay, ash and potsherds. Perhaps it was used as a kitchen. | | |

17. Structure 17

- | | | | |
|----------------------------------|--|--|--|
| 1. Location : | Square XA1, Quadrants 1, 2, 3 | 18. Structures 18A and 18B | |
| 2. Type of structure : | Wall | 1. Location : | Square XA1, Quadrant 3 |
| 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) | 2. Type of structure : | Mud-wall |
| 4. Period and structural phase : | Harappan period | 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) |
| 5. Measurement of structure : | (a) length 9.0m (b) width 0.30m (c) height 0.20m | 4. Period and structural phase : | Harappan period |
| 6. Number of courses : | Three courses | 5. Measurement of structure : | 18A (a) length 2.30m (b) width 0.45m (c) height 0.10m; 18B (a) length 2.30m (b) width 0.55m (c) height 0.12m |
| 7. Masonry and bond : | Header | 6. Masonry and bond : | Mud mixed with husk |
| 8. Composition of mortar : | Greyish clay | 7. Composition of mortar : | Drab hard mud clay containing potsherds. |
| 9. Orientation of longer axis : | North-south | 8. Orientation of longer axis : | 18A east-west, 18B north-south |
| 10. Nature of bricks used : | Mud-bricks | 9. State of preservation : | Eroded, not completely excavated. |
| 11. Dimension of bricks used : | 28x14x7 cm (1:2:4) | 10. Shape and other distinguishing feature : | The structures formed the corner arms of a room made of mud-walls. |
| 12. State of preservation : | Eroded, not completely excavated | 19. Structures 19A, 19B and 19C | |
| | | 1. Location : | Square B1, Quadrants 1, 3, 4 |



Pl. XIII. Tarkhanewala-Dera : Structures 14B, C, D; 15A, B. See pp. 34, 35



Pl. XIV. Tarkhanewala-Dera : Structures 13A,B; 14A,B,C,D; 15A,B; 16A. See pp. 30,34,35,37



Pl. XV. Tarkhanewala-Dera : Structures 10A,B,C; 13A,B; 14A,B,C,D; 15A,B; 16A,B,C; 17. See pp. 29,30,34,35,37

- | | | | | |
|--|---|---|--|--|
| 2. Type of structure | : | Wall | 3. Stratigraphic position: | Built on layer (3) and sealed by layer (1) |
| 3. Stratigraphic position: | | Built on layer no.(3) and sealed by layer(1) | 4. Period and structural phase | : Harappan period |
| 4. Period and structural phase | : | Harappan period | 5. Measurement of structure | : 20A (a) length 3.30m (b) width 0.48m (c) height 0.16;
20B (a) length 2.20m (b) width 0.32m (c) height 0.16m |
| 5. Measurement of structure | : | 19A (a) length 3.25 m (b) width 0.42 m (c) height 0.22 m;
19B (a) length 2.50 m (b) width 0.28 m (c) height 0.20m;
19C (a) length 3.40 m (b) width 0.48 m (c) height 0.22 m | 6. Number of courses | : Two courses |
| 6. Number of courses | : | Three courses | 7. Masonry and bond | : Header and stretcher, English bond |
| 7. Masonry and bond | : | Header and stretcher, English bond | 8. Composition of mortar | : Greyish clay |
| 8. Composition of mortar | : | Greyish clay | 9. Orientation of longer axis | : East-west |
| 9. Orientation of longer axis | : | north-south | 10. Nature of bricks used | : Mud-bricks |
| 10. Nature of bricks used | : | Mud-brick | 11. Dimension of bricks used | : 32x16x8 cm (1:2:4) |
| 11. Dimension of bricks used | : | 28x14x7 cm, 32x16x8 cm (1:2:4) | 12. State of preservation | : Damaged and robbed. |
| 12. State of preservation | : | Good | 13. Shape and other distinguishing feature | : It is a straight long wall which joins Structures 19C and 21. |
| 13. Shape and other distinguishing feature | : | It is a straight long wall. | | |

20. Structures 20A and 20B

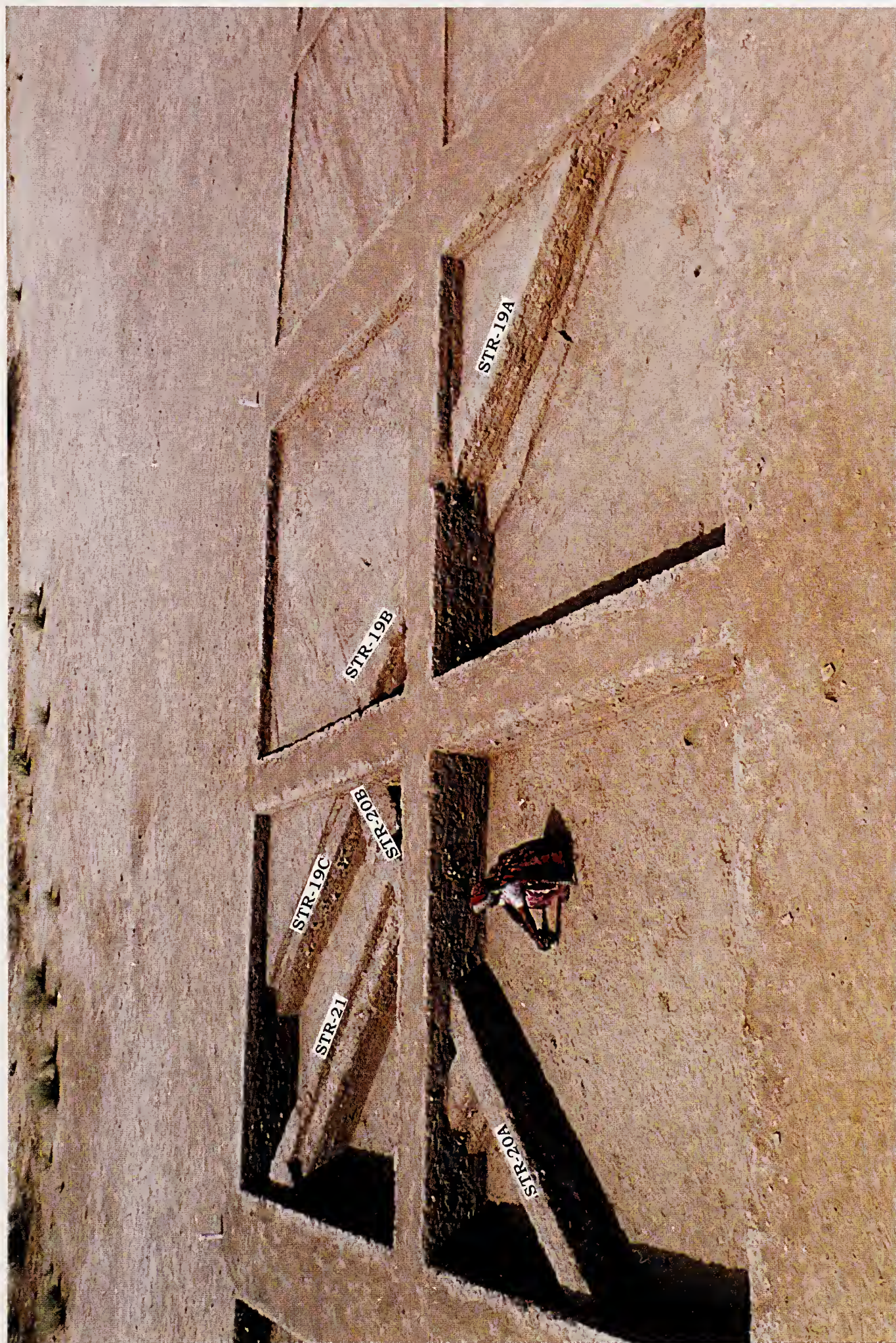
- | | | |
|----------------------|---|------------------------------|
| 1. Location | : | Square B1, Quadrants 1, 3, 4 |
| 2. Type of structure | : | Wall |

21. Structure 21

- | | | |
|--------------------------------|---|---|
| 1. Location | : | Square B1, Quadrant 3 |
| 2. Type of structure | : | Wall |
| 3. Stratigraphic position: | | Built on layer (3) and sealed by layer(1) |
| 4. Period and structural phase | : | Harappan period |



Pl. XVI. Tarkhanewala-Dera : Structure 19A. See pp. 37, 41



Pl. XVII. Tarkhanewala-Dera : Structures 19A,B,C; 20A,B; 21. See pp. 37,41,46



Pl. XVIII. Tarkhanewala-Dera : Structure 22. See p. 46



Pl. XIX. Tarkhanewala-Dera : Structure 19A,B,C; 20A,B; 21; 22. See pp. 20,37,41,46

- | | | | | |
|--|---|---|--|---|
| 5. Measurement of structure | : | (a) length 4.20 m
(b) width 0.70 m
(c) height 0.14 m | 12. State of preservation : | Good, but one row of bricks is dislodged and robbed. |
| 6. Number of courses | : | Two courses | 13. Shape and other distinguishing feature | It is a straight wall forming a component of Structures 20A, B and 21, so as to form a large rectangular chamber. |
| 7. Masonry and bond | : | Header | | |
| 8. Composition of mortar | : | Greyish clay | | |
| 9. Orientation of longer axis | : | East-west | | |
| 10. Nature of bricks used | : | Mud-bricks | | |
| 11. Dimension of bricks used | : | 28x14x7 cm (1:2:4) | | |
| 12. State of preservation | : | Good | | |
| 13. Shape and other distinguishing feature | : | Straight wall joins structure 20 so as to form a large rectangular chamber with Structure 22. | | |

3. THE POTTERY

The present excavation at Tarkhanewala-Dera yielded a Mature Harappan ceramic assemblage. It falls into four major groups viz., Red ware, Grey ware, Red-slipped ware, Black on red ware and other decorated ware. Each of these forms a diagnostic trait in the cultural assemblage of the period. Table II shows the frequency distribution and the percentage (in italics) of each industry in each layer (Fig.6). Pottery yield diminishes gradually from layer (1) to layer (4), layer (1) recording the maximum. Industry-wise, red ware accounts for more than 78% of total assemblage. And less than 10% of pottery is either painted or decorated which occurs largely in the upper level (Fig.7).

The bulk of pottery has regular horizontal striation marks indicating them to be prepared on fast wheel though few handmade ones are also not altogether wanting. A fair majority of the pottery is with a reddish oxidized core, well-fired and emits metallic sound. In few cases, however, a faint greyish zone is visible, possibly they are fired at a low temperature or for shorter duration. Surface of these potteries varies from red, drab to blotchy grey.

Fine sand mixed with well levigated clay is used as tempering material whereas no coarse

22. Structure 22

- | | | |
|--------------------------------|---|---|
| 1. Location | : | Square C1, Quadrant 1 |
| 2. Type of structure | : | Wall |
| 3. Stratigraphic position | : | Built on layer (3) and sealed by layer (1) |
| 4. Period and structural phase | : | Harappan period |
| 5. Measurement of structure | : | (a) length 3.50m
(b) width 0.84m
(c) height 0.16m |
| 6. Number of courses | : | Two courses |
| 7. Masonry and bond | : | Header |
| 8. Composition of mortar | : | Greyish clay |
| 9. Orientation of longer axis | : | North-south |
| 10. Nature of bricks used | : | Mud-bricks |
| 11. Dimension of bricks used | : | 28x14x7 cm (1:2:4) |

Table-II

**FREQUENCIES AND PERCENTAGES (FIGURES IN ITALICS) OF SHERDS
OF THE CERAMIC INDUSTRIES
IN EACH LAYER**

Industry Layer	Red Ware	Grey Ware	Red-Slipped Ware	Black on Red Ware	Other Decorated Ware	Total Ware
1	460 75.40	10 1.63	85 13.93	28 4.59	27 4.42	610
2	340 80.76	9 2.13	31 7.36	25 5.93	16 3.80	421
3	85 81.73	3 2.88	4 3.84	12 11.53	- -	104
4	15 83.33	-	1 5.55	2 11.11	- -	18
Total	900 78.05	22 1.90	121 10.94	67 5.81	43 3.72	1153

degraissant or vegetal matter is visible in the pot. Sometimes mica has been employed as degraissant. Though majority of them are devoid of any surface dressing, few are treated with a wash or slip. Thus, a fair quantity of red ware is unslipped and the fabric is medium. The slipped ware in this variety has a consistently smooth paste and is also well-fired. The commonest shapes are beaker, goblet, perforated jar, storage jar, dish-on-stand, basin, dish, bowl etc.

Few red ware sherds are also painted, mostly executed before firing. The colour scheme normally adopted is black on a red background. The repertoire of painting comprises naturalistic, semi-naturalistic and geometric designs. Among the motifs, mention be made of *pipal* leaf, palm tree, acacia tree, banana, fish motif, fish scale, sun symbol, circle, parallel lines and other indeterminate patterns. The other decorated ware includes incised and appliqué variety. The decoration was executed during the plastic or leather-hard condition. The designs, executed both on the interior and exterior of the vessel consists of wavy lines, parallel lines, herring bone pattern, slashes, intersecting lines, criss-cross etc.

The following select types are illustrated:-

A. Red ware

Figs. 8-11

1. Fragment of a vase with an out-turned featureless rim and concave neck. Of fine fabric showing an oxidized brick-red core, it is treated with a wash on the exterior.
2. Fragment of a dish with a nail headed rim, bluntly carinated above the sloping sides and a thickened flat base. Of medium fabric showing oxidized smoky core, it is treated with a wash on both sides.
3. Fragment of a jar with a beaked rim, short neck and expanding profile. Of medium fabric showing a fully oxidized core, it is treated with a deep red wash on the exterior and painted with a black band at the outer edge of the rim.
4. Fragment of a basin with a short projected rim and tapering sides. Of medium fabric showing a fully oxidized core, its shoulder is decorated with two horizontal shallow grooves on the exterior.
5. Fragment of a deep basin with a short projected drooping rim and slightly tapering sides. Of medium fabric showing unoxidized smoky core, it is treated with a wash on the exterior.
6. Fragment of a jar with a beaked rim, concave neck and bulging profile. Of medium fabric showing an oxidized core, it is washed on the exterior and decorated with a horizontal groove at the shoulder.
7. Fragment of a vase with a splayed out featureless rim, carinated neck and possibly globular body. Of medium fabric showing unoxidized core, it is devoid of any surface dressing.
8. Fragment of a vase with a beaded under-cut rim, roughly vertical neck and carinated at shoulder to an expanding profile. Of medium fabric showing a fully oxidized core, it is treated with an ochre colour wash.
9. Fragment of a vase with an externally thickened rim, roughly concave but grooved neck and a globular body. Of medium fabric showing a semi oxidized core it is treated with a red wash on the exterior.
10. Fragment of a vase with flat topped externally slightly bevelled and internally grooved rim, concave neck and expanding body. Of medium fabric showing an oxidized smoky core, it is treated with a red wash on both the sides.

DISTRIBUTION OF THE CERAMIC INDUSTRIES, TARKHANEWALA-DERA

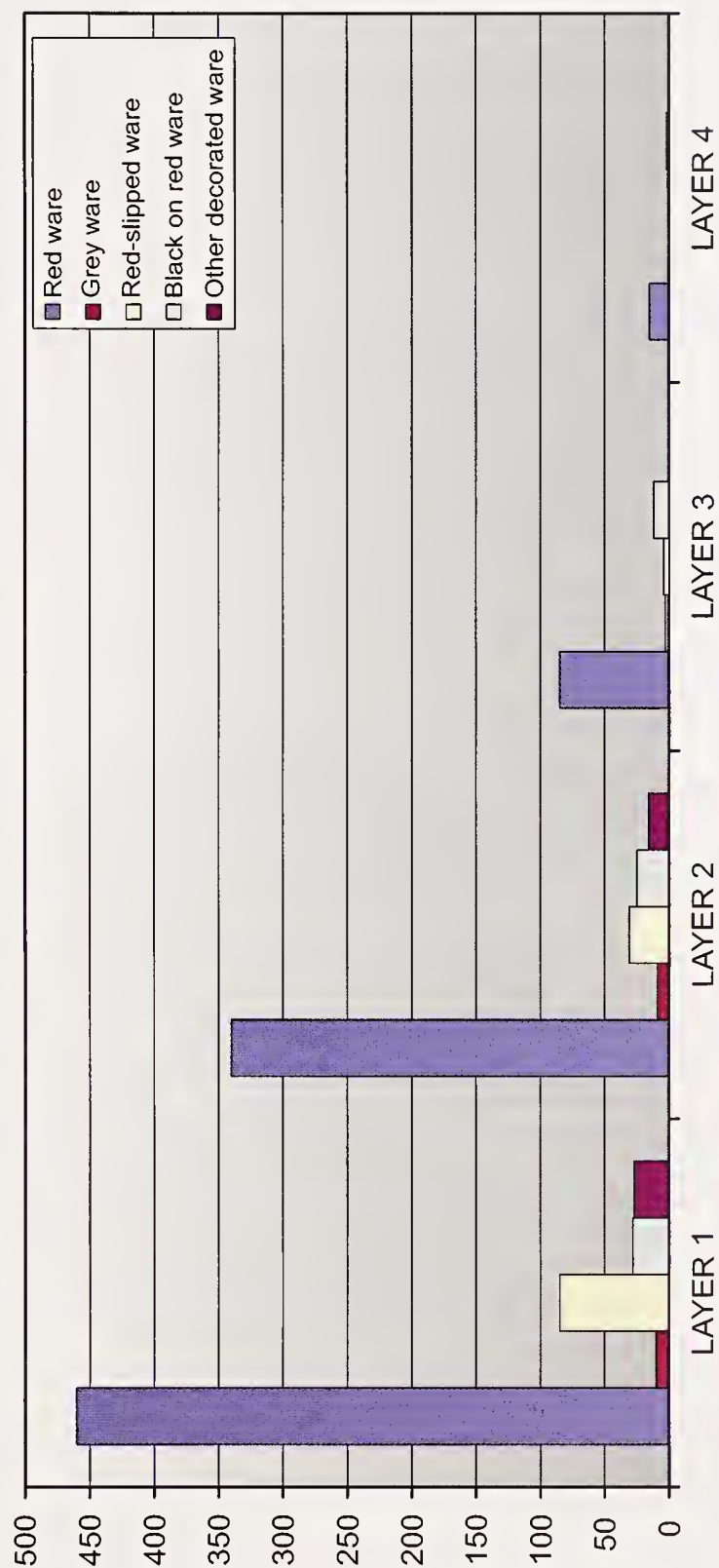


Fig. 6

PERCENTAGE WISE DISTRIBUTION OF CERAMIC INDUSTRIES, TARKHANEWALA-DERA

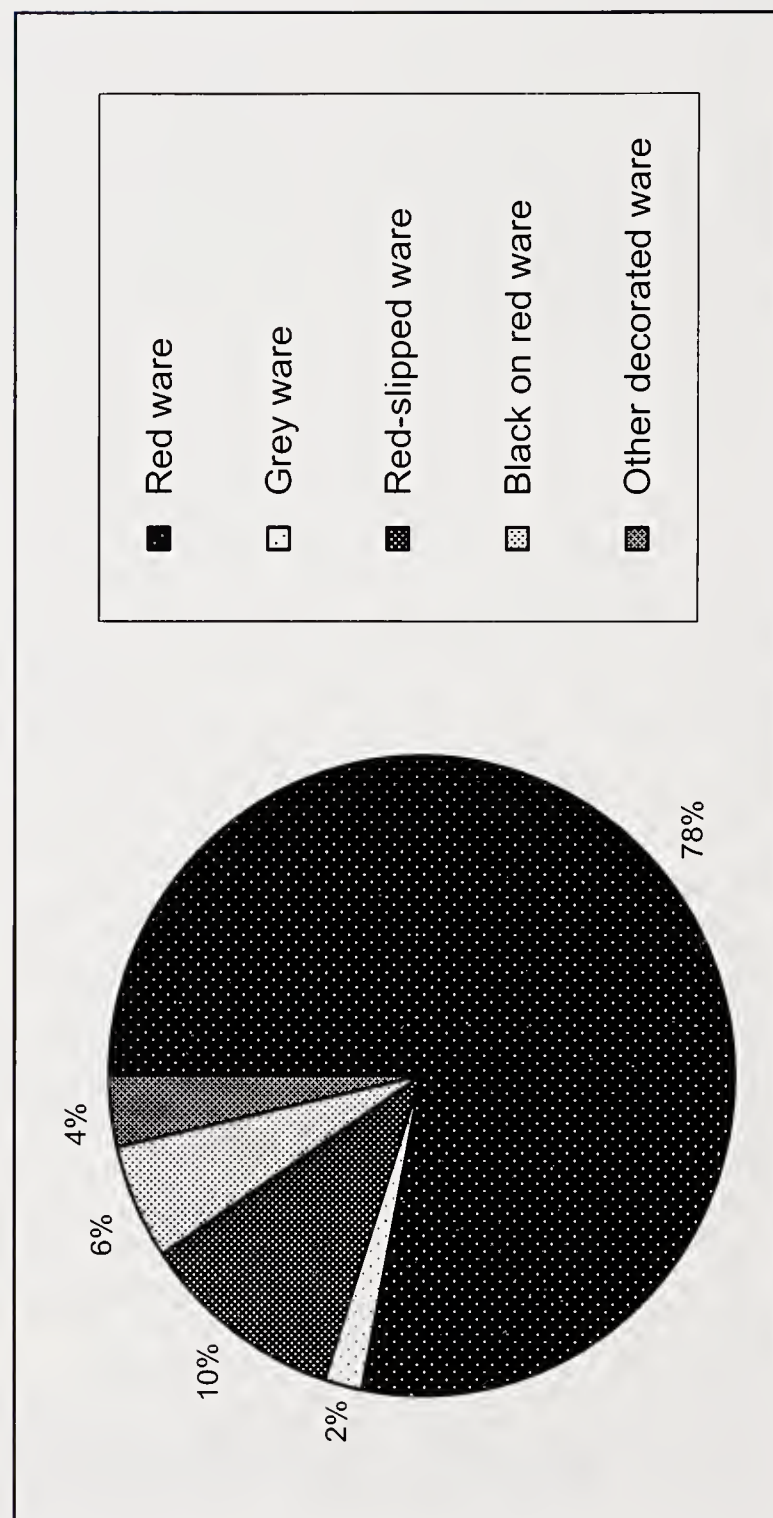


Fig. 7

11. Fragment of a vase with an out-turned, thickened externally bevelled rim, concave neck and expanding profile. Of medium fabric showing a semi oxidized core, it is devoid of any slip or wash.
12. Fragment of a vase with a splayed out, externally thickened and internally grooved rim, having internally carinated neck and expanding shoulder. Of medium fabric showing an unoxidized smoky core, it is treated with a deep red wash on the exterior.
13. Fragment of a vase with a beaded rim, concave neck and bulging profile. Of medium fabric showing an unoxidized smoky core, it is devoid of any slip or wash.
14. Fragment of a vase with a flat topped, externally slightly bevelled, under-cut rim, roughly vertical neck and carinated shoulder. Of medium fabric showing an oxidized core, it is treated with a wash.
15. Fragment of a vase with an out-turned, externally thickened rim and concave neck of medium fabric, showing an oxidized core, it is treated on the exterior with a wash.
16. Fragment of a vase with an out-turned externally thickened rim concave neck and carinated shoulder. Of medium fabric showing an oxidized brick-red core, it is treated with a wash on the exterior.
17. Fragment of a vase with a splayed out featureless rim, carinated neck and possibly a bulging profile. Of medium fabric showing unoxidized core, it is devoid of any slip or wash.
18. Fragment of a vase with a flaring externally thickened rim and concave neck. Of medium fabric showing a fully oxidized core, it is treated with a wash on the exterior.
19. Fragment of a jar with a beaked rim, internally carinated neck and mildly ledged shoulder. Of medium fabric and thick in section showing completely oxidized core, it is treated with a wash on the exterior.
20. Fragment of a vase with an out-curved, externally thickened grooved rim and vertical neck. Of medium fabric showing an unoxidized grey core it is treated with a wash.
21. Fragment of a jar with a beaked rim, concave neck, mildly carinated shoulder and globular body. Of medium fabric showing imperfectly oxidized core, it is treated with an ochre wash and decorated with a horizontal groove at the carination on exterior.
22. Fragment of a low necked jar with a beaked rim constricted neck and globular body. Of medium fabric showing semi-oxidized core, it is treated with a wash.
23. Fragment of a basin with a clubbed, drooping rim, grooved neck and rounded sides. Of medium fabric showing a perfectly oxidized core, it is treated with an ochre wash and decorated with a shallow horizontal groove below the neck on interior.
24. Fragment of a jar with an out-turned, externally thickened rim, internally carinated neck and expanding profile. Of medium fabric showing unoxidized core, it is treated with a wash on the exterior.
25. Fragment of a jar with a splayed out beaked rim short concave neck and mildly carinated grooved shoulder. Of medium fabric showing fully oxidized core, it is treated with a red wash.
26. Fragment of a deep basin with an externally clubbed rim having a horizontal groove below it and tapering sides. Of medium fabric showing an oxidized core, it is treated with a red wash and the interior is executed with two prefiring oblique incised lines.
27. Fragment of a beaker with an out-turned featureless rim and roughly straight sides. Of

