

Reconstructing a Latina Temple Spire: Temple 45, Sanchi.

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ABSTRACT

The initial aim of this thesis is to reconstruct, through drawings, the original design of the spire from Temple 45, a ruined Latina temple from the Buddhist, World Heritage Site of Sanchi in Madhya Pradesh. The hundreds of un-analysed architectural fragments from the temple that survive on site are the primary data for this project: a veritable three-dimensional jigsaw puzzle of pieces waiting to be studied and reassembled.

In order to turn the mass of architectural data collected at Sanchi into a virtual reconstruction of the spire from Temple 45, an authentic and detailed method of Latina spire design must be used. Finding such a method, one ratified by the *Vastusaśāstras*, by the shape of surviving Latina superstructures, and by the proportions of Temple 45 and its spire courses, forms the second, broader research question of the thesis. Although Latina temples are a seminal feature of North Indian temple architecture, scholars' explanations of how they were designed are inconsistent, incomplete and often unconvincing.

In pursuit of this design method, therefore, the thesis explores the origination and development of the Latina temple form across Central India. It interrogates contemporary scholars' theories of Latina spire design and investigates the role that the *Vastusaśāstras* may have played in the practises of early temple architects. *Vastusaśāstric* descriptions of Latina spire design are turned into drawings of spire elevations in order to assess their credibility, and in doing so a particular method of spire design is ratified and additional design details are suggested in order to provide a working explanation. Using this method, four sets of spire proportions given in a West Indian text called the *Dīpārāva* are validated. These are shown to create convincing Latina elevations with proportions that are borne out by surviving Central Indian Latina temples, by an engraving of a half Latina spire carved into the hallway of the Harihara 2 Temple in Osian, and by the proportions of Temple 45 its fragmented remains. Drawing from these findings, and returning to the initial aim of the thesis, the thesis proposes a detailed and convincing elevation of the spire from Temple 45.

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Chapter 1: Introduction

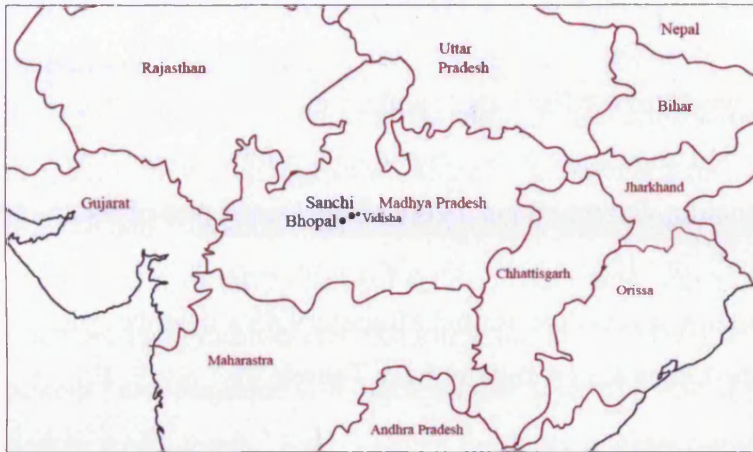


Figure 1: Map showing the location of Sanchi in Madhya Pradesh.

Sanchi is located about 46km north east of Bhopal in Madhya Pradesh, India (Figure 1).

This peaceful, Buddhist, hill-top location is recognised as a World Heritage Site not just for the exceptional beauty of some of the monuments it is home to, but also for the unparalleled longevity of the monastic occupation and building activity that occurred there. The architectural and sculptural remains from the site span almost the entire history of the religion in India, beginning from the 3rd century BC and continuing on to the 12th century AD (Figure 81).



Figure 2: Temple 45, Sanchi.

