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Chapter 14
Paithan in Its Regional, Historical and Cultural Context

The excavations at Paithan have provided some important insights into the cultural and economic transitions that took place during the Early Historic and Early Medieval periods in central India. In this chapter, we will return to some of the key points that have emerged from the excavations, particularly those with resonance beyond Paithan and its immediate locality to the wider arena of Early Historic and Early Medieval India more generally, for example the chronology of the occupation at the site, the spatial development of the site, the construction and development of the temples and the changing nature of the economy of the Early Historic and Early Medieval periods.

In Chapter 1, the rationale behind the present project was set out, along with five research questions. In relation to the first question about the construction and development of the temples, in Chapter 4 a detailed outline of the development of the temples has been presented along with a chronological framework established on the basis of parallels with dated temples elsewhere. This question is also further discussed below in the present chapter. In relation to questions 2 and 3, it has been possible to retrieve a stratigraphically excavated and systematically collected set of artefacts and environmental samples associated with the temples. This has resulted in 78 studied archaeobotanical samples that have yielded 8,327 seeds – the largest archaeobotanical assemblage from any Early Historic site in India by some distance. This has allowed Fuller to present a detailed and compelling analysis in Chapter 12 of the development of agricultural practice throughout the occupation of Paithan. In addition, the 4,777 fragments of faunal material have allowed Rowley-Conwy to present an equally useful picture of the changing nature of animal husbandry at the site in Chapter 13. Together, these two studies present us with the most detailed account to date of Early Historic and Early Medieval agricultural practice, supporting a detailed discussion of developing crop-livestock interaction strategies further on in the present chapter. The analysis of the pottery, coins and small finds presented in Part III, especially those that were retrieved from layers stratigraphically associated with the temples, provides information on the production and distribution of artefacts which contradicts some widely held assumptions about the artisanal economy during the Early Historic and Early Medieval periods (see below). The question of the link between the establishment of the temples and the developing economy is discussed in some detail further on in the present chapter in relation to recent historical work on the subject. On the final question of the nature and extent of occupation at the site during the Early Historic and Early Medieval periods, the following section sets out what has been learned.

Part 1: The development of the site and the temples

The development of the site

The fact that most of the ancient archaeological site of Paithan lies buried beneath the modern town makes a comprehensive overview of its development very difficult. Although investigating this development was not a key aim of the excavations, trenches were excavated in as many different parts of the site as possible in an attempt to gain some insight. Such efforts were, however, severely hampered by practical constraints such as finding suitable space and gaining the permission of landowners. Trench F, located on the northern side of the centre of the town, gives an insight into the stratigraphic sequence in that location, but it was very restricted in size, as was the trench excavated not far away by Dikshit many years before. From these trenches there is a distance of over 500 m to Trenches A and D in the ASI-protected area to the south, and it is in this 500 m – currently an archaeological blank – where the core of the Early Historic settlement is likely to have been located. Much then still remains to

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be learned about the spatial development of Paithan, beyond the very basic outline that it has been possible to surmise below.

Earliest levels

The earliest evidence of occupation that came to light during the present excavations was the eroded sherds of possible 'Jorwe ware' that were excavated in the lowest levels of Trench D (Chapter 7). Due to their eroded state, these sherds cannot be attributed a precise date and are taken as being indicative of a human presence at Paithan at some time between c. 1400 to 700 BC. It should be noted, however, that these sherds were in stratigraphic association with later material such as Black and Red ware, indicating that they are residual and may have been redeposited from other areas of the site. It is likely that the seven microliths that were recorded by the present excavations also date from this period, but these are also all residual and redeposited (Chapter 8). Aside from these facts, nothing is known at present about the extent and nature of occupation at Paithan during the Proto Historic period.

Interestingly, there is no reliable evidence of occupation at Paithan during a period of 400 years or more between 1400 and 700 BC and the Mauryan period. Occupation in the Mauryan period, or at least the 'Nanda' and 'Maurya-Sunga' periods (370 to 150 BC), is suggested by the eight punch-marked coins on display in the Balasaheb Patil Museum, as well as others that were found and published by Yusuf (Chapter 11, nos. 1–8; Yusuf 1938: pl. IXa top; 1939: pl. XXc). Some of the NBP sherds found by the present excavations as well as by Dikshit (1973: 28) might also conceivably date to this period (Chapter 7).

Period 1 (200–100 BC)

When we come to Period 1, it is possible to say a little more about occupation at the site as layers dating to this period were excavated by the present project. The hollow cross-type coins found in these layers suggest a pre-Satavahana date roughly between 200 and 100 BC. Evidence of occupation at this time was found in all of the excavated trenches to varying degrees and it is also to this period that most of the NBP sherds recovered by the excavations are likely to be dated, although they may of course be much earlier (see Chapter 7). Contemporary occupation appears to have consisted predominantly of wooden huts with beaten-earth floors associated with occasional hearths and rubbish pits.

In the area excavated by Yusuf, a fired-brick drain and three cylindrical brick structures were located in the lower levels of his sixth *stratum* (Yusuf 1938: 4, pl. VI; 1939: 41, pl. XVIIIa, b). The very presence of fired brick in these levels suggests that they should be allocated to Period 2 because fired brick was completely absent from Period 1 deposits in TP1 in Trench A. Yusuf, however, mentioned that the drain was associated with copper coins, including – it seems – hollow cross coins (Chapter 9), which fall within our Period 1. But Yusuf's stratigraphy was not precisely defined, and in any case, the coins provide only a *terminus post quem* for the drain, which could also be later in date. It is therefore sensible to allocate Yusuf's brick drain to our Period 2, whilst noting the presence of the hollow cross coins as evidence of Period 1 activity in the vicinity. Meanwhile, Dikshit's Period I has similar characteristics to our Period 1 and is probably roughly contemporary (Dikshit 1973: 28).

The presence of Period 1 layers in all of the present trenches as well as those excavated by Yusuf and Dikshit suggests that this was perhaps the first period during which occupation became widespread across the Paithan mound. This might suggest the arrival of new settlers from elsewhere to a location that was previously unoccupied, or it might be indicative of the expansion of a smaller, already existing settlement, the location of which has not yet been found.

The post-Mauryan/pre-Satavahana period is still poorly understood in this part of the western Deccan. Ray has proposed that political authority in the Deccan became very localised at this time (Ray 1989: 106). She has also pointed out that a common denominator of many of the known settlements of this period is that they are located on overland trade routes (Ray 1989: 105). Period 1 at Paithan – limited as the evidence is – would therefore appear to be a fairly typical settlement of this period, albeit one that seems to have been slowly increasing in size.

Period 2 (100 BC–AD 100 and possibly later)

Fired brick can be said with some confidence to have appeared by Period 2. Broken fired bricks were used in

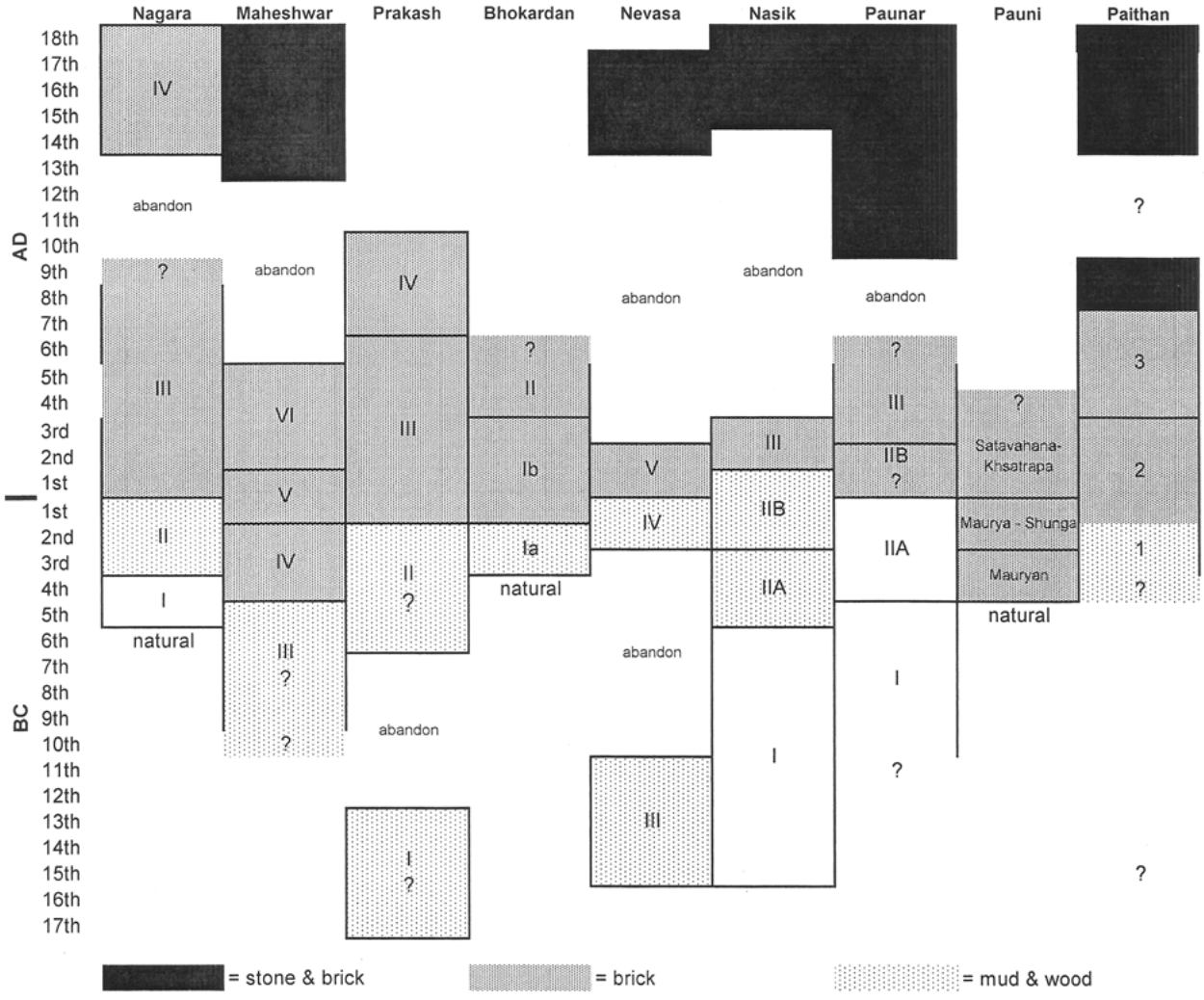

Fig. 14.1: A schematic outline of the building materials used in the Paithan sequence and at eight other Early Historic sites in the region.

Trench F to construct a floor, and they also make up a significant part of the dense rubble layers that occur in the Period 2 layers in TP1 in Trench A. Although no buildings or walls were uncovered from this period, it can be surmised, on the basis of excavations undertaken at contemporary sites elsewhere in the region (see Fig. 14.1), that with the introduction of fired brick, domestic architecture changed its form from circular-shaped wooden huts to rectangular houses with brick walls and terracotta tiled roofs.

In addition, it will have been noted that in Trench B objects apparently associated with some form of manufacturing activity came to light in this period. Not enough evidence was uncovered to demonstrate more than the presence of activities associated with a furnace.

As mentioned above, in the area excavated by Yusuf, a fired-brick drain and three cylindrical brick structures were located in the lower levels (Yusuf 1938: 4, pl VI; 1939: 41, pl. XVIIIa, b). To judge by the published photograph, the drain was roughly constructed whilst the 'cylindrical brick structures' appear to be ring-wells that were dug down through these layers at a later date. Nonetheless, on the basis that the fired brick first appears in Period 2, the drain is indicative of activity in this part of the site at that time.