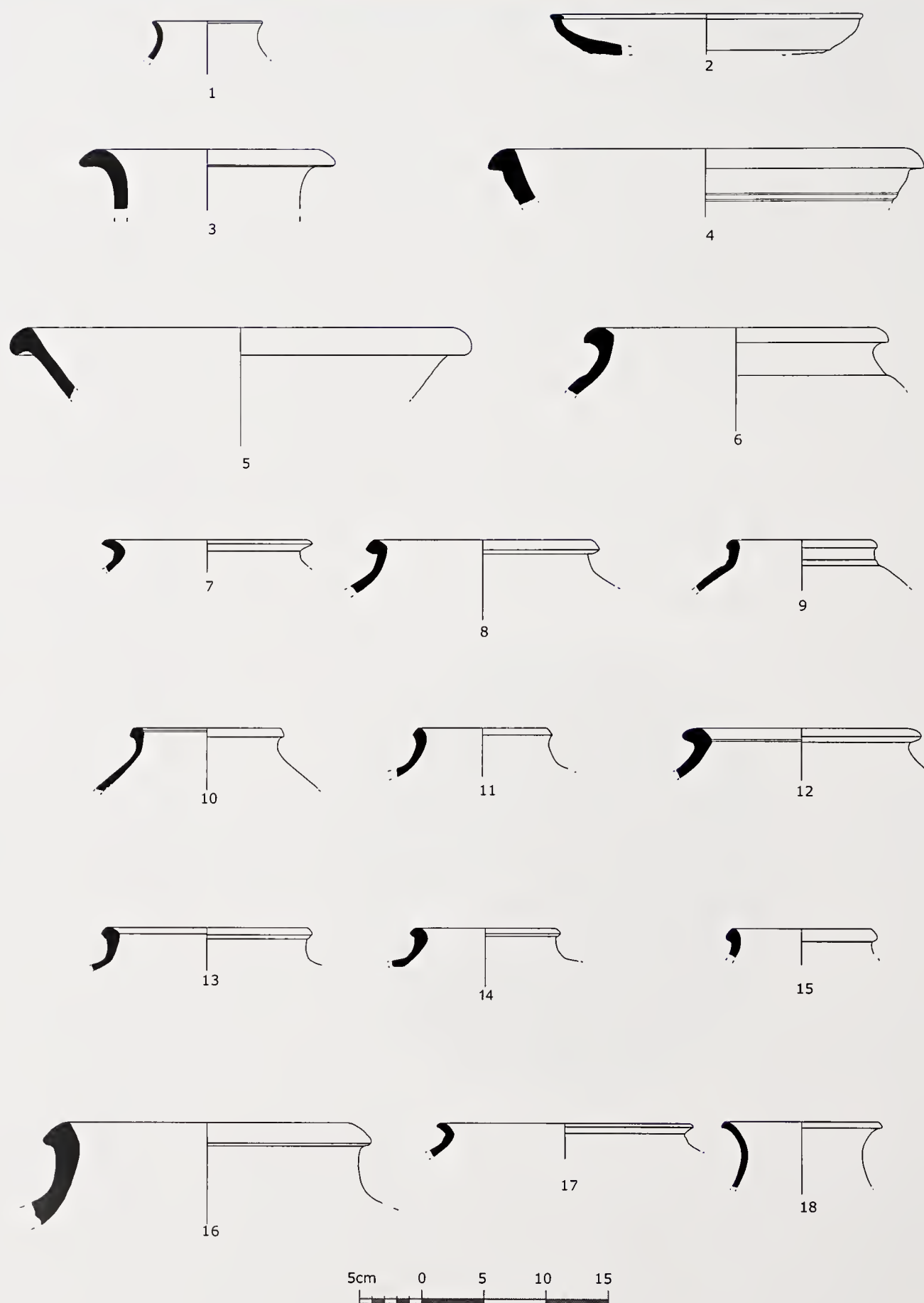


Fig. 8. Red ware (1-18)

- fine fabric showing an unoxidized grey core, it is treated with an ochre wash on the exterior.
28. Fragment of a dish with a flaring flanged rim and tapering sides. Of medium fabric showing a perfectly oxidized core, it is treated with a wash.
29. Fragment of a dish with a flaring, flanged rim with tapering sides. Of medium fabric showing a semi oxidized core, it is treated with an ochre wash and executed with grooves on the exterior.
30. Fragment of a dish with an externally clubbed rim and tapering sides. Of medium fabric showing an unoxidized core, it is devoid of any slip or wash.
31. Fragment of a dish with a drooping rim and tapering sides. Of medium fabric showing a perfectly oxidized core, it is treated with a red wash.
32. Fragment of a dish with a nail headed rim, tapering sides with wavy profile and sagger base. Of medium fabric showing fully oxidized core, it is treated with a red wash on the exterior.
33. Fragment of a flaring base of a dish-on-stand with a sharp upturned edge having a broad shallow groove above. Of medium fabric showing semi oxidized core, it is treated with a red wash on the exterior.
34. Fragment of splayed out base with a featureless edge of a dish-on-stand. Of medium fabric showing an oxidized core, it is treated with a wash on the exterior.
35. Fragment of a flaring base of a dish-on-stand with a featureless edge. Of medium fabric showing a fully oxidized brick-red core, it is treated with an ochre wash on the exterior.
36. Fragment of a jar with a vertical externally clubbed rim and a bluntly carinated neck. Of medium fabric showing an oxidized brick-red core, it is treated with a wash.
37. Fragment of a vase with an in-turned featureless rim and a prominent horizontal flange bearing a hole and ledged profile. Of medium fabric showing an oxidized core, it is treated with an ochre wash.
38. Fragment of a jar with a clubbed flat topped externally bevelled rim and concave neck. Of medium fabric showing a fully oxidized core, it is treated with a wash and painted in black with a horizontal rim band. A similar band is painted below the rim on the interior.
39. Fragment of a vase with an out-turned, externally bevelled rim, concave neck and globular body. Of medium fabric showing an unoxidized grey core, it is devoid of any slip or wash.
40. Fragment of a jar with a splayed out rim, roughly vertical neck and globular body. Of medium fabric showing an oxidized core, it is treated with an ochre wash.
41. Fragment of a jar with a flaring mouth everted rim and ribbed shoulder. Of medium fabric showing an oxidized brick-red core, it is treated with a red wash on the exterior.
42. Fragment of a dish of dish-on-stand, with a splayed rim and flaring sides. Of medium fabric showing a semi oxidized core, it is treated with an ochre wash and executed with a rib on the exterior below the rim.
43. Fragment of a vase with an out-turned featureless rim, carinated neck and bulging profile. Of fine fabric showing an oxidized brick-red core, it is treated with a red wash.
44. Fragment of a vase with an out-curved featureless rim, concave neck and globular profile, Of medium fabric showing an oxidized core, it is treated with a wash on the exterior.
45. Fragment of a dish with a folded rim and rounded profile. Of medium fabric showing

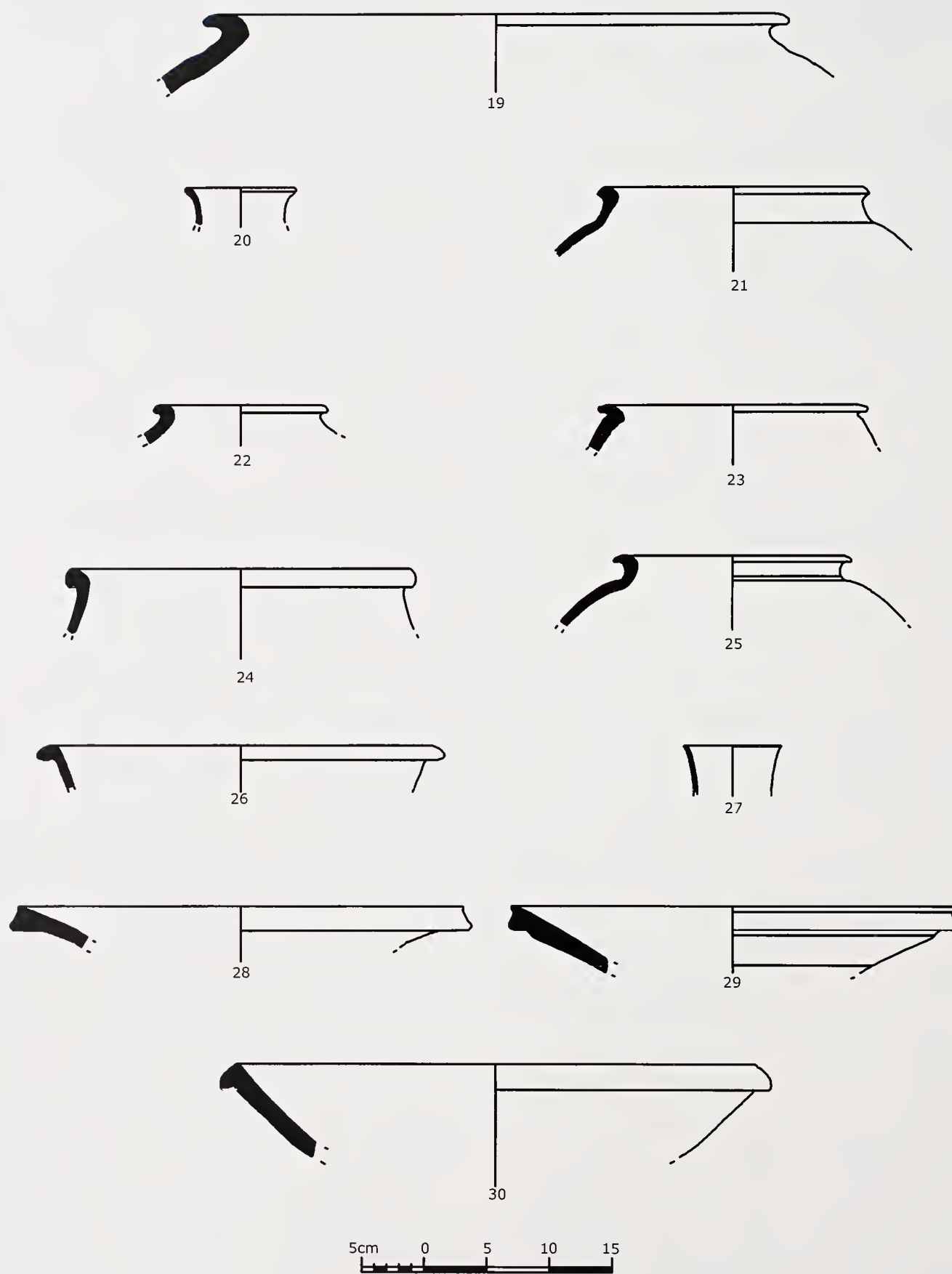


Fig. 9. Red ware (19-30)

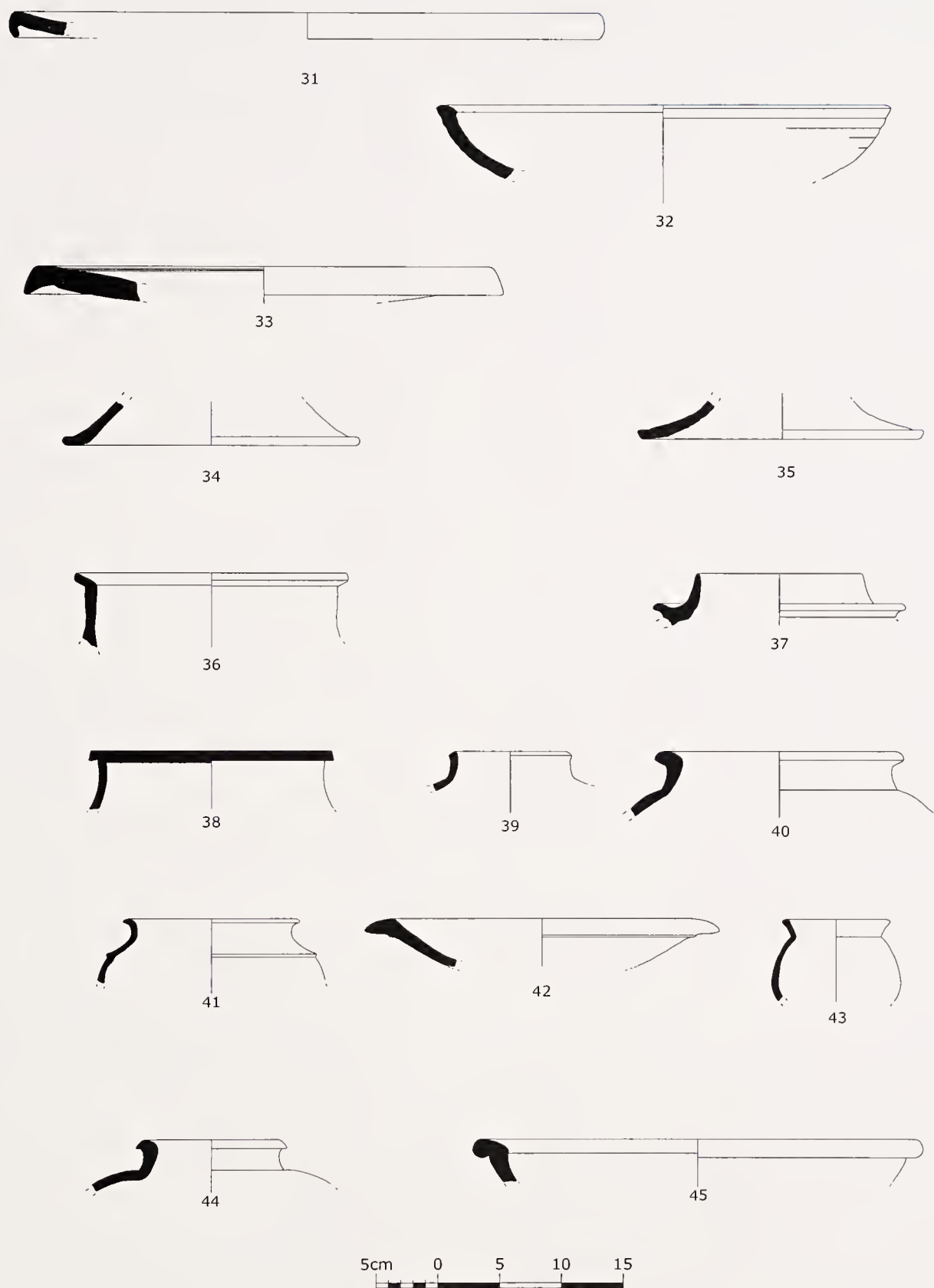


Fig. 10. Red ware (31-45)

an oxidized core, it is treated with an ochre colour wash.

46. Fragment of a deep bowl with a slightly in-turned, externally clubbed rim, carinated neck and expanding profile. Of medium fabric showing fully oxidized core it is treated with a wash.
47. Fragment of a deep bowl with horizontally splayed out rim, internally carinated neck and carinated waist. Of medium fabric showing fully oxidized core, it is treated with a wash on the exterior.
48. Fragment of a deep bowl with a slightly in-turned externally clubbed rim with expanding profile. Of fine fabric showing a fully oxidized core it is treated with a deep red wash on the exterior.
49. Fragment of a flaring base of a dish-on-stand with an up-turned-grooved edge. Of medium fabric showing semi-oxidized core, it is treated with an ochre wash on the exterior.
50. Fragment of a small, deep basin with a splayed rim, slightly carinated shoulder and rounded body. Of medium fabric showing a fully oxidized core, it is treated with an ochre wash.
51. Fragment of a trough with a flat base and tapering sides. Of coarse fabric, showing fully oxidized core, it is devoid of any slip or wash.
52. Fragment of a jar with a beaked rim, constricted neck and bulbous body having a prominent ridge below the grooved shoulder. Of medium fabric, showing fully oxidized core, it is treated with an ochre wash on the exterior and painted in black with a horizontal band over the rim and ridge.
53. Fragment of a trough with an externally clubbed rim and tapering sides. Of medium fabric, showing fully oxidized core, it is devoid of any slip or wash but decorated with

an incipient ridge below the neck, on the exterior.

54. Fragment of a basin with an externally clubbed rim, mildly carinated towards base and tapering side. Of medium fabric, showing a fully oxidized core, it is treated with a wash.
55. Fragment of a lid with a flared featureless rim with tapering sides. Of medium fabric, showing a semi oxidized core, it is treated with a reddish wash.
56. Fragment of a shallow basin with an internally bevelled rim and tapering sides. Of medium fabric, showing a semi-oxidized core, it is treated with a red wash.
57. Fragment of a squattish stand of a bowl with sloping sides ending in a beaked edge. Of medium fabric showing fully oxidized core, it is treated with a red wash.
58. Fragment of a cylindrical perforated jar with a flat disc base with a large perforation at the bottom. Of medium fabric showing a fully oxidized core, it is treated with an ochre wash.
59. Fragment of a perforated lid with a thickened rim and tapering sides. Of medium fabric, showing a fully oxidized core, it is treated with a deep red wash.
60. Fragment of a perforated lid with a flat topped rim. Of medium fabric, showing fully oxidized body, it is devoid of any slip or wash.

B. Red-slipped ware

Figs. 12-14

1. Fragment of a flaring base of a dish-on-stand with a featureless sharp outer edge. Of medium fabric showing a perfectly oxidized core, it is treated with a deep red slip on the exterior.

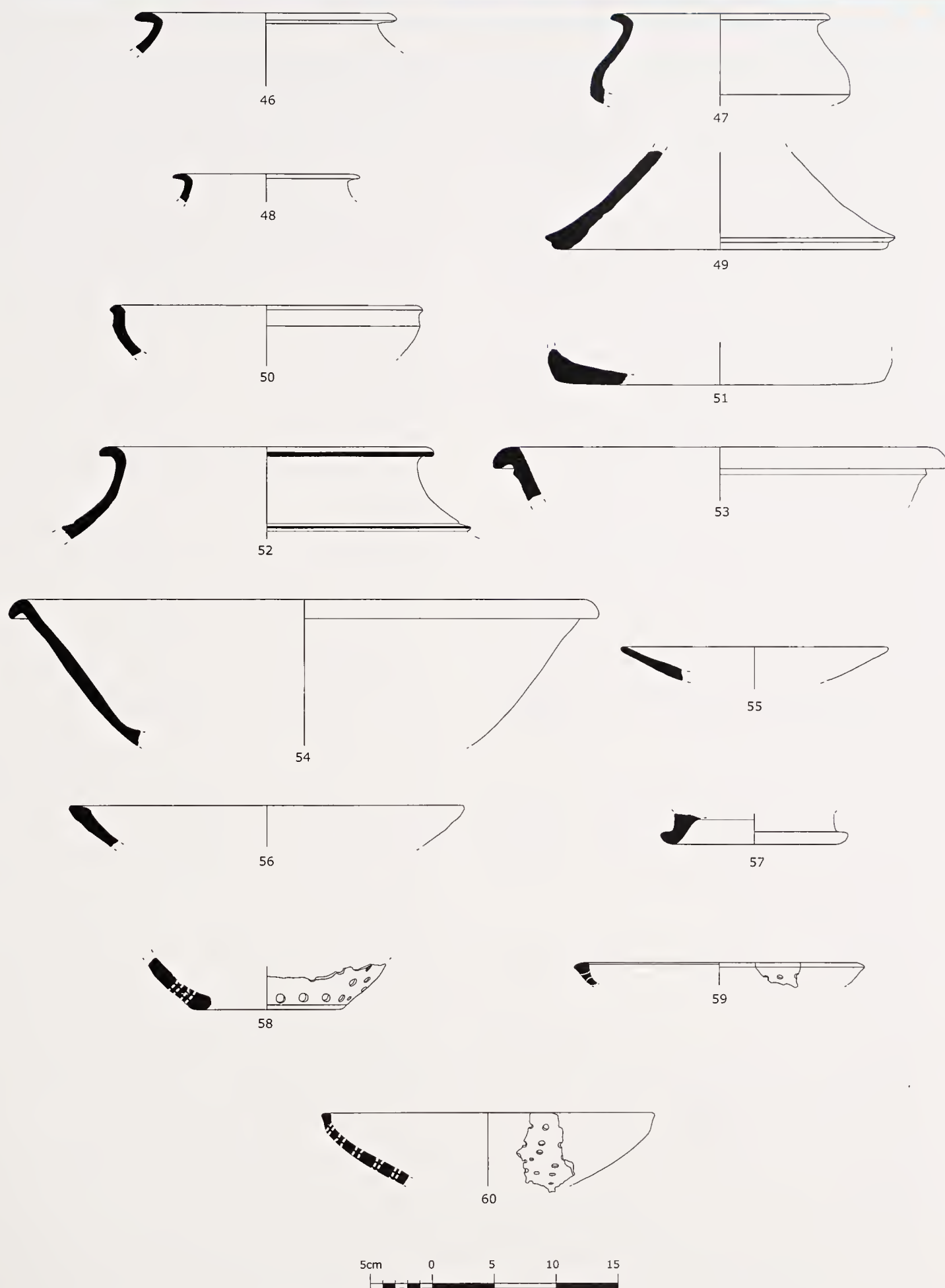


Fig. 11. Red ware (46-60)

2. Fragment of a flaring base of a dish-on-stand with a slightly raised edge. Of medium fabric showing an oxidized brick-red core, it is treated on the exterior with a deep red slip and painted with a black horizontal band on the outer edge.
3. Fragment of a flaring base of a dish-on-stand with a sharp, slightly up-turned edge. Of medium fabric showing an oxidized core, it is treated with a deep red slip on the exterior and painted with a black horizontal band on its outer edge.
4. Fragment of a flaring base of a dish-on-stand with a featureless edge. Of medium fabric showing an unoxidized core, it is treated with a deep red slip on the exterior and painted with a black horizontal band on outer edge.
5. Fragment of a flaring base of a dish-on-stand with a featureless sharp outer edge. Of medium fabric showing an oxidized core, it is treated with a deep red slip on the exterior and painted with a black horizontal band on outer edge.
6. Fragment of a shallow dish having a splayed out featureless rim with a sharply carinated profile and flat base. Of medium fabric showing a fully oxidized core, it is treated with a deep red slip.
7. Fragment of a basin with an out-turned undercut rim and tapering sides. Of medium fabric showing a perfectly oxidized core, its interior is treated with a deep red slip and decorated with an incised line below neck and painted in black with thick band on waist. A similar band is painted over the rim.
8. Fragment of a shallow dish with an internally beaked, short collared rim carinated for a flat base. Of medium fabric showing an oxidized core, it is treated internally with a deep red slip spilling over the rim.
9. Fragment of a shallow dish with an internally thickened, externally grooved rim, slightly tapering sides carinated externally for a flat base. Of medium fabric showing an oxidized core, it is treated with a deep red slip.
10. Fragment of a dish with a beaked under-cut rim and tapering sides. Of medium fabric showing an oxidized core, it is treated with a deep red slip on the interior spilling over the rim and painted in with two horizontal black bands on the rim.
11. Fragment of a dish with an externally clubbed rim and tapering sides. Of medium fabric showing an oxidized core, it is treated with a deep red slip on the interior and over the rim.
12. Fragment of a jar with a beaked rim, carinated neck and bulbous body. Of medium fabric showing an oxidized brick-red core, it is treated with a dark red slip and painted with black bands, one each at the outer edge of the rim and below the neck on the interior.
13. Fragment of a small goblet with a string-cut, disc base and mildly carinated waist. Of medium fabric showing an oxidized core, it is treated with a red slip on the outside and painted with a black horizontal band above carination.
14. Fragment of a vase with an out-turned featureless rim and a short concave, internally grooved neck. Of medium fabric showing a fully oxidized core, it is treated with a deep red slip on outside and painted with a black horizontal rim band.
15. Fragment of a vase with an out-curved sharpened rim, concave neck and bulging profile. Of medium fabric showing an oxidized core, it is treated with a dark red slip on the outside and painted with a horizontal rim band.