Temple 45 is a ruined Latina temple set within the eastern walls of Monastery 45 (Figure 82), built, according to this study, in at least two different stages between the mid 9th

century and the beginning of the 10th century AD (Figure 2). Indian temple types are distinguished by the shape of their spires, and Latina temples have smoothly curving edifices with quadrangular plans, each face faceted by projections made up of piled courses (Figure 15). The layered eaves of Latina temples' central projections are covered in 'creepers' or '*latā*' of interlocking *gavākṣas* (stylised gable and dormer window forms), lending the temple type its name. The Latina spire from Temple 45 has now fallen away, leaving in place only the central sanctum, the rough inner core of the lowest part of the spire, and the base of its entrance hall. In addition to the standing structures, however, about 500 of the temple's fragmented remains are stacked around Monastery 45's neighbouring areas, many of which come from the Latina superstructure from Temple 45.

The spire fragments from Temple 45 are a tantalising database of information. That quite so many architectural pieces survive from a ruined temple, and that they are neatly piled and easily accessible, is unusual. The shapes and sizes of the fragments, when analysed in conjunction with theories and descriptions of spire design in both contemporary scholarship and the *Vastuśāstras* (early Indian texts containing the '*śāstras*' or 'rules' of architecture - '*Vastu*': root '*Vas*', meaning to dwell or to cover),¹ offer up valuable insight into the design and construction of the spire not just from Temple 45, but North Indian Latina spires in general. So far, little work has been done on the original form of Temple 45. The wider-reaching questions concerning Latina spire design have yet to receive satisfactory or sufficiently detailed answers. This may be the first time that such a large collection of fragments from a ruined temple has received such sustained analysis and been used to shed light on, firstly, the original design of their parent structure, and secondly, early architectural practises and design methods.

¹ See Chapter 3 for a detailed description of the *Vastuśāstras*. The *Vastuśāstras* are texts written in different regions of India containing encyclopaedic collections of the 'rules' of not just of temple design, but also secular architecture, town planning, iconography and all sorts of other human activities. Most of the surviving *Vastuśāstras* that reference North Indian temple architecture are from the 11th century or later, although the information they list may derive from older oral traditions or earlier texts. Of these texts, this thesis refers, in particular, to translations of the *Samarāṅgaṇa Sūtradhāra*, written in the 11th century AD, the *Aparājitaṭṭapṛcchā*, written in the 13th century AD, and the *Dīpāṇava* written at some point after the 15th century AD: M. A. Dhaky, 'The *Vastuśāstras* of Western India', eds V M Kulkarni, Devaṅgaṇa Desai, *Journal of the Asiatic Society of Bombay* Vol 71, (India: Asiatic Society of Bombay, 1997), pp. 65 – 84; Lal Mani Dubey, *Aparājitaṭṭapṛcchā – a critical study (Encyclopaedic Manual on Art and Architecture)* (Allahabad: Lakshmi Publications: 1987); Stella Kramrisch, *The Hindu Temple*, (Calcutta: 1946); R P Kulkarni, *Prāsāda – Śikhara* (Temple – Roof), (Maharashtra: Itithas Patrika Prakashan Publishers, 2000); Mattia Salvini, Unpublished. Part of 'The Indian Temple: Production, Place and Patronage' project (2006 – 2009); Sudarshan Kumar Sharma, *Samarāṅgaṇa Sūtradhāra of Bhojadeva: (An introduction, Sanskrit text, English Translation and Notes)*, (New Delhi: Parimal Publications, 2007).

Aims and research questions

The primary aim of this thesis, and the pivot around which the further aims revolve, is to reconstruct, through drawings, the original design of the Latina spire from Temple 45 through an analysis of its material remains. The understanding of Temple 45's history and original form has changed little since its initial assessment by John Marshall, first published in 1918 and augmented with contributions from Albert Foucher in 1940.² The fragments from the temple have received little consideration: some of the fragments are listed and numbered in a rudimentary fashion in the 1922 *Catalogue of the Museum of Archaeology Sanchi*,³ and Sandrine Gill discussed the style of a few of the fragments in her appraisal of Sanchi's sculptures.⁴ Even without the study's wider ramifications this localised project is important in its own right, adding a medieval spire to a site that is a unique repository of Buddhist architecture and sculpture created over the course of some 1500 years. From the analysis of what remains of Temple 45 and the hypothetical reconstruction of its spire, Marshall's assessment of the story behind its unusual form will be reconsidered.

In order to translate the information contained in the fallen constituent parts of the spire into a picture of the original Latina elevation, broader research questions investigating how Latina spires were conceived and created must first be answered. Although curving Latina peaks are a seminal feature of North Indian temple architecture, the lines of transmission by which guilds of early Indian architects passed on their rules of practise have long since been broken and their trade secrets lost. How these spires were designed has been a matter of speculation in contemporary scholarship and the four main publications that have tackled this subject have each come to different conclusions,⁵ and none of the explanations have included sufficient information to enable the recreation of a Latina spire. These theories are derived from descriptions of Latina spire design set out in the *Vastuśāstras*. The fact that the reading of these texts has not offered up clear and uncontested explanations of Latina

² John Marshall, *Guide to Sanchi*, 2nd ed. (Delhi, 1936), John Marshall & Albert Foucher, *The Monuments of Sanchi* (London: Probsthain, 1940)

³ Mohammad Hamid, *Catalogue of the Museum of Archaeology Sanchi*, (Calcutta: Superintendent Government Printing, 1922)

⁴ Sandrine Gill, *L'architecture et la sculpture à Sañci (Madhya Pradesh, Inde, III^e s. av. J.-C. - XI^e s. apr. J.-C.) reconsidérées à la lumière des recherches récentes sur l'art indien*, (PhD thesis), (Paris: Paris 3 Sorbonne Nouvelle, 1999)

⁵ Stella Kramrisch, pp. 207 – 210, 'Patrick George 'The numerical roots of N Indian temple architecture and Frank Gehry's 'digital curvatures'', *RES Anthropology and Aesthetics*, 34 (1988), R P Kulkarni, *Prāsāda – Śikhara (Temple – Roof)*, Michael Meister, 'On the development of a Morphology for a Symbolic Architecture: India '(*RES Anthropology and Aesthetics*, 1986) p.39.

design speaks of the esoteric and ambiguous nature of *Vastuśāstric* instruction. The related question of how Latina spires were constructed, meaning the order and way in which the pieces were carved, laid on the spire and secured, has yet to be discussed in detail.

Finding not just a convincing account of Latina spire design, one ratified by text and standing temple, but also one with enough detail to enable the virtual reconstruction of Temple 45 has been requisite for the success of this project. Alongside the meticulous analysis of Temple 45 and its fragments, therefore, this thesis has interrogated both contemporary scholarly opinions on the subject and tested descriptions of Latina spire design from the *Vastuśāstras* by turning them into drawings, comparing them to surviving Latina temples and the measurements taken from Temple 45. This process has raised further questions concerning the purpose and practical utility of the *Vastuśāstras*, whether, and, if so, how, they may have been used by early architectural guilds to direct and regulate temple design. This enquiry fits with other scholars' recent reconsideration of the role of the texts, interrogating the study of Indian temple architecture's earlier tendency to treat them as the essential trove of 'authentic' information for understanding not just temple symbolism and ritual, but architectural design.

Methodology

Temple 45 and its fragments

This thesis has aimed, as much as possible, to be scientific in its study of temple architecture. That is to say, it tries to draw its conclusions from empirical, measureable evidence, which in this case is principally Temple 45, its fragmentary remains and surviving Latina temples across Northern India. These records must be seen as primary, and the more theoretical, fallible textual information gained from the *Vastuśāstras*, along with contemporary interpretations of these texts, must answer first and foremost to the stone buildings they discuss. This approach differentiates the study from some of the past studies of Indian temple architecture, as will be discuss in Chapter 1.

The principle data sources for the reconstruction of the spire from Temple 45 are its own standing remains and dislodged fragments. Fieldtrips to North India were undertaken in November 2006 and 2008, and a substantial part of this time was spent at Sanchi, gathering

and collating information about Temple 45. The remains of Monastery and Temple 45 were measured and their plans drawn up (Figure 82a). There are about 500 architectural fragments stacked around areas 44 – 50 (Figure 81 & Figure 89), all of which were photographed, sketched and measured, and their site location and, where possible, their identification numbers ('SAN numbers') noted.⁶ The architectural and sculptural pieces in Sanchi museum were photographed and recorded, and details of the museum pieces that are not displayed publicly were consulted. The possibility of finding migrant pieces originally from Temple 45 was a consideration during visits to the Vidisha State Museum and the Bījā Maṇḍal Mosque⁷, and, even further afield, at the Bhopal State Archaeological Museum and Gwalior Gujari Mahal Museum.

The architectural fragments that may be from Temple 45 were identified, drawing from the project's study of Central Indian Latina temples (Chapter 2), and arranged into typological groups to enable their systematic analysis. The fragments are introduced along with Temple 45 in Chapter 4, and the pieces from the temple's spire and sanctum walls discussed in full in Chapter 5. Photographs and drawings of Temple 45's architectural fragments have been included in the main body of the thesis in order to illustrate the discussion, but the complete set of details and measurements that have formed the basis of this study are presented in tables and spreadsheets in the Appendix. Photographs of Temple 45 and all of the architectural fragments from the areas around Monastery 45 (not all of these fragments from Temple 45) have been uploaded onto the website www.buckee.co.uk, created so that the unfiltered set of data from which this project drew its conclusions can be accessed.⁸ The photograph numbers of the measured fragments in the tables in the Appendix have been included so that the pieces may be accessed on the website and viewed in the context of all of the other fragments.

The information gathered in India about Temple 45 and its architectural and sculptural fragments was added to whilst in the UK. The British Library holds Archaeological Survey of India reports about Sanchi and photographs of Temple 45 from as early as 1861. This

⁶ Not all the fragments have been painted with 'SAN numbers', and in some cases the numbers are illegible. Hence in the tables of fragments included in the appendix not all will be accompanied by a SAN number.

⁷ The Bījā Maṇḍal is in Vidisha. The mosque was originally a Hindu temple built in the 11th century, and it is possible that pieces from Temple 45 were taken and reused in its construction (Krishna Deva, *Encyclopedia of Indian Temple Architecture: North India Beginning of a Medieval Idiom*. (Delhi, 1998, p. 8)).

⁸ In order to access this information, go to www.buckee.co.uk, enter the username 'Sanchi' and the password 'Temple45'. The passwords are case sensitive.

data is important in that it shows images of Temple 45 with the fallen fragments lying around it prior to its reorganisation in the late 19th – early 20th century; sadly no record was made of the original location of the architectural pieces before they were moved around. In addition to this, a number of secondary sources were consulted in order to further understand Temple 45 and Sanchi, including, in particular, John Marshall and Albert Foucher's original analyses of the site and Temple 45,⁹ and Sandrine Gill's doctoral thesis on the site's architecture and sculpture.¹⁰

Central Indian Latina temples

The key touchstones for much of the theory and analysis contained in this thesis – the critical assessment of theories of Latina spire design in Chapter 3, the identification and analysis of Temple 45's architectural fragments in Chapter 5 and, finally, the hypothetical elevations created for Temple 45 in Chapter 6 – are the solid and indisputable structural and stylistic norms shown in the Latina temples that survive across North India, and, in particular, in Central India, from the 7th – 11th centuries AD. The use of the name 'Central Indian' to describe a group of temples that are referenced in this project and described in Chapter 2 is consciously broad, covering present-day Madhya Pradesh and the arm of Uttar Pradesh that reaches into the Madhya Pradesh from the north east (Figure 1). Here the use of the name will be justified after having briefly provided some context for the architecture that is under discussion.

⁹ John Marshall, *Guide to Sanchi*, John Marshall & Albert Foucher, *The Monuments of Sanchi*.

¹⁰ Sandrine Gill, op. cit., Part II, A & B

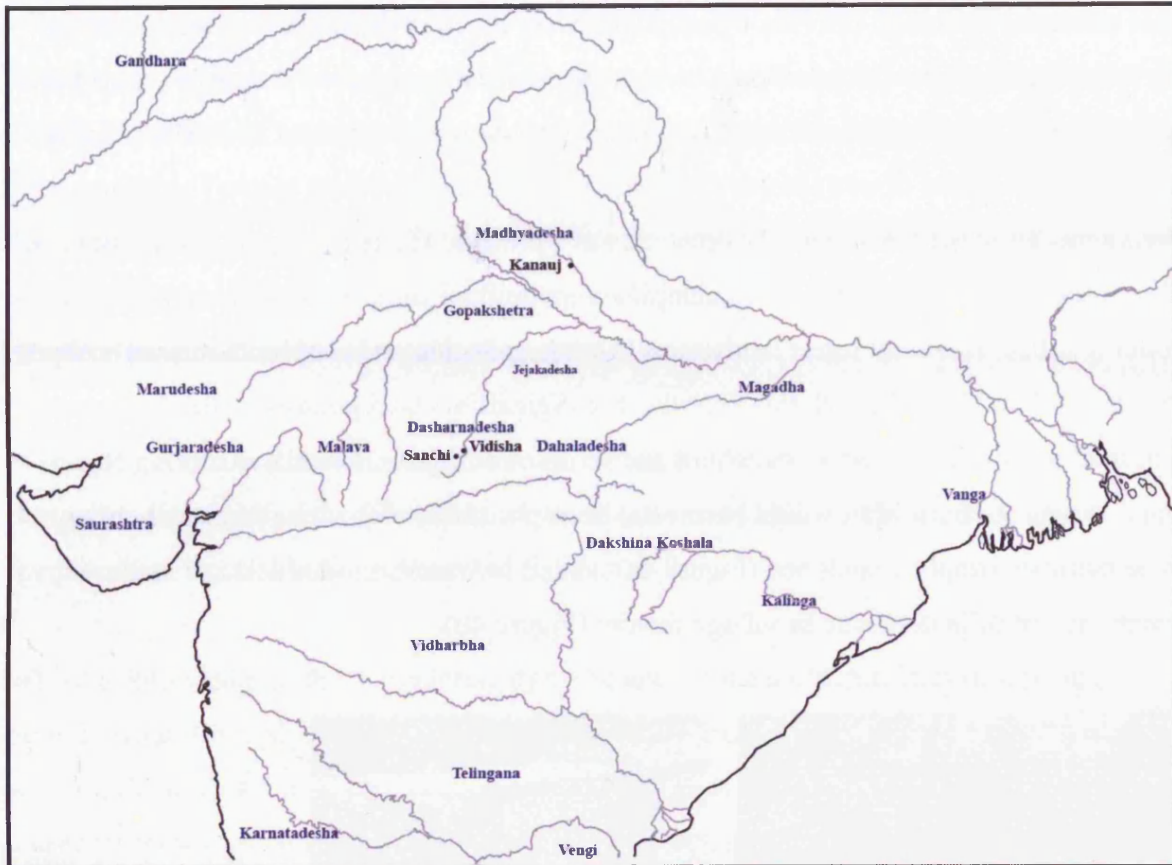


Figure 3: Map showing ancient regions in India.

Between the 7th century and the 11th century AD, encompassing the post-Gupta and early Medieval Periods (descriptive terms that have also been contested regarding their utility, accuracy and applicability to the Indian subcontinent), Central India was broken up into smaller regions (Figure 3). Sanchi and its neighbouring town Vidisha fell in the region of Daśārṇadeśa. To the south east of Daśārṇadeśa lay the region of Ḍāhaladeśa, to the south west lay the region of Avanti, and above it, in the area around present-day Gwalior, lay the region known as Gopakśetra. Madhyadeśa cut across present-day Uttar Pradesh to Gopakśetra's north east.¹¹ After the disintegration of the Gupta dynasty's fairly centralised control, rule of North India fractured and fell under the sway of smaller, regional dynasties whose territorial parameters shifted and pushed against each other. The exact details of the political history of the Central Indian areas during these centuries are complex, coming in and out of focus according to epigraphic, numismatic and textual evidence.¹² A simplistic overview of the period shows an ongoing 'tripartite struggle' for Kanauj (in present day Uttar Pradesh, see Figure 3), North India's political and strategic 'jewel in the crown', by

¹¹ Michael Willis, *Temples of Gopaksetra: A Regional History of Architecture and Sculpture in Central India AD 600 – 900*, (London: The British Museum, 1997), pp.17 – 18.

¹² See Michael Willis, Chapter 1.

three powerful dynasties: the Pala dynasty who were based in the north east India (present day Bihar/Bengal), the Gurjara-Pratihara dynasty who exercised control over Western India and much of Central India, and the Rashtrakuta dynasty who pushed up from South India.

During this early medieval period, sometimes as a product of changing political fortunes but often irrespective of these dynamics, temples were built steadily across Central India, studding urban, rural and forest landscapes. The sheer number of temples that must have been constructed here through this period is highlighted by the regularity with which one comes across small piles of architectural and sculptural fragments whilst exploring North India. Remnants from what would have once been proud and elaborate temples or shrines are sometimes simply abandoned (Figure 4a), added to later shrines or perhaps made pragmatic use of in domestic or village repairs (Figure 4b).

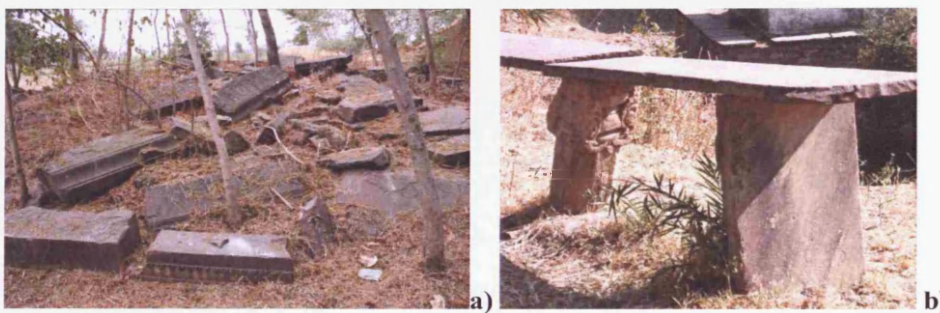


Figure 4: a) remains of a temple beside a field near Marhia, b) an ornate, square pillar used to prop up a bench in a village near Mahua.

Of the temples that once were, a relatively small percentage remain standing, many remain undocumented, and none have received sustained and comprehensive formal analysis of the sort undertaken in this project. The web-based American Institute of Indian Studies photographic archive (A.I.I.S.)¹³ has the most comprehensive pictorial documentation of Central Indian temple sites, and most of these are described in the North Indian volumes of the *Encyclopaedia of Indian Temple Architecture*.¹⁴ To give an idea of the number of temples that survive around Central India, or, more literally, the number that are acknowledged in current scholarship, the *Encyclopaedia* documents about 50 different 7th – 11th century temples or temple complexes from Central India.

¹³ <http://dsal.uchicago.edu/images/aiis/>

¹⁴ M A Dhaky, Krisna Deva & Michael Meister, (eds), *Encyclopaedia of Indian Temple Architecture: Foundations of a North Indian Style* (Delhi: 1988), : *North India, Period of Early Maturity* (Delhi: 1991), :*North India, Beginning of a Medieval Idiom*, (Delhi: 1998)

The majority of the surviving temples from this period are sandstone Latina temples (see Figure 15). The data set includes the earliest surviving example of this temple type in North India, the Śiva Temple from Mahua (c 675 AD). Whilst staying true to integral aspects of the Latina form, the selection of temples shows the way the size, shape and constituent parts of the Latina admit subtle regional variations and change over the centuries. Alternative temple types are included alongside the popular Latina form, see, for example, the monumental, barrel-backed Teli-ka-Mandir at Gwalior (750 AD, Figure 5a), and in addition to this, variations and mutations of the basic Latina temple form were experimented with during the latter half of the 9th century. A thorough survey of 7th – 11th century Latina temples from Central India is presented in Chapter 2.

Whilst acknowledging the geographic, dynastic and political complexities of this time period, using ‘Central Indian’ to describe a family of ‘mainstream’ temple types¹⁵ that exist across a flexible catchment area better suits the purposes of this project. Temple construction was of course affected by political factors, and at the most basic level a certain degree of financial and political stability was required to even embark on expensive temple building projects. Arguably, however, the shifting fortunes of the ruling factions did not bring cataclysmic changes to the practices of the guilds of architects that worked in Central India, and therefore nor to the temple forms they produced. Regional boundaries did not separate distinct and autonomously unfolding architectural traditions: whilst certain different regional styles of production existed, these were variations on a theme, and the stylistic membranes between them were permeable, influence flowing between each other. Furthermore, North India was crossed through with trade routes that guaranteed an exchange of ideas and an awareness of different architectural types, as shown by the cosmopolitan range of temple types mentioned in some of the *Vastuśāstras*.

From the point of view of the analysis of Temple 45, set in the ancient region of Daśārṇadeśa, allowing a broad purview of influence is particularly apt. The Pratihara dynasty, who had control of this region for much of the time period in question, originated in and maintained control of Western India thereby ensuring links between Central India, Gurjarat and Rajasthan. In addition, the busy mercantile town of Vidisha, just 10km north

¹⁵ For explanation of ‘mainstream’ temple types, see Chapter 2, ‘Introduction’.

east of Sanchi, was set at the cross-roads of trade routes that ran down across Central India from Madhyadeśa (present day Uttar Pradesh) and then split to travel West and further South (Figure 1). As a by-product of this, Vidisha must have acted as an important cultural intersection, where different ideas and cultural practises were shared and discussed just as trade goods passed from hand to hand.

The discussion of the development of the Latina form in Chapter 2, therefore, has tried to allow the form of the temples to declare their own familial connections and influences without being divided and compartmentalised by overly restrictive political or even regional labels. The analysis draws primarily from Central Indian temples with additional reference to its extended family in Western India and Karnataka. The foundational understanding of Latina temple forms and the dynamics that underlie their origin, structure and stylistic development has been informed by the work of, in particular, Adam Hardy, M A Dhaky, and the *Encyclopaedia of Indian Temple Architecture*.¹⁶ From this basis of understanding, however, the investigation of the development of the Latina temple in Central India has drawn from, as much as possible, the primary evidence of the temples themselves, either through site visits or through consulting photographic records. During fieldtrips for this project 44 different temple sites were visited in order to understand the origination, development and demise of the Latina temple in Central India, covering, therefore, not just Latina temples from the 7th – 11th centuries, but also pre-Latina temples from the 6th – 7th centuries, alternative temple types that were built at the same time as Latina temples, and later temple forms that originated after the Latina temple fell out of favour.¹⁷ The sites visited are as follows (See also the maps in the Appendix, Figure 181 & Figure 182):

¹⁶ M A Dhaky, 'The Vastushastras of Western India', eds V M Kulkarni, Devangana Desai, *Journal of the Asiatic Society of Bombay* Vol 71 for 1996, (India: Asiatic Society of Bombay, 1997 pp. 65 – 84), M A Dhaky, Krisna Deva & Michael Meister, op. cit., Adam Hardy, 'Form, Transformation and Meaning in Indian Temple Architecture', Giles Tillotson (ed), *Paradigms of Indian Architecture* (London: Curzon, 1998, pp. 107 – 136), Adam Hardy, *The Temple Architecture of India*, (Chichester: John Wiley, 2007).

¹⁷ The Buddhist *stūpa* sites at Andher and Murhelkurd, close to Sanchi, were also visited.

Gupta and post-Gupta 'pre-Latina' temples (5th – 7th centuries).

Udaygiri Caves, Madhya Pradesh, (4th – 5th centuries)
Kaṅkāli-Dēvi Temple, Tigawa, Madhya Pradesh (5th century AD)
Viṣṇu Temple, Deogarh, Uttar Pradesh (c 500 AD)
Muṇḍeśvarī Temple, Ramgarh, Bihar (late 6th – early 7th century AD)
Sarnath, Uttar Pradesh, (3rd century BC - 12th century AD)
Nalanda, Bihar (5th – 7th century AD)

Central Indian Latina Temples (7th – 11th century AD)

Śiva Temple, Mahua, Madhya Pradesh (c 675 AD)
Batesara Temple complex, Madhya Pradesh (775 – 800 AD)
Santinatha Temple, Deogarh, Uttar Pradesh (775 – 800 AD)
Śiva Temple, Terahi, Madhya Pradesh (800 – 825)
Gaḍarmal Temple, Badoh, Madhya Pradesh (825 – 50)
Caturbhuj Temple, Gwalior, Madhya Pradesh
Sūrya Temple, Umri, Madhya Pradesh (825 – 850 AD)
Sūrya Temple, Madhkedha, Madhya Pradesh (850 – 875 AD)
Jarāi-kā-maṭh, Barwasagar, Madhya Pradesh (c. 900 AD)
Seven temple sites in Kadwaha, Madhya Pradesh (late 10th century)
Ādinātha Temple, Khajuraho, Madhya Pradesh (11th century AD)

Non-Latina Central Indian temples (7th – 11th century AD)

Kuraiyā Bīr Temple, Kuchdon, Madhya Pradesh (750 – 775 AD)
Unidentified Śiva temple remains, Marhia, Madhya Pradesh (8th century)
Kālī Temple, Mahua, Madhya Pradesh (c.800 AD)
'Maṇḍapikā' Śiva Temple, Mahua, Madhya Pradesh, (650 – 675 AD)
Mālādēvi Temple, Gyaraspur, Madhya Pradesh, (850 – 875 AD)
Bājra Maṭh, Gyaraspur, Madhya Pradesh, (10th century)
Mōhajamātā Temple, Terahi, Madhya Pradesh (10th century AD)
Viṣṇu Temple, Gyaraspur, Madhya Pradesh (900 – 925 AD)
Śiva Temple, Gyaraspur, Madhya Pradesh, (c 982 AD)
Śiva Temples and monastery, Survaya, Madhya Pradesh (10th century)
Udayeśvara Temple, Udayapur, Madhya Pradesh, (11th century AD)
Entrance hall, Padhaoli, Madhya Pradesh (10th century AD)
Yogini Temple, near Padhaoli, Madhya Pradesh (10th century)
Śekhārī temple, Badagaon, Madhya Pradesh (11th century AD).

Bījā Maṇḍal, Vidisha, Madhya Pradesh (11th century)

Six temple sites at Chandpur, Madhya Pradesh, (9th – 11th century)

In addition to these site visits, the investigation has made extensive use of photographs from American Institute of Indian Studies photographic archive, and from plans and photographs from the North Indian volumes of the *Encyclopaedia of Indian Temple Architecture*.

Reconstructing the spire from Temple 45

In order to turn the information gathered about Temple 45 and its fragments into a spire elevation for the temple this project has required a valid system of Latina spire design and a set of spire proportions that fit with the temple and the fragments' measurements. Finding this has involved the critical analysis of scholars' theories of Latina spire design and, in light of the most credible of these, the investigation of descriptions pertaining to spire design from the *Vastuśāstras*. The way these were tested was by creating a series of Latina elevations from descriptions of spires from translations of the *Aparājitapