

Re-investigating Tilaurokot's Ancient Fortifications: a preliminary report of excavations through the northern rampart at Tilaurokot (Nepal)

Davis, C.E.¹, Coningham, R.A.E.¹, Acharya, K.P.², Simpson, I.A.³, Tremblay, J.¹, Kunwar, R.B.⁴ and Manuel, M.J.¹

¹ Department of Archaeology, Durham University, DH1 3LE, UK

² Former Director-General of Archaeology, Government of Nepal

³ School of Natural Sciences, University of Stirling, FK9 4LA, UK

⁴ Department of Archaeology, Government of Nepal

1. Introduction

Urban settlements defined by fortification complexes have long been identified as one of the key indicators of the emergence and spread of the Early Historic Tradition across South Asia (Coningham 1995). Whilst performing defensive functions, city walls and moats are also thought to have prevented disruption to a settlement from natural forces, such as erosion and flooding (Narain and Roy 1977: 7, Coningham 1999: 54), as well as protecting settlements and crops grown within a city's boundary from wild animals (Coningham 1999: 56). Furthermore, some have argued that ramparts and moats also fulfilled symbolic functions and a number of settlement layouts have been thought to exhibit cosmo-magical symbolism (Wheatley 1971: 481), with urban forms constructed as microcosms of the universe. Indeed, there are a number of South Asian examples where urban rampart and moat complexes are believed to have formed key cosmological motifs, representing the ocean and mountain range surrounding the universe (Coningham 2000). With a central role thus implied for the royal palace as representing Mount Meru, the dwelling of the Gods at the centre of the universe, this also portrayed the temporal ruler as a universal ruler or *chakravartin* (Wheatley 1971: 437, Coningham 2000: 350). Early Historic texts, such as the *Arthashastra* and *Manasara*, provided clear instructions for the construction of moats and

ramparts, with the *Arthashastra* stating that a city should be quadrangular, surrounded by three moats and a rampart {Arthashastra 2.3.4-6} and be internally demarcated by cardinaly orientated roads and gateways {Arthashastra 2.4.1-2}. Similarly, the *Manasara* suggested that cities should be furnished with a quadrangular wall with an accompanying ditch surrounding the settlement with a gate at each cardinal direction {Manasara 9.107-109}. It is now clear from its urban plan, that Tilaurakot, in southern Nepal, seemingly aligns with these precepts as it possesses an almost quadrangular fortification (Figure 1) and the results of recent geophysical survey suggest that cardinaly-orientated roads were laid out in a grid within the city (Coningham *et al.* 2015).

2. Previous investigations of the ramparts at Tilaurakot

The first excavation of a section across Tilaurakot's ramparts was undertaken by P.C. Mukherji of the Archaeological Survey of India in 1899 (Mukherji 1901). He cleared and mapped the entire rectangular walled site and its immediate environs, stating that "The mounds of the ruined walls are easily distinguishable on all the four sides" (ibid.: 19). From his investigations, Mukherji asserted that Tilaurakot was initially a mud fort, which was subsequently elaborated with brick walls. In addition, he noted that the rampart circuit had been damaged by the river on the north-western edge in "ancient times" (ibid.) and that the site was surrounded by a deep ditch, a second mud wall and a further wider ditch. He undertook limited excavation either side of the northern brick rampart, towards the eastern portion of the northern rampart, and near the eastern gateway. From this limited excavation, he noted that the brick rampart was between 10 to 12 feet (3 to 3.6 metres) wide. He also noted that the rampart's foundation was built in mud and attributed the outward slope and collapse of the later phase of brick walls to this original construction method (Mukherji 1901: 19). It would also appear that Mukherji identified brick walls running internally from the main fortification and hypothesised that these potentially represented square bastions. However, limited time did not allow him to excavate these features further, although he did identify what he thought was an inner guard room within a cleared section of wall (ibid.).

The next major archaeological intervention occurred in 1962, when joint excavations were conducted by the Department of Archaeology, Government of Nepal and the Archaeological Survey of India. Directed by Debala Mitra, a Trench - TLK-1, was cut across a portion of the north-west rampart during a single season (1972: 1). Measuring 32 metres by six metres on a north to south orientation, Mitra selected this section of rampart as it was the highest preserved portion of the circuit, only 0.28 metres lower than the highest point of the highest occupation mound within Tilaurakot (ibid.: 11). The maximum thickness of the archaeological stratigraphy between the natural and the highest course of the brick fortification was 3.9 metres (ibid.: 14). Mitra divided this sequence into three main phases, in order of antiquity, IA and IB - pre-fortification, II - mud-rampart and III - brick fortification. Significantly, as these labels suggest, she suggested that the lowest two metres of layers visible in her long east-facing section, phases IA and IB, were deposited prior to the construction of the site's fortifications, stating that occupation at Tilaurakot "is certainly not earlier than the third century BC and is most probably not later than the second century BC." (ibid.: 18). Mitra also noted that the accumulation of artefacts before, and after, the building of the clay rampart was not extensive enough to draw a firm date for its construction, although evidence suggested that occupation did not extend beyond the third century CE in this area of the site (ibid.).

Eliciting almost immediate controversy as Mitra's suggested third century date discounted Tilaurakot as a possible candidate for ancient Kapilavastu, further investigations were undertaken soon afterwards by the Government of Nepal in order to provide additional archaeological sequences and artefactual dating evidence. Excavations conducted by Tara Nanda Mishra were thus sponsored from 1967 onwards and one of the areas identified for investigation was a central portion of the western rampart. Mishra identified three phases of rampart construction in this location, including an early clay rampart, which he assumed had been constructed with material dug out of a contemporary moat. He dated this phase to between the seventh and sixth centuries BCE based on finds of Northern Black Polished ware (NBPW) and Painted Grey ware (PGW). The second phase of rampart was dated to 200 BCE and also constructed of clay but was topped by a final phase, represented by a brick built wall (Mishra 1977: 16). Mishra also successfully exposed a gateway on the western

side of the city wall with a sequence running from the second century BCE to the second century CE (ibid.: 17). Full reports on these early excavations are still awaited but, more recently, the Lumbini Development Trust (LDT) undertook a campaign of excavations at various points around Tilaurakot's circuit of brick fortifications. These excavations were concerned with the exposure, conservation and presentation of the city walls rather than providing chronological sequences, and are also yet to be published.

In view of the paucity of fully published excavation reports and the uncertainty of relying on relative chronologies, most of which utilised ceramic typologies, a fresh campaign of two seasons of excavations were focused on the northern rampart of Tilaurakot. Articulated with the Japanese-Funds-in-Trust for UNESCO program of investigations at the city, our new fieldwork provided the opportunity to fully excavate a scientifically dated sequence for the fortification in this locality. Designed to link with Mitra's previous investigation of the city wall and rampart, it has further enhanced our understanding of the character and development of Tilaurakot's urban form.

3. Excavations at Trench R

Two seasons of investigations were focused on the northern rampart of Tilaurakot at Trench R in 2013 and 2014. As one of our major research questions was the validity of Mitra's chronology and her phasing of the rampart, our first season of excavations aimed to locate and recut Mitra's Trench TLK-1, close to the north-west corner of the city walls (Figure 2). In her report, Mitra stated that she had intended for her original trench to measure 28 metres north to south and six metres east to west. Due to a stated shortage of time, her trench was reduced to a width of 2.75 metres south of the brick fortification wall. However, Mitra then extended her trench to the north by four metres in order to incorporate archaeological material beyond the rampart into the ditch, thus increasing the north to south axis to 32 metres. She further adjusted her trench dimensions by reducing its width to 1.22 metres wide north of the brick wall. Most significantly, Mitra decided to leave the majority of the brick wall intact and thus left a major 3.6 metre wide and 3.4 metre deep baulk unexcavated

below the brick wall (Mitra 1972: 11). As became clear from studying her published section (ibid.: Plate II), this left the most critical central area of her fortification sequence unexcavated beneath the youngest part of the section, its final, brick-built wall – a sequence which might have hosted an earlier phase of fortifications.

In order to reinvestigate this missing portion of Tilaurakot's defensive sequence, we decided to empty Mitra's old trench on either side of the brick wall and then cut down through the wall and into her unexcavated central baulk in order to link the northern and southern portions of her east-facing section. This also allowed us to link the scientifically dated and artefactual sequence from our new investigations with Mitra's report, which lacked such absolute dating techniques but provided a wealth of artefactual evidence. This was the first time that the full defensive sequence at Tilaurakot had been completely cut through, including the brick wall. During our second season of investigations in 2014, we decided to extend our 2013 vertical slot as, having providing a deep sequence, we now wanted to expose and characterise more fully the structural sequence of fortifications (Figure 3). The following report will combine the findings of both the 2013 and 2014 seasons and the archaeological sequence is subdivided into six phases for ease of discussion. The following description is given in reverse order of excavation, with the earliest structural period described first.

3.1 Phase 1

The natural soil at the base of the sequence, context (167 = 261), was a mottled yellow clay, with inclusions of manganese and kanker. The earliest evidence of human activity was represented by the trampling of material, mainly consisting of ceramics, into the surface of the natural. This trampled natural was cut by, and contained, several features (Figure 4). Although we have yet to ascertain their exact function, they were undoubtedly caused by early human activity within this area of the site. The trampled natural was overlain by a thin pale, fairly sterile material, which was found below a dark coloured silty loam and fine sandy silt loam. The dark colour of this soil and the frequent mottle of colours led to the

interpretation that this was a wet alluvial soil that was amended and cultivated. Optically Stimulated Luminescence (OSL) determinations were taken from soil samples throughout the exposed archaeological stratigraphy, and an OSL sample from context (162), a sediment associated with early agricultural activity, provided a depositional age of 620 ± 170 BCE (Kinnaird *et al.* 2015).

3.2 Phase 2

We then identified a discernible transition from agricultural derived deposits to what may be described as urban occupation. This lower urban phase of the stratigraphy is predominantly composed of sandy silt sediments, comparable to Banaganga river channel sediments. The occasional occurrence of medium rounded and sub-rounded stones in these sediments indicates that river sediments may have provided a significant contribution to the formation of this early stratigraphy, suggesting that the earliest phases of human settlement were heavily influenced by the river channel flooding and ground water wetness. Sediments relating to the transition to urbanism from agricultural derived deposits dated to the sixth century BCE, with samples taken from the upper and lower portions of this context (158) – R1 in geoarchaeological analysis and equal to context (273) - dated to 570 ± 130 BCE and 580 ± 150 BCE for the strata directly overlying the transition surface (Kinnaird *et al.* 2015). Therefore, the earliest phases of what may be deemed urban activity and accumulation begin in the sixth century BCE within Trench R. Artefactual evidence from this phase includes beads of agate and terracotta, as well as ceramic finds of Grey Ware (GW), Red Ware (RW), Black Slipped Ware (BSW) and a Northern Black Polished Ware (NBPW) rim.

3.3 Phase 3

Directly below Mitra's unexcavated baulk, and cutting the trampled natural below, we exposed a large rectangular cut, context [161] (Figure 4), with vertical sides, a flat base in the south and a rounded base a metre to the north, which reached a depth of almost one metre. It is postulated that this pit feature may have incorporated a large timber post. The

fill of this pit and post feature, context (160) was filled with a firm silty olive brown material, which included charcoal and pottery including (RW) and Black Slipped Ware (BSW).

Most significantly, we also identified the presence of an early palisade slot, context [238], cutting through these earlier phases of occupation and agricultural activity. The palisade ran across the trench for six metres, on a broad north-east to south-west alignment within the northern portion of Mitra's baulk. It was substantial and measured 0.60 metres wide and 0.80 metres deep. The base of the palisade was filled with a thin, very dark brown silt context (272). Within the base of slot [238] were nine postholes following the same alignment of the palisade (Figures 4, 5 and 6). These postholes varied somewhat in shape and size but all measured between c. 0.15 and 0.20 metres in depth. The postholes were all filled with a soft, grey and yellow mottled fill and contemporary with each other. Their depths had been truncated by the cut of a later palisade slot above. Palisade slot [238] was filled by soft, silty, dark yellow brown silt context (259), above primary fill context (272). Context (259) contained inclusions of ceramics and some charcoal, as well as nodules of kanker. An OSL determination from this fill dated to 720 ± 110 BCE but it must be noted that the sediments associated with this fill encloses mixed age materials and the dose distributions obtained for this sample show some aliquots which tail to higher apparent ages (corresponding to geological residuals), and some which tail to younger ages contemporary with construction, though it is thought that the construction most likely relates to the sixth century BCE (Kinnaird *et al.* 2015).

As noted above, this first palisade slot was truncated by a second episode of palisade construction, context [281]. This followed the same alignment as slot [238] but was narrower, with a width of between 0.40 and 0.50 metres and a depth of 0.60 metres. This second palisade was filled with context (237), a reddish brown material with crushed fired clay inclusions. Within this second palisade fill, nine postholes with depths of between 0.30 and 0.40 metres were identified (Figure 7). All nine were circular or sub-circular in plan and filled with a soft silty grey material. The fill of this second palisade, context (237), was extremely compacted and was presumably deliberately rammed around the wooden posts

of the palisade to provide support. Two postholes, contexts [246] and [254], were much shallower than the other seven posthole cuts. It is likely that these were cut into context (237) at a later stage, rather than (237) being packed around two original timber posts, perhaps representing a later attempt to repair the timber palisade. This second episode of palisade construction was dated to 560 ± 90 BCE (Kinnaired *et al.* 2015) and this date, taken with the earlier palisade construction date suggest these features were excavated and laid during one of the earliest periods of human occupation in the vicinity of Trench R. This might indicate that site demarcation was of paramount importance to the settlement's early communities. Furthermore, the evidence of riverine action and flooding in Phase 2 of the sequence may suggest that the construction of palisades was an early attempt to control flood waters and protect the early urban settlement at Tilaurakot from the Banaganga River, which flowed past the north and west of the site. However, occupation similar to that from Phase 2, with sandy silt occupation deposits, did overlay these two palisade slots. It might be the case that further episodes of flooding and related water action occurred after the construction of these wooden architectural features.

3.4 Phase 4

Overlying the two phases of palisade and the early occupation horizons was a second phase of urban build-up. The definition between these phases is provided by context (134 = 223). This thin context, darker in colour than the urban sediments above and below, is suggestive of vegetation cover and enhanced organic matter content. It is likely that (134 = 223) may indicate a hiatus in activity in this area, with the gap between the underlying sandy silt first phase occupation and the second phase silty clay dominated deposits, allowing for vegetation cover to develop. Above this hiatus, occupation deposits are dominated by silty clay loams and contain frequent inclusions of fired angular clay fragments and charcoal. The geoarchaeological analysis of the compacted nature of some of this fired clay material suggests that the surfaces were prepared, and the identification of fine banded silty loam accumulations indicates that there were water-based movements across these surfaces. However, the absence of mottling within this phase of the stratigraphy indicates that these

urban accumulations were above the influence of the water table and the effects of flooding and standing water from the Banaganga River, unlike those in Phase 2.

The artefactual assemblage was dominated by RW and BSW ceramics. Ceramics, including several almost complete but broken vessels were uncovered on the surface of context (130 = 214), representing an occupation surface, which was associated with context (131), a compacted floor surface prepared using rammed angular fired clay fragments. Several features were identified cutting into the occupation levels of Phase 4, further emphasising the occupational nature of these deposits, including a large posthole, context (225)/[224], cutting through context (222), (223) and the earlier Phase 2 occupation of (226), (227) and (230) below.

These earlier phases of urban occupation at the site were then truncated by an almost vertical cut, context [215]. It is hypothesized that this cut was part of activity associated with the construction of the clay rampart. Indeed, it may have served the purpose of both clearing and straightening the edge of site's earlier occupation deposits, which potentially had become eroded by river action in this part of the site, thus providing a clear working area for the construction of the clay rampart.

3.5 Phase 5

Rather than being represented by a single discrete material, the clay rampart was constructed from several deposits. Whilst some deposits, such as contexts (217) and (213) were mainly composed of clay, several deposits, such as contexts (211) and (216) were packed with small fired clay inclusions and it is suggested that these concentrated deposits may have been included to aid drainage and to act as a stabilising material during the construction phase of the clay rampart. These layers of deposits were then sealed by a smoothed and compacted silty clay, context (207). This contained a high frequency of ceramics and was potentially a capping deposit for the clay rampart, providing a smooth

outer coating allowing for the run-off of water, a difficult surface to climb over and, finally, an aesthetic finish (Figure 8). Although built from several deposits, it is postulated that apart from the outer coating, the clay rampart was erected in a single, fairly rapid episode, with its construction dated to 450 ± 130 BCE, as measured from an OSL sample extracted from context (122 = 211), part of its core (Kinnaired *et al.* 2015).

The clay rampart contained a high concentration of artefacts, specifically ceramics, including CIW, BSW, and RW, as well as several complete vessels broken in situ. The rampart also contained two terracotta plaques of Sunga appearance with depictions of a man with a parrot. One of these plaques (SF788) was found in the smooth capping material of context (207), whilst the other (SF881) (Figure 9) was recovered from context (211) at the interface with context (207). Furthermore, the clay rampart was cut by a pit, context [121], which also cut through the earlier occupation deposits below. The pit was itself cut by Mitra's excavation trench to the north of the baulk and the identification of this feature showed a deviation from Mitra's interpretation of her east-facing section. The pit had a depth of 0.80 metres with steep vertical sides and a width of one metre east to west. Its fill, context (120), was a soft clay with some sand that was olive yellow in colour and contained inclusions of charcoal, brickbats and ceramics such as RW, as well as a moulded terracotta plaque (SF383), stylistically of a Sunga style, which depicted the goddess Lakshmi, who is associated with good fortune (Figure 10). Another terracotta Lakshmi plaque (SF240) was found at the interface of the pit and Mitra's cut, and there is a strong likelihood that this second plaque was also from the fill of pit cut [121].

The recovery of plaques from Tilaurakot's clay rampart, and from within pits cut into Early Historic ramparts more generally, is not a unique occurrence as similar Lakshmi plaques of a Sunga appearance were also found along the circuit of Tilaurakot's ramparts during the LDT's recent program of excavations (Himal Upreti pers. comm. 2013). Furthermore, a Sunga plaque was also identified during the excavations of the clay rampart at Saheth-Maheth in Uttar Pradesh, India (Aboshi *et al.* 1999: 142). This provisional information may suggest that terracotta plaques, particularly those depicting Lakshmi, may have been deposited within the clay ramparts of settlements during, as well as after, the construction

of these monumental earthen walls. The plaques may have had a symbolic or ritual resonance, especially if the clay rampart was viewed as a liminal zone. Placed at the boundary which defined the urban core from its surrounding landscape, we may also recognise the potential symbolic value of a rampart which could represent the bounds of the universe itself within particular microcosms. Whilst it is hypothesised that the clay rampart was constructed in a relatively short phase of activity, the cut of pit [121] into the clay rampart suggests continued use and activity relating to the rampart after its initial creation. Certainly, the recovery of Sunga plaques from within the smooth clay capping of context (207) and at the interface with this material, also suggests that the clay rampart may have undergone phases of repair, some of which may have led to the accidental or votive placing of deposits within.

3.5 Phase 6

The brick wall, left unexcavated by Mitra, was exposed after the removal of a very thin topsoil. It also became clear that since the end of Mitra's investigations in this locality, the wall had been heavily eroded and degraded with the upper-most courses of brick suffering from erosion and bioturbation, which included ant nests and extensive root activity. The attrition to the brick fortification was further exemplified by a comparison of Mitra's photograph of the south-facing section in 1962 with those images taken after the removal of backfill in 2013. Indeed, we were only able to identify nine courses of brick (Figure 11) in comparison with Mitra's 16. The outer facing of the wall had almost completely eroded away, with brickwork surviving on the interior to a height of 0.80 metres on the west. From the surviving brickwork, it was clear that the wall comprised courses of single bricks set as regular outer-facings whilst its core was formed by irregular brick and brickbat coursing. The foundation of the brick fortification wall was rammed into the clay rampart below with an almost vertical, steep and rectangular cut for the laying of the southern brick outer-facing visible in the east-facing section.

Whilst the brick fortification cut into and was rammed into the top of the clay rampart, brick collapse overlaid its slope to the north (west facing section, Figure 3). This material contained large bricks as well as brickbats, and it is hypothesised that the majority of this deposit may relate to the collapse of upper courses of the brick fortification wall. The lack of such a deposit in the east-facing section, and its concentration to the east of the trench, is suggestive of the possibility that there was a large structure adjacent to or on the brick fortification to the east of Trench R, possibly a tower or gateway, although further investigation of this hypothesis is required.

Phase 7

The final phase of our sequence is clearly linked to Debala Mitra's interventions at the northern rampart. Once we had cleared the dense vegetation in the vicinity of Trench R, we were able to observe the obvious surface depression marking her 1962 trench (Figure 12). We also cleared a thin topsoil from the top of the brick fortification that had been left in situ by Mitra as a baulk. During this process, we identified evidence of her investigations, including an upright iron nail (SF150), presumably utilised during the planning of her trench. Either side of the baulk, the cuts of Mitra's trenches were also identified and cleared of backfill. Mitra's backfill contained a mixture of decontextualised material, including brick, ceramics and slag, the bulk probably artefacts from her excavations at the site. Near the base of the cut, to the north and south of the baulk, iron nails and modern bricks utilised as markers of the trench floor were recovered. To the south of the baulk, we recovered two bricks stamped 1974 (SF215 and SF227), suggested that backfilling occurred 12 years after Mitra's trench was initially opened.

4 Conclusion

The excavations across the northern rampart were the first time the brick wall and rampart at Tilaurakot had been cut fully through and provided the opportunity for us to explore the earlier phases of development at the site. These investigations have provided a clear developmental sequence for Tilaurakot's fortifications, including three defined phases of

site definition, as well as the site's urban development. Whilst confirming some of Mitra's initial interpretations, such as the sequential construction of a clay rampart and then a brick wall above urban occupation deposits, our recent excavations have also identified the presence of an earlier period of site demarcation. The OSL dates indicate that the perimeter of the early settlement was defined by two phases of timber palisades in the sixth century BCE, refuting Mitra's assertion that there was no occupation in this area of the site prior to the third and second centuries BCE. Indeed, our new sequence has also identified a period of early cultivation at the site from around the sixth century BCE, which then transitioned into an urban settlement. Not only have these new investigations of the northern rampart provided a scientifically-dated sequence for these phases but we are also able to link this evidence to broader discussions of urban design in Early Historic South Asia.

It is generally agreed that urban forms began to re-establish themselves across South Asia during a phase of reintegration between 600 and 350 BCE (Coningham and Young 2015: 354). Representing increased communal investment and rising social and economic complexity, many of the fortifications of these South Asian urban forms have been excavated and investigated. The formation of fortified urban forms was prevalent in the Ganga Basin during the Early Historic period with many examples to reference. For example, the 200 hectare site of Kausambi was surrounded a 6.44 kilometre circuit of ramparts attributed to the fifth century BCE. This earliest phase was represented by the construction of a seven metre high clay rampart, which was later topped by mud blocks faced with brick (Erdosy 1987: 5, Erdosy 1988: 61, Sharma 1960). Similarly at Rajghat, the earliest phase of fortification was a large clay construction surviving to a height of five metres (Narain and Roy 1977). One of the most impressive example of Early Historic fortifications in South Asia is found at Mahasthangarh in Bangladesh, where the well-preserved ramparts stand eight metres tall adjacent to a 100 metre wide moat. Topped by a brick fortification wall, the ramparts enclose 130 hectares (Coningham and Young 2015: 384). Although no dating evidence is available for the ramparts at Mahasthangarh, excavations at the site suggest that the earliest occupation relates to the late fourth and third century BCE based on finds of NBPW in the early sequence (Alam and Salles 2001). In light of our evidence from Tilaurakot, it is also worth drawing attention to the ramparts at Ujjain, where fortifications thought to date to the middle of the first millennium BCE, were

built of clay stabilised by an internal timber framework (Banerjee 1960). Further afield in Sri Lanka, the earliest rampart at the urban form of Anuradhapura was an earthen construction that included redeposited bedrock, presumably spoil from moat and excavation. This phase of construction was thought to be contemporary to the site's Structural Period I, dating to between 350 and 275 BCE (Coningham and Allchin 1995: 167). However, while placing the initial phase of rampart construction in South Asia firmly in the Early Historic period, with dates from the fifth and fourth century BCE onwards, most of these dates, like the previous investigations at Tilaurakot, were based on relative dating and assumptions rather than scientific analysis. The sequence from Tilaurakot is therefore one of the few scientifically dated sequences available relating to the formal delineation of Early Historic cities in South Asia.

Whilst the dating of the brick fortification wall at Tilaurakot is not yet complete, the date for the settlement's initial occupation and the sequent construction of the clay rampart relates well to the dating of rampart construction elsewhere in South Asia. It can therefore be argued that monumental investment in clay ramparts is attributable to the era of reintegration from 600 BCE onwards, when *Mahajanapadas* emerged from competing *janapadas*. The evidence of a deposit of a terracotta plaque from a pit cut into Tilaurakot's clay rampart and the discovery of two terracotta plaques in the capping of the clay rampart are indicative of the continued use of these monumental features after construction, perhaps for both symbolic purposes and maintenance. This further strengthens the notion that ramparts were not purely utilitarian architecture but may also have performed symbolic functions for a settlement.

Prior to the construction of the clay rampart at Tilaurakot, our evidence suggests that urban boundaries were provided by timber architecture from the sixth century BCE. The presence of two phases of palisades at Tilaurakot should not be surprising as wooden fortifications were identified at Pataliputra in waterlogged deposits as early as the nineteenth century in the suburbs of Patna (Coningham and Young 2015: 419). However, our evidence represents the first scientifically-dated wooden phase of palisade construction in South Asia. It is also

of note, that one of the early excavators of the wooden beam palisades at Pataliputra was L.A. Waddell, an individual linked to the search for sites in the Natal landscape of the Buddha in the late nineteenth and early twentieth centuries. Interestingly, Waddell noted that the wooden palisade at Pataliputra was similar in appearance to the depiction of wooden fortifications at ancient Kapilavastu in a Gandharan sculptural frieze that he had obtained in the Swat Valley, remarking that the sculpture was created when “the traditional appearance of the old wooden walls had doubtless not been forgotten” (Waddell 1903: 22).

The discovery of two early phases of palisade-building at Tilaurakot suggests that wooden architecture may have been present at a number of early emergent centres but that this evidence either may have been missed by early excavators or obliterated by later phases of earthen and brick architectural embellishments. It also potentially suggests that the demarcation between urban and non-urban space was a concern from the earliest phases of the establishment of settlements, although further investigation is required elsewhere around the circuit of ramparts at Tilaurakot. One of the main reasons for this is to ascertain whether the palisades at Tilaurakot were a localised response to flooding from the Banaganga River. Indeed, our geoarchaeological analysis has shown that there was significant water action in the early phases of settlement in the vicinity of Trench R. As a result, it may be possible that the palisades represent a functional response to episodes of flooding in this area as much as a symbolic concern for site definition. Therefore, it is of importance to attempt to identify whether such timber architecture was present elsewhere around the site providing definition around the entire urban form or whether the palisades had a protective function, specifically for the north and north-west of the site in relation to the threat from the River Banaganga.

Finally, irrespective of these debates, it should be noted that the timber palisades were clearly laid out on a cardinal alignment east to west. This initial alignment was then followed by the later embellishments of the clay rampart and brick fortification wall above. As stated above, this leads to the hypothesis that the full circuit of the city of Tilaurakot was first established in or around the sixth century BCE, strengthening the assumption that the

city was pre-planned, exhibiting similarities in design advocated in Early Historic planning treatises. This also suggests that large-scale building projects, which involved the mobilisation of a large number of people and communal investment, occurred at an early stage of urban settlement. The evidence from the northern rampart of urban design and communal investment indicates that Tilaurakot was an established political centre with a degree of centralisation from at least the sixth century BCE onwards.

5 Acknowledgements

We would like to acknowledge the support of the following individuals and their institutions for the 2013 and 2014 field seasons at Tilaurakot: Mr Leela Mani Poudel, Sri Acharya Karma Sangbo Sherpa, Mr Susil Ghimire, Mr Mod Raj Dotel, Mr Bhesh Dahal, Mr Bishnu Raj Karki, Mr Bharat Subedi, Mr Krishna Chandra Ghimire, Mr Ram Prasad Pandey, Mr Ajitman Tamang, Mr Axel Plathe, Ms Amita Vohra, Dr Roland Lin, Mrs Nabha Basnyat-Thapa, Mrs Nipuna Shrestha, Mr Kiyohiko Hamada, Ms Natsuko Hashimoto, Rev Toshun Murakami, Mr Mahendra Shrestha and the staff and Trustees of the Risshon Shanti Vihar. Special thanks are also given to Prof Yukio Nishimura, Team Leader of the first and second phase of the JFiT UNESCO Project, and Experts Mr Basanta Bidari, Prof Takefumi Kurose, Dr Costantino Meucci and Mr Kai Weise.

We are also extremely grateful to the following individuals and institutions for their support in the field: Mrs Shakuntala Acharya, Mr Gyanin Rai Mr Bhaskar Gyanwali, Ms Saubhagya Pradhanang, Mr Himal Kumar Upreti, Mr Krishna Bahadur KC, Mr Damodar Gautam, Ms Manju Singh Bandari Thapa, Dr Keir Strickland, Ms Armineh Marghussian, Ms Jo Shoebridge, Mr Duncan Hale, Ms Patricia Voke, Ms Sofia Turk, Ms Anouk Lafortune-Bernard, Ms Emily Wilkes, Mr Iain Marchant, Mr David Graham, Ms Janine Watson, Ms Maiya Kaiti, Ms Shanti Sherma, Mr Shree Ram Ghimire, Prof Ian Bailiff, Prof Dhan Bahadur Kunwar, Prof Beena Paudyal, Dr Mala Malla, Mr Pashupati Nyaupane and the staff and students of Tribhuvan University, Prof Prishanta Gunawardhana of the Central Cultural Fund, Government of Sri Lanka, the Lumbini Development Trust, UNESCO Kathmandu Office, the Department of

Archaeology (Government of Nepal), Durham University, the University of Stirling, the University of the Highlands and Islands (Orkney College) and the communities of Tilaurakot and the Terai.

Finally, we would like to acknowledge the generous financial support of the following, without which this important research would not have been completed: Ven Sri Acharya Karma Sangbo Sherpa, Mr Ajitman Tamang and the Lumbini Development Trust; Mr Kiyohiko Hamada, Dr Roland Lin, Mr Axel Plathe, Ms Amita Vohra and the Japanese-Funds-in-Trust for UNESCO; the Oriental Cultural Heritage Sites Protection Alliance; Durham University; and, finally, Rev Toshun Murakami, Mr Mahendra Shrestha and the Trustees of the Risshon Shanti Vihar.

6 Bibliography

Alam, M.S. and Salles, J-F. 2001. *France-Bangladesh Joint Venture Excavations at Mahasthangarh: First Interim Report 1993-1999*. Dhaka: Department of Archaeology.

Banerjee, N.R. 1960. The Excavations at Ujjain. In E. Waldschmidt (ed.) *Indologen Tagung 1959*: 74-96. Gottingen: Vandenhoeck-Ruprecht.

Coiningham, R.A.E. 1995. Dark Age or Continuum? An Archaeological Analysis of the Second Emergence of Urbanism in South Asia. In F.R. Allchin (ed.) *The Archaeology of Early Historic South Asia: The Emergence of Cities and States*: 64-72. Cambridge: Cambridge University Press.

Coiningham, R.A.E. 1999. *Anuradhapura. The British-Sri Lankan Excavations at Anuradhapura Salgaha Watta 2. Volume 1: The Site*. Oxford: Archaeopress.

Coningham, R.A.E. 2000. Contestatory urban texts or were cities in South Asia built as images? *Cambridge Archaeological Journal* **10**(2):348-354

Coningham, R.A.E. and Allchin, F.R. 1995. The rise of cities in Sri Lanka. In F.R. Allchin (ed.) *The Archaeology of Early Historic South Asia: The Emergence of Cities and States*: 152-184. Cambridge: Cambridge University Press.

Coningham, R.A.E. and Young, R.L. 2015. *The Archaeology of South Asia: From the Indus to Asoka, c. 6500 BCE -200 CE*. New York: Cambridge University Press.

Coningham, R.A.E., Acharya, K.P. and Manuel, M.J. 2015. *Strengthening the Conservation and management of Lumbini, the Birthplace of Lord Buddha, World Heritage Property (Phase II): Final Report of the Second (Jan-Feb 2015) Season of Field Activities*. Report for UNESCO and Department of Archaeology, Government of Nepal.

Coningham, R.A.E. Acharya, K.P., Davis, C.E., Strickland, K.M., McDonnell, G., Tremblay, J. and Manuel, M.J. in press. Defining the Chronological and Cultural Sequence of Tilaurakot: a report on pilot excavations conducted in 1999. *Ancient Nepal*.

Erdosy, G. 1987. Early Historic Cities of Northern India. *South Asian Studies* **3**: 1-23

Erdosy, G. 1988. *Urbanisation in Early Historic India*. Oxford: BAR.

Kinnaird, T.C., Simpson, I.A. and Sanderson, D.C.W. 2015. Further luminescence investigations at Lumbini and Tilaurakot, Nepal. Lumbini, 1st phase of Natal Landscape of the Buddha programme Tilaurakot, 2nd phase. August 2015. *SUERC Dating Report, SUERC*: 1-19.

Mukherji, P.C. 1901. *A Report on a Tour of Exploration of the Antiquities of the Terai*. Calcutta: Office of the Superintendent of Government Printing.

Mishra, T.N. 1977. Tilaurakot Excavations (2023-2029 V.S.). *Ancient Nepal* **41-42**: 11-31

Mishra, T.N. 1978. *The location of Kapilavastu and archaeological excavations 1967-1972*. Kathmandu: Lumbini Development Committee.

Mitra, D. 1972. *Excavations at Tilaura-Kot and Kodan and explorations in the Nepalese Terai*. Kathmandu: Department of Archaeology.

Narain, A.K. and Roy, T.N. 1977. *Excavations at Rajghat (1957-1958); 1960-1965): Part II: the pottery*. Varanasi: Banaras Hindu University.

Rijal, B.K. 1979. *Archaeological remains of Kapilavastu, Lumbini and Devadaha*, Kathmandu: Education enterprises (PVT) Ltd.

Sharma, G.R. 1960. *The Excavations at Kausambi 1957-59*. Allahabad: University of Allahabad.

Waddell, L.A. 1903. *Report on the Excavations at Pataliputra (Patna): The Tee of the Greeks*.
Calcutta: Bengal Secretariat Press.

7 Figures

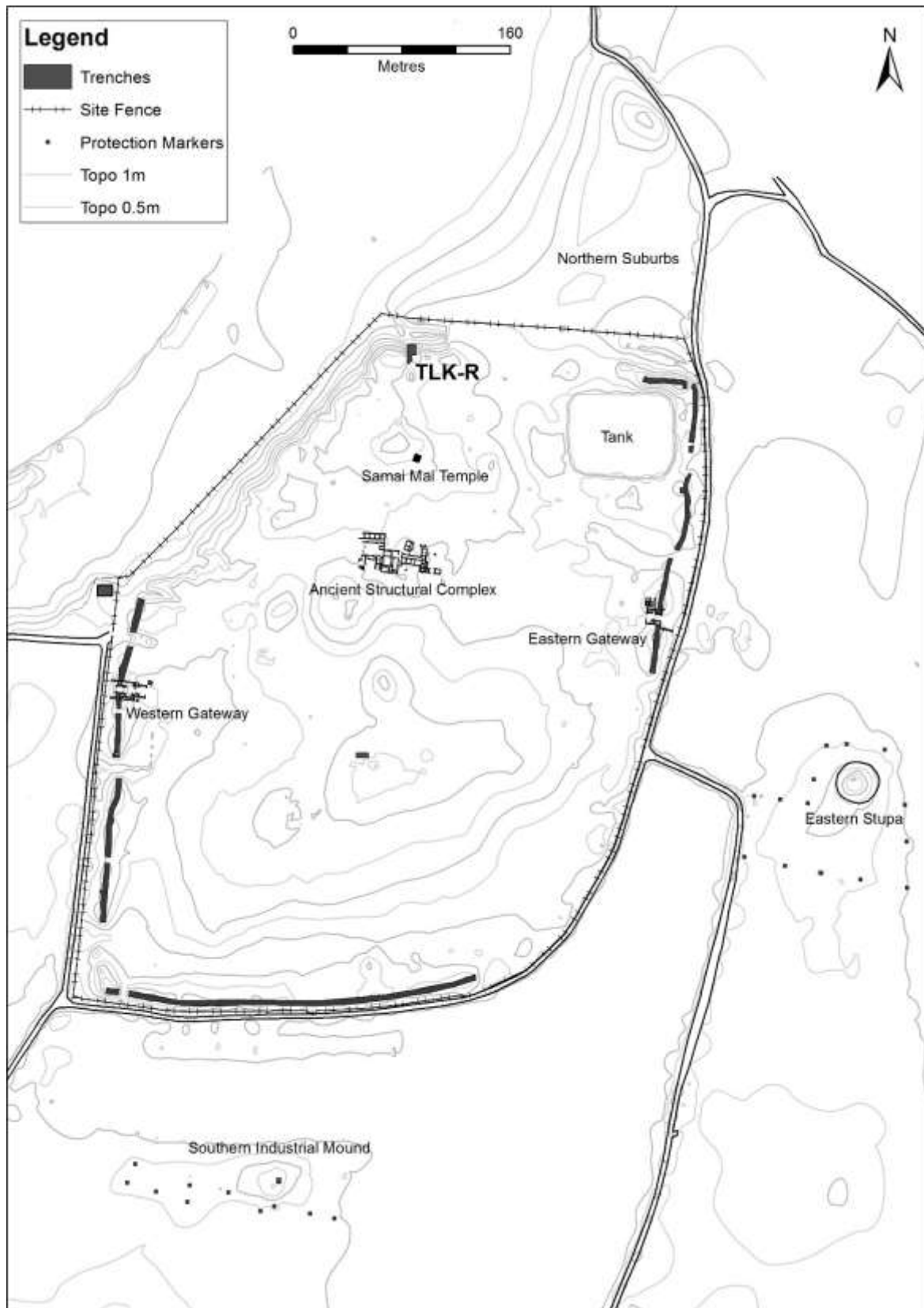


Figure 1: Location of Trench R, located within Debala Mitra's 1962 Trench TLK-1 across the northern rampart.

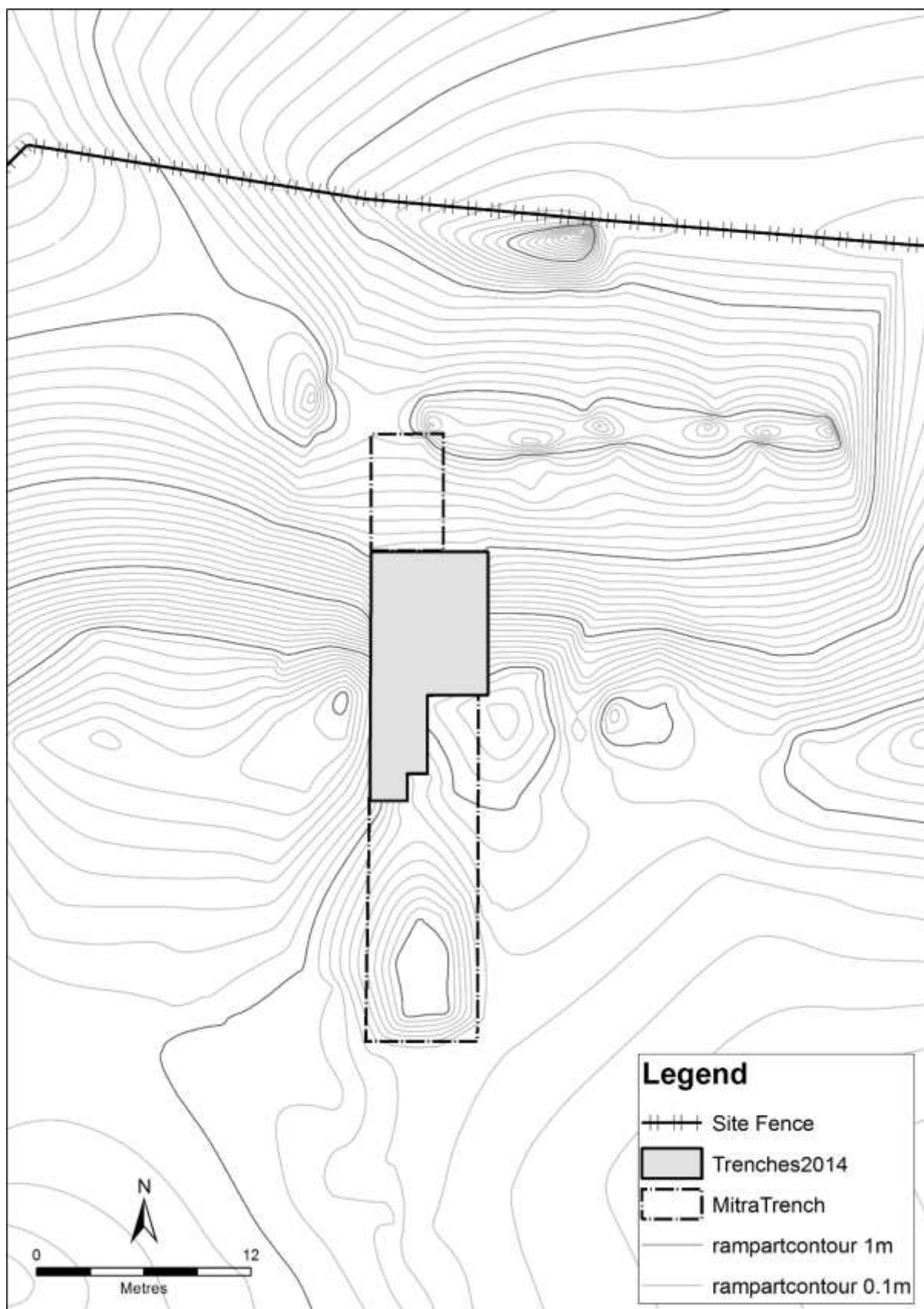


Figure 2: Detailed plan showing the extent of of Trench R and Mitra's Trench TLK-1 across the northern rampart



Figure 3: North and west-facing sections of Trench R.



Figure 5: Photograph of the earliest palisade slot [238], looking east, below the clay rampart and brick fortification.



Figure 6: Photographic detail looking north of earliest palisade slot [238] and associated postholes.



Figure 7: Photographic detail of the second palisade slot [281] and unexcavated posthole alignment within fill (237).



Figure 8: Photograph of the clay rampart looking to the south-east.



Figure 9: Photograph of Special Find 881, 'man and parrot' terracotta plaque from context (211)



Figure 10: Photograph of Special Find 383, terracotta Lakshmi plaque from context (120).

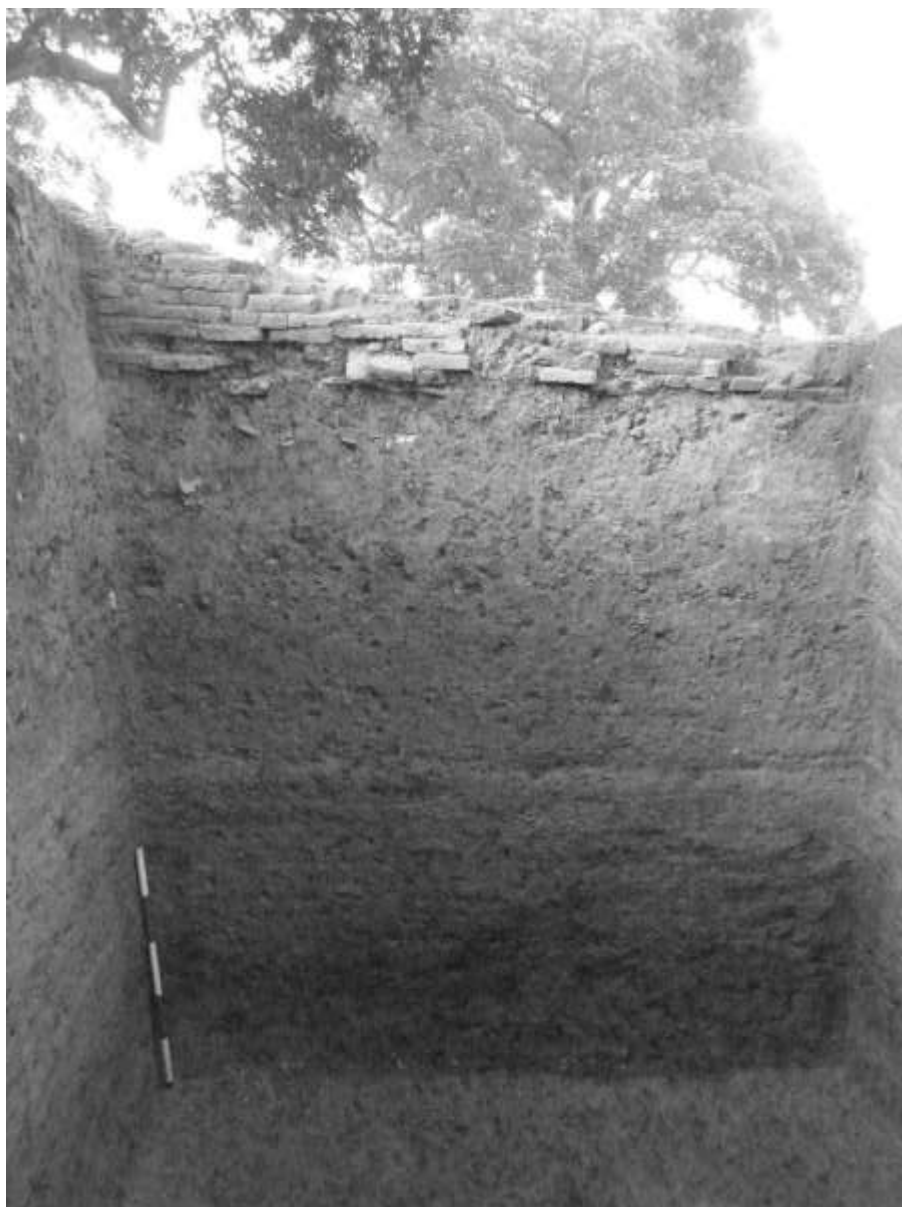


Figure 11: Photograph of the south-facing section of Mitra's baulk in Trench TLK-1 after removal of backfill in 2013.



Figure 12: Photograph of the depression on ground surface from Mitra's Trench TLK-1 after the clearance of vegetation in 2013.