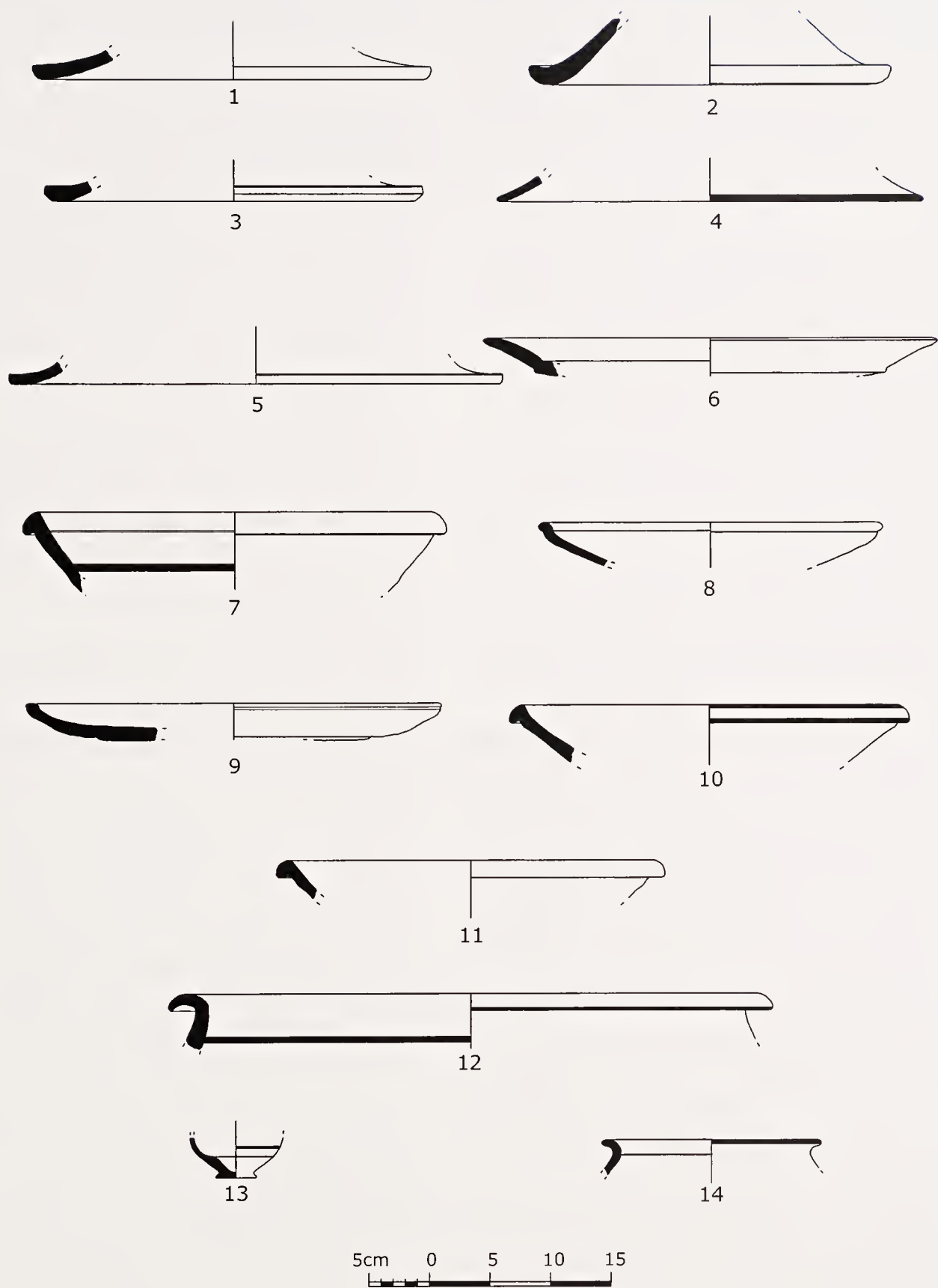


Fig. 12. Red-slipped ware (1-14)

16. Fragment of a vase with an out-turned featureless rim, concave neck and expanding profile. Of medium fabric showing a fully oxidized core, it is treated with a dark red slip on the exterior extending over the rim and the rim top is painted with a black horizontal band.
17. Fragment of a vase with an out-turned, externally thickened rim, roughly concave neck and mildly carinated shoulder having a bulging profile on the exterior and wavy profile on the interior. Of medium fabric showing an oxidized brick-red core, it is treated with a red slip on the exterior.
18. Fragment of a basin with an externally bevelled, under-cut rim and tapering sides. Of medium fabric showing a semi oxidized core it is treated with a chocolate slip.
19. Fragment of a jar with a beaked rim, internally carinated neck and bulbous body. Of medium fabric showing a semi oxidized core, it is treated with a bright red slip.
20. Fragment of a jar with an externally clubbed rim, concave neck and mildly carinated grooved shoulder and bulging profile. Of medium fabric showing an oxidized core, it is treated with a red slip on the outside.
21. Fragment of a jar with an externally clubbed rim, carinated neck and bulbous body. Of medium fabric showing an unoxidized core, it is treated with a bright red slip on the outside extending up to shoulder on the inside over the rim. It is painted in black with a horizontal band at rim and a similar band on the interior.
22. Fragment of a low necked jar with a splayed out beaked rim, internally carinated neck and bulging profile. Of medium fabric showing an oxidized core, it is treated with a dark red slip and painted with a black horizontal band below the neck on the interior.
23. Fragment of a jar with an externally clubbed, beaked rim and expanding shoulder. Of medium fabric showing an oxidized core, it is treated with a bright red slip on the outside spilling over the rim and its exterior is painted in black with horizontal bands on the rim and shoulder.
24. Fragment of a vase with an out-turned, under-cut rim, concave neck and globular body. Of medium fabric showing a fully oxidized core, it is treated with a bright red slip enclosed on the exterior between a sharp ridge at the shoulder and the rim.
25. Fragment of a jar with a short projected rim, internally carinated neck and expanding profile. Of medium fabric showing an unoxidized smoky core, it is treated with a red slip on the outside and painted with a black horizontal rim band.
26. Fragment of a jar with a splayed out beaked rim, concave neck and bulging profile. Of medium fabric showing an oxidized core, it is treated with a chocolate slip on the exterior.
27. Fragment of a jar with a splayed out beaked rim, internally carinated neck and expanding shoulder. Of medium fabric showing an oxidized core, it is treated with a purplish slip on both sides while the interior is painted in black with a horizontal band on shoulder.
28. Fragment of a jar with a splayed out, drooping rim, internally carinated neck and expanding shoulder. Of medium fabric showing an unoxidized grey core, it is treated with a light chocolate slip and decorated with a horizontal groove on the interior.
29. Fragment of a jar with a beaked rim, carinated neck and expanding profile. Of medium fabric, showing an oxidized smoky grey core, it is treated with a red slip and painted in black with multiple bands on rim and on the shoulder.

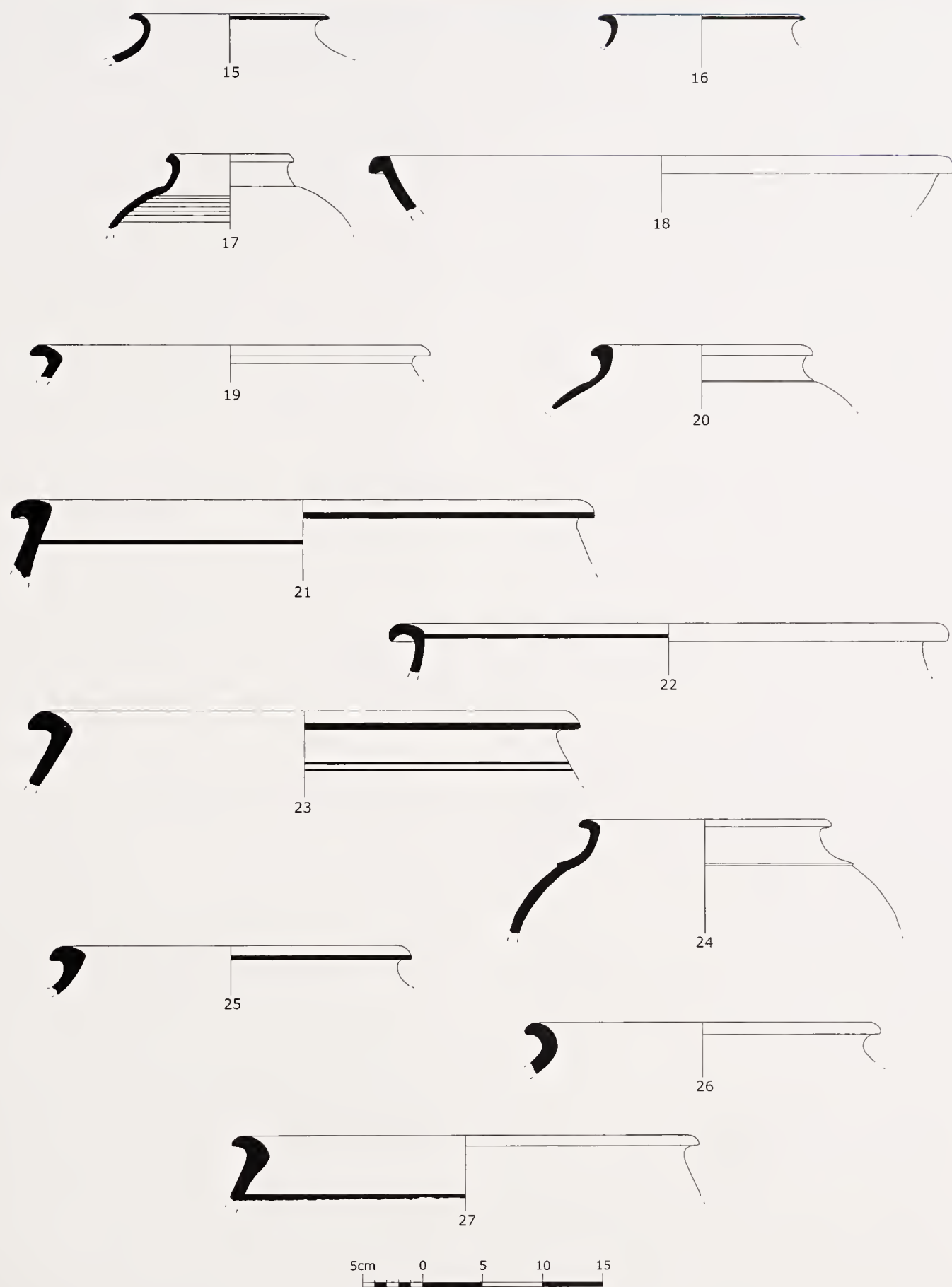


Fig. 13. Red-slipped ware (15-27)

30. Fragment of a vase with an out-curved featureless rim, concave neck and expanding shoulder. Of medium fabric showing an oxidized core, it is treated with a bright red slip on the outside and over the rim and painted with a black rim band.
31. Fragment of a dish with an externally clubbed, under-cut rim and tapering sides. Of medium fabric showing an oxidized core, it is treated with a bright red slip on the interior and over the rim and painted in black with a horizontal rim band.
32. Fragment of shallow dish having a beaked rim and rounded profile. Of medium fabric showing an oxidized core, it is treated with a buff slip and painted with a black rim band.
33. Fragment of a vase with an out-turned, elliptical collared rim, concave neck and a bulging profile. Of medium fabric showing an oxidized core, it is treated with a bright red slip on the exterior and painted in black with a rim band and two horizontal broad bands at shoulder.
34. Fragment of a dish with an externally clubbed rim and tapering sides. Of medium fabric, showing an oxidized core, it is slipped on the inside and painted with a black band on the internal edge of the rim and a similar band on the interior.
35. Fragment of a low necked jar with a splayed out, beaked rim and globular profile. Of medium fabric showing an oxidized core, it is treated with an ochre slip and painted in black with a rim band.
36. Fragment of a low-necked jar with a beaked rim, internally carinated neck and bulging profile. Of medium fabric showing a perfectly oxidized core, it is treated with an ochre slip on the outside and painted in black with a horizontal band.
37. Fragment of a flaring base of a dish on stand with slightly raised edges. Of medium fabric showing an oxidized core, it is treated with a red slip and painted in black with a horizontal band at the outer edge and executed with a deep groove at the inner edge.
38. Fragment of a dish with a ring base. Of medium fabric showing an oxidized core, its interior is painted in black with two concentric circles over a bright red slip.
39. Fragment of a dish with a flat base having carinated splayed out sides. Of medium fabric showing an oxidized core, it is treated with a bright red slip and painted in black on the outside with a horizontal band above carination.
40. Fragment of a vase with an out-curved sharpened rim, concave neck and carinated profile. Of medium fabric showing a semi-oxidized core, its upper portion is treated on the exterior with a bright red slip from rim to the carination and executed with a ridge on the shoulder, corresponding to carination on the interior.

C. Black on red ware

Pls. XX -XXIV

1. Fragment of a dull red ware. Of medium fabric showing an oxidized core, it is painted in black over self slipped exterior with two horizontal bands and a series of double loops. A trace of similar band is found below.
2. Fragment of a dish of red ware with a splayed featureless rim. Of medium fabric showing an oxidized brick-red core, it is painted in black over a bright red slip with *pipal* branches having hatched leaves.
3. Fragment of a red ware painted in black on the outside over a bright red slip with a row of running arches bordered below

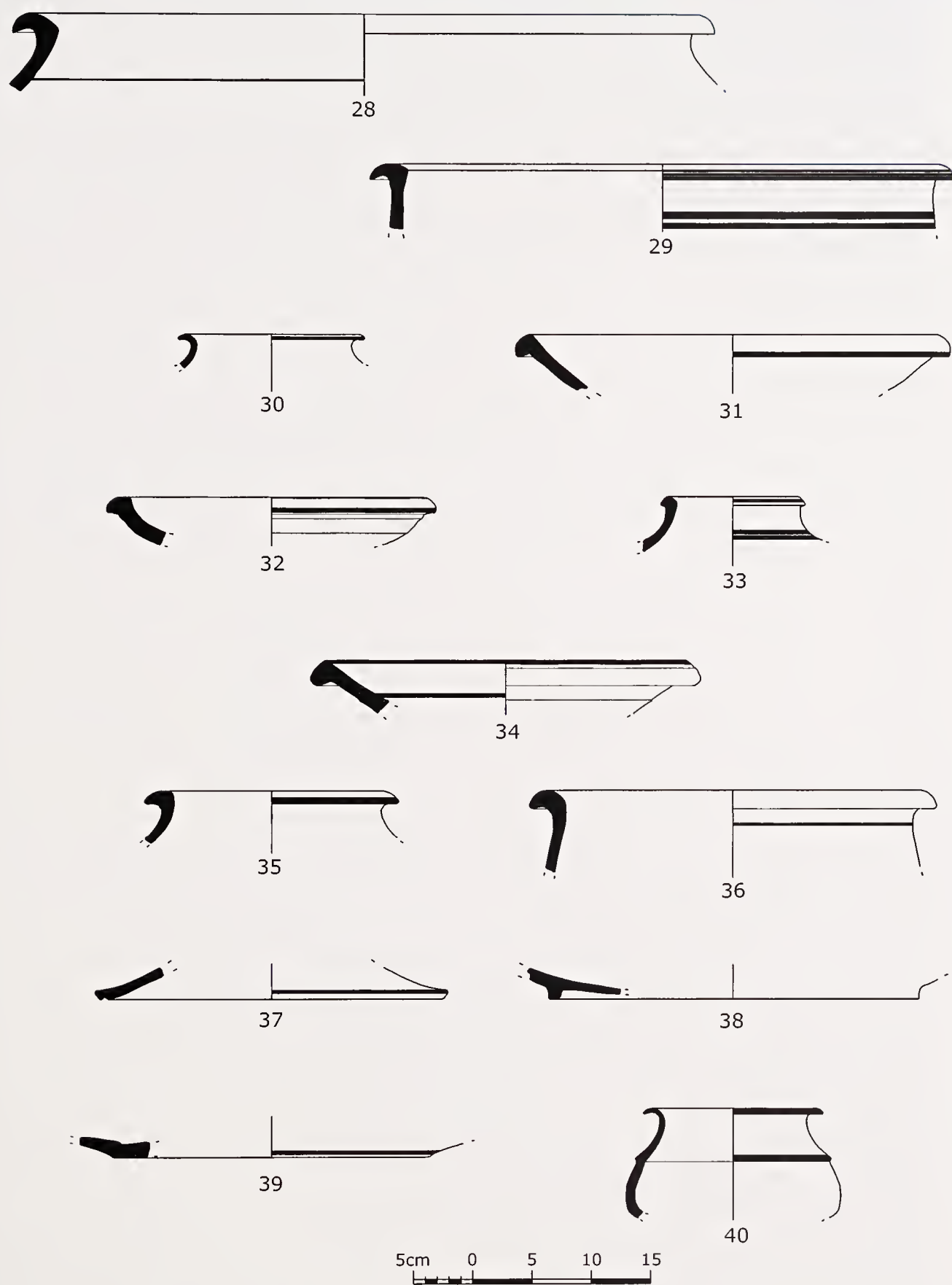


Fig. 14. Red-slipped ware (28-40)

with two horizontal bands. The arch is depicted with a sun motif consisting of a central dot with two concentric circles, the outer one having radiating lines. Of medium fabric, it has an unoxidized grey core.

4. Fragment of an upper portion of a vase of red ware with a carinated shoulder. Of medium fabric showing an oxidized core, it is painted in black on the exterior over a red slip with a row of encircled dots bordered below and above with horizontal lines, above a panel of crescents enclosed between horizontal lines. Below is a criss-cross pattern empanelled between horizontal lines.
5. Fragment of flaring base of a dish-on-stand of red ware with slightly raised edges. Of medium fabric showing an oxidized brick-red core, its self-slipped exterior is painted in black with horizontal rows of palm frondes.
6. Fragment of an upper portion of a vase of red ware. Of medium fabric showing an oxidized core, it is painted in black over self slipped exterior with a criss-cross pattern bordered on the top with a horizontal line, below a wavy line suspended from three horizontal lines. Above is painted with a broad band.
7. Fragment of a middle portion of a vase of red ware. Of medium fabric showing a fully oxidized core, it is painted in black over a deep red slip with rows of leaves and other fragmentary pattern.
8. Fragment of a middle portion of a vase of red ware. Of medium fabric showing a fully oxidized core, it is painted in black over a chocolate slipped exterior with multiple horizontal bands with palm tree and frondes.
9. Fragment of a dish of red ware with a splayed featureless rim. Of medium fabric showing an oxidized core, it is painted in black over a bright red slip with a *pipal* branch having hatched leaves.
10. Fragment of a red ware painted in black on the outside over a bright red slip with hatched banana leaves generated from the stem. Of medium fabric, it has a semi oxidized core.
11. Fragment of a middle portion of a vase of red ware. Of medium fabric showing an oxidized core, it is painted in black over a chocolate slipped exterior with horizontal bands and indeterminate pattern.
12. Fragment of an upper portion of a vase of red ware. Of medium fabric, showing an oxidized core, it has a self slipped interior and painted in black on the outside with horizontal wavy lines bordered on the top by two horizontal bands.
13. Fragment of a stem of dish-on-stand, painted in black on the exterior over a bright red slip with horizontal rows of palm frondes. Of medium fabric, it has an oxidized core.
14. Fragment of an upper portion of a vase of red ware. Of medium fabric showing an oxidized core, it is painted in black over a bright red slip on the exterior with a row of filled circles, enclosed between horizontal lines above a fish-scale pattern bordered on the top with three horizontal lines.
15. Fragment of a middle portion of a vase of red ware. Of medium fabric showing a perfectly oxidized core, it is painted in black on a dark red slip with four panels, separated each by a horizontal line and bordered below by two horizontal bands. The lower panel is painted with a row of circle-and-dots below two panel of rising suns and indeterminate design. The upper part is painted with other fragmentary patterns.
16. Fragment of a lower portion of a goblet with a string cut flat base and treated with red-



Pl. XX. Tarkhanewala-Dera : Black on red ware. See pp. 62, 64



Pl. XXI. Tarkhanewala-Dera : Black on red ware. See p. 64

- chocolate slip. Its exterior is painted in black with vertical wavy lines. Of medium fabric, it has an oxidized core.
17. Fragment of a bowl of red ware with a slightly incurved rim, horizontally flanged waist and internally carinated sides. Of medium fabric showing a semi oxidized smoky grey core, it is treated with a bright red slip and painted in black with a horizontal row of slanting strokes, bordered below by a thin band and criss-cross pattern.
 18. Fragment of an upper portion of a jar of red ware. Of medium fabric showing an unoxidized smoky core, its self-slipped exterior is painted in black with groups of horizontal wavy lines segmented with three vertical lines, bordered on the top with a thin and a broad horizontal band.
 19. Fragment of an upper portion of a vase of red ware. Of medium fabric showing an oxidized brick-red core, its ochre washed exterior is painted in black with two horizontal lines above two horizontal wavy lines.
 20. Fragment of an upper portion of a red ware, it is painted in black with criss-cross pattern bordered above with horizontal lines, over a dark red slip. Of medium fabric, it has an oxidized core.
 21. Fragment of a red ware exterior of which is treated with a buff slip and painted in black with two groups of converging oblique lines. Of medium fabric, it has an unoxidized portion in the lower section of the core.
 22. Fragment of a drab ware painted in black over the washed surface with a group of horizontal wavy lines joined at one end, between a horizontal band on the top and arch below. Of medium fabric, it has a perfectly oxidized brick-red core.
 23. Fragment of an upper portion of a vase of red ware. Of medium fabric showing a fully oxidized core, its exterior is treated with a dark red slip and painted in black with branches and hatched leaves and other fragmentary patterns.
 24. Fragment of a dish with splayed featureless rim. Of medium fabric showing an oxidized core, it is treated with a red slip and painted in black with a rim band and a group of wavy lines generated from a vertical stroke and other indeterminate patterns.
 25. Fragment of a red ware, exterior of which is treated with a dark red slip and painted in black with cross hatched pattern, enclosed between two lines and other fragmentary designs. Of medium fabric, it has an oxidized core.
 26. Fragment of a red ware, exterior of which is treated with a dark red slip and painted in black with a group of horizontal lines. Of medium fabric, it has an oxidized core.
 27. Fragment of a dull red ware painted in black over self slipped exterior with a cross-hatched chevron bottom of which is overlapped with a thick horizontal band followed by another. Of medium fabric, it has an unoxidized smoky grey core.
 28. Fragment of a red ware painted in black on the outside over a bright red slip with two fish motifs having hatched body adjacent to an indeterminate pattern. Of medium fabric, it has an oxidized core.
 29. Fragment of a middle portion of a vase of red ware exterior of which is treated with a bright red slip and painted in black with designs resembling fish-scales. Of medium fabric, it has an oxidized core.
 30. Fragment of a red ware painted in black on the outside over a dark red slip with indeterminate pattern consisting of weeds, flower (a central dot in circle having radiating lines) with a stem and leaves. Of medium fabric, it has an oxidized core.



Pl. XXI. Tarkhanewala-Dera : Black on red ware. See p. 64

chocolate slip. Its exterior is painted in black with vertical wavy lines. Of medium fabric, it has an oxidized core.

17. Fragment of a bowl of red ware with a slightly incurved rim, horizontally flanged waist and internally carinated sides. Of medium fabric showing a semi oxidized smoky grey core, it is treated with a bright red slip and painted in black with a horizontal row of slanting strokes, bordered below by a thin band and criss-cross pattern.
18. Fragment of an upper portion of a jar of red ware. Of medium fabric showing an unoxidized smoky core, its self-slipped exterior is painted in black with groups of horizontal wavy lines segmented with three vertical lines, bordered on the top with a thin and a broad horizontal band.
19. Fragment of an upper portion of a vase of red ware. Of medium fabric showing an oxidized brick-red core, its ochre washed exterior is painted in black with two horizontal lines above two horizontal wavy lines.
20. Fragment of an upper portion of a red ware, it is painted in black with criss-cross pattern bordered above with horizontal lines, over a dark red slip. Of medium fabric, it has an oxidized core.
21. Fragment of a red ware exterior of which is treated with a buff slip and painted in black with two groups of converging oblique lines. Of medium fabric, it has an unoxidized portion in the lower section of the core.
22. Fragment of a drab ware painted in black over the washed surface with a group of horizontal wavy lines joined at one end, between a horizontal band on the top and arch below. Of medium fabric, it has a perfectly oxidized brick-red core.
23. Fragment of an upper portion of a vase of red ware. Of medium fabric showing a fully oxidized core, its exterior is treated with a dark red slip and painted in black with branches and hatched leaves and other fragmentary patterns.
24. Fragment of a dish with splayed featureless rim. Of medium fabric showing an oxidized core, it is treated with a red slip and painted in black with a rim band and a group of wavy lines generated from a vertical stroke and other indeterminate patterns.
25. Fragment of a red ware, exterior of which is treated with a dark red slip and painted in black with cross hatched pattern, enclosed between two lines and other fragmentary designs. Of medium fabric, it has an oxidized core.
26. Fragment of a red ware, exterior of which is treated with a dark red slip and painted in black with a group of horizontal lines. Of medium fabric, it has an oxidized core.
27. Fragment of a dull red ware painted in black over self slipped exterior with a cross-hatched chevron bottom of which is overlapped with a thick horizontal band followed by another. Of medium fabric, it has an unoxidized smoky grey core.
28. Fragment of a red ware painted in black on the outside over a bright red slip with two fish motifs having hatched body adjacent to an indeterminate pattern. Of medium fabric, it has an oxidized core.
29. Fragment of a middle portion of a vase of red ware exterior of which is treated with a bright red slip and painted in black with designs resembling fish-scales. Of medium fabric, it has an oxidized core.
30. Fragment of a red ware painted in black on the outside over a dark red slip with indeterminate pattern consisting of weeds, flower (a central dot in circle having radiating lines) with a stem and leaves. Of medium fabric, it has an oxidized core.



Pl. XXII. Tarkhanewala-Dera : Black on red ware. See pp. 64, 67



Pl. XXIII. Tarkhanewala-Dera : Black on red ware. See p. 67

31. Fragment of a red ware treated with a bright red slip and painted in black on the exterior with palm frondes. Of medium fabric, it has an unoxidized portion in mid-section of the core.
32. Fragment of a red ware painted in black on the exterior over a buff slip with hatched leaves. Of medium fabric, it has an oxidized core.
33. Fragment of a red ware. Of medium fabric showing an oxidized core, painted in black on the exterior over a bright red slip with thick vertical wavy lines.
34. Fragment of a vase of red ware with an everted rim. Of medium fabric showing an oxidized core, it is treated with a wash and painted on the interior with triple loops below a broad black horizontal rim band.
35. Fragment of a red ware painted in black on the exterior over a bright red slip with hatched banana leaves generated from the stem. Of medium fabric, it has an oxidized brick-red core.
36. Fragment of a featureless splayed (?) rim of a dish. Of medium fabric showing a semi oxidized smoky core, it is treated with a bright red slip, painted in black on the inside with criss-cross pattern bordered above and below by horizontal bands above which is painted with roughly vertical strokes generated from the rim band.
2. Fragment of a dish on stand with a splayed featureless rim. Of fine fabric showing a reduced grey core, it is treated with a dark slip on the interior.
3. Fragment of a vase with an out-turned, externally thickened, under-cut rim and concave neck. Of fine fabric showing a reduced grey core, it is treated with a black slip on both inside and outside.
4. Fragment of an upper portion of a vase with a out-turned rim (broken), concave neck and expanding profile. Of medium fabric showing a semi-oxidized grey core, it has a self slipped exterior.
5. Fragment of a middle portion of a bowl with inturned, bluntly carinated sides. Of fine fabric showing a reduced grey core, it is devoid of any slip or wash.

E. Other decorated ware

Pl. XXV

1. Fragment of a middle portion of a vase of red ware. Of medium fabric showing an oxidized brick-red core, its self slipped exterior is decorated with horizontal grooves below a group of incised wavy lines.
2. Fragment of a red ware. Of medium fabric showing a semi oxidized core, interior of which is decorated with deep incised intersecting strokes.
3. Fragment of a dish of red ware with a flat base. Of medium fabric showing an oxidized core, its self slipped interior is treated with multiple shallow concentric grooves in the bottom.
4. Fragment of a basin of red ware with an externally clubbed rim and tapering sides. Of medium fabric showing an oxidized core, its interior is decorated with deep incised herring bone pattern.

D. Grey ware

Fig. 15

1. Fragment of a low-necked vase with a flat-topped, thickened, out-turned rim, carinated shoulder and bulging sides. Of medium fabric showing a fully reduced grey core, it has a self slipped exterior.



Pl. XXIV. Tarkhanewala-Dera : Black on red ware. See pp. 67, 70

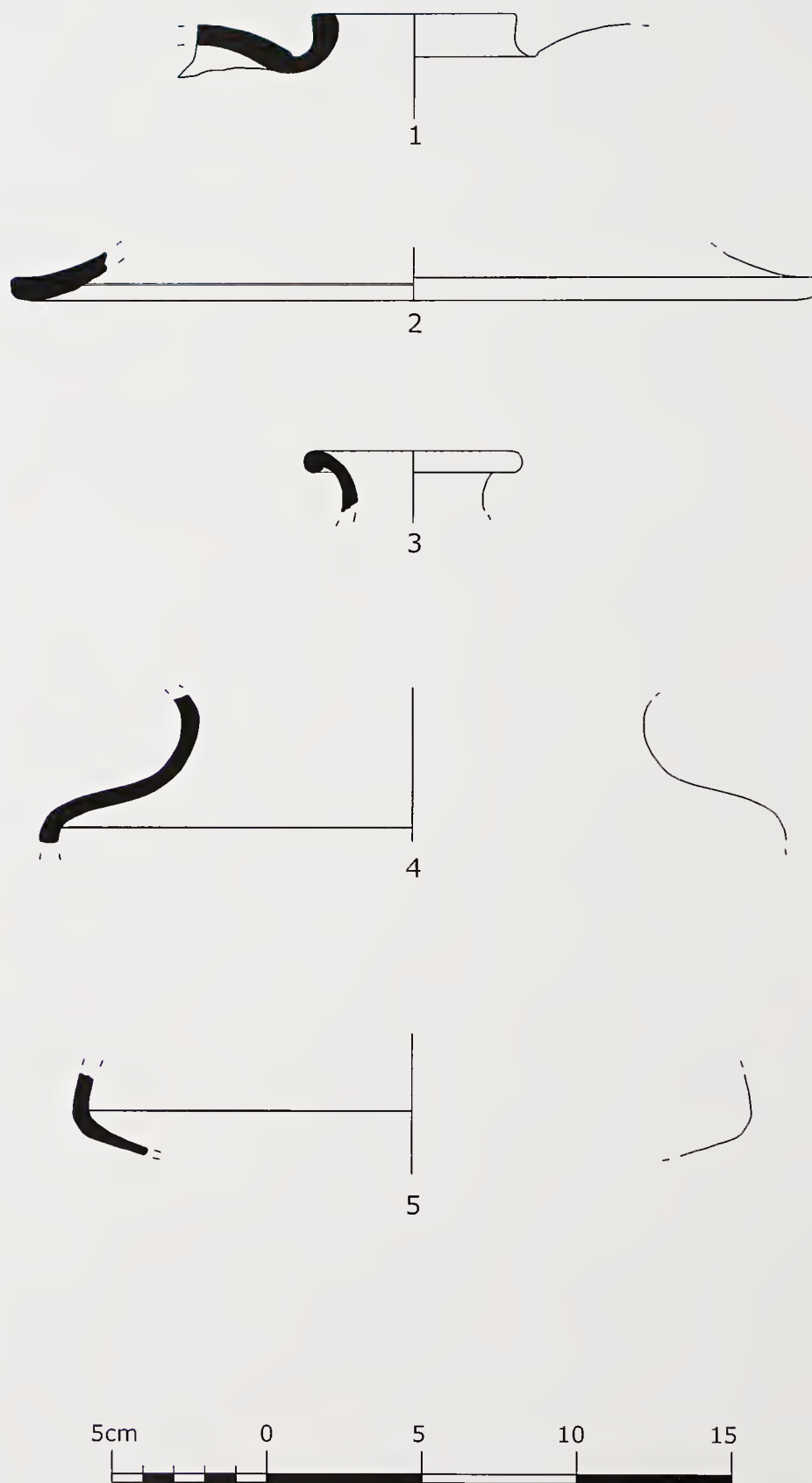


Fig. 15. Grey ware

5. Fragment of a basin of red ware. Of medium fabric showing a fully oxidized core, its interior is decorated with deep incised herring bone pattern.
6. Fragment of a middle portion of a basin with tapering sides. Of medium fabric showing a semi-oxidized core, its interior is decorated with deep incised slanting strokes, enclosed within horizontal grooves.

4. OTHER FINDS

A. BLADES

Forty-five parallel-sided chert blades in fragmentary state, nine bladelets and one core were recovered. Presumably they were imported from Bukkar (Pakistan), a major site of Harappan blade industry in this region, downstream the Indus and enroute Rohri to the key sites like Kalibangan and its neighbourhood, transported by boats plying the Nara-Hakra-Ghaggar.¹ Prepared by crested ridge guiding technique, they served as domestic pen-knives and sickle blades. Kenoyer has suggested that in the Indus Valley a unique technique called inverse indirect percussion was developed. "This procedure is perhaps the most efficient technique for chert-knapping. A wooden stake with an antler tip is set in the ground, and the core is held at a specific angle against the stake. In this technique, the core is struck and pushed against the pointed stake, which is firmly set in the ground. One sharp blow against the core from a wooden or another hammer can quickly detach a long, parallel-sided blade and without much effort, additional blades can be removed in quick succession. This technique, which may have

been invented during the Upper Palaeolithic period in South Asia was used during the later Indus period, probably with a copper or bronze pointed stake".²

Fig. 16; pl. XXVI

1. Parallel-sided long blade bearing a sharp cutting edge; shows trapezoidal section with broken ends. The slightly curved distal end is narrower than the proximal end. From layer no. 3 (Reg. no. 314).
2. Parallel-sided blade used as a penknife or sickle blade shows a trapezoid transverse section. It has retained bulb of percussion and striking platform at the proximal end. From layer no. 1 (Reg. no. 222).
3. Parallel-sided blade broken at either end shows a trapezoidal transverse section, its one edge has been retouched while the other retains unused margin. From layer no. 1 (Reg. no. 287).
4. Parallel-sided blade retaining a striking platform and bulb of percussion broken at the distal end. It shows chipped margins and trapezoid transverse section. From layer no. 1 (Reg. no. 63).
5. Parallel-sided blade with both the margins chipped due to overuse, has a trapezoidal transverse section. It is broken at the bulbar portion and shows an incurved tapering distal end presumably due to conical shape of the core. From layer no.1 (Reg. no. 369).
6. Parallel-sided blade has both margins retouched. It has a trapezoidal transverse section and is broken at both the ends. From layer no.1 (Reg. no. 134).

¹ S.P.Gupta, 'Internal Trade of the Harappans' *Frontiers of the Indus Civilization* (New Delhi, 1984), pp.419-420, fig.43.1; also Jonathan Mark Kenoyer, *Ancient Cities of the Indus Valley Civilization*, American Institute of Pakistan Studies, Oxford University Press (Delhi, 1998), fig.5.20 a.

² Kenoyer, *op.cit.*, p.34.



Pl. XXV. Tarkhanewala-Dera : Other decorated ware. See pp. 70, 73

7. Parallel-sided blade bearing close retouching on one margin whereas the other edge is left plain. It has a triangular transverse section and is broken at both the ends.
From layer no. 1 (Reg. no. 66).
8. Parallel-sided blade with trapezoidal transverse section displays razor sharp margins and a narrow curve at the distal end.
From layer no.3 (Reg. no. 379).
9. Minutely retouched parallel-sided flake with trapezoid transverse section broken at both the ends.
From layer no. 1 (Reg. no. 356).
10. Parallel-sided blade with one margin retouched and broken at both the ends. It has a trapezoid transverse section and retained bulb of percussion and striking platform.
From layer no.1 (Reg. no. 139).
11. Parallel-sided flake with broken ends shows trapezoid transverse section and retouched margins. It has retained bulb of percussion at the proximal end.
From layer no.2 (Reg. no. 109).
12. Parallel-sided blade with a trapezoidal section shows one edge chipped. Both the ends are broken.
From layer no.1 (Reg. no. 62).
13. Parallel-sided blade broken into two pieces, shows a trapezoid section and one retouched margin. It was used as sickle blade. The other margin has retained primary flake-cut.
From layer no.1 (Reg. no. 423).
14. Parallel-sided short blade, broken at the ends, shows trapezoid section and a curve at the distal end. It has preserved bulb of percussion and striking platform.
From layer no.1 (Reg. no. 286).
15. Parallel-sided short blade shows retouching on margin and a trapezoid transverse section.

It is broken at both the ends.

From layer no.1 (Reg. no. 168).

16. Fragment of a blade with chipped margins shows triangular transverse section. It has retained a portion of bulb of percussion.
From the surface (Reg. no. 58).
17. Fragment of a blade with both margins chipped and irregular triangular section is broken at the ends. It is an asymmetrical flake.
From layer no.1 (Reg. no. 307).

B. STONE OBJECTS

The stone artifacts comprise touchstone, sling ball, tablet, weight and drill-bits. Each of them is described below:

Pl. XXVII

1. Touchstone- Made of fine grained black chert stone, the ovaloid touchstone has plain truncated ends. The flat surface bears depression owing to use.
From the surface (Reg. no. 37).
2. Tablet- Roughly disc-shaped thick tablet made in coarse grained sandstone.
From layer no. 1 (Reg. no. 155).
3. Sling ball- A large spheroid made of coarse sandstone. It is slightly biconical in profile.
From the surface (Reg. no. 18).
4. Weight- Milky grey coloured fine polished weight made of chert (?). Its one face is slightly convex, while the other planes are plain.
From layer no. 2 (Reg. no. 274).
5. Drill bits- Fragments of drill-bits made of phtanite (not illustrated).
From layer no. 1 (Reg. no. 306).

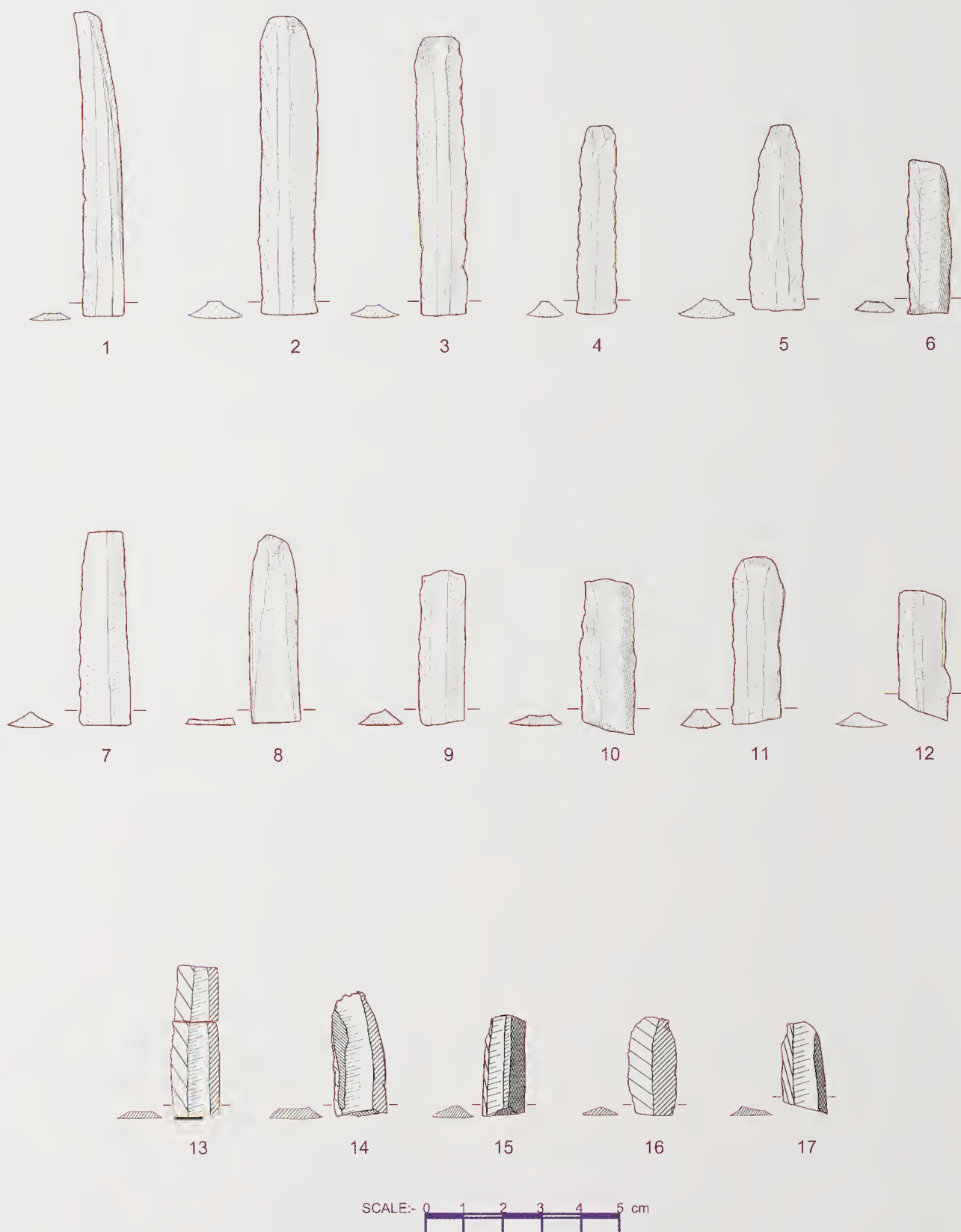
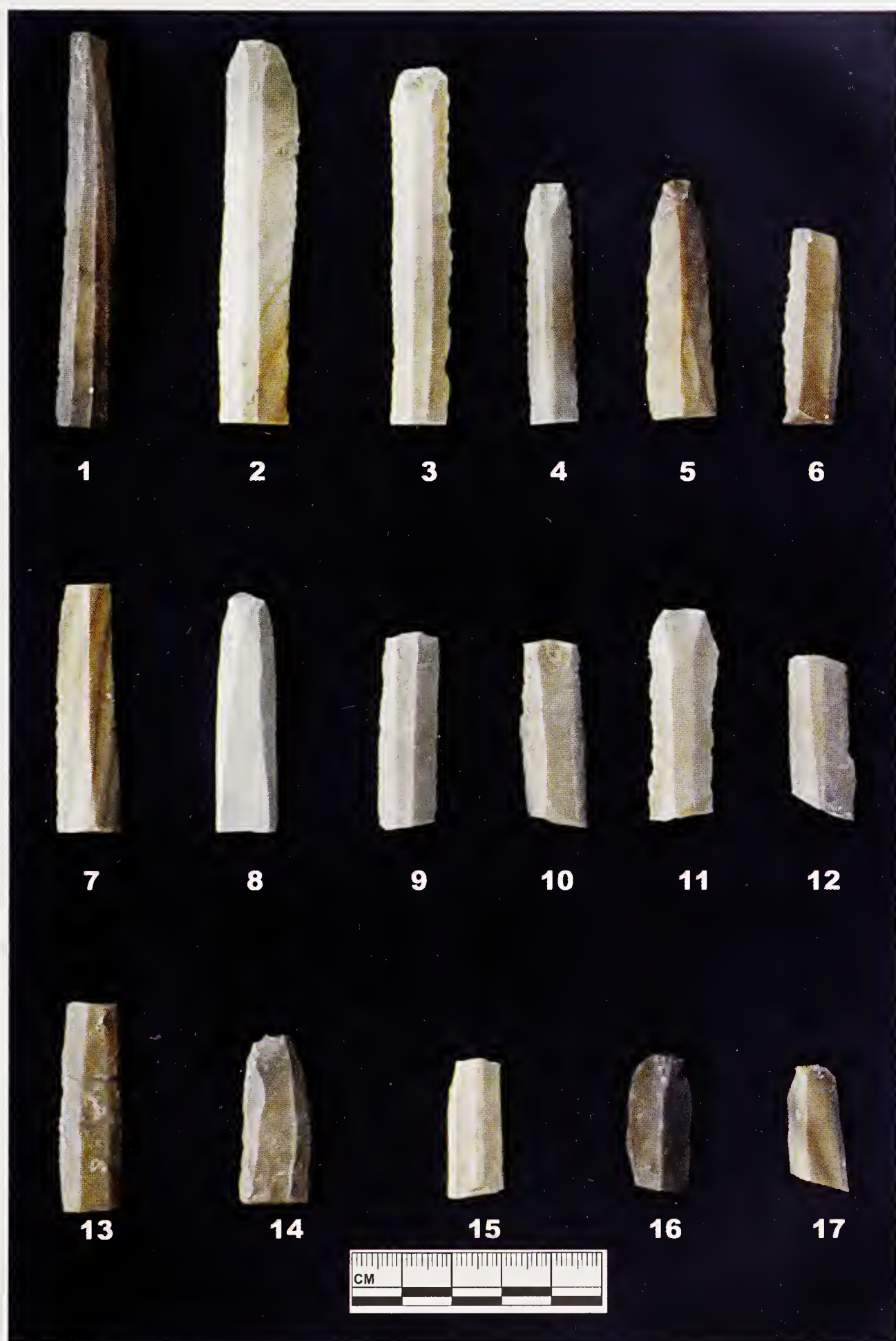


Fig. 16. Chert blades (1-17)



Pl. XXVI. Tarkhanewala-Dera : Chert blades. See pp. 73,75



Pl. XXVII. Tarkhanewala-Dera : Stone objects. See p. 75

C. TERRACOTTA OBJECTS

i. Figurines

Similar to most of the Harappan clay figurines, the excavated specimen are handmade, solid, coarse, naturalistic and highly stylized. It is not certain if they were modelled for secular, ritualistic or for both the purposes but this art of common people continued subsequently. Save for Harappa, in all the Indus Valley sites the number of male figurines is extremely low. They are generally modelled seated and exhibit pinched nose, rough workmanship, bare body, either clean shaven or bearded. Animal forms occur in abundance in all the Harappan sites. The most commonly represented animal is bull. The stylized bulls are short horned and lack dewlap. The excavated specimen do not represent seriousness of the artist but display conventional treatment meant for amusement and caricature. To this type also belong the crude forms of other animals shaped by pinching clay and applied pellets. They are bereft of pedestalled bases.¹

a. Human

Fig. 17; pl. XXVIII

Only one well-fired buff coloured, handmade, solid male figurine wearing a plain lower garment was found. Seated with extended legs presumably intended to be modelled conjoined, its hands are also broken. The head

is tonsured while the eyes and mouth are indicated by blind holes. The ears are conspicuous by their absence. The damaged nose is shaped by clinching the clay up. Akin to Lothal figurines, the nostrils are absent which are commonly met in the Indus Valley, but at the same time like other Harappan male terracotta it is devoid of any slip.² The notable feature of this small figurine is the goat like combed beard delineated in relief.³

From layer no.1 (Reg. no. 338).

b. Animal

Of the eight animal figurines recovered here no interesting feature could be noticed and exhibit no trace of any slip. Out of these only seven are described. A majority of them represent bull, lacking elegance and sensuousness, akin to other proto-historic cultures of the subcontinent. The bulls are modelled with humps and short outspreading horns as found in the contemporary levels of Gujarat and Sindh.⁴ No animal figurine or horn bear any painting. Seven of them are described here.

Fig. 18; pl. XXIX

1. A bull with a pronounced hump, sturdy built, short thick neck and raised head. It is overfired and drab in colour. The eyes are indicated by blind holes; while the ears, horns and tail have been obliterated, the mouth is badly damaged. The separately

¹ Arundhati Banerji, *Early Indian Terracotta Art* (New Delhi, 1994), pp. 25-31.

² Dilip K. Chakraborty, 'Terracotta of the Harappan Civilization with Special Reference to Indian Sites,' *Marg*, Vol. 54, Number 1, September, 2002 p.15.

³ A similar but quite large and beautifully modelled terracotta image, presumably wearing a horned dress from Mohenjodaro (DK 7508) is presently housed in Karachi Museum, Pakistan. For further details see Jonathan Mark Kenoyer, *Ancient Cities of the Indus Valley Civilization* (Delhi, 1998), pp.113 and 224.

⁴ Kenoyer, *op.cit.*, p.164.



Scale 
0 1cm

Fig. 17. Human figurine



Pl. XXVIII. Tarkhanewala-Dera : Terracotta human figurine. See p. 79

shown fore-legs being broken, its back is obliquely halved.

From layer no.2 (Reg. no. 88).

2. Fragment of a bull showing a short thick neck, drooping head, hump and muzzle made pointed by pinching. Dull red and moderately baked, the eyes are indicated by large oval see-through holes. The side stretching horns are damaged at the ends. Sturdy built animal appears to be in attacking mood. The rear portion is mutilated.

From layer no. 2 (Reg. no. 96).

3. Humped bull, dull red and moderately baked sturdy figurine, modelled with thick raised neck. The ears, horns and mouth are defaced. The lost tail is indicated by a ridge. The legs and rear portion have been obliterated.

From layer no.1 (Reg. no. 113).

4. Fragment of a bull with pointed hump and muzzle. Dull red and moderately baked, it is shown with thick neck and drooping head, side stretched horns and see-through pierced eyes. The hind part is mutilated. The figurine appears to be in charging pose.

From layer no.1 (Reg. no. 190).

5. Fragment of the head of a squirrel (?) showing thick neck, pointed mouth, deeply pierced eyes and raised bifurcated ears. It is well-fired and dull red in colour.

From the surface (Reg. no. 22)

6. Drab moderately baked head of animal showing slightly curved broken horns. The conical muzzle is shaped by pinching.

From layer no.1 (Reg. no. 91).

7. Dull red animal figurine (elephant ?) moderately baked and realistically modelled has large cephalic lobes, the proboscis (?) being mutilated. A ridge on the back denotes the traces of tail.

From layer no.2 (Reg. no. 331).

ii. Sling balls and Marbles

A dozen terracotta sling balls and marbles were found. Some of them are perfect spheroids, whereas others have been crudely modelled. The four large examples represent sling balls and the remaining eight were probably used as marbles by the children. Some of the marbles have retained the red wash but none bears any painting.

Sling balls

Pl. XXX

1. Well-baked buff coloured spherical ball with a slight biconical profile. It is crudely modelled.

From the surface (Reg. no. 30).

2. Moderately large sized, well-baked buff coloured roughly spheroid.

From the surface (Reg. no. 36).

3. Large sized, well-baked buff coloured crudely modelled spheroid.

From layer no. 1 (Reg. no. 177).

4. Crudely modelled, well-baked buff coloured spheroid.

From layer no. 2 (Reg. no. 209).

Marbles

Pl. XXXI

1. Well-baked, buff coloured perfectly rendered spheroid.

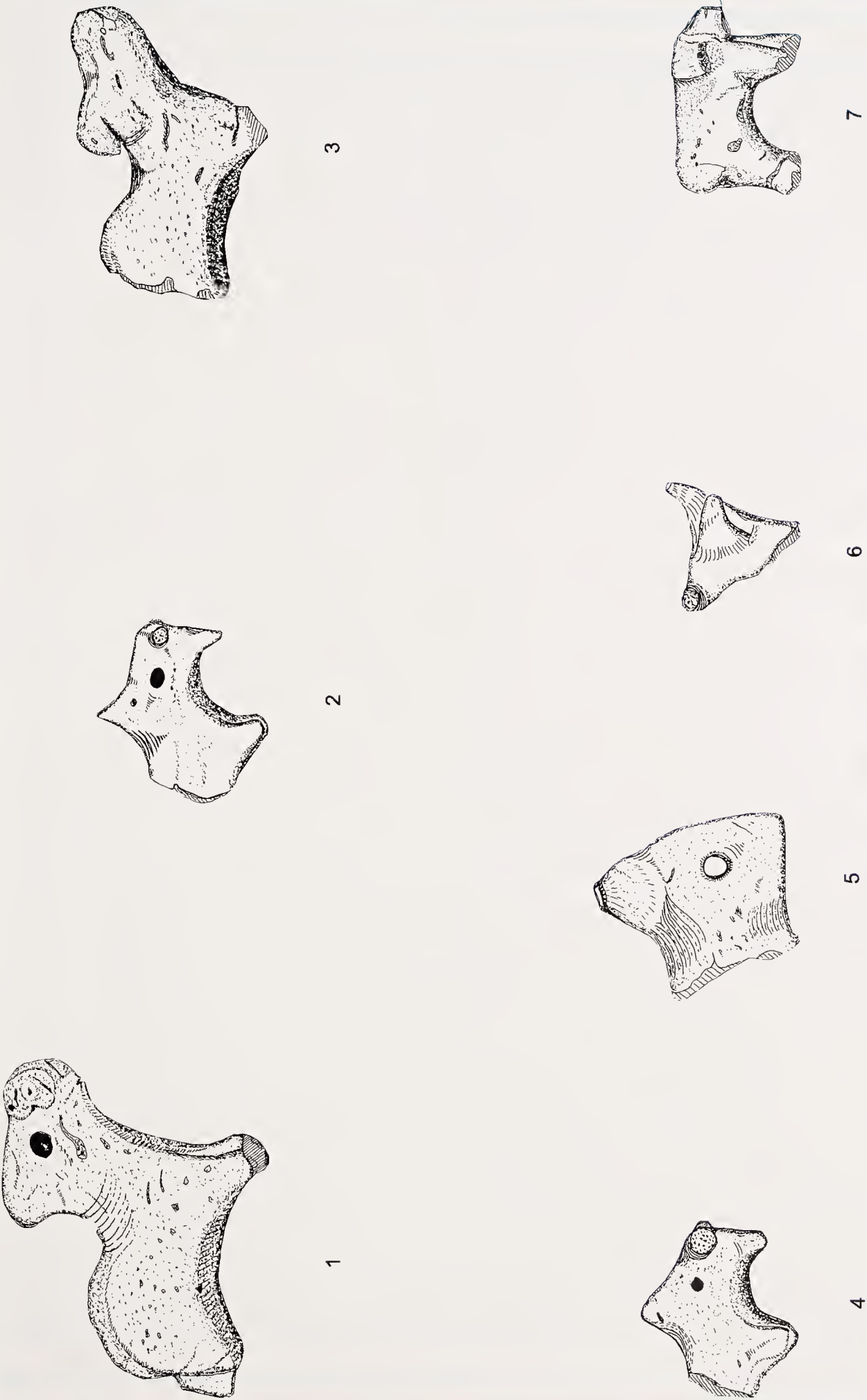
From the surface (Reg. no. 35).

2. Well-baked, spheroid coated with brick-reddish wash.

From layer no. 1 (Reg. no. 72).

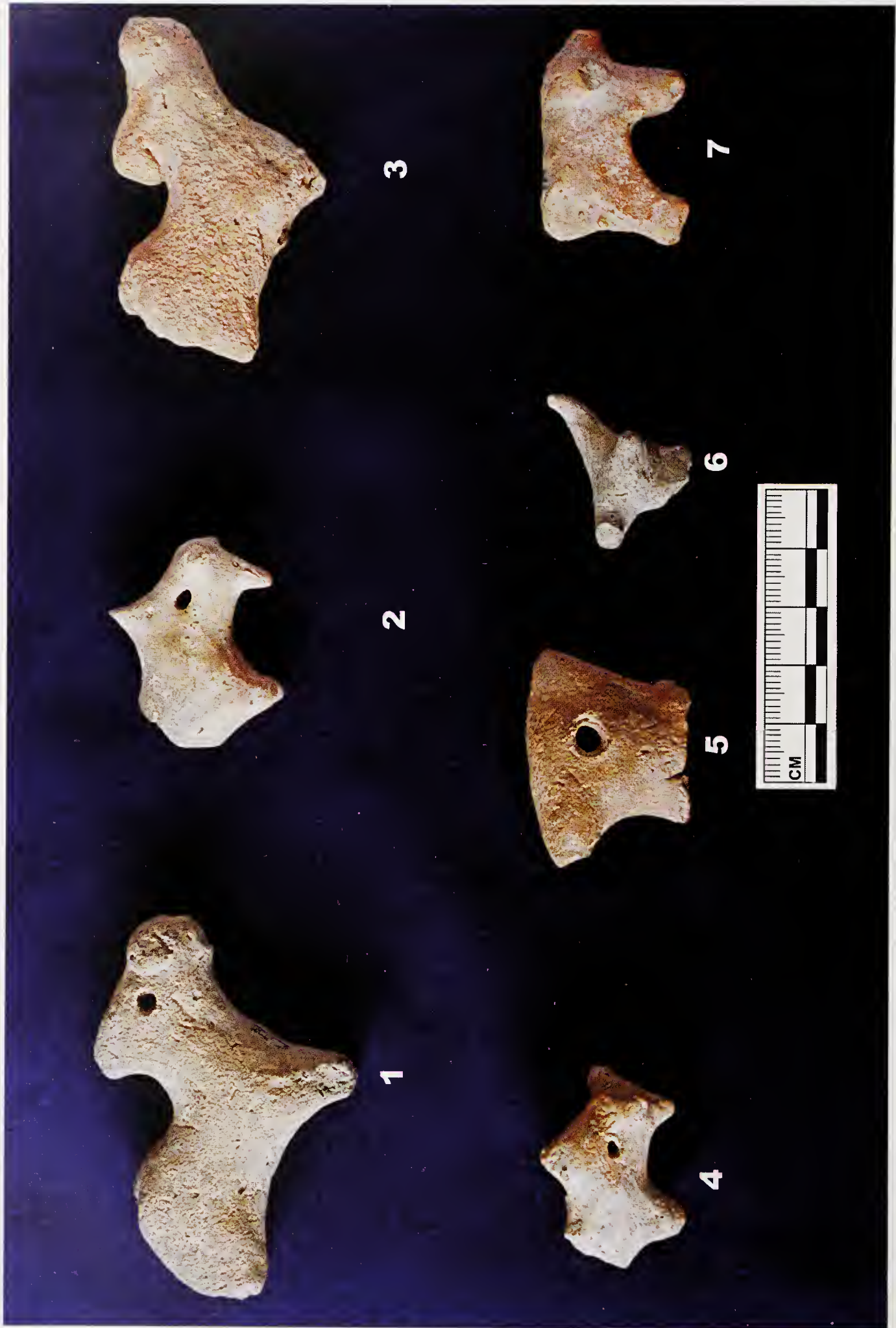
3. Well-baked, reddish spheroid. Partly broken.

From layer no. 3 (Reg. no. 123).



Scale:- 0 1 2 3 4 5cm

Fig. 18. Animal figurines (1-7)



Pl. XXIX. Tarkhanewala-Dera : Terracotta animal figurines. See pp. 79,82



Pl. XXX. Tarkhanewala-Dera : Terracotta sling balls. See p. 82

4. Well-fired, red coloured perfect spheroid.
From layer no. 1 (Reg. no. 208).
5. Well-baked red spheroid, slightly damaged.
From layer no. 1 (Reg. no. 234).
6. Well-baked, reddish spheroid, slightly chipped off.
From layer no. 1 (Reg. no. 276).
7. Well-baked, reddish, perfect spheroid.
From layer no. 2 (Reg. no. 317).
8. Well-baked, red coloured perfect spheroid.
From layer no. 2 (Reg. no. 415).

iii. Earrings

Seven circular earrings with a large hole for suspension were obtained. They are described below.

Pl. XXXII

1. Well-fired buff coloured plano-biconical ring.
From the surface (Reg. no. 71).
2. Well-fired, brick red thick ring with plano-convex section.
From layer no. 2 (Reg. no. 334).
3. Well-fired reddish ring with plano-convex profile.
From layer no. 1 (Reg. no. 211).
4. Reddish, plano-biconical ring. It is slightly damaged.
From layer no. 1 (Reg. no. 146).
5. Fragment of a well-baked reddish thick ring.
The external surface tapers so as to form a ridge, the inner surface being plain.
From the surface (Reg. no. 26).

6. Fragment of a ill-fired, dull red coloured thick ring with plano-convex section. Found in two pieces, it has been mended.
From layer no.2 (Reg. no. 294).
7. Well-fired, red coloured thick ring with plano-convex section. A major portion of the exterior has been chipped off.
From layer no. 1 (Reg. no. 233).

iv. Crucibles and Baby feeder cup

Crucibles were used by smiths for melting and casting metals. Two examples were recorded.

Pl. XXXIII

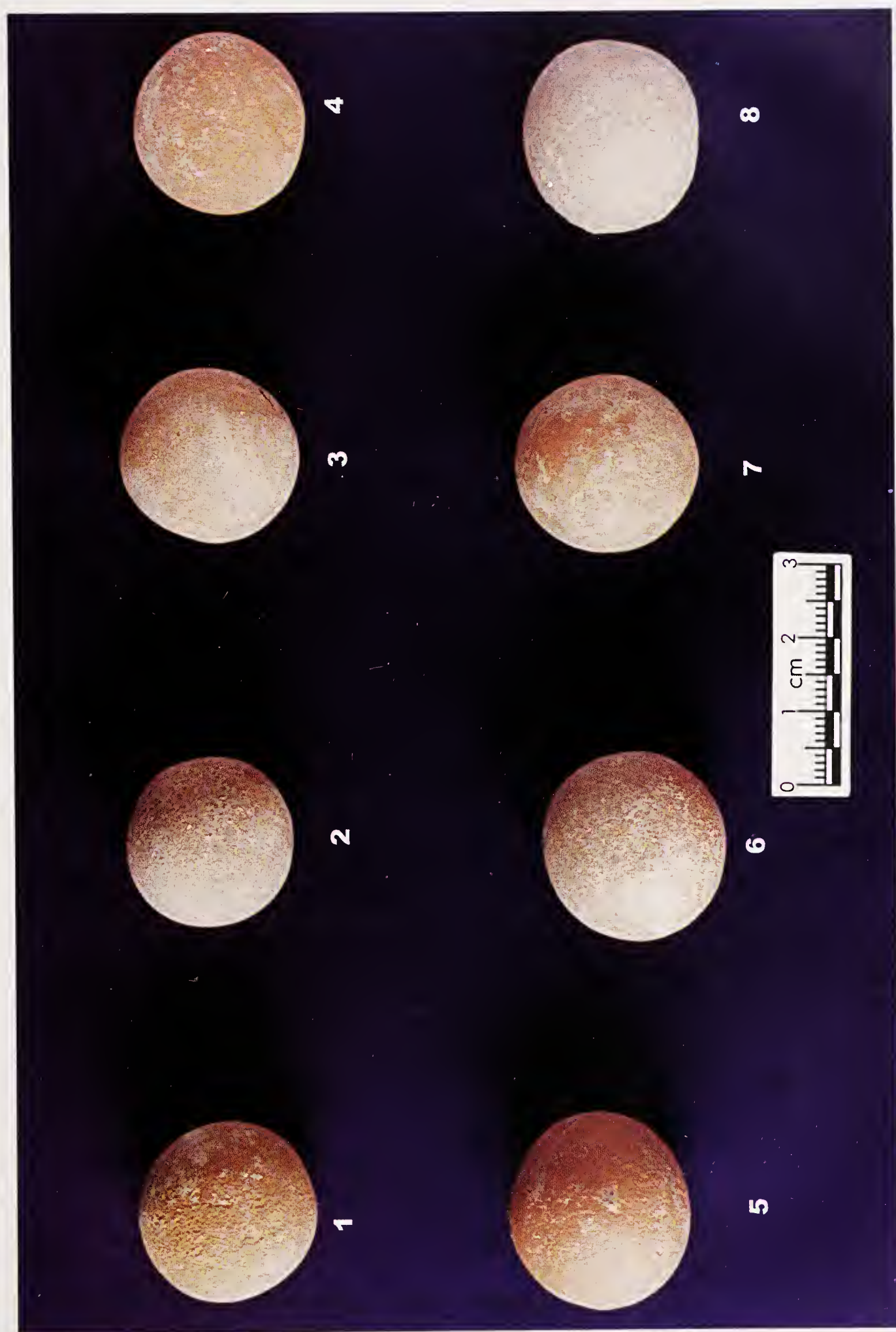
1. Well-baked, dull red wheel thrown and large, footed crucible has a wide mouth; it also bears a wash.
From layer no.1 (Reg. no. 366).
2. Well-baked handmade cup shaped crucible has flaring rim; it bears red wash.
From layer no. 1 (Reg. no.133).
3. Baby feeder cup has been reported from the Harappan levels at Harappa,¹ Mohenjo-daro,² Kalibangan,³ Dholavira and Juni Kuran⁴ etc. One specimen of handmade baby feeder cup was found. The well-fired, dull red and flat based cup is provided with a large opening on the top for pouring milk or water while the jet with a narrow opening on the other end for suckling purpose of the baby has been broken. It is of medium fabric and treated with wash.
From layer no.1 (Reg. no. 54).

¹ Madho Sarup Vats, *Excavations at Harappa*, 2 Vols. (New Delhi, reprinted 1999), pp.283 and 375, pl. LXXI. 67, 89.

² E.J.H. Mackay, *Further Excavations at Mohenjo-daro*, 2 Vols., p.210, pl. LXVI.1-2.

³ B.B.Lal, *The Earliest Civilization of South Asia* (New Delhi, 1997), p.172, pl. XIIB.

⁴ Subhra Pramanik 'Excavation at Juni Kuran 2003-04: A Preliminary Report' *Puratattva*, 34 (New Delhi, 2004), p.55, fig.9.



Pl. XXXI. Tarkhanewala-Dera : Terracotta marbles. See pp. 82, 86



Pl. XXXII. Tarkhanewala-Dera : Terracotta earrings. See p. 86



Pl. XXXIII. Tarkhanewala-Dera : Terracotta crucibles and baby feeder cup. See p. 86

v. Pyramidal objects

Pyramid shaped tetrahedrons (with four plane faces) might represent foot-men in a game of chess. Made of fine levigated clay they are imparted with red wash.

Pl. XXXIV

1. Well-baked tetrahedron having symmetrical planes. It bears red wash.
From layer no. 2 (Reg. no. 92).
2. Dull red coloured tetrahedron.
From layer no. 2 (Reg. no. 97).
3. A smaller example. Other particulars are similar to the above.
From layer no. 2 (Reg. no. 224).

vi. Discoid tablets and Hopscotch

The handmade disc shaped tablets are known from other Harappan sites. Either convex or concave in profile, they were used as game objects. Five discoid tablets and one hopscotch were found. They are described below:

Pl. XXXV

1. Small greyish thick discoid tablet with slightly raised edge. Both the surfaces are concave.
From layer no. 1 (Reg. no. 87).
2. Red discoid tablet with flat base, the concave surface has been slightly damaged.
From layer no. 1 (Reg. no. 193).
3. Small, dull red discoid tablet bears depression on either side.
From layer no. 1 (Reg. no. 158).
4. Dull red discoid tablet with one surface slightly convex, it has slightly been chipped off.
From layer no. 1 (Reg. no. 202).

5. Red coloured, well-fired circular hopscotch bears three parallel incised lines.
From layer no.1 (Reg. no. 81).
6. Ill-fired drab discoid tablet having one convex plane decorated with flower petals on both the sides. Its one surface is slightly damaged.
From layer no.1 (Reg. no. 347).

vii. Toycart frames

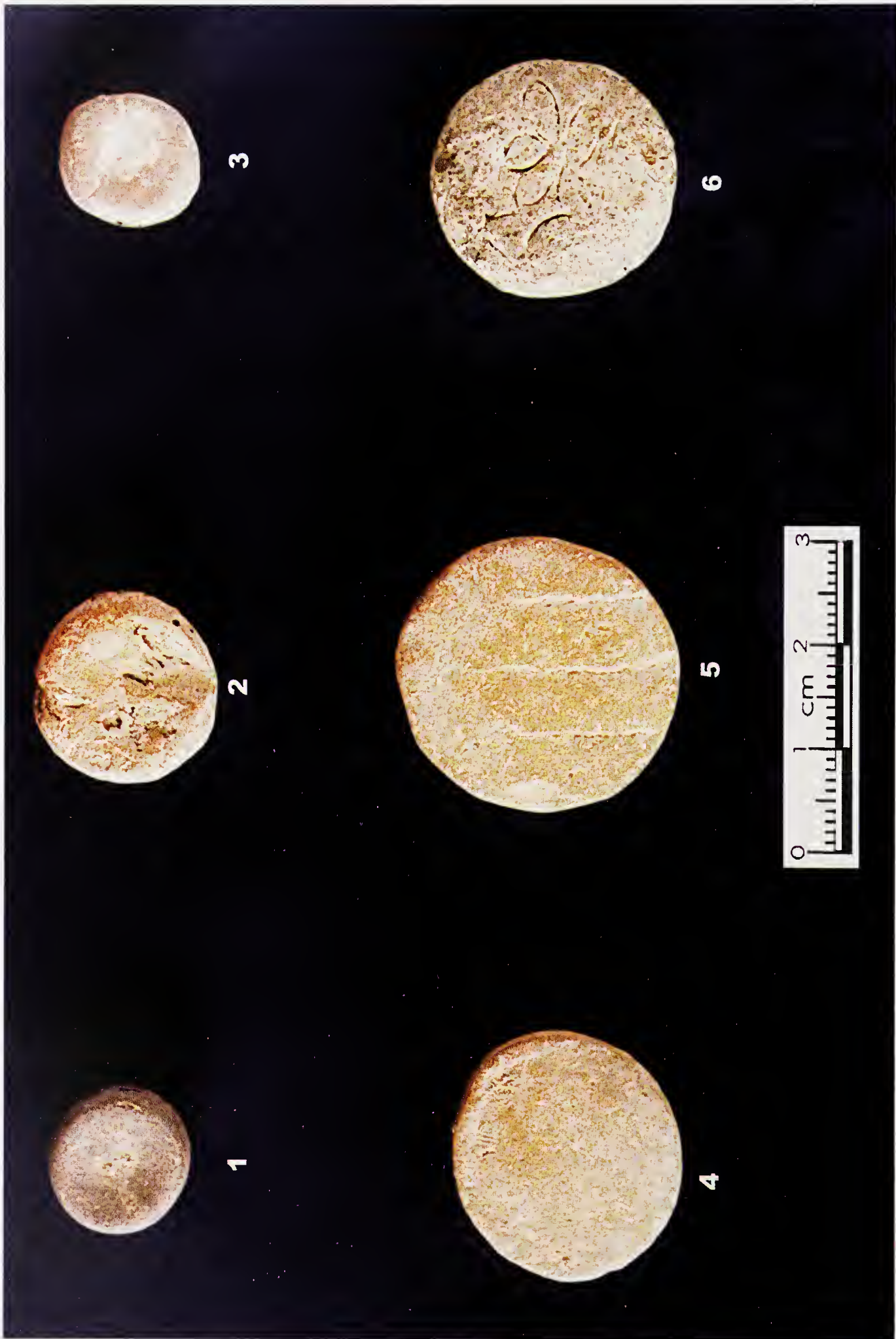
The toycarts are typified by solid or hollow chassis provided with holes for axle and perforations for setting removable sidings. They indicate that people used two-wheeled ox-cart for transportation as attested to by folks living in other Harappan sites.

Fig. 19; pl. XXXVI

1. Brick-red 'L' shaped fragment of a hollow chassis. It has retained a hole on the corner of the sidebar for fixing the axle.
From layer no.2 (Reg. no. 400).
2. Fragment of a dull red, rectangular chassis bearing two vertical holes on the corners and retaining one crossbar hole on the side. It has been obliquely mutilated.
From layer no. 2 (Reg. no. 223).
3. Dull red, small solid chassis, constricted in the middle is moderately baked. Roughly rectangular in shape, it is provided with two pairs of lateral holes for fixing axle with lashings. The central portion bears a see-through hole.
From layer no.2 (Reg. no. 281).
4. Dull red, small moderately baked hand made cylindrical cart-frame with a pair of lateral holes for providing wheels.
From layer no.2 (Reg. no. 301).



Pl. XXXIV. Tarkhanewala-Dera : Terracotta pyramidal objects. See p. 90



Pl. XXXV. Tarkhanewala-Dera : Terracotta discoid tablets and hopscotch. See p. 90

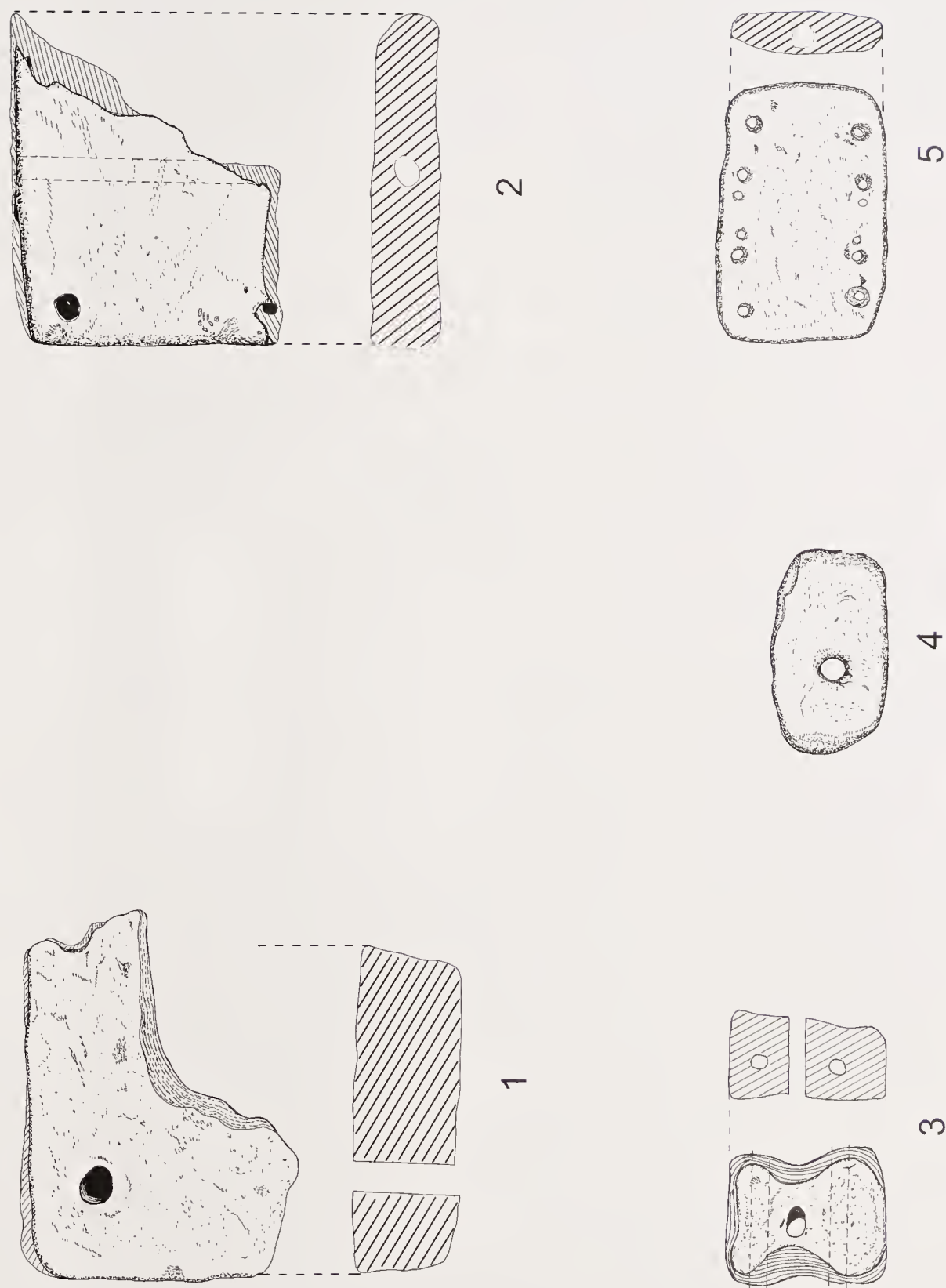


Fig. 19. Toy cart frames (1-5)



Pl. XXXVI. Tarkhanewala-Dera : Terracotta toy cart frames. See pp. 90, 95

5. Dull red, moderately baked rectangular handmade solid chassis is provided with six vertical see-through perforations on two sides and one blind hole on one of the narrower edges. The profile of chassis is slightly concave.

From layer no.1 (Reg. no. 255).

viii. Spinning tops

Terracotta cones with sharp point on the top and flat circular base were found. They differ from flanged, biconical counterparts of Lothal but are similar to Kalibangan and Baror. Probably they were used by the children to spin with the help of fingers. Six fragmentary specimens obtained from excavation are described below:

Pl. XXXVII

1. Small dull red conical spinning top with flat circular base and tapering to a point (broken).
From the surface (Reg. no. 03).
2. Fragment of a drab spinning top, the circular base and tapering point have been broken.
From layer no. 3 (Reg. no. 398).
3. Fragment of a drab spinning top with truncated tapering cone resting on a flat but irregular circular base.
From layer no. 2 (Reg. no. 205).
4. Buff coloured spinning top with broken tapering cone. The wide circular base is slightly concave in the middle.
From layer no. 3 (Reg. no. 378).
5. Buff coloured pointed cone of a spinning top; it is damaged at the base.
From the layer no.1 (Reg. no. 126).
6. Drab spinning top with a tapering top; the wide circular base is broken.
From the surface (Reg. no. 51).

ix. Spindle whorls

The spindle whorls were used for spinning and weaving. They are circular and plano-convex in profile with a hole for spindle in the centre. Seven examples were found. They are described hereunder:

Pl. XXXVIII

1. Fragment of a dull red coloured spindle whorl. It has only retained the projected hub meant for spindle.
From layer no. 1 (Reg. no. 183).
2. Fragment of a red-slipped spindle whorl. Its bottom is flat and circular whereas the section is plano-convex. The projected hub bearing a hole for fixing the spindle as well as the slightly raised circular margins are in badly damaged state.
From layer no. 2 (Reg. no. 258).
3. Fragment of a well-fired, dull red coloured plano-convex spindle whorl bearing a projected hole for fixing the spindle. Its circular flat portion is broken all around.
From layer no. 1 (Reg. no. 122).
4. Fragment of a well-fired red coloured spindle whorl. It has retained the hub portion, the circular flat part being completely broken. The projected hub bearing a hole for fixing the spindle is also damaged.
From layer no. 1 (Reg. no. 203).
5. Broken part of a red slipped, well-baked spindle whorl, it is rectangular in section and circular on plan. It bears a central perforation accommodating the spindle.
From layer no. 1 (Reg. no. 219).
6. Well-fired, disc-shaped, plano-convex spindle whorl provided with a flat circular bottom bears a prominent hub bearing a hole for fixing the spindle. The red-slipped whorl



Pl. XXXVII. Tarkhanewala-Dera : Terracotta spinning tops. See p. 95



Pl. XXXVIII. Tarkhanewala-Dera : Terracotta spindle whorls. See pp. 95, 98

is painted with black parallel oblique lines intersecting so as to form triangles. Its circular portion is broken.

From layer no. 1 (Reg. no. 73).

7. Well-fired, dull red coloured plano-convex spindle whorl provided with a flat, circular bottom and a projected hole for putting the spindle. It is in partly broken state.
From layer no. 1 (Reg. no. 128).

x. Spools

Spools are reported from various Harappan sites *viz.*, Lothal, Dholavira, Kalibangan, Baror etc. They were used for the purpose of rolling the cotton/silk threads. The excavation yielded eighteen handmade spools as described below:

Pl. XXXIX

1. Grey, cylindrical spool with slightly bulging hubs at both ends.
From the surface (Reg. no. 43).
2. Drab unfinished irregular cylindrical spool having slightly bulging hub at one end, the other end being broken.
From layer no.1 (Reg. no. 250).
3. Greyish, thin cylindrical spool with bulging hubs at both ends.
From layer no.1 (Reg. no. 364).
4. Buff coloured, well-baked elongated cylindrical spool having bulging hubs at both ends, partly damaged.
From layer no. 1 (Reg. no. 171).
5. Drab elongated cylindrical spool with prominent bulging hub at either end, one end is slightly damaged.
From the surface (Reg. no. 48).
6. Drab spool with large bulging hubs and constricted body.
From layer no. 2 (Reg. no. 225).
7. Red coloured, well-fired cylindrical spool with inconspicuous hub at either end.
From layer no.1 (Reg. no. 125).
8. Greyish, ill-fired cylindrical spool with usual hubs at both the ends.
From layer no.1 (Reg. no. 269).
9. Black-and-red coloured, thick cylindrical spool with hubs.
From layer no. 2 (Reg. no. 199).
10. Dull red, ill-fired thick cylindrical spool with hubs.
From layer no.1 (Reg. no. 341).
11. Red, well-fired cylindrical spool with two bulging hubs.
From layer no. 2 (Reg. no. 371).
12. Grey, ill-fired cylindrical spool with slightly bulging hubs at both the ends.
From layer no. 2 (Reg. no. 213).
13. Drab spool with prominent bulbous bulging hubs at both the ends.
From the surface (Reg. no. 27).
14. Buff coloured, well-fired elongated cylindrical spool with hubs at either end.
From layer no.1 (Reg. no. 166).
15. Greyish cylindrical spool with two unequal bulging hubs. Smaller hub is partly damaged.
From the surface (Reg. no. 16).
16. Dull red, well-fired comparatively larger cylindrical spool with prominent hubs at both the ends. In profile it is similar to a kettledrum.
From layer no.1 (Reg. no. 425).
17. Greyish ill-fired thick and large spool broken from the half. It retains a prominent bulging hub at one end.
From layer no.1 (Reg. no. 251).
18. Red, well-fired thick cylindrical spool with hubs at both the ends.
From layer no.1 (Reg. no. 355).



Pl. XXXIX. Tarkhanewala-Dera : Terracotta spools. See p. 98

D. BONE OBJECTS

Four bone objects recovered from the excavation are made out of ribs of mammals viz., ox, buffalo etc. Their paucity may be due to their friable nature. The implements include sharp-edged or pointed arrowheads, awl, needle and stylus or engraver.

Fig. 20; pl. XL

1. Buff coloured awl with a fine working point and polished surface is circular in section. Broken into two pieces, its other end was presumably also pointed.
From layer no. 2 (Reg. no. 397).
2. Fragment of a white coloured engraver with blunt point is circular in section. A knife mark for chiselling near the end is visible.
From the surface (Reg. no. 34).
3. Fragment of a short polished engraver with broken point, it is circular in section.
From layer no. 2 (Reg. no. 200).
4. Fragment of an awl/ stylus is circular in section. The tip of the polished tapering implement retaining the knife mark is broken.
From the surface (Reg. no. 45).

E. COPPER OBJECTS

Twenty-two copper objects were recorded. Presumably copper was obtained from the ancient mines of Khetri-Ganeshwar area and its neighbourhood. Distribution of these objects is as below:

i. Spearhead

An elongated symmetrical leaf shaped spearhead with a tang, sharpened at both the ends and terminating into a point is roughly rectangular in transverse section made of sheet metal, it is 29 cm long 7.5 cm wide and 2 mm in thickness. It resembles with dagger/knife having an equally long blade bereft of a mid rib. This type was hafted into a longitudinally cut wooden frame that acted as a mid rib averting the side play (Fig.21.2; pl. XLI). This variety is confined to the Harappan levels and has not been reported from the Gangetic valley. Previously also this site has yielded two copper spearheads.¹ Similar bronze objects are reported from Ropar and Mohenjodaro.²

From layer no. 2 (Reg. no. 428).

Spearhead	Chisel	Rods	Antimony rod	Bangle	Earring	Fish hooks	Needles	Rings
01	01	04	01	01	01	04	02	07

¹ R.C.Agrawala, 'Aravalli, the Major Source of Copper for the Indus and Indus-related Cultures,' *Frontiers of the Indus Civilization*, (ed.) B.B.Lal and S.P.Gupta (Delhi, 1984), p.160. R.C. Agrawala has informed that during exploration of Bikaner (1952-53), A. Ghosh had found copper objects here. See, photo-album of D.G.A., Neg. nos. 83-84.

² Y.D. Sharma, 'Harappan Complex on the Sutlej (India),' *Harappan Civilization*, (ed.) Gregory L. Possehl (Delhi, 1928), p.154, pl. 13.3, no.4; E.J. H.Mackay, *Further Excavations at Mohenjodaro*, 2 Vols (Delhi, 1938) p.460, pl.CXVII, no.8.




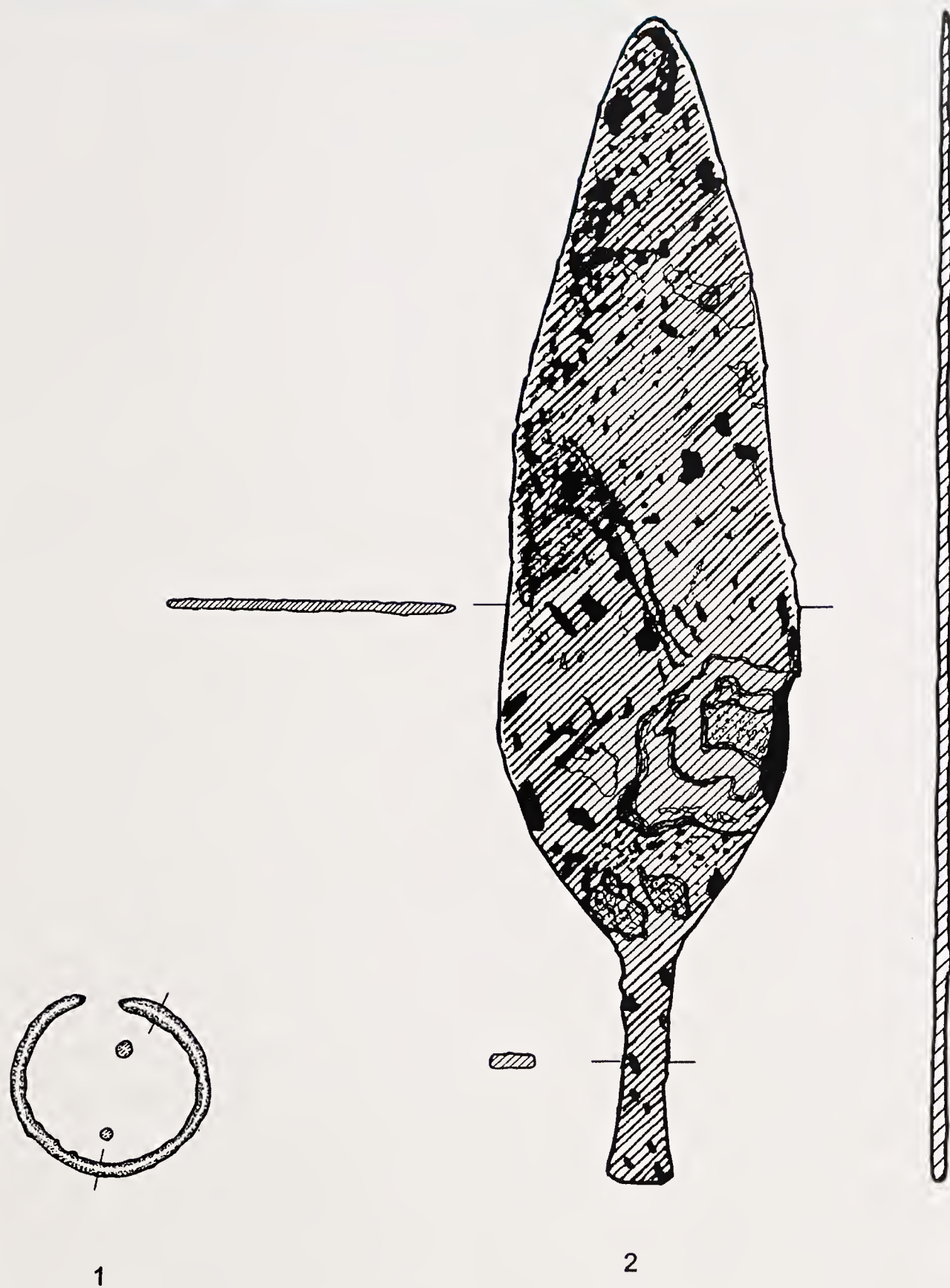
Scale 
0 1 2 3 4 cm

Fig. 20. Bone objects (1-4)



Pl. XL. Tarkhanewala-Dera : Bone objects. See p. 100



Scale 0 1 2 3 4 5cm
Fig. 21. Copper spearhead and bangle



Pl. XLI. Tarkhanewala-Dera : Copper spearhead. See p. 100

ii. Bangle

Bangle made from a round hammered rod bent in a full circle (dia 5 cm). It is 0.5 cm thick, circular in section and corroded (Fig. 21.1; pl.XLII). The shape between its ends could be pried apart to slip it over the wrist.¹
From layer no.1 (Reg. no. 167).

iii. Chisel, Rods and Antimony rod

Fig. 22; pl. XLIII

1. Chisel.- The tapering implement worked in a metal rod (15 cm x 01 cm) is rectangular in section while the narrower bevelled end to be stuck with hammer is ovaloid in section. Both the splayed margins are parallel. It was used for carpentry and engraving.²
From layer no.1 (Reg. no. 257).
2. Rod.- The tapering rod broken at pointed end measures 9.5 cm in length. It is circular (dia. 0.3 cm) in section. Similar objects have been found at Mohenjo-daro and Harappa.³
From layer no.1 (Reg. no. 393).
- 3 and 4. Two similar fragments measuring 3.2 cm (Reg. no.318) and 3.3 cm long (Reg. no. 382) respectively rectangular and circular in section were also found.
From layer no.3.

5. Fragment of rod.- Fragment of 4.3 cm long rod, flattened at both the ends by hammering, is roughly rectangular in section.
From surface (Reg. no. 1).
6. Antimony rod- A 14.5 cm long rod with a circular section (dia 0.7 cm) was possibly used as a large nail for boring or pegging. The middle portion is thicker than either end.⁴
From layer no.1 (Reg. no. 368).

iv. Earring and Fish-hooks

Fig. 23; pl. XLIV

1. The earring is made from a flat strip with ends joined by touching. The section is rectangular.
From layer no.1 (Reg. no. 172).
Four broken specimens of fish-hooks were found of which three are of barbed variety:
2. Fragment of a fish-hook with circular section, barb, loop and shank are damaged.
From layer no.1 (Reg. no. 351).
3. Crescent shaped fragment of a fish-hook retaining barb.
From layer no.1 (Reg. no. 83).
4. Small fragment of a fish-hook is rectangular in section.
From the surface (Reg. no. 38).
5. Small 'U' shaped fragment of a fish-hook made of thick wire.
From layer no. 1 (Reg. no. 67).

¹ Similar bangles have been found from Lothal and Early Harappan levels of Kalibangan. S.R.Rao, *op.cit.*, p.546, fig.115, pl.CCXLII; B.B.Lal and S.P.Gupta *op.cit.*, p. 229, pl. XXXVIII, no.9.

² This variety is also known from Mohenjo-daro, Mackay, *op.cit.*, pp. 473-75 (pls.CXIV, nos. 2,3,5, CXV, no.12).

³ Mackay, *op.cit.*, pp. 475-76, pl. CXXXI, no.10; Madho Sarup Vats, *Excavations at Harappa*, 2 Vols. (Delhi, 1940) p.390, pl. CXXV, no.33.

⁴ It is comparable with Mohenjo-daro, Mackay, *op.cit.*, pp. 473-75 (pls.CXXI, nos.8,9,17, CXXIV, nos 3-5, 11-12), where it has been identified as chisel, S.R.Rao has identified this to be rod in his 'Lothal-A Harappan Port Town, Vol.II (New Delhi, 1985), p.533.



Pl. XLII. Tarkhanewala-Dera : Copper bangle. See p. 105

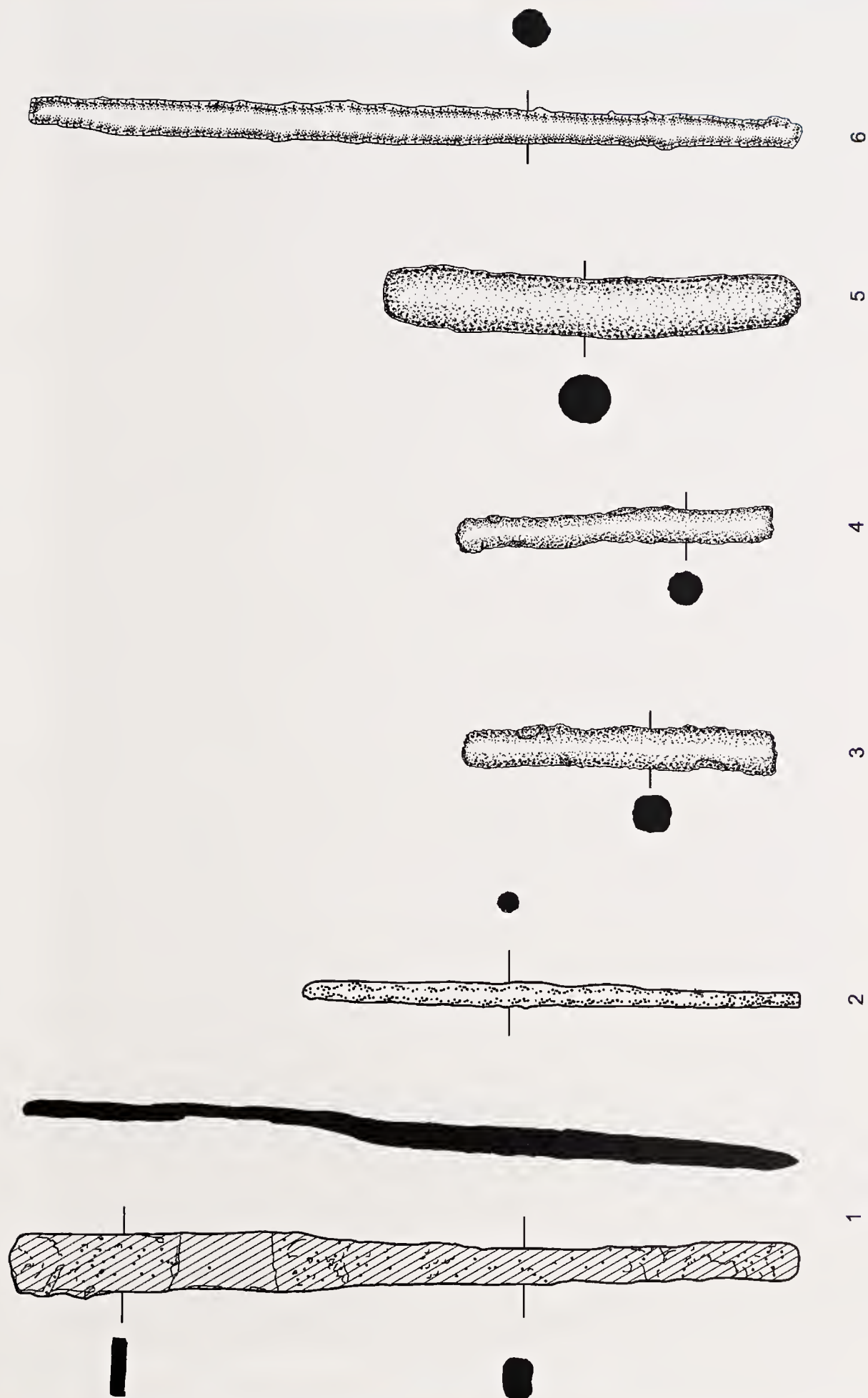


Fig. 22. Copper chisel, rods and antimony rod



Pl. XLIII. Tarkhanewala-Dera : Copper chisel, rods and antimony rod. See p. 105

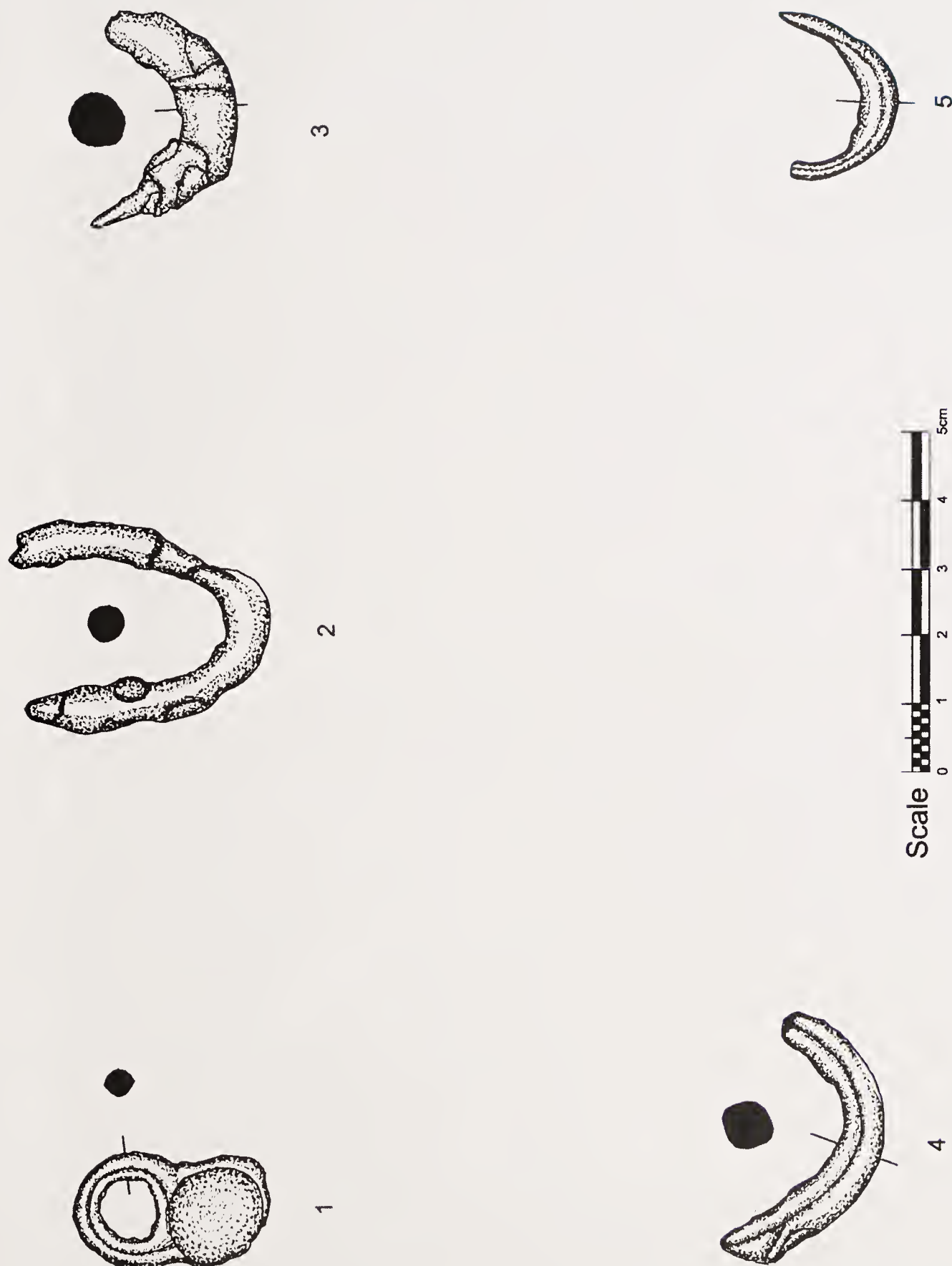


Fig. 23. Copper earring and fish-hooks



Pl. XLIV. Tarkhanewala-Dera : Copper earring and fish-hooks. See p. 105

v. Needles and Rings

Two needles and seven rings were recorded.

Fig. 24; pl. XLV

1. A small needle (2.5 cm long) made from a wire with round section, eyelet is indistinct due to incrustation.
From layer no.1 (Reg. no. 206).
2. A needle (5.5 cm long), made from a wire with broken eyelet, is round in section.
From layer no. 1 (Reg. no. 207).
3. Ring formed from a flat strip, overlapping ends.
From layer no. 1 (Reg. no. 79).
4. Ring made from thick wire is roughly circular in section, presently assuming an ovaloid shape, it possesses a joint opening.
From surface (Reg. no. 49).
5. A small ring made from a circular wire.
From layer no.1 (Reg. no. 279).
6. A small ring with joint opening.
From layer no.2 (Reg. no. 156).
7. Fragment of a ring made from a flat strip of wire elliptical in section.
From layer no. 1 (Reg. no. 65).
8. A small ring with wide joint opening. It has a round section.
From layer no.2 (Reg. no. 293).
9. A small circular ring made of thin wire has a joint opening. Its central part is thick.
From layer no. 3 (Reg. no. 337).

F. MISCELLANEOUS OBJECTS

i. Amulets

These are flat based truncated, cylindrical objects provided with a groove running along the perimeter. In the Harappan context they have

been found in association with adult or married women.¹ Of the fifteen specimen, made of stone or terracotta, only twelve are described here.

Pl. XLVI

1. Buff coloured cylindrical-cum-conical amulet with flat base and an incised groove below the truncated top for holding cord or wire. Made of terracotta, it is partly damaged.
From layer no.1 (Reg. no. 80).
2. Flat based slightly squattish conical amulet with an incised groove below the truncated top. Its upper half is dark tan and the lower portion is buff in colour. It is made of agate.
From layer no. 2 (Reg. no. 377).
3. Grey coloured conical amulet bearing deep incised groove below the truncated top. Made of serpentine, it is damaged on the lateral half and owing to which its flat circular base has turned oval in shape.
From layer no. 3 (Reg. no. 383).
4. Flat based elongated conical amulet bears a groove near the truncated top. It is made of black serpentine.
From layer no. 1 (Reg. no. 387).
5. Drab coloured flat based conical-cum-cylindrical amulet bearing an incised groove below the truncated top. The latter is partially damaged. It is made of serpentine.
From layer no. 1 (Reg. no. 352).
6. Greyish, very small flat based conical amulet bears a groove below the truncated top. It is made of serpentine.
From layer no. 1 (Reg. no. 391).
7. Grey coloured serpentine made flat based, cylindrical amulet with pronounced incised groove below the button shaped truncated

¹ Kenoyer, *op.cit.*, p.123, fig. 6.23; S.R.Rao had identified them as weights; see S.R.Rao, Lothal — A Harappan Port Town 1955-62, Vol II, *MASI*, No.78 (New Delhi,1985), pp.577, 650-61.

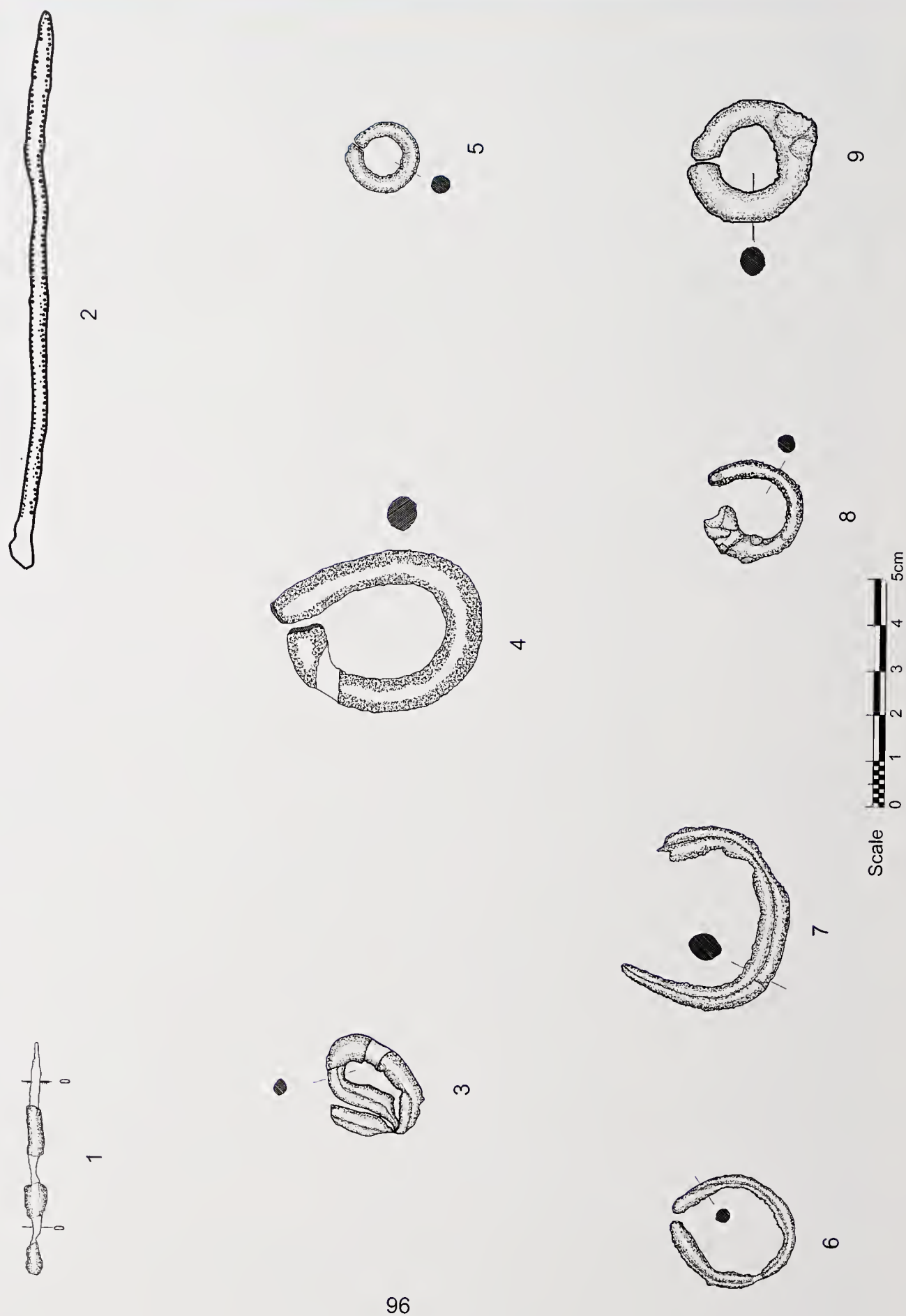


Fig. 24. Copper needles and rings



Pl. XLV. Tarkhanewala-Dera : Copper needles and rings. See p. 111

top is slightly damaged near the base.

From the surface (Reg. no. 05).

8. Drab coloured, flat based cylindrical conical amulet is the tallest among the lot. It bears a deep incised groove below the truncated flat top. It is made of serpentine.
From layer no. 1 (Reg. no. 164).
9. Buff coloured conical polished amulet bearing an incised groove below the truncated top has been slightly damaged at the base. It is made of serpentine.
From layer no. 1 (Reg. no. 350).
10. Grey coloured, elongated conical amulet with an incised groove at the truncated top. Its base and vertical profile have been damaged. It is also made of serpentine.
From layer no.1 (Reg. no. 188).
11. Flat based, elongated conical amulet made of grey serpentine, bears a deep incised groove near the top.
From layer no. 4 (Reg. no. 117).
12. Dark grey coloured, flat based conical amulet made of serpentine bears a deep incised groove below the truncated top.
From the surface (Reg. no. 39).

ii. Terracotta

Pl. XLVII

1. Gamesman- Grey coloured crudely executed unicone gamesman resting on a concave base.
From layer no.1 (Reg. no. 112).
2. Castle- Well-baked, greyish circular based cylindrical castle. Its top is broken.
From layer no. 1 (Reg. no. 191).
3. Pendant- Brick red, arecanut-shaped small pendant, its partly chipped circular base is perforated with a needle.
From layer no. 2 (Reg. no. 328).

iii. Bangles and Shell disc

Pl. XLVIII

1. Fragment of a white coloured plain shell bangle, plano-convex in section.
From the surface (Reg. no. 42).
2. Fragment of a white coloured plain shell bangle with rectangular transverse section.
From layer no.1 (Reg. no. 102).
3. Fragment of a creamy white, plain thick shell bangle. It is plano-convex in section.
From layer no.2 (Reg. no. 312).
4. Fragment of an off white plain and unevenly thick bangle. It is concavo-convex in section.
From the surface (Reg. no. 52).
5. Fragment of a faience bangle with incised oblique strokes. It is plano-convex in section.
From the surface (Reg. no. 129).
6. White coloured tiny circular plain shell disc, top is obliquely abraded.
From the surface (Reg. no. 33).
7. Fragment of a faience bangle with a groove. It is concavo-convex in section. Traces of silver coloured painting are visible.
From layer no.1 (Reg. no. 362).
8. Fragment of a thick faience bangle incised with hatched design. It is bi-convex in transverse section.
From the surface (Reg. no. 53).
9. Fragment of a thin faience bangle incised with wavy design. It is triangular in transverse section. It retains traces of silver coloured painting.
From layer no. 2 (Reg. no. 418).
10. Fragment of a tiny thin faience bangle with grooved upper surface. Lateral sides are incised with vertical strokes. It is plano-concave in section.
From the surface (Reg. no. 41).
11. Fragment of a thick faience bangle with surface incised with oblique strokes. It is triangular in section.
From layer no. 1 (Reg. no. 344).




Pl. XLVI. Tarkhanewala-Dera : Amulets. See pp. 111, 114

5. SCRIPT

SEAL, SEALING AND GRAFFITI

One rectangular terracotta seal was found bearing five letters in two rows besides an impression of a seal on terracotta lump exhibiting a figurine of unicorn and four letters. In the latter example three broken letters were also seen on the lower part of the broken portion of the clay lump. A potsherd bearing a letter in Harappan characters was also reported. The first two inscriptions do not tally with the published seals and sealings.¹

In all thirteen Harappan signs² are available which are reproduced below and are well comparable to the Indus signs.

The sign  was also noticed earlier from a potsherd at Tarkhanewala-Dera.³ From this site an inscribed seal and potsherds bearing graffiti have been reported earlier.⁴

A. SEAL :

Pl. XLIX, A-B

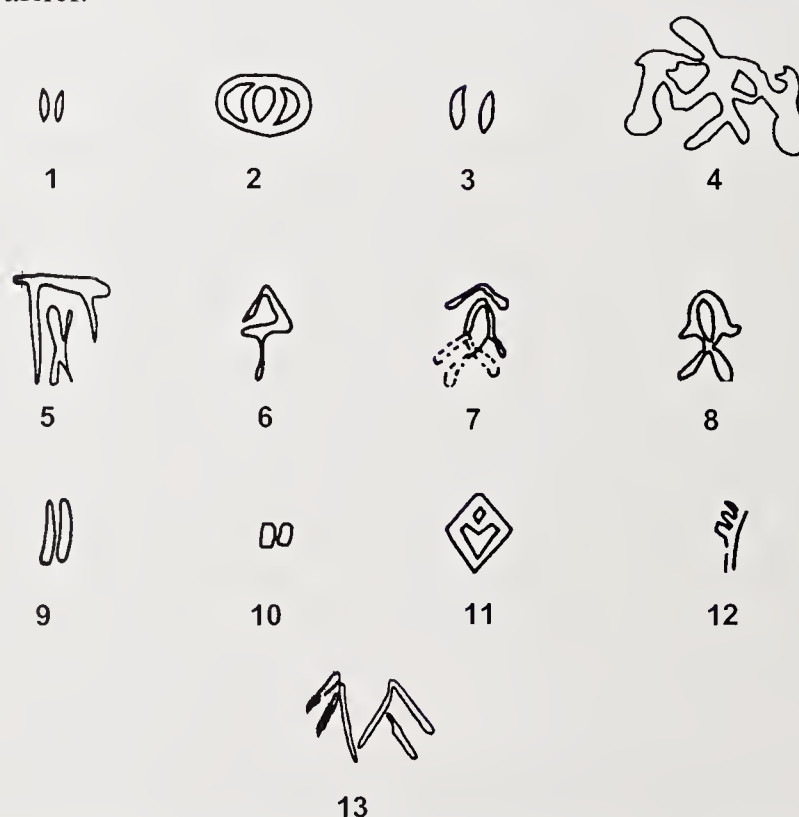
A terracotta square seal with a perforated boss on the reverse and representation of five Harappan characters in two rows on the obverse. From layer no. 4 (Reg. no. 119)

B. SEALING :

Pl. L

Impression of a square seal on terracotta lump representing a unicorn standing before a bowl like receptacle on an upright support below four Harappan symbols. Three fragmentary Harappan characters are also seen on the lower part of the broken clay lump.

From layer no. 1 (Reg. no. 247)



¹ Jagat Pati Joshi and Asko Parpola, *Corpus of Indus Seals and Inscriptions*, 1. Collections in India, *MAI*, No. 86, (Helsinki, 1987).

² For each sign, see different seals and sealings in *ibid.*

³ *Op. cit.*, p.363, Fig. Tkwd 3A

⁴ *Ibid.*, p.363, Fig. Tkwd-1A, Tkwd-1B, Tkwd-2A and Tkwd 3A



Pl. XLIX A. Tarkhanewala-Dera : Harappan seal, obverse and reverse. See p. 118



Pl. XLIX B. Tarkhanewala-Dera : Harappan seal and its impression. See p. 118



Pl. L. Tarkhanewala-Dera : Terracotta lump bearing impression of Harappan seal. See p. 118

TABLE-III
LAYER-WISE DISTRIBUTION OF BEADS CLASSIFIED ACCORDING TO MATERIAL
(See figs. 25 - 26)

Layer Material	1	2	3	4	Unstratified/ Surface	Total	Percentage
TERRACOTTA	46	42	04	—	08	100	26.73%
FAIENCE	15	09	03	01	02	30	8.02%
AGATE	06	04	02	—	04	16	4.27%
SHELL	04	01	—	—	—	05	1.33%
BLACKSTONE	01	—	—	—	—	01	.26%
AMETHYST	—	—	—	—	01	01	.26%
LAPIS LAZULI	—	01	—	—	—	01	.26%
CARNELIAN	19	14	01	—	05	39	10.42%
STEATITE	16	153	02	01	09	181	48.3%
TOTAL	107	224	12	02	29	374	

LAYER-WISE DISTRIBUTION OF BEADS TARKHANEWALA-DERA

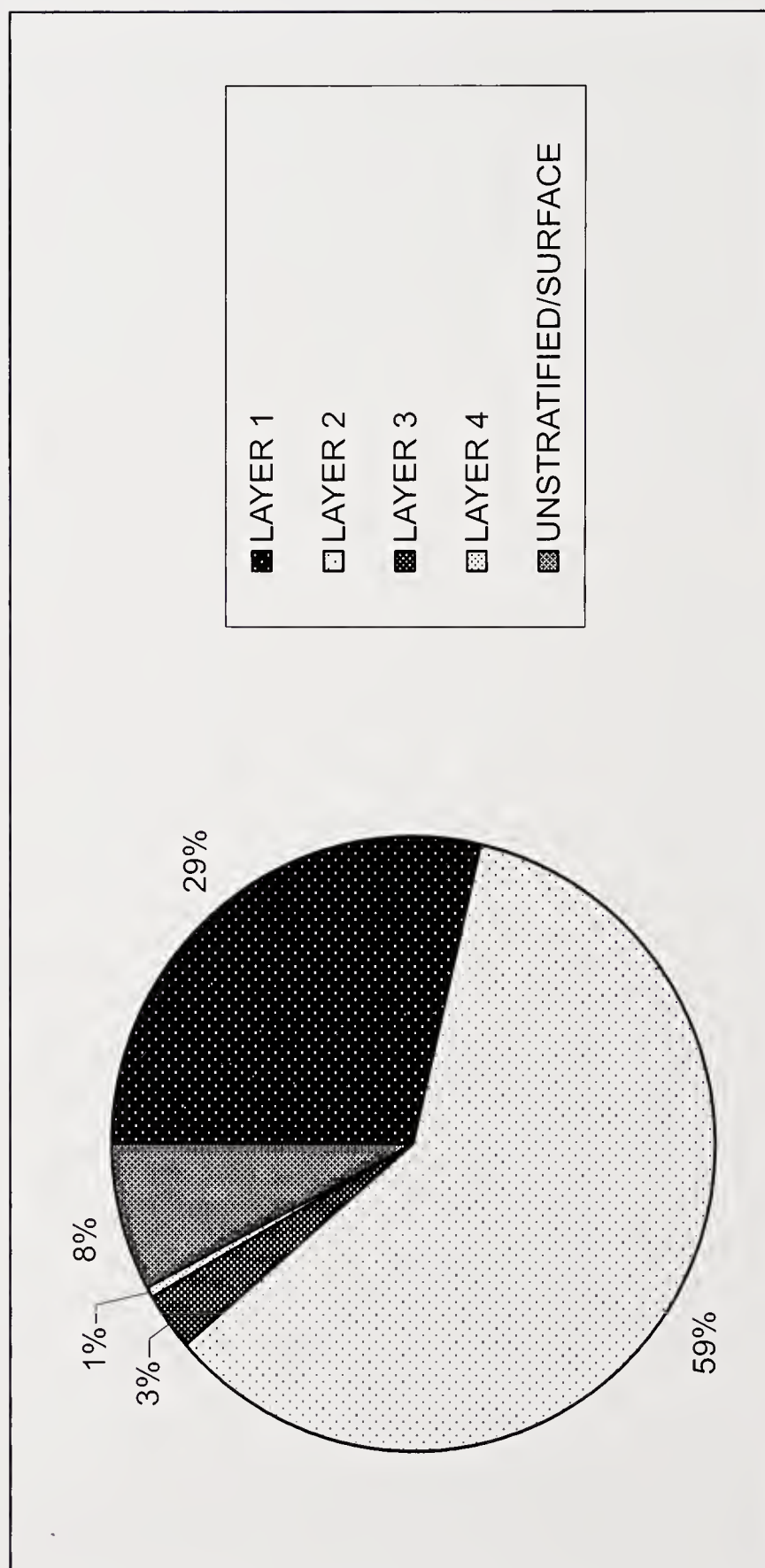


Fig. 25

MATERIAL-WISE CLASSIFICATION OF BEADS TARKHANEWALA-DERA

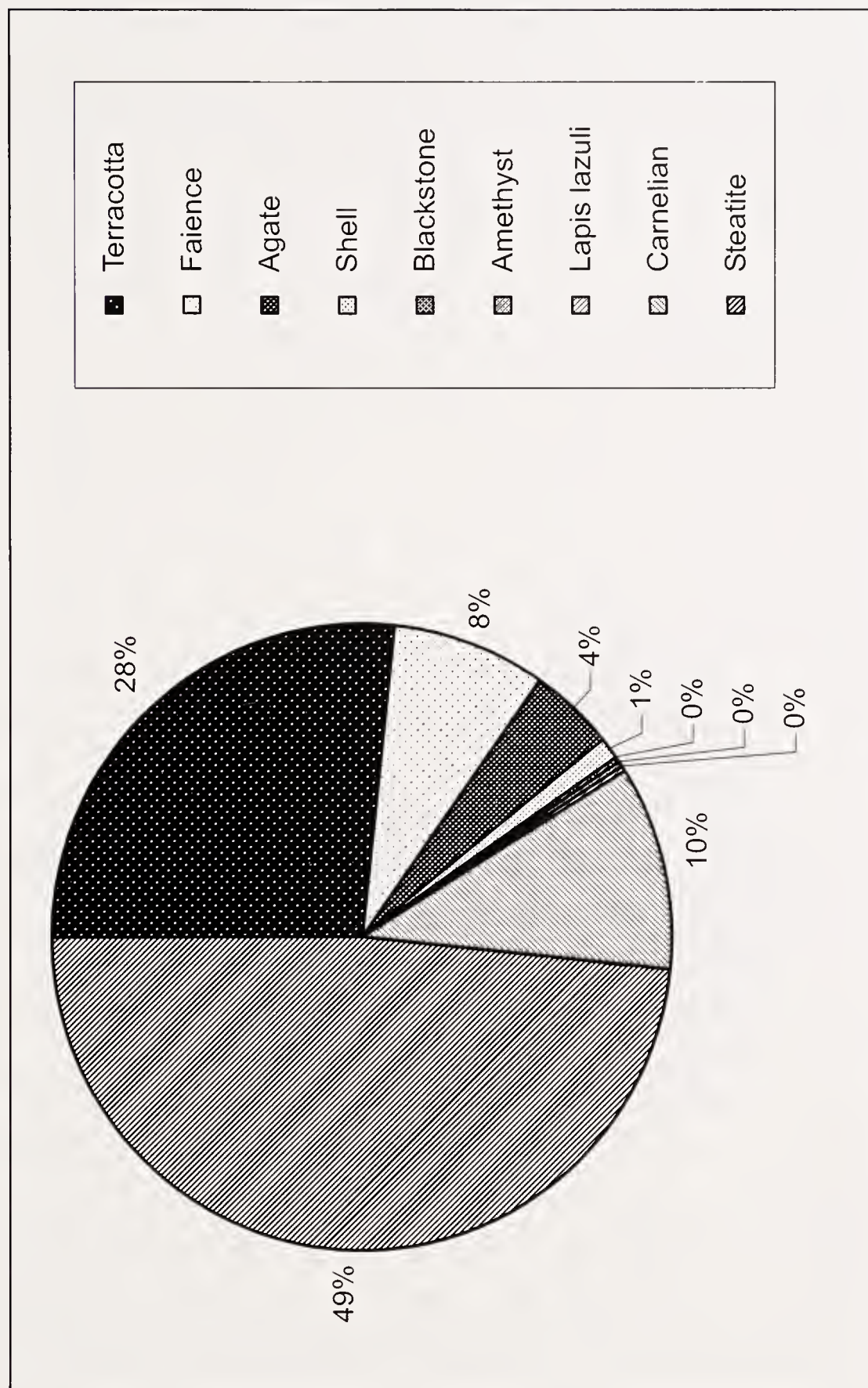


Fig. 26

TABLE-IV
 LAYER-WISE DISTRIBUTION OF BEADS CLASSIFIED ACCORDING TO SHAPES
 (See fig. 27)

Layer Shapes		1	2	3	4	Unstratified/ Surface	Total	Percentage
Barrel	Short	01	—	—	—	—	01	.26%
	Standard	04	02	—	01	—	07	1.87%
	Long	17	15	03	01	05	41	10.96%
Cylinder	Short	06	05	—	—	04	15	4.01%
	Standard	—	10	01	—	01	12	3.20%
	Long	08	03	01	—	01	13	3.47%
Tubular	Short	—	—	—	—	—	—	—
	Standard	—	01	—	—	—	01	.26%
	Long	04	01	—	—	—	05	1.33%
Biconvex	Short	01	02	—	—	—	03	.80%
	Standard	04	03	—	—	01	08	2.13%
	Long	—	02	—	—	—	02	.53%
Bicone	Short	26	27	01	—	08	62	16.57%
	Standard	04	15	—	—	02	21	5.61%
	Long	06	05	01	—	01	13	3.47%
Spherical		21	11	04	—	05	41	10.96%
Disc		03	97	01	—	—	101	27%
Gadrooned		—	01	—	—	—	01	.26%
Micro beads		—	22	—	—	—	22	5.88%
Bead spacer		01	02	—	—	01	04	1.06%
Cube		01	—	—	—	—	01	.26%
		107	224	12	02	29	374	

SHAPE-WISE DISTRIBUTION OF BEADS

TARKHANEWALA-DERA

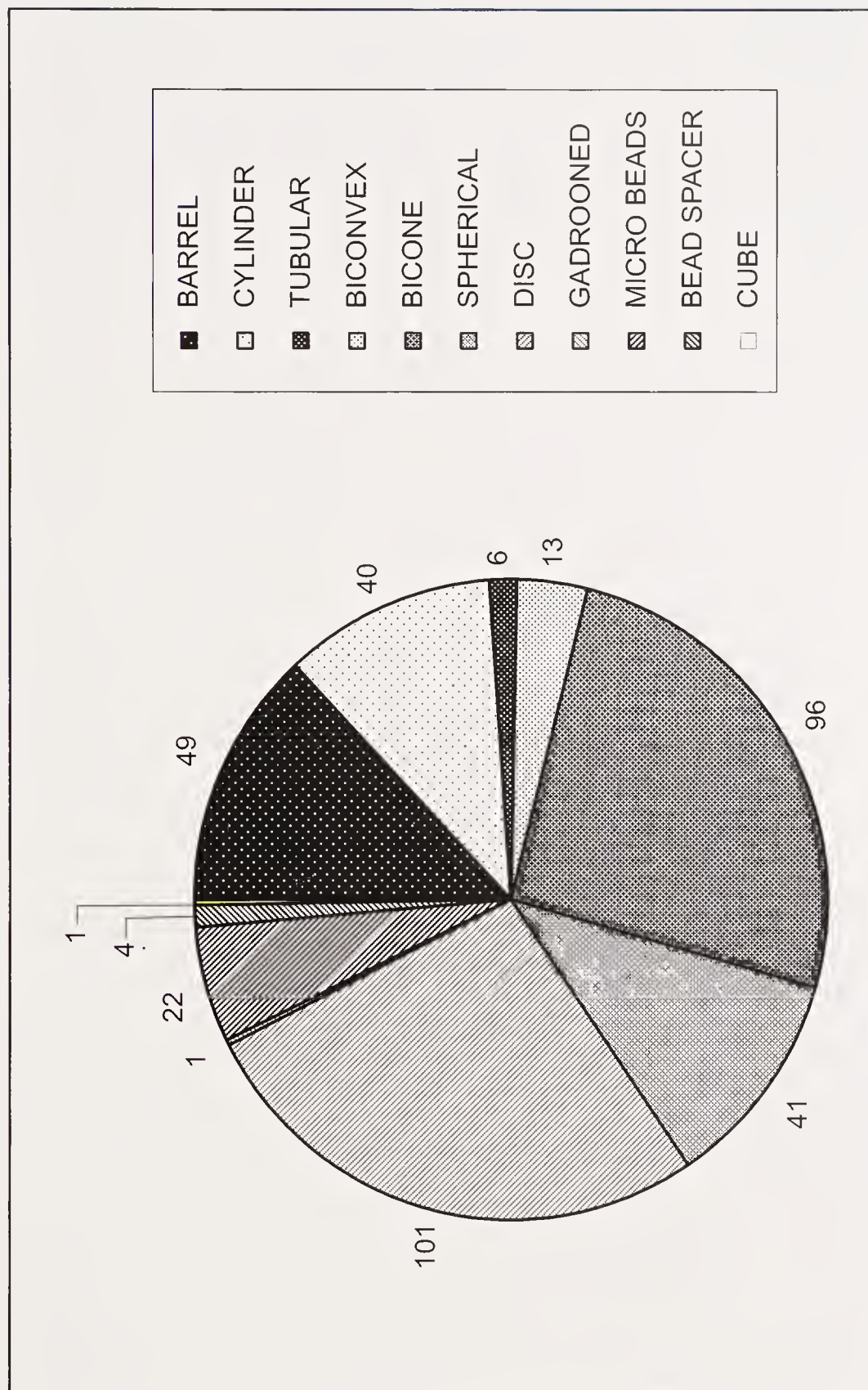



Fig. 27

C. GRAFFITI :**Pl. LI**

Prefiring deep incision on the base of a storage jar of a coarse fabric, thick red ware. It is a complete sign depicting. 

From layer no. 2 (Reg. no. 430)

6. BEADS

The excavations yielded three hundred seventy-four beads of which terracotta accounts for one hundred. Of the remaining two hundred seventy-four, one hundred eighty-one are of steatite, thirty-nine of carnelian (including two etched variety), thirty of faience, sixteen of agate, five of shell and one each of black stone, amethyst and lapis lazuli (see table III).

The distribution of beads is as under: layer (1)-one hundred seven; layer (2)-two hundred seventy-four; layer (3)-twelve; layer (4)-two and rest twenty-nine were found from the surface. The represented shapes¹ of the beads are barrel, cylinder, tubular, biconvex, bicone, spherical, disc, gadrooned, micro beads, cubes etc. Besides, mention may be made of four terracotta spacers found from the excavation (See table IV). The following beads are illustrated:-

A. STONE**i. Agate**

This site yielded sixteen agate beads. Those are described below:

Pl. LII

1. Long truncated barrel circular.
From layer no.2 (Reg.no.395).

2. Standard truncated biconvex circular.
From the surface (Reg.no.20).
3. Standard truncated barrel circular.
From layer no.1 (Reg.no.249).
4. Standard truncated barrel oval.
From layer no.1 (Reg.no.367).
5. Long truncated barrel elliptical.
From layer no.2 (Reg.no.315).
6. Long truncated barrel elliptical.
From layer no.1 (Reg.no.157).
7. Long truncated barrel elliptical.
From layer no.2 (Reg.no.283).
8. Long truncated cylinder squarish.
From the surface(Reg.no.09).
9. Long truncated barrel circular.
From the surface (Reg.no.10).
10. Long truncated barrel circular.
From layer no.1 (Reg.no.159).
11. Long truncated barrel elliptical.
From layer no.2 (Reg.no.269).
12. Long truncated barrel circular.
From layer no.1 (Reg.no.114).
13. Long chamfered barrel circular.
From the surface (Reg.no.12).
14. Long truncated cylinder.
From layer no.3 (Reg.no.321).
15. Long truncated barrel circular.
From layer no.3 (Reg.no.319).
16. Long truncated barrel circular.
From layer no.1 (Reg.no.75).

ii. Carnelian

This site yielded thirty-nine carnelian beads. Those are described below:

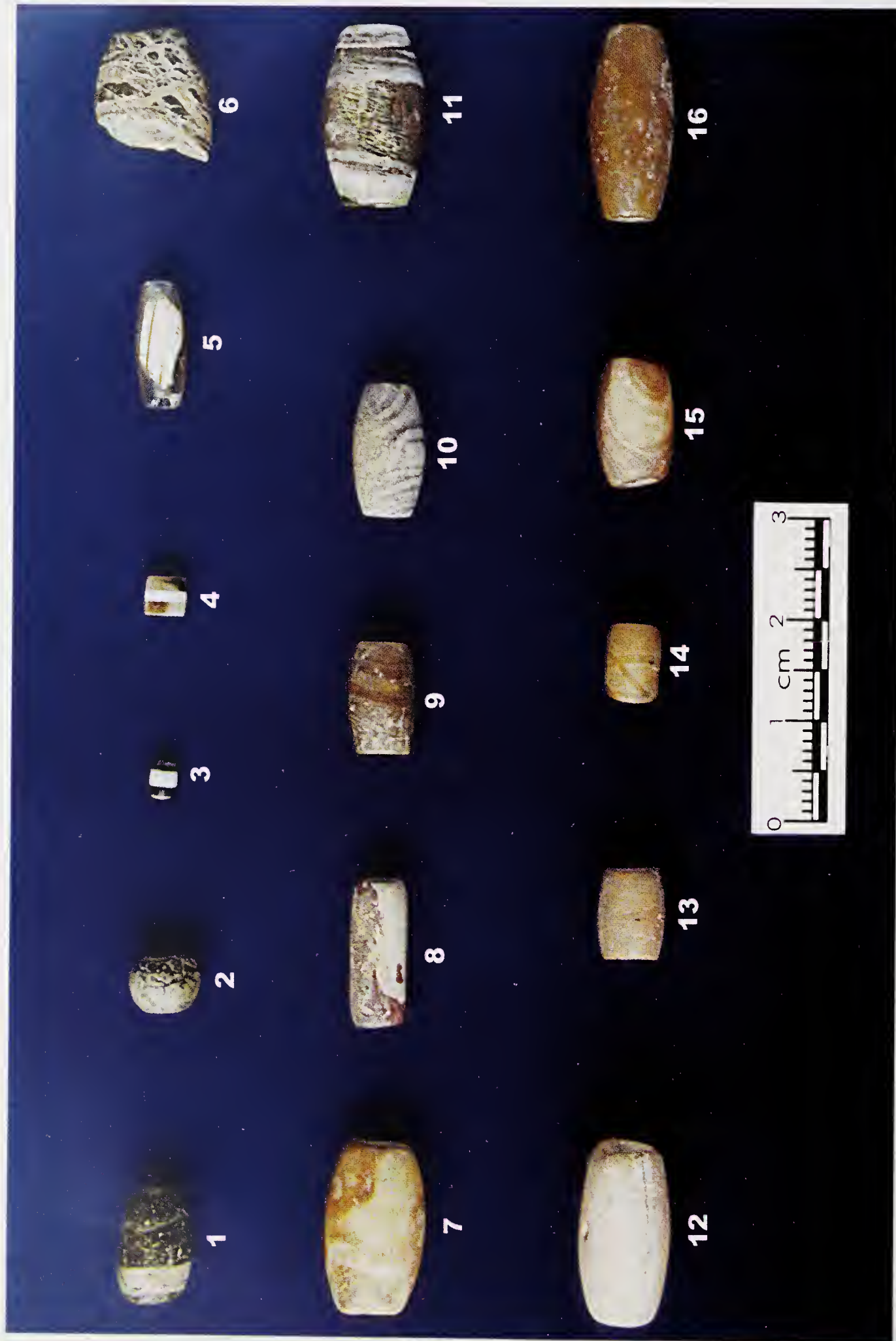
Pl. LIII

1. Short chamfered bicone circular.
From layer no.1 (Reg.no.142).

¹ H.C.Beck, 'Classification and Nomenclature of Beads and Pendants,' *Archaeologia*, No. LXXVII,(1928), pp. 1 ff.



Pl. LI. Tarkhanewala-Dera : Fragment of a storage jar bearing prefiring graffiti. See p. 126



Pl. LII. Tarkhanewala-Dera : Agate beads. See p. 126