Dikshit recorded the presence of a 1.22-m-thick layer of mud overlying his Period I deposits (1973: 29). This resulted, he assumed, from a heavy flood that covered the whole site at some time. This is an unlikely explanation and it seems more likely to be the result of natural soil accumulation during a time when the

area was abandoned and overgrown by vegetation. Indeed, it is noteworthy that Yusuf recorded a thick earth deposit below his Fifth *Stratum*, which is stratigraphically much later than Dikshit's, confirming that such accumulations result from localised abandonment rather than widespread flooding (Yusuf 1938: 4).

Above the mud layer, Dikshit reported finding a ruined structure built of 'extraordinarily large-sized bricks' that he interpreted as the plinth of a ruined temple and which he tentatively dated to the Rashtrakuta period, although he provided no evidence to support either interpretation or dating (Dikshit 1973: 29). Dikshit did not give the measurements of the bricks, so it is impossible to compare them with those from Trench A. Nonetheless, it is notable that the brick drain uncovered by Yusuf is also described as having been made of bricks of 'exceptionally large size' (9 × 20 × 50 cm in this case) and that they are the only really large bricks from the sequence (Yusuf 1938: 4; 1939: 41). It therefore seems likely that Dikshit is mistaken in his dating – and also probably his interpretation – of this brick structure and that it should be placed in Period 2. If this is correct, Period 2 remains were located in all excavated trenches and it is therefore likely to have been a period of relatively widespread activity across the site.

The Satavahana period has been characterised as a period of growth and economic prosperity in the western Deccan (e.g. Ray 1986; 1989: 106–107). As a site of some historical significance, it is no surprise to see evidence of widespread activity, large brick structures and abundant use of coinage at this time.

Period 3
(4th/5th to 8th/9th centuries AD)

With the exception of a single coin (Chapter 9: coin 33) which is datable to between the 2nd and 4th century AD, there is no datable evidence for activity at Paithan between the 1st and the 7th centuries AD. This is likely to be due to an absence of coin deposition at this time, but it might reflect a reduction of settlement or an abandonment. Until a more precise understanding of the pottery chronology is available, it is impossible to be certain.

With the possible exception of a single deposit from Trench D1 (751), Period 3 remains are entirely restricted to Trench A, where they are associated with the construction, enlargement and use of the two brick temples. This might suggest that the extent of activity at the site contracted after Period 2, although the available 'sample' area is very small.

Of course, the temples themselves indicate that activity certainly continued between the 4th/5th century AD and about the 8th century in one location, although nothing is known about the nature of occupation elsewhere on the site at this time. With the exception of a possible issue of the 4th/5th century and one of the 7th century from the foundation deposits of the temples (Chapter 9, coins 33 and 34), no coins of this period have come to light – a point which is further discussed below in the section on coins and monetization. It is not possible to be certain when the temples were finally abandoned. It seems most likely that this took place around the 8th century or perhaps slightly later as there are indications that the temples remained in use for a reasonable period of time, although they did not undergo further embellishments.

The nature of occupation in large, urban centres during the post-Satavahana period has been the focus of much debate. It has been argued by some scholars that this was a period of widespread urban decline but these arguments, although they need to be carefully considered, are not without problems (e.g. Sharma 1987; Kennet 2013). It is difficult to form a clear picture of the nature of occupation at Paithan from the limited area that has been exposed, but the construction of two early Hindu temples in what is likely to have been an area that was marginal to the earlier site is an interesting development as it is suggestive of a shift in the focus of settlement. This is a point that is significant to our understanding of the formal elaboration of temples at this time and their relationship to existing settlement and power structures.

Period 4

After Period 3, there is no clear evidence for occupation at the site until the 14th/15th centuries, to which period some of the glazed pottery from the present excavations can be dated as can a number of coins reported by Yusuf (1938: 3; 1939: 41).

It should be noted that Period 4 is a rather loosely defined phase and has essentially been taken to represent all post-Medieval periods at the site. No systematic attempt was made to investigate the archaeology of these periods by the present project. Period 4 levels were present in the Trench A area, but they had been almost entirely removed by Yusuf's earlier excavations. Period 4 levels were excavated in Trench B, where they con-

Table 14.1: Tentative correlation of the excavated sequences from Yusuf (1938; 1939), Dikshit (1973) and the present excavations.

Yusuf 1938; 1939		Dikshit 1973		Present excavations	
1st *stratum*	Stone-and-mortar and brick-and-mud buildings, British period?	?		Period 4	Houses, 17th century +
2nd *stratum*	?18th–19th centuries	Period IV	House, 18th–19th centuries		
3rd *stratum*	? Mughal period	?			
4th *stratum*	Jumbled, tilted walls, ?14th–15th centuries			?	
5th *stratum*	Thick deposit with coins, no structures				
6th *stratum* (upper)	Brick temples			Period 3	Brick temples
6th *stratum* (lower)	Brick drain, coins	Period III	Brick 'temple'	Period 2	Fired bricks
		Period II	Thick sterile mud		
				Period 1	Post-holes, coins, NBP
		Period I	Coins, NBP		

sisted of the corner of a stone building overlying a building with six pillar bases. Below this, a sequence of uneven floors, ash and rubbish pits came to light. In Trenches D1 and D2, Period 4 levels had been removed by brick quarrying. Neither were they present in Trench F, although it is not clear why not. Dikshit notes the presence of later buildings dating to his Period IV in the trench he excavated. These remains included the cellar of a house that had cut into underlying levels (Dikshit 1973: 29). Yusuf describes an upper level of buildings constructed of stone, lime and brick dated by coins to the British, Asaf Jahi and Mughal periods (1938 3, pl. III; 1939: 41, pl. XVI).

The general impression is that the site was quite densely built up towards the end of the Mughal period, reaching a peak perhaps in the Asaf Jahi or early British period, and it may have been during this time that the urban plan of the older part of modern Paithan came into existence (Fig. 1.5). The whole town was also walled at some time, possibly during the Mughal period (Govt. of Maharashtra 1977: 1035, 1604). At a later date, it is likely that the area of the site that is now covered by the ASI protected area was abandoned, the buildings within it fell into disrepair and their bricks and stones were removed for use as building materials elsewhere.

It would be wrong to attempt to characterise the nature and extent of occupation in Period 4 any more precisely based on the evidence that has been collected here. Nonetheless, the extensive remains of Mughal and post-Mughal period architecture that are still scattered about the site suggest that a more detailed investigation of this period would yield interesting and informative results related to the development of minor urban centres at this time.

Summary

The present excavations did not have as their main aim an investigation of the spatial development of the site. Indeed, such an aim would require a much larger-scale project with greater resources than were available to the present one. Nonetheless, it has been possible to

set out a tentative overview based on the information from the various trenches that have so far been excavated (see Table 14.1).

In order to provide a regional context for these developments, Fig. 14.1 shows a schematic outline of the building materials used at Paithan compared to eight other excavated Early Historic and Medieval sites in the region. It should be noted that the absolute chronology of almost all of the phases and periods shown is tentative and open to question, and this may explain some of the apparent anomalies, for example the apparently late introduction of brick at Nasik, Nagara and Nevasa. The phases of abandonment in the Early Medieval period are also open to question and reinterpretation being based, as they are, on limited excavation, biased sampling and problematic chronologies (e.g. Kennet 2004b; 2013). Nonetheless, Fig. 14.1 serves to demonstrate that the pattern of development recorded at Paithan is part of a regional trend rather than a local or site-specific development, even if the precise chronology has not yet been finalised.

The same can also be said of the general trends of expansion and contraction that have been tentatively identified at Paithan. A phase of growth up until the end of Period 2, followed by a phase of contraction of the settlement, would conform to the general trends that have been identified at other sites in the region (e.g. Sharma 1987: 60–83). Nonetheless, the evidence from Paithan is not strong, and it would be wrong to make too much of it here.

An obvious question that is raised by the analysis shown in Fig. 14.1 is what do these regional trends represent? For example, why was there a transition from mud-and-wood to brick-and-tile architecture in around the 1st century BC? Is it indicative of cultural, technological or economic changes? Does the manufacture of tile and brick reflect a more organized, commercialised economy or does it simply reflect the spread of a new technology? Similar questions are raised by the transition from brick to stone in the Early Medieval period. Does this reflect an increase in the cost of fuel for firing bricks, a change in cultural attitudes, or a change in the systems that produced and distributed these materials? We are not at present in a position to answer these questions, but this analysis demonstrates that important insights into economic and social developments may be revealed by further consideration of these issues.

The lack of evidence for monumental architecture, paved streets and dense urban architecture at Paithan reminds us how little is known about what Satavahana towns actually looked like, how they were constructed, whether they included large, monumental architecture and how they were laid out. Excavated sites have revealed evidence for earthen ramparts, sometimes reinforced with fired brick, and generally small and isolated units of small-scale architecture such as houses and structures of a similar scale. From an archaeological perspective, therefore, the Early Historic town still remains something of a mystery and the question of the nature of Early Historic urbanism perhaps represents one of the most important areas of Early Historic archaeological research.

The development of the temples

One of the most significant aspects of the Paithan excavations is the detailed architectural and stratigraphic investigation of the two Vakataka to Rashtrakuta period brick temples, the details of which have been set out in Chapter 4. Aside from providing an insight into the nature of brick temples of this date in Maharashtra, about which very little is presently known, these are almost the first temples of this period that have been stratigraphically excavated, recorded and analysed to the same level of detail anywhere in India (e.g. Jayaswal 2001). So, although the Paithan temples were not major monuments benefiting from royal patronage – as were the temples at Bhitari – they are well-documented examples of small to medium-sized Early Hindu temples that were built during the formative period of temple architecture in South Asia (e.g. Meister *et al*. 1988: 22). For this reason, they provide an important insight into the architectural traditions of the time.

Both temples underwent a phased architectural development before they reached their final forms, by which time they both consisted of what might be referred to as the 'standard temple plan', by which is meant a square or rectangular *garbhagriha* (cella) for the deity and an attached *mandapa* (hall) for sheltering the devotee (Meister *et al*. 1988: 22). In the case of the North Temple, the fact that it has been possible to trace the development from a relatively simple platform shrine in Phase I to a standard temple plan in Phase III might provide something of a blueprint for the way in which the standard temple plan is likely to have evolved from the 4th century more generally. This insight is certainly one of the most important contributions to arise from this study. By contrast, the South Temple, which was probably built in the 7th century –

but certainly after the North Temple had already been in existence for 200 years or more – did not undergo the same development but was planned and constructed according to the standard temple plan, which suggests that the standard temple plan had become the accepted norm in the intervening years.

In view of the significance of these questions, a few comments are offered below on the key stages in the Paithan temples' development.

The foundations

The foundations of both temples are remarkable. It came as a surprise to the excavators to encounter foundations of this scale and elaborate complexity supporting structures of such a relatively small size. The foundations are clearly in excess of what is required for the size of the building, suggesting that the rationale behind them is sacred rather than structural.

Parallels for such foundations have already been discussed in Chapter 4, where the suggestion was made that this aspect of temple construction might be a formalisation of regional, non-sacred construction techniques, thus providing a possible insight into the origins of temple-construction rituals and methods. It should also be noted that the close correspondence between the Paithan foundations and the Brahminical literature describing temple foundations suggests that the sacred formulae related to temple construction were widely disseminated and closely adhered to, even at this relatively early date.

North Temple Phase I: Mulaprasada

Phase I of the North Temple appears to have been a small, square shrine located on a brick platform. It might be seen as a more elaborate form of the square brick shrines that are known from sites such as Yelleshvarum, Nagarjunakonda and Veerapuram, and which appear to have been in existence from at least the 3rd/4th centuries AD (Khan 1963: 14–15; Sarkar and Misra 1972: 24–31; Sastri *et al*. 1984: 38–44). These simple shrines themselves might be seen, in the broader scheme of things, as representing a development towards a more permanent, brick-built manifestation of earlier wooden shrines of a type that is known, at present, exclusively from representations in relief sculpture and on coins (e.g. Coomaraswamy 1927: 83; 1930: fig. 23; 1992 [1956]: 105–109; see also Ray 2009). It is possible that the Phase I structure replaced a wooden shrine at the same location, but any such evidence would have been destroyed during the construction of the Phase I structure itself.

In considering what the Phase I structure actually looked like when it was in use, it is possible that it was the basal platform of an open-sided shrine that was covered by a roof supported on pillars: a one-storied, simplified and obviously later version of the concept depicted on stone reliefs from monuments such as Amaravati (Fig. 14.2) and Jaggayyapeta, which Shah has compared to the 6th-century temple at Gop in Gujarat (Coomaraswamy 1930: figs 30, 33; Shah 1975: fig. 9).

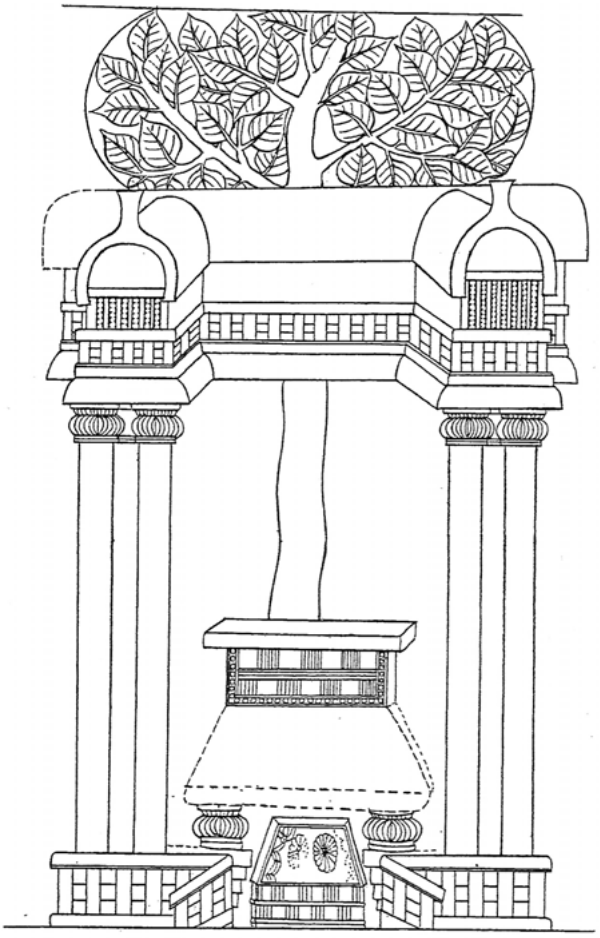

Fig. 14.2: Drawing of a shrine in a relief from Amaravati (from Coomaraswamy 1930: fig. 33).

However it looked, Phase I is the earliest evidence of any cultic activity that has so far come to light in this location. No exact parallels can be found for it, but it is possible that other such brick shrines do still exist from this period and they are encased within the later structures of brick temples, thus making them invis-

ible, except where there has been damage to the later phases of construction.

North Temple Phase II: Shikhara

As has been noted in Chapter 4, the thickened walls of Phase II of the North Temple were probably intended to support a brick *shikhara* (tower), the introduction of which – it has been suggested – can be dated to about the middle of the 5th century on the basis of parallels with temples such as Bhitargaon, Deogarh and the brick temple at Bodhgaya (Meister *et al*. 1988: 23). The *triratha* form (square with slight projections on each side) of the structure and the fact that it was probably surmounted by a *shikhara* similar to – but smaller than – Bhitargaon, suggest that the shrine underwent increased monumentalisation at this time. As with the foundations mentioned above, this development was carried out in close conformity with the prevalent pan-Indian norms of temple architecture.

It can be imagined that the resulting *shikhara*, even if only of relatively modest proportions, would have formed a prominent landmark in the surrounding landscape, probably reflecting an increased local importance of the shrine.

One key question about the Phase II shine is how access would have been gained to the deity, given the absence of an obvious entrance into the *garbhagriha*. One possibility is that there may have been window-like openings above ground level in one or more of the walls. Alternatively, it is possible that there was access from the west side, the evidence for which has been obscured by later destruction of the wall on that side.

North Temple Phase III: *Mandapa*

As Kramrisch has pointed out in relation to the Hindu temple more generally, the addition of a *mandapa* was something of an afterthought, and so it seems was the case in the North Temple at Paithan (Kramrisch 1946: 254). Here, the *mandapa* can be shown to have been a later addition. It is built of bricks which are the same size and quality as the earlier two phases, but they clearly abut or are inter-keyed with the Phase II wall. In addition, the *mandapa* foundation cut is different from, and shallower than, the Phase II foundation cut.

The development of the *mandapa* as an architectural concept is key to the formation of the Hindu temple as it is now known. As has been argued in Chapter 4, the first *mandapas* that closely resemble Phase III of the North Temple at Paithan in terms of proportions and layout first occur at the end of the 6th or the early 7th century in North India, or a little later in the Karnata-Dravida tradition, whilst by the 8th century, they had become a feature of most temples and part of the standard temple plan (Meister *et al*. 1988: 230–236, 256–260, 265–267; Hardy 1995: 67, 71, fig. 46).

At Paithan, the addition of a *mandapa* appears to represent a further stage in the monumentalisation of the shrine and its final transformation into what can be recognized as a fully formed temple. Once again, the architectural development of the structure followed closely developments that were occurring elsewhere in India, including the addition of *adhisthana* mouldings (basal plinth mouldings) to the *mandapa* wall. This is a further statement of the obvious point that, even in a relatively modest-sized temple such as this, there was close correspondence with the pan-Indian norms and rules of Hindu temple construction.

South Temple Phase I: construction

The construction of the South Temple took place some time shortly after the addition of a *mandapa* to the North Temple. This can be demonstrated by the size of the bricks, which had been consistently 7 × 25 × 40 cm through the first three phases of the North Temple but which changed to 6.5 × 26 × 42/43 cm before the construction of the South Temple and Phase IV of the North Temple and did not change again. Although using brick sizes as an absolute dating method at a regional scale is highly problematic and error prone, it is likely to be reliable when used for the relative dating of individual structure phases, as is the case here.

At the same time, the similarity in the style of the *adhisthana* mouldings in the *mandapas* of the two temples suggests that there was not a long time gap between the two construction phases. One possible interpretation of this sequence is that between the construction of Phase II of the North Temple and Phase I of the South Temple, a *mandapa* had become a recognized and expected part of a temple and was included from the planning stage rather than being added later. If this is correct, then the development of the North and South Temples presents a microcosm of the evolution of the standard temple plan through this period.

Once again, it is impossible to know whether an earlier shrine of some sort stood where the South

Temple now stands; any evidence for such a shrine would have been completely destroyed by the construction of the temple. In either case, it seems that the construction of a second temple right next to the North Temple represents a further increase in the monumentalisation of this sacred locality and highlights, once again, its growing importance.

North Temple Phases IV–V and South Temple Phases II–V: later developments

Following the construction of the South Temple, further architectural developments consist only of repairs, rebuildings, internal subdivisions and the construction of a crude perimeter wall some time later.

The North Temple saw the construction of an internal subdivision (N-IV), probably a low, raised platform in the middle of the *mandapa*, that was probably related to a subordinate deity that was placed there. It appears to be very similar in concept to Phase V of the South Temple and it is tempting to suggest that both alterations were made at the same time.

The layout of the South Temple was adapted, extended and the superstructure almost completely rebuilt in Phase IV. Nonetheless, it is key to note that, apart from a slight increase in size towards the east, there was no further significant enlargement or monumentalisation of either of the structures. This suggests that the site had reached its zenith, at least in terms of size, investment and architectural development. Indeed, the building techniques used in some of the later extensions and adaptations suggest a decline in the quality of construction and perhaps some degree of neglect or impoverishment. The latest changes in the North Temple (the Phase V platform at the western end of the *mandapa* interior against the wall of the *garbhagriha*) are extremely crude and might even be taken to indicate informal re-use of the temple for cultic purposes once the temple itself had been formally abandoned and had fallen into disrepair.

The stone perimeter wall, which appears to have been constructed some time later, seems to represent a crude attempt to enclose the temples and to define the plot on which they stand. This might reflect a change in land use immediately surrounding the temples that created the requirement to isolate them in this way. So little of the stratigraphic layers related to these later phases were left undisturbed by Yusuf, that it is impossible to say much about these developments.

Discussion

Unfortunately, with the exception of the fragmentary stone sculpture of a female found in Trench B some 70 m to the south of Trench A (Chapter 8 No. 234, Figs 8.17 and 8.18), no images or inscriptions were found directly in association with the temples that might give some insight into the nature of the cult that was practiced here. The Balasaheb Patil Government Museum at Paithan contains, however, a number of terracotta, kaolin and stone figurines that apparently come from Paithan, although it is not known exactly whereabouts they were found. Some of these are illustrated in Chapter 11 (Figs 11.6 and 11.7), and further examples are published by Morwanchikar (1985: chapter 7). Some of these are datable to about the 4th century AD based on stylistic comparisons, and these are presumably the types of images that might originally have been associated with the Paithan temples.

Whatever the nature of the cult that was practiced, it is clear that, despite the elaborate formulae that were involved in the planning and construction of these two temples (as exemplified by the careful brickwork, the elaborate foundations and the precise conformity with the rules as set out in Brahminical texts), the temples were dynamic structures, both of which were constantly adapted and re-formed throughout their lives.

In terms of the development of Hindu temple architecture, it is the North Temple that is the most interesting and significant. It developed from a simple platform shrine in the 4th/5th century and was then elaborated through the construction of a *shikhara* around the middle of the 5th century and was finally turned into a larger and more complex standard temple plan incorporating a *mandapa* with *adhisthana* mouldings in the late 6th or early 7th century. In this way, it passed through the stages of temple development that have been mapped out for the Hindu temple more generally on the basis of standing buildings of different dates (e.g. Meister *et al*. 1988: 22–24; Pichard 1994: chapter 2, fig. 4; Hardy 1995: chapter 4). The North Temple at Paithan is, however, the only temple at which these developments have been clearly shown to have taken place in a single structure.

Why the North Temple should have developed in this way is an important question. It seems quite possible that the small Phase I shrine housed a local cult image whose significance in the area attracted the patronage of a local personage, thereby allowing the cult and the structure that housed it to grow in stature throughout the 5th and 6th centuries. In suggesting

this, it is assumed that the architectural developments that have been mapped out in the North Temple were paralleled by an increased formality, permanence and institutionalisation of the cult that it housed. These trends were continued into the construction of the South Temple, which appears to take up the architectural story that had been started in the North Temple at a later stage in its development. The South Temple was conceived and constructed as a fully formed standard temple plan with *mandapa* from the start. Its presence, size and form are also likely to reflect the increasing permanence, institutionalisation and monumentality of the cult that was practiced here. Indeed, it might therefore be argued that, in some ways, the development of the two temples can be seen as an architectural palimpsest of the transformation of a 'village cult' into a 'temple cult', with its attendant formalisation and Hinduization, following the pattern outlined by Eschmann and others on the basis of fieldwork in Orissa (Eschmann *et al*. 1978: 86–89; see also Ray 2009).

Arguing that such developments took place at Paithan is therefore to argue that the Paithan cult and temples were not a unique case but rather that the developments mapped out here were linked to a broader process that was taking place at this time as cults, deities and the temples in which they were housed became an increasingly important aspect of the political and cultural institutions of Early Medieval states across India (e.g. Bakker 1992; Kulke 1978; 1995b; Willis 2009: 113–122). This theme is further explored in relation to the associated evidence for Paithan's economic development that is discussed below.

Part 2: The changing economy of the Early Historic and Early Medieval periods

An excavation such as this can provide insights into various aspects of the ancient economy. This section presents an integrated overview of the agricultural economy (as elucidated by the archaeobotanical and paleofaunal assemblages), patterns of production and consumption (as elucidated principally by pottery deposition) and patterns of coin deposition. An attempt is made to place this discussion within the broader historical context of the Early Historic and Early Medieval periods in central India.

Economic change and agricultural intensification

One of the most significant findings of the present excavations is the evidence of the way in which agricultural practice and strategy changed through the site's history. This evidence has been outlined by Fuller in Chapter 12 and can be linked to developments described by Rowley-Conwy in Chapter 13.

Fuller's analysis of the archaeobotanical assemblage provides evidence for increasing diversification, intensification, investment in and commercialisation of cultivation strategies. It also suggests a change in the organization of agricultural labour away from centralized or communally organized processing towards household-based processing. The argument for the diversification of cropping strategies is based on the increase in the diversity of crops between Periods 1 and 2 and also between Periods 2 and 3, most notably, the trend away from kodo millet, which dominated the Period 1 assemblage, towards a wider range of millets through both Periods 2 and 3, including African millets and the so-called 'S/E/B' millets. These changes are likely to be explained by the exploitation of a wider range of soil types, which are likely to have included lower-grade, marginal areas around the site with poorer soils that would not have been the first choice of cultivators but that were exploited in later periods due to increased pressure on land and food production. The argument for intensification is based on the evidence for an increase in winter crops, especially winter pulses, such as chickpea, grasspea, pea and lentil, that would have allowed double-cropping of the same land that was used for other crops in the summer but would also have allowed a reduction in the length of the fallow periods between crops due to their nitrogen-fixing characteristics. As for investment, as Fuller points out, the increased exploitation of winter crops in an area such as Maharashtra, which experiences relatively low levels of winter rainfall, would almost certainly have required the construction of some form of irrigation such as tanks, canals and/or wells, which would have required technical knowledge as well as the investment of money and labour. Fuller's argument for the growing commercialisation of the agricultural economy is based on the continuing trend of increase in the amount of cotton at the site from Period 1 to 3 and the assumption – because textiles are labour-intensive and therefore imply surplus production beyond subsistence – that cotton is indicative of 'cash-cropping', or production

for commerce rather than for local consumption. This certainly seems to have been the case in the Mughal period (Habib 1999: 43) and it should also be noted that the Periplus specifically mentions cotton from Tagara (Ter) being transported by cart overland to Barygaza on the coast (Casson 1989: 82–83), although the commerce might also have been directed towards more localised markets. Of course, it is possible that some cotton production was also for household consumption, but, as Fuller points out, the continued occurrence of charred cotton seeds in archaeobotanical samples from urban contexts is probably indicative of larger-scale production. In addition, Fuller notes that African millets, which had been cultivated in low quantities in the region since the Chalcolithic, but which show a trend of marked increase through Periods 2 and 3, would have been cheaper to process and might therefore indicate an increase in commercial considerations amongst cultivators or the landowners that controlled agricultural production. The argument for a shift towards household-based production is based on the presence of weed seeds. Fuller points out that the increased numbers of weed seeds in the archaeobotanical assemblage probably results from an increased degree of crop-processing being carried out on site in the latter two periods. This he interprets as being indicative of a change from a more centralized or community-level organization of agricultural labour in Period 1 towards an increasing emphasis on smaller, household-level organization through Periods 2 and 3, with the most significant shift apparently occurring between Periods 1 and 2.

As for the palaeofaunal evidence, in his analysis, Rowley-Conwy has set out a number of points, the most significant of which is a continuing decline in the amount of pig and the commensurate increase in the consumption of sheep/goat between Periods 1 and 4. This very clear, long-term trend raises two obvious questions: how might this shift be interpreted in terms of broader agricultural and economic strategy? And can it in any way be linked to the trends identified by Fuller in the archaeobotanical assemblage?

Firstly, it needs to be stated that there are no grounds for using the decline in pig bones as an 'ethnic index fossil' with which to identify the presence of Muslims at Paithan as the shift away from pig began between Periods 1 and 2, which is obviously far too early for Islamic practice to have been a contributory factor. Neither is it possible to identify any other obvious cultural or social factors that might have acted at this period and over such a duration of time to cause comparable shifts in meat consumption – the likelihood is therefore that the rationale behind this change is economic.

Indeed, if we consider how pigs and sheep/goats tend to be kept and fed, there are some obvious potential links between a decline in pig husbandry and the changes in cultivation strategy identified by Fuller. The increasingly extensive agricultural exploitation of the area around Paithan suggested by Fuller's evidence would very likely have resulted in a reduction in the amount of scattered micro-environments that are suitable for foraging by pigs, for example areas of woodland and patches of disused, overgrown and poor-grade land. This would have made the feeding of pigs more difficult and potentially more expensive and may have led to free-foraging pigs posing an increasing threat to crop fields close to settlements. Such tensions can perhaps be seen in the Laws of Manu (on the dating of which see below), a text that defines an area around villages and towns within which it is the responsibility of the cultivator to maintain good fencing, without any gaps 'that a dog or a pig could put his muzzle or snout through' (Laws of Manu 1991: 8.237–244). At the same time, there would have been an accompanying increase in crop residues such as straw and haulm from the expanding cultivated areas, and it is exactly these types of residue that are ideal for feeding goats and sheep, although they are not at all suitable for pigs. Indeed, crop residues are still important today in many parts of India for feeding goats and sheep as a traditional part of crop-livestock interaction strategies (e.g. Geerlings 2001: 36–38; Singh *et al.* 2007: 41–36).

This makes clear one potential link between the trends defined in the archaeobotanical and palaeofaunal assemblages by illustrating how much more easily sheep and goat husbandry could have been integrated into the more extensified cropping strategies of Periods 2 and 3 than pig husbandry might have been. But this is not the whole story. It may also be that intensified demand for meat made sheep and goats a better option than pigs. In order to explain this, it is necessary to look at evidence from the Levant, a region where a considerable amount of analysis of palaeofaunal remains from archaeological sites has been carried out, which has led to the development of a number of theories about the significance of pig husbandry and the possible reasons behind its decline in certain periods, some of which are directly applicable to the Paithan evidence. In the Levant, it has been argued that pigs played an important a role in certain quite specific types of agricultural strategy and that changes

in the levels of pig consumption can be indicative of changes in broader economic structures. Generally, and for reasons that will be further outlined below, evidence for high levels of pig consumption is thought to be indicative of localised, relatively low-intensity, subsistence-based, small-holder economies that are poorly integrated into broader market structures, whilst lower levels of pig have been taken to indicate higher-intensity, more commercialised economies that are better integrated into broader market structures (e.g. Redding 1991; Zeder 1996: 298–299, 306–309; Hesse and Wapnish 1997: 238–253).

To understand why this is, and why it might also be applicable to Paithan, we need to consider an imaginary Paithan small-holder, who kept a few pigs that were fed on household refuse and let out to forage during the day. This would have been a cheap and effective way of producing small amounts of meat for the family. Pigs breed and grow quickly, their meat is high in calories and fat and they could have been kept and fed at little or no cost if they were kept in small numbers (Zeder 1996: 300–303; Singh *et al*. 2007: 37). A problem would have arisen, however, if it had become necessary or desirable to increase meat production significantly, for example due to the wish or need to sell commercially. Keeping a number of pigs larger than could have been fed from household refuse and free foraging would have immediately meant that it would have been necessary to provide water, shelter, containment and especially feed, all of which would have required expenditure and investment. This would have been especially true if patches of woodland and other suitable pig-foraging areas around the settlement were being cleared, fenced and brought under cultivation, as it seems from Fuller's evidence they were. Goats and sheep would have had the advantage of being able to fallow graze, feeding on crop residues whilst a large herd of pigs would have consumed foods that would have needed to be specially produced or purchased. Goats and sheep also have the advantage of being more comfortably mobile than pigs. Mobility was potentially a key issue as it would have allowed goat and sheep pastoralists to move herds and flocks several kilometres (or even tens or hundreds of kilometres), either on a daily basis 'scout-browsing' or seasonally throughout the year as part of a longer-distance transhumant migration strategy. In both cases, herders would have been able to take advantage of more widely scattered grazing resources with sheep and goats, thereby permitting higher levels of livestock production than would have been possible on the basis of locally available resources alone.

The potential value of goat and sheep mobility is further increased if the availability of fallow-grazing around the site was being reduced by double-cropping, as Fuller's evidence again suggests was the case at Paithan. The Raika, a group of sheep pastoralists in contemporary Rajasthan, provide a modern illustration of mobile pastoralist strategies and their interaction with double-cropping cultivators (Agrawal 1999; Geerlings 2001). In studies of the Raika, it has been noted that a shift to irrigated double-cropping has led to a reduction in the availability of fallow-grazing and a commensurate rise in the distances moved by pastoralists each day, and the numbers of pastoralists practicing longer-distance transhumant migration (Agrawal 1999: 14; Geerlings 2001: 37–38; Robbins 1994: 10). Of course, strategies such as those used by the Raika involving regular, long-distance movement would be completely impractical with pigs.

In the light of these points, the decline in pig and the increase in sheep and goat consumption identified by Rowley-Conwy make perfect sense in relation to the changes in cropping practices that have been outlined by Fuller: both are likely to have resulted from pressure to expand and increase production and both may possibly reflect a shift towards a more commercially oriented, cash-cropping economy.

It also needs to be pointed out that the changes in agricultural strategy that have been outlined above are likely to have been accompanied by changes in social relationships. For example, according to the argument made above, the increase in mobile goat and sheep production would have led to the emergence of specialist, mobile or semi-mobile sheep/goat pastoralist groups similar to the modern-day Raika mentioned above. It is unclear whether such groups would have been those pushed to the margins by the expansion of cultivation or those being brought in to the margins of cultivation from the outside, as outlined by Ludden (1999: 72). In either case, the emergence of specialist groups in one area of the economy is likely to have been accompanied by a degree of specialization more widely across society in order to allow for the production of surplus that could be traded for sheep/goat meat. In short, the archaeobotanical and paleofaunal evidence may reflect a long and slow shift from a subsistence-oriented economy to one that was increasingly specialized and possibly commercialised.

In this context, it is interesting to consider the point made by Fuller in relation to the evidence for a shift

towards greater numbers of crops being processed in individual households rather than communally or centrally. Might this development (the evidence for which, it must be noted, is still very limited) reflect the sort of transformation that Chakravarti has in mind when she describes 'the emergence of the family as the basic producing unit' in agriculture'? (Chakravarti 1996: 93). Of course, Chakravarti's comments were made specifically in relation to the *gana-sanghas* of north-eastern India and she saw the developments she describes as being linked to a number of other very profound social and political changes, including the emergence of private control over land for the first time. Less is known about the social and political configuration of the Paithan region than is known about the area of the *gana-sanghas* in the earliest periods represented in this sequence, but it is quite possible that some of the same developments took place in both areas, even if at slightly different periods.

The status of pigs

Before moving on, it is worth making a few comments on the social and cultural status of pigs in India. By world standards, India's pig population has traditionally always been low, although it has been growing significantly since the 1960s mainly due to modern, large-scale production systems (Tisdell and Gali 1999: 7, table 1). Today, pigs are a relatively insignificant part of the Indian livestock industry, making up less than 3% of the total cattle, buffalo, goat, sheep and pig population in 2003 (Fig. 14.3), a figure that is, in fact, remarkably close to Rowley-Conwy's figures for Period 4 at Paithan. How long this has been the case is unknown, but low levels of pig husbandry were also noted by Fa-Hsien, the Chinese Buddhist traveller who visited India in the 5th century AD and who was led to comment that people in India did not keep pigs or fowls at all at that time (Fa-Hsien 1923: 21). In most parts of modern-day India, largely due to their low-maintenance costs, pigs are kept in small numbers by underprivileged and landless groups for whom they provide income and food (Singh *et al.* 2007: 37, 49). They are primarily left to free-forage, exploiting all available food sources in exactly the same way as the imaginary Paithan small-holder discussed above might have operated, except that, now, these food sources also include sewage drains and rubbish dumps. Perhaps because of these habits, pork has long been regarded as a low-status, low-value food and upper-caste Hindus have tended to shun it.

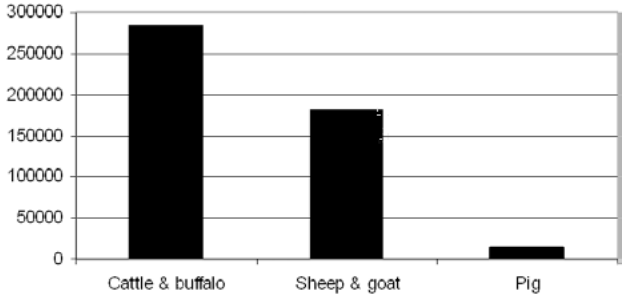

Fig. 14.3: Numbers of Indian livestock (1,000s) from the 17th Livestock Census of 2003 (source: FAO 2001–2003).

Interestingly, pigs are also associated with low commercial value and low social status in some ancient texts, for example the Arthashastra and the Laws of Manu. Because of its nature, the Arthashastra has little to say on the polluting nature of pigs, but it does set the fine for stealing or killing a pig at 54 *panas*, which is the lowest level for any livestock (the same as a dog, cat or cock) and is 1/11th of the 600 *pana* fine for the theft of a cow (Arthashastra 1987: 4.10.2–11). In almost all instances where pigs are mentioned in the Laws of Manu, they are regarded as low-value or unclean and polluting animals, and this is reflected in the fact that one of the most common terms for them is *vidvaraha*, literally 'shit-boar' or 'dung-heap pig' (Laws of Manu 1991: 3.190, 3.239, 3.241, 5.14, 5.19, 11.155, 11.157, 11.200, 12.55). Along with dogs, they are protected by a fine of only one *mashaka*, which, based on a *mashaka* being worth 1/16th of a *pana* (van Schrötter 1930: 548; Laws of Manu 1991: 8.132–7; Arthashastra 1987: 109, 327 (2.12.24), 767 (2.19.2–7)), is 1/3,200th of the 200 *pana* fine for small cow and 1/8,000th of the 500 *pana* fine for a large cow (Laws of Manu 1991: 8.290–8).

Bearing in mind the often complex symbolism linking animals and social status in Indian literature (e.g. Doniger 2009), the Arthashastra and Laws of Manu suggest that pigs were already the lowest-valued livestock by the 2nd to 4th centuries AD (to which broad period these texts are to be dated following, most recently, Willis 2009: 62, 204–206 and Bronkhorst 2011: 2, 65–74). Of course, as the Paithan sequence has clearly demonstrated, by this time, pig consumption had already decreased markedly from a much higher point during the pre-Satavahana period. The question that must therefore be asked is how were pigs perceived socially in the pre-Satavahana and Satavahana

periods when they appear to have been a much more important component of the agricultural economy? It should certainly not be assumed that the low social status and economic value that have been noted above can be applied to this earlier period. Indeed, it is quite possible to imagine that, as the economic importance of pigs declined in favour of sheep and goat during the Satavahana period and later, they became increasingly associated with poor, low-status social groups and it was this association that was ultimately the cause of the low status and low value that was attributed to them by the time the two texts mentioned above were composed.

Paithan's agricultural economy in its broader context

From the discussion above, it can be seen that the developments documented by the Paithan archaeobotanical and paleofaunal sequences provide evidence of a dynamic rural economy that evolved in all its aspects, from cropping and crop-livestock interaction strategies to the processing of harvests. This dynamism gives the lie to the notion of a stagnant, unchanging rural economy that has sometimes been projected onto India's ancient countryside. Instead, we are given a picture of an economy that seems to have continually been under pressure to increase production. The changes that were made in order to achieve this were not based on the introduction of new crops – for which there is no evidence at all – but on complex re-configurations of cropping strategies, crop-livestock interaction strategies, group specializations and infrastructure development.

The insights that have been provided into Early Historic and Early Medieval agricultural strategies are possible because the archaeobotanical and paleofaunal assemblages were rigorously and systematically collected through a carefully implemented sampling programme – which included flotation for the archaeobotanical material – and were quantitatively analysed in relation to each other and to the site's stratigraphic sequence. Such an approach has hardly ever been applied to Early Historic and Medieval levels in India. The few published reports from excavations of these periods are based on small samples and consist mostly of basic presence-or-absence reporting of species. These allow the identification of newly introduced species, but they do not allow any insight into changing agricultural strategy (e.g. Kajale 1994: table 2.2; Fuller 2002: 249–269). At the present time, there is therefore no other archaeological sequence that has been studied in this way, making it impossible to know whether Paithan is typical of broader regional developments or whether it is, for some reason, a unique case.

This is also the reason why the history of agriculture in Early Historic and Medieval India is, to date, based almost entirely on historical, epigraphic and art-historical sources (e.g. Gopal 1980; Randhawa 1980; Ludden 1999; Gopal and Srivastava 2008). Whilst these sources provide many important insights into some agricultural practices, they are – by their nature – incapable of providing a sustained and detailed narrative of the development of agricultural strategies across long periods of time. The reasons for this are obvious and can be summarized under the following headings:

- they generally lack the level of detail required to gain a full insight into the agricultural strategy of any one time or place, or indeed to allow comparisons between different times and places;
- they are, by their nature, unsystematic and in some ways biased in the type of information that they record; for example they tend to concentrate on the activities of literate groups rather than smaller rural farming communities;
- they are arbitrarily scattered across the historical time-scale so that some periods are quite well covered, whilst others are hardly covered at all;
- there are uncertainties about the historiography, date and reliability of many of the key texts.

Nonetheless, it is worth considering how the developments outlined at Paithan relate to the broader historical understanding of the development of Indian agriculture during the Early Historic and Early Medieval periods that have been gleaned from historical sources. Whilst there are a number of studies of specific periods and places in the scholarly literature, there are relatively few attempts at a comprehensive history of Indian agriculture that spans the Early Historic and Medieval periods. In this respect, M. S. Randhawa's *A History of Agriculture in India* (1980) and D. Ludden's *An Agrarian History of South Asia* (1999) are well-known and widely cited studies which draw together the most significant research up to the time when they were each written (e.g. Ludden 1999: 231–248). Using these two works, let us start by summarizing the consensus on the historical development of Indian agriculture through the period with which we are concerned. The development is generally portrayed as being based around a number of distinct historical phases. Initially, the so-called 'Vedic'

and 'later Vedic' periods are seen as encompassing a general shift away from pastoralism towards settled agriculture and a peasant economy, specifically in the Ganges valley and northern India (Randhawa 1980: chapters 19–20; Ludden 1999: 61–3; see also Thapur 1984). The Magadhan and Mauryan periods are seen as a time during which agriculture was expanded and intensified under state authority and collection of surplus around core urban areas, whilst the transition from pastoralism to settled farming went on gradually elsewhere – 'islands of farming in a sea of pastoralism' as Ludden puts it (1999: 65; Randhawa 1980: chapters 21–26; see also Thapur 1984). Little is said on the Satavahana period by either work (Randhawa 1980: chapter 27; Ludden 1999: 64; but see Ray 1986: chapter 4). The Gupta/Vakataka period is portrayed as a period of 'conquest by farming' involving the foundation and endowment of temples, the settlement of Brahmins and the clearing or enhancement of previously uncultivated or under-cultivated areas along with the cultural and political integration of the groups inhabiting them. It is generally argued that landholding became key to social status and political power during this time and some have argued that agricultural yields increased markedly (Ludden 1999: 64–65; Randhawa 1980: chapter 29; see also Digby 1982; Sharma 1987: chapter 10; Shrimali 1987). The Early Medieval period is seen as a period when emerging localised kingdoms expanded cultivation as the foundation of their power, especially through the development of irrigation infrastructure, some of which is recorded by inscriptions (Randhawa 1980: chapters 31–34; Ludden 1999: 69–76; e.g. Chattopadhyaya 1973[1994]; Kulke 1995b: 240).

There are some obvious problems with this still very basic narrative, for example the date of some of the key sources used, e.g. the Arthashastra for the Mauryan period (Willis 2009: 62), the general lack of detail relating to crops and strategies and the fact that the nature of the sources differs considerably for each period, as does the information they contain, which obviously makes *longue-durée*, comparative perspectives problematic. It is also notable that some periods hardly appear in these broad narratives – for example the Satavahana period – although such voids probably reflect the relative lack of available historical sources rather than the fact that no significant developments in agriculture occurred. Another problem, and one that is emphasized from a wider review of the literature, is that 'agrarian expansion' is a phenomenon that is claimed for almost all periods in Indian history: pre-Mauryan (e.g. Chakravarti 1996: 16–20), Mauryan (e.g. Thapur 1984: 123–125), Satavahana (e.g. Ray 1986: chapter 4), Gupta/Vakataka (e.g. Sharma 1987: chapter 10) and Medieval (e.g. Kulke 1995b: 252, 262). Is this a reliable picture? It might accurately reflect a long, steady underlying process of population growth and land clearance that spread across the subcontinent, beginning with the first farming communities and continuing, with possible scattered interruptions, until relatively recent times – a process that is, of course, only unevenly recorded in historical texts and inscriptions. However, it might not be accurate; it might simply reflect the fact that new land clearances, settlements and land endowments are much more likely to be recorded in texts and epigraphic sources than are episodes of steady-state agriculture, declining production and the abandonment of agricultural land. Reality might therefore have been much more complex. This is an important question, but it is one that can only be resolved through the accumulation of more detailed archaeobotanical and archaeological evidence against which to compare the historical record.

Developments between the pre-Satavahana and Satavahana periods (Period 1 to Period 2)

Focussing in on the Paithan region, Ray's very useful review of agriculture in the Satavahana Deccan describes an 'expanding rural economy' that served as the agricultural base for Satavahana rule in the Deccan (Ray 1986: 92–104). She acknowledges that details of crops are lacking from the historical sources and must be made up by the still very thin evidence from excavation at sites such as Nevasa, Bhokardan and Ter, where the presence of crops such as wheat, barley, rice, millets, sorghum and *Ziziphus* is recorded. Ray is, however, able to point to texts, inscriptions and numismatic evidence which testify to the existence of irrigation systems, such as water tanks, water wheels and wells. These facilities, she suggests, were privately controlled even if their construction might have necessitated the patronage of wealthy or royal individuals. Attempting to filter out those of her conclusions that are based solely on the Arthashastra (which is largely post-Satavahana; see above), she also points to the reclaiming of waste land and to the numerous inscriptions that indicate the private ownership and transfer of land that, on the basis of Jataka stories, she suggests might have been farmed either by the landowner himself or by waged labour or slaves. Inscriptions also

record the donation of land and land revenues to monasteries or to Brahmins. Initially, in the 1st century BC, this appears to have been a royal prerogative, but by the 1st century AD, increasing numbers of inscriptions record the donation of land by lay devotees, although the majority of these are in the region of Junnar.

Some points from Ray's analysis are clearly worth emphasizing in relation to the Paithan evidence. The first relates to the advent of private land ownership, the second to the development of irrigation and a third to the improvement of agricultural methods through land grants to the *sangha* (Ray 1986: 93, 95, 101). In all of these cases, it is possible to see a context for the changes in agricultural practice that have been identified at Paithan between Periods 1 and 2. Firstly, the advent of private land ownership and the rise of the *gahapati* as a group of land-owning cultivators (of various scales of wealth), which is suggested by inscriptions at sites such as Junnar, Kanheri and Nasik, might be linked to the transition towards the increase in household-based processing of crops and also to the spread of cultivation into marginal areas as individual small land owners sought to maximise the exploitation of their land (see also Chakravarti 1996: 93). Certainly, the increase in weeds that Fuller has identified appears to be more marked between Periods 1 and 2 than between Periods 2 and 3, suggesting that the transition to household-based processing was most prevalent at this time. Secondly, Ray points to evidence for the development of irrigation that comes from coins and inscriptions. Although she suggests that this is likely to have taken place under the control of the king or rich landowners due to the difficulty and expense of creating irrigation systems, this nonetheless provides a context for Fuller's suggestion, based on the increased use of winter crops in Period 2, for the presence of irrigation infrastructure given the relative lack of rainfall in this part of India. Thirdly and finally, royal land grants to the *sangha*, which are recorded by inscriptions, are suggested by Ray to have been part of a deliberate policy intended to improve agricultural yields and would presumably have led to the adoption of new agricultural techniques brought by the *sangha* from other parts of India. An example might be new cropping strategies that were designed to maximise yield and/or profit, which might be reflected in the increase in the diversity of crops and the increased use of the more commercially viable African millets. Such innovations were possibly outside the grasp of many of the smaller-scale subsistence cultivators whose horizons are likely to have been quite narrow and whose scope for innovation more limited.

An important exception to the general lack of archaeological evidence for agricultural practice at this time is Shaw's recent work around Sanchi and Vidisha, some 500 km to the north of Paithan but in a roughly similar geographical setting to the central Godavari valley basin. Using a landscape-archaeology approach integrating field survey with environmental sampling, Shaw has argued for a marked intensification of agricultural production in this area in the late centuries BC, at the time when Buddhist monasteries began to expand beyond their original nucleus in the Ganges valley. She argues that the intensification of agricultural production was part of a package of cultural and economic developments that accompanied the westward spread of Buddhism, urbanization and the development of centralized state polities at this time. Key to Shaw's model are the numerous earthwork irrigation dams that, she argues, were constructed to permit wet-rice cultivation. Aside from being part of an eastern Indian cultural package imported alongside Buddhism, wet-cultivated rice would have had the advantage of yields up to 11 times greater than might have been obtained from un-irrigated wheat. Shaw suggests that it was the resulting increased surplus that effectively underwrote the growth of population, towns and Buddhist monasteries in the area (Shaw 2007: 233–262).

This is a compelling and well-argued model which, whilst engaging with previously established models, provides a totally new perspective on the study of the Early Historic rural economy of this part of India. As Shaw admits, however, there are some aspects that are still open to debate, and one of these is certainly the significance that is attached to rice. Although the arguments for rice make perfect sense, Shaw was unable to provide any direct evidence for its cultivation, relying instead on economic logic, possible cultural associations and the fact that the waterlogged environment that was identified through environmental sampling accords closely with what would be expected in an area of wet-rice cultivation.

Rice has certainly been identified in Early Historic levels from at least ten excavated sites in India (see Table 12.2) but at most of these it is unfortunately not possible to gain any clear sense of how abundant it was compared to other staple crops. For example, Kajale notes that rice was particularly abundant in Satavahana levels at Adam, but detailed data are not presented, making it impossible to assess the reliability

of this evidence, which may be affected by taphonomy, sample size and the presence of wild rice (Kajale 1994: 45–46).

In this respect, the Paithan evidence is potentially very significant. Although Paithan and the upper Godavari are some distance to the south of Sanchi and Vidisha, inscriptions make clear that they were closely connected and were part of the spread of Buddhism and Buddhist monasticism by the time the Sanchi dams were being constructed (Ray 1986: 53, 68). Indeed, being an important Satavahana centre, Paithan is likely to have been fully engaged in the major economic, cultural and political developments of the time. The low relative frequency of rice in the Paithan archaeobotanical assemblage indicates, however, that it was not common enough to have had the economic impact that Shaw proposes – at least in this area. Indeed, Fuller has concluded that rice at Paithan must have been a high-status or special-use crop alongside the staple millets and pulses, rather than a staple crop itself. This is true for all periods at Paithan, the earliest of which are contemporary with Shaw's proposed dates for the construction of the Sanchi dams (Shaw 2007: 240–241). Although the western Deccan traditionally has one of the lowest levels of rice cultivation in India (Spate and Learmonth 1967: 694), this evidence might nonetheless suggest that it is necessary to reconsider the importance of rice in the model proposed by Shaw.

As Fuller has pointed out, the evidence for an increasing reliance on winter pulses in Periods 2 and 3 at Paithan suggests an increasing dependence on double-cropping and artificial irrigation through those periods. Of course, as was famously reported by Megasthenes, as early as the late 4th/early 3rd century BC, double-cropping has long been a feature of South Asian agriculture (Strabo 1930: 15.I.20; McCrindle 1926: 52–53; e.g. Kajale 1984: xi). However, the key question is not whether or not double-cropping was practiced but rather how significant it was to the agricultural strategies of any particular time. Indeed, Shaw does consider the possibility that the Sanchi dams were intended to support double-cropping but rejects it on the basis of the somewhat circular argument that it would not fit in to the wet-rice cultivation cycle that she proposes (Shaw 2007: 250). Taking into consideration the chronological ambiguities in both the Paithan and Sanchi/Vidisha phasing and the potential time lag and environmental differences between the two areas, the Paithan evidence suggests that the increased use of irrigation that Shaw has identified might just as easily have been linked to the expansion of double-cropping as it was to rice cultivation.

Developments between the Satavahana and Vakataka/Rashtrakuta periods (Period 2 to Period 3)

From about the mid-4th century AD copper-plate inscriptions recording land endowments to Brahmins and temples began to be issued in significant numbers across India from Tamil Nadu to Malwa (Willis 2009: 81). Such endowments continued throughout the Early Medieval period, during which time it is generally thought that they were linked to very significant agrarian expansion and intensification across many parts of India. They led to virgin, forested land being cleared and brought under cultivation for the first time in areas such as Orissa, Bengal and South India as well as parts of the Deccan and central India, whilst in other areas, such as Madhya Pradesh, Gujarat and Maharashtra, including, presumably, the upper Godavari region surrounding Paithan, which had already been urbanized and widely cultivated for several centuries, the endowments encompassed land that was already under cultivation and included villages and farmhouses (Kosambi 1956 [1975]: 301–302, 321; Sharma 1980: 29, 31–34, 222–3; 1987: chapter 10, appendix 1; 2001: 13, 31–32, 108–112, 291; Shrimali 1987). In some of the latter cases, such donations consisted of an entire village but in others, much smaller units were involved, for example a field, a well or a disused orchard. It is in these areas that Sharma believes land grants, rather than being linked to a geographic expansion of agriculture, led instead to increased production through better techniques, improved methods of animal husbandry, an increase in the varieties of crops grown and the construction of irrigation systems (Sharma 1987: 172–174; 2001: 108–112).

Many of Sharma's points seem to resonate closely with changes in the Paithan sequence noted between Periods 2 and 3. As far as irrigation is concerned, one notable point is that the increase in winter pulses that Fuller has identified appears to be much more marked between Periods 2 and 3 than it is between Periods 1 and 2 (e.g. Figs 12.2 and 12.3), and it seems likely that this reflects an increase in irrigation systems at this time. Chattopadhyaya (1973 [1994]) has examined the development of irrigation systems in Early Medieval Rajasthan and has considered the changes in cropping strategies as well as the implications for the social and political organization of the communities where these

systems were introduced. Chattopadhyaya's study is based on a different region of India and a slightly later period. Most significantly, it is based almost entirely on evidence from inscriptions, which can perhaps be expected to emphasize the predominant royal involvement that he notes (1973 [1994]: 52). There are no such inscriptions known from the Paithan region which suggests that in some areas, the introduction of irrigation systems may also have taken place within different social and political spheres.

The copper plates and the land endowments that they record have been interpreted in various ways by historians. D. D. Kosambi and R. S. Sharma, taking a Marxist perspective, have seen the change in land ownership that they record as part of the feudalization of Indian society and economy during the Early Medieval period (Kosambi 1956 [1975]; Sharma 1980; 1987: chapter 10; 2001; *contra* Sircar 1974: chapter 2; see also Kulke 1995a: 6–18). Other scholars, such as H. Kulke (1978; 1995b), H. Bakker (1992) and M. Willis (2009), for example, see them as part of a complex socio-political process that, through the settlement of Brahmins, the Sanskritisation of 'tribal' groups and the foundation of temples, helped to establish, legitimise and expand the authority of Early Medieval kings and kingdoms (Kulke 1995b).

Many of the ideas on which this latter interpretation is based come from fieldwork originally conducted by Eschmann and her colleagues at Jagannath in Orissa, which focussed particularly on the transformation and Hinduization of a forest, 'tribal' community (Eschmann *et al*. 1978). Perhaps for this reason, the model relates particularly to the transformations that took place in outlying, forested areas, rather than in the agrarian regions that were already cultivated and settled at that time (e.g. Kulke 1995b; Willis 2009: 159). Indeed, as Bakker has pointed out, it seems that it was precisely in these outlying areas that most of the estates donated by the Vakatakas were located (Bakker 1992: 91). Bakker also notes that the strategy and process would have been quite different in the core agrarian areas, the areas he refers to as the 'political, religious and economic fundament' of the Vakataka elite (Bakker 1992: 88–90). In such areas, there were few forests to clear or 'tribal' groups to settle, instead – from an economic perspective at least – it would have been a question of improving agricultural yields through the introduction of new methods and strategies, the enhancement of land that had already been under cultivation for some centuries and the improvement of infrastructure.

This is precisely the type of area Paithan and the surrounding upper Godavari must have been at this time, as is made clear by the mention of Paithan in historical and epigraphic sources and by the density of surrounding Satavahana-period settlement (Ray 1986: 25, 68–69, 72). In fact the core area of Vakataka land grants is over 200 km to the north-east of Paithan, and there is, at present, no evidence of endowments having been made any closer during this period (Shrimali 1987: 48, map 2), although, of course, they are known from later periods, as is recorded by the two Rashtrakuta-period copper-plate charters mentioned by Bhandare in Chapter 2: one in the late 8th century and one in the early 10th.

Building closely on the so-called 'processural' model of Early Medieval state formation in which Brahmins are seen, amongst other things, as conveyors of improved agricultural methods (Kulke 1995b: 240), Willis has recently explored the issues surrounding the establishment of Sanskritic worship and the endowment of temples in the Gupta/Vakataka period (2009; see also now Bronkhorst 2011). In this work, he makes a number of points and provides a number of examples that might help towards a better understanding of the Paithan evidence. His analysis makes the same distinction between, on the one hand, the establishment of new estates in forested areas that had the potential for agricultural development but which had been left undeveloped and, on the other hand, areas, such as that around Vidisha, where intense agricultural development had been in place since long before the Guptas and in which there was no need to create new estates (Willis 2009: 159–161). In relation to areas in the latter category, Willis explores a Gupta example from the early 6th century where administrative and priestly control was imposed on a pre-existing village in order to support the construction and maintenance of a new temple (Willis 2009: 120). In this case, it is actually a consortium of merchants headed by a priest that came to control the village and its land. Willis suggests that it is likely to have been the merchants who managed the endowed land and revenues, thereby instituting changes that would have affected all levels of village life. Such an arrangement is very likely to have led to an increase in agricultural production because people such as these, in bringing knowledge and experience from other regions, would have been in a position to introduce new agricultural techniques and strategies (Willis 2009: 157–162). They may also have brought a focus on more market-oriented production.

Willis' example therefore provides a historical scenario that potentially allows us to link the changes in the Paithan archaeobotanical and palaeofaunal sequences with the foundation and construction of the two temples at the site. Even though the Paithan temples are relatively small and there is no evidence of royal endowment associated with them, they serve to link the Paithan sequence with the period of royal endowments and the settlement of Brahmins that occurred across India at this time. Even if Paithan was not directly involved, the innovations and ideas that were transported as part of the movement of Brahminical groups would soon have become common knowledge and would have been taken up by a wide variety land owners and cultivators. This scenario therefore provides a tentative historical context for the changes in agricultural strategy that are visible in the Paithan archaeobotanical sequence.

At the same time, the Paithan evidence considerably enhances the Kulke/Willis scenario by providing precise insights into the nature of the agricultural changes that were occurring at this time. Here, we have an indication of how it would have been possible to have increased agricultural production in what Kulke refers to as the ecologically favourable riverine landscapes that had long been under cultivation – this reflects the earliest stages of Kulke's model, and the stages about which least is known (Kulke 1995b: 234–242). Elsewhere, and possibly as a later stage, in the peripheral areas outside the riverine heartlands, agricultural production was increased by the very different method of clearing forest and bringing land under cultivation for the first time (e.g. Hinüber 2007: 192, note 38; Kulke 1995b).

Longer-term changes

It has been possible to show how Ray's analysis of evidence from Satavahana inscriptions and Willis' analysis of endowments in the Gupta/Vakataka period might provide historical context for the developments in agricultural practice that have emerged from the Paithan sequence. Even if an increase in agricultural production was not the main intention of land endowments (e.g. Bronkhorst 2011: 91), they might nonetheless suggest a mechanism for the spread of new agricultural ideas across India. This is a useful model, and it has the added attraction of locating the Paithan archaeobotanical and palaeo-faunal sequences within the broader context of Indian history.

It is far from certain that this model is correct, however. The problem is that many of the agricultural changes identified at Paithan appear to be long-term and to have continued at a similar rate between Periods 1 to 2 and Periods 2 to 3, for example the increases in cotton, African millets and S/E/B millets. This suggests the possibility that some changes were driven by longer-term processes (for example population growth) and were largely unrelated to an influx of new ideas through land endowments. It suggests that they might in fact be a sort of Malthusian, *longue durée* backdrop to historical developments rather than a consequence of them. This is an important point because it brings up the question of the relationship between the lives of small-scale *gahapati* and village cultivators and the broader historical and political structures of the time. Unfortunately, it is impossible, at present, to disentangle this issue because land endowments are known to have taken place through all three periods of the Paithan sequence (Bronkhorst 2011: 85–90; Ray 1986: 100–104) so the effects of their commencement cannot necessarily be identified at any particular point in the sequence.

This discussion also raises the problem of how changing practice is identified in an archaeological sequence such as that at Paithan. Although the sequence is actually made up of a gradual accumulation of thin layers, each of which contains a small amount of archaeobotanical and palaeofaunal material, these have to be artificially amalgamated into 'Periods' in order to create assemblages that are large enough to allow differences to be perceptible. This amalgamation means that we are able to look at the sequence only through the artificial prism of periodisation that has been imposed on it. One of the drawbacks is that it is impossible to distinguish between slow, steady change that took place gradually over a long period of time and abrupt, sudden change that took place as the result of a specific historical occurrence. It is also impossible to be certain exactly when any particular change began to occur. For example, the increase in cotton and weeds that Fuller has observed between Period 1 and Period 2 may have been the result of a gradual change in agricultural practices that began in Period 1 (or perhaps even earlier), or it may have been the result of a more abrupt change that was implemented as the result of a specific event at some time during Period 2. The fact that the increase in cotton and weeds both continue between Periods 2 and 3 might suggest that a gradual change in agricultural practices

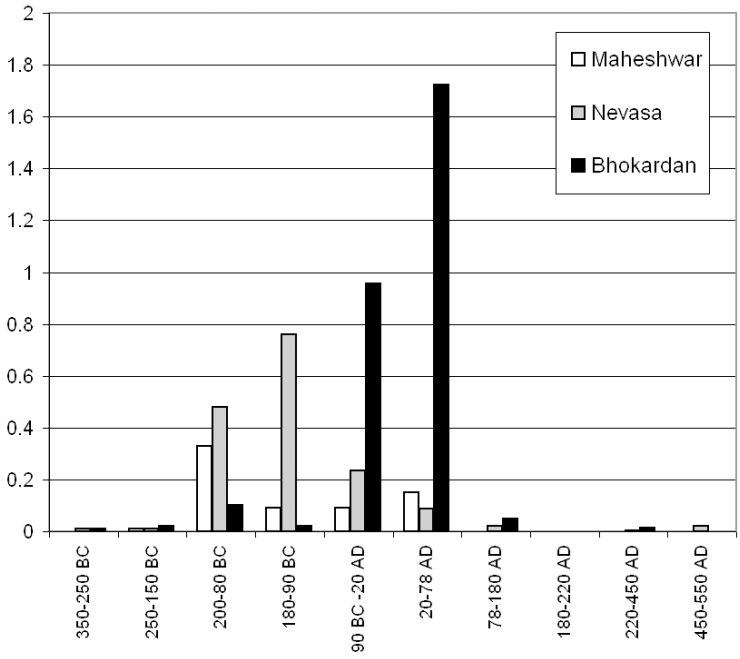

Fig. 14.4: A histogram of coins from Bhokardan, Maheshwar and Nevasa redated by S. Bandhare showing the numbers of coins deposited per year (from Bhandare and Kennet forthcoming).

amongst smaller-scale landholders and cultivators is the more likely explanation.

Coins and monetization

Having identified and discussed shifts in agricultural production at Paithan, we will now turn to look at other aspects of the site's economy through the same period. One key issue is certainly the numismatic evidence. Much has been written on possible changes in the pattern of monetization of the Indian economy between the Gupta/Vakataka and the Medieval periods and there is still no clear consensus on the question of demonetization (e.g. Chattopadhyaya 1977; Sharma 1980: 52–53; 2001: chapter 4; Deyell 1990: 3–8; Ali 2012: 9). Much of the debate has been based on museum collections or coin hoards, whilst little emphasis has generally been placed on coin assemblages retrieved from archaeological excavations (e.g. Deyell 1990: 5). There is no doubt that museum collections and coin hoards have their part to play in understanding patterns of monetization, but these need to be weighed against excavated evidence. Because of the unsystematic way in which museum collections are built up and the sporadic way in which coin hoards generally come to light, excavated assemblages are the only source of coins that can be expected to reflect actual patterns of ancient coin deposition accurately and it is precisely for this reason that they need to be more carefully considered. Of course, when coins retrieved from archaeological excavations are used for quantified analysis, it is necessary to take into consideration the collection strategy that was used during the particular excavation – whether it was by hand or whether a sieve was used and, if so, what the mesh size was. This latter point is crucial, as it has been shown that some base-metal Vakataka issues are quite small, less than 10 mm in diameter (Shastri 1992), and would regularly escape notice unless excavated earth was consistently sieved through a finer mesh. It needs to be stated that whilst deposition rates calculated from excavated coin assemblages might provide some indication of the actual circulation rates of low-denomination, base-metal coinage, they are much less reliable when it comes to higher-value coins of gold and silver, that tend to be much less easily lost (e.g. Harle 1996: 16–17). Nonetheless, the low-denomination, base-metal aspect of the monetary system is crucially important, as is demonstrated by the extremely large numbers of such coins that circulated during certain periods.

Taking these points into consideration, the present author and S. Bandhare recently reviewed the coins excavated at three sites within the vicinity of Paithan:

Bhokardan, Maheshwar and Nevasa, where the reporting of the coin assemblage is good enough to allow verification of identification. Unfortunately, no information on artefact retrieval strategy was available for these assemblages. Nonetheless, the published coins were re-dated by S. Bhandare and tabulated, taking into consideration the lengths of the period of time during which they circulated. The results are being prepared for publication (Bhandare and Kennet forthcoming) and are shown in Fig. 14.4. They demonstrate a notable increase in deposition in the second century BC and a very marked decline in coin deposition – and almost certainly therefore also of circulation and minting – by the end of the 1st century AD at all three sites.

The pattern of coin deposition as revealed at Paithan is broadly similar, although the size of the overall Early Historic/Medieval coin assemblage (35 coins) is too small to be statistically convincing. Nonetheless, the vast majority of the Paithan coins (32 or 91%) are pre-Satavahana or Satavahana, with only three coins being post-Satavahana (9%). As stated in the Introduction, at Paithan, all excavated earth was sieved through a 5-mm mesh and numerous coins came to light in this way.

The point has already been made in the Appendix to Chapter 9 that the coins in the temple foundation deposits (Period 3-temple) appear to have been deliberately thrown or placed into the temple foundation deposits whilst the temples were being constructed. This is suggested by the higher ratio of coins to both excavated earth and to pottery sherds in these layers compared to other layers at the site. The point has also been made that, whilst the foundation deposits of the South Temple can be dated to about the 7th century or later on the basis of coin 34, the rest of the coins deposited in these layers were already very old, six (35%) of them being Satavahana, three (18%) being pre-Satavahana and one (6%) being 4th century AD. It is well known that coins – especially Satavahana coins – remained in circulation for long periods in ancient and Medieval India (e.g. Sircar 1974: 18; Shastri 1992: 291–292). The above figures from the Paithan temple foundations are, however, the first to give a precise indication of the proportion of ancient coins that might still have been in circulation in the 4th to 7th centuries. The figures are actually quite startling: some of the coins being used at this time were already as much as 600 or 700 years old – a fact that seems almost incredible. Of course, some of these coins will have been archaeologically 'residual'; that is to say that they were deposited much earlier elsewhere and have simply been accidentally redeposited as the earth in which they were buried was moved into the temple foundation deposits. At the same time, the evidence discussed in the Appendix to Chapter 9 strongly suggests that a good number of these coins were deliberately deposited in the temple foundations and were therefore still in use.

In relation to the debate on the decline of coin circulation, or the demonetisation of the Indian economy in the 4th century AD or later, the Paithan evidence does contain some relevant information. Firstly, it is clear that the number of deposited coins declined very markedly after the 1st century AD in exactly the same way as it appears to do at Bhokardan, Maheshwar and Nevasa based on the analysis shown in Fig. 14.4. Secondly, large numbers of ancient coins continued to circulate after this time. Thirdly, if we compare the cowrie shells retrieved during excavation (Chapter 13) to the coins (see Table 14.2), a clear pattern emerges. Cowrie shells do not occur at the site before Period 3, but in the excavated layers of that period, there are almost equal numbers of cowrie shells and coins. By Period 4, cowrie shells outnumber coins by almost 2:1 (24 to 14 or 1.7 to 1). It is also notable that no cowrie shells were recovered from the Period 3-temple deposits, despite the large number of coins that were retrieved from those layers. This point might add credence to the idea of the coins being deliberately added to the foundation deposits because of their perceived spiritual or

Table 14.2: Coins and cowrie shells from the Paithan sequence (summarized from Table 9.1).

Coin date	Period 1	Period 2	Period 3	Period 3-temple	Period 4	No period	Total
Pre-Satavahana	8	2	1	3			14
Satavahana		1	3	6	5	3	18
Post-Satavahana				2	1		3
Total coins	8	5	5	17	14	7	**56**
Cowrie shells			4		24		28

superstitious value, a value that cowrie shells presumably did not share.

The use of cowrie shells as low-denomination currency is well attested by texts and hoards from the Gupta period and into later Medieval times (e.g. Bowrey 1905: 199–200; Fa-Hsien 1923: 21; Sircar 1968: chapter 17; 1974: 18; Deyell 1990: 33–34, 62, 221, 237; Shastri 1992: 291, note 23). However, the Paithan sequence is the first quantified insight into the degree to which cowries might have circulated and how their deposition rates compare to those of base-metal coins through the Early Historic and Early Medieval periods in this part of India.

Whether or not cowrie shells and more ancient base-metal coins were recognized as actual currency in the 4th century AD and later (and the Paithan evidence suggests very strongly that they were), it seems absolutely clear that after the 1st century AD in the Paithan area, base-metal coins very largely ceased to circulate – not entirely but certainly in the same quantities that had been minted in the preceding two or three centuries. This indicates that they also ceased to be minted in the same quantity. There are two implications of this: firstly, the political statement of minting coins bearing a king's name seems to have ceased to be important. As Deyell puts it related to a later period, 'coins cease to be used as a message-bearing medium' after about AD 500 (Deyell 1990: 5). Conversely, during the Satavahana period, Bhandare has shown that coinage was 'regio-specific'; that is to say it circulated only within specific and closely defined areas within the Satavahana realm and rarely moved beyond these borders, suggesting that the political message that it carried was understood and was seen as being significant (Bhandare 1998: 49–63). Secondly, succeeding dynasties would have had very little control over monetary policy within their realms. They would not have been able to control the purity of their coinage or in any way influence the amount of base-metal coinage in circulation. Of course, this is also true of other times and places; for example in Han China, minting was carried out privately outside the control of the state (Peng 1994: 102), but it is nonetheless indicative of a lack of political control over the lower-denomination parts of the monetary economy.

It is worth stating here that the picture of coin circulation presented above does not necessarily fit well with analyses that are based largely on museum collections or hoards. Whilst the reasons behind such disparities certainly need to be investigated, it must be remembered that the Paithan, Bhokardan, Maheshwar and Nevasa evidence is based on actual deposition rates on contemporary sites and therefore provides a different and perhaps more robust and reliable perspective on ancient patterns of monetization and coin circulation than other sources of data.

Production and consumption

Before concluding this section on the economy of the site, it is worth making one further point. Manufacture and distribution were important aspects of the Early Historic economy as is demonstrated by the large numbers of manufactured and traded items that are found on Early Historic sites. It has been suggested by some scholars that these aspects of the economy declined in the later Early Historic and Early Medieval period at a time when, it is argued, there was a disruption to urban, mercantile and artisan life (e.g. Sharma 1987: 153–155, 183; 2001: 285–289; Nath 2001: 22). This is a point of considerable significance and is certainly worthy of investigation. The difficulty, however, from the archaeologist's point of view, is finding ways to investigate and measure it. It is not simply a case of demonstrating that manufactured items were or were not present in any particular period. Rather it is necessary to be able to make reliable quantified comparisons between periods in order to demonstrate decrease or increase. Nonetheless, few archaeological excavations record the sort of information that is required to allow such comparisons to be made.

At Paithan, efforts were made to address this question through the analysis of the density of pottery sherds by cubic metre of excavated soil (see Chapter 7). Although pottery is only one of a wide range of manufactured items that were used in the ancient and Medieval periods, it is by far the most abundant, the most visible and the least problematic archaeologically because it has no re-use value and it is cheap and ubiquitous and survives well in buried deposits. For these reasons, the amount of pottery that was deposited in any given period might reasonably be taken as being representative of the amount of pottery that was actually in use, bearing in mind, of course, factors such as variable rates of breakage and repair, neither of which would appear to have been very significant in the present case.

The figures given by the analysis mentioned above suggest that the amount of pottery in use at Paithan declined by around 20% between Periods 1 and 2, 32% between Periods 2 and 3 and 54% between Periods 3 and

4. This is a very marked rate of decline which appears to have accelerated through time.

Similar data are not available for other manufactured materials simply because the numbers involved are too low to allow for statistically reliable comparisons to be made. In the absence of better information, pottery will be taken here to serve as a 'proxy' for all manufactured items, although it must be remembered that other types of materials might, in fact, have had quite different histories. It is possible, for example, that the amount of metal utensils increased and that these were partly responsible for a reduction in pottery use. Indeed, it is notable that, at 27, the number of iron objects from Period 3 is much higher than for Periods 1 and 2, where only 14 and 13 were found respectively, despite the fact that the rim-sherd assemblages from Periods 1 and 2 were around 3.5 times bigger than Period 3 (Tables 8.7 and 8.9). Although it is based on a small sample, this information might suggest that iron containers replaced pottery to some degree, although it is also notable that the majority of iron objects were nails and rivets rather than fragments of cauldrons or pots. It is also necessary to remember that the trends identified at Paithan are based on limited samples and might simply be due to the specific nature of the deposits that have been excavated. It is possible that trenches located elsewhere on the same site might have given different results.

Nonetheless, the evidence of a marked and continued decline in pottery deposition from the pre-Satavahana period onwards is potentially highly significant. The most likely explanation is that there was simply less pottery in circulation, meaning that less of it was manufactured and used.

There is no general consensus on the patterns of increasing and declining production of manufactured goods in the Early Historic period, or on the reasons for them, but a number of scholars have suggested that overseas trade contact from around the 1st century AD – particularly with the Mediterranean/Roman world – provided an important external stimulus for many of the economic developments that took place at that time, including manufacture (e.g. Ray 1986: 200; Sharma 1987: 135–138; Gupta *et al*. 2001: 14–15). It has also been argued that the decline of these same contacts around the 4th century AD had commensurately negative effects, leading to a reversal in manufacture and other areas of the economy (e.g. Sharma 1987: 135–138).

There is, however, to date no clear archaeological evidence to demonstrate increasing or declining manufacture. The argument that has been made is based on the general impressions of excavators rather than on systematic, quantified analysis. In one case, a published attempt has been made to analyse the quantities of manufactured items from Periods IV and V at Nevasa (Gupta *et al*. 2001). At Nevasa, Period IV predates the occurrence of Roman amphorae at the site, whilst Period V contains them. The analysis is based on a simple count of objects made from stone, glass, shell and ivory from the two periods and purports to show an increase in Period V in all types of objects, supposedly due to the stimulation provided by Roman trade (Gupta *et al*. 2001: 15). The analysis, however, is fundamentally flawed because the quantity of earth excavated from each period has not been taken into consideration. According to a rough calculation by the present author based on the published sections of trenches A, F/H, E, and G in Sankalia *et al*. (1960: figs 10, 11, 27, 29), almost 20 times as much earth was excavated from Period V levels as it was from Period IV. Although such a calculation can only be very approximate, it is accurate enough to show that the raw figures cannot be used as they have been by Gupta *et al*. to argue for an increase in manufacturing at Nevasa. Indeed, when corrected by the factor given above, the figures actually indicate that the number of manufactured items declined in Period V after the beginning of Roman contact.

Interestingly enough, this revised conclusion agrees with the picture presented by the Paithan evidence, which suggests that the high-point in manufacturing occurred in the latter centuries BC rather than in the first century AD and that it declined quite markedly thereafter. Given that Paithan is an inland site (one of the few) that is mentioned in the Periplus, this evidence puts another large dent in the already heavily battered theory of Roman economic influence on Early Historic Indian manufacturing. At the same time, the Paithan evidence does support the argument for a decline in production in the later Early Historic/Early Medieval period – but, it must be stressed, only as part of a much longer trend. As the declining influence of Roman trade can now almost certainly be discounted as a possible causal factor in this, it is not clear what might have been the cause. All that can be ventured here is that the decline appears to have been part of a longer process and the explanation therefore needs to be sought at the same historical scale of *longue durée* processes. Before this can be done, however, further data need to be collected from other archaeological sites in order to corroborate the Paithan evidence.

Part 3: Conclusion

During the excavations at Paithan, a concerted effort was made to collect and analyse quantified evidence in a way that would allow engagement with key historical debates about the Early Historic and Early Medieval economies. The discussion above has shown that this is possible if the necessary evidence is collected and if it is appropriately analysed.

Table 14.3 summarizes the key developments at Paithan that have been reviewed in the current chapter. Taken together, these present a complex and sometimes contradictory picture with different strands of evidence, in some cases suggesting developments in apparently

Table 14.3: A summary of the development of key aspects of the Paithan sequence.

Period	Occupation	Cultivation	Animal Husbandry	Temples	Coins	Pottery
Pre-1	Little known. Probably a small settlement somewhere on the mound.	Nothing known.	Nothing known.		A few punch-marked coins deposited.	No clear information available.
1	Expands to cover most of mound. Wooden architecture.	Well established and mixed. Predominantly millets, especially Kodo millet.	Even mixture of cows, pigs and sheep/goat.		Significant number of coins deposited.	Highest rates of pottery deposition in the sequence.
2	Continues to cover most of mound. Brick and tile architecture.	Expansion and increased diversity of crops, evidence for intensification of production. Increased home processing. Increase in 'cash-cropping'?	Decline in pigs, increase in sheep/goat possibly related to increased meat production.		Slight decline in deposition.	20% decline in pottery deposition.
3	Contracts, possibly to area around temples.	Expansion and increased diversity of crops, evidence for intensification of production. Increased home processing. Increase in 'cash-cropping'?	Decline in pigs, increase in sheep/goat possibly related to increased meat production.	Construction, use and enlargement.	Larger numbers of coins deposited, especially in temple foundations, but many are old issues. Cowrie shells appear.	Further 32% decline in pottery deposition.
4	Re-expands to cover most of mound and surrounding area.	Little known at the present time.	Decline in pigs, increase in sheep/goat possibly related to increased meat production.	Abandoned.	Large numbers of coins and cowrie shells.	Further 54% decline in pottery deposition.

different directions. For example, the decline in pottery deposition – which might be taken as indicating a more generalised decline in manufacture and consumption – seems at first glance to be at odds with the archaeobotanical and palaeofanual evidence, which suggests a marked movement towards increased production in all aspects of the agricultural sphere. But there is of course no reason to expect that the ancient economy of Paithan would have been simplistic or monolithic. Indeed, the evidence presented here suggests a number of interlocking spheres, each of which demonstrates its own distinct trends of development.

The fact that similar approaches to studying excavated evidence have not been applied to other sites means that we do not yet know how typical (or otherwise) Paithan was of Early Historic and Early Medieval towns in central India more generally. Clearly, comparator evidence is needed from other sites so that it is possible to know whether the developments that occurred at Paithan were isolated and localised, or whether they are representative of regional or even pan-Indian trends. The Paithan evidence does, however, make one thing absolutely clear: the ancient Indian rural economy was anything but 'unchanging'. On the contrary, there is clear evidence for a complex, dynamic and constantly changing set of economic spheres, each with its own trajectory. In some cases, it has been possible to suggest ways in which these spheres might be linked to each other and to the broader political and cultural developments of the time, but for the most part, more evidence is still needed before more can be said on these questions. The Paithan evidence has taken us forwards by a number of important steps, it has demonstrated the potential of a more systematic, quantified approach to archaeological evidence and it has also provided the first real archaeological insight into the dynamic nature of the agricultural economy of the Early Historic and Early Medieval periods.

A final point that must be made is that there is currently a major failing in Indian archaeology. The archaeological methods that were applied during the excavations at Paithan and during the study of the material have shown their value in addressing questions about the nature of the economy and how it changed through time. Had other Indian sites been analysed in the same way in recent years, there would by now be a corpus of data against which Paithan could be compared and such comparisons would provide further insights into regional patterns and trends. The methods used at Paithan are now standard amongst archaeologists in almost all countries of the world, but they are still not applied systematically in India. The reasons for this failure are unclear, but it brings a consequential lack of progress in dealing with some of the key questions that surround the Early Historic and Medieval periods of one of the greatest and most significant countries in world history. It is only to be hoped that this failing is soon remedied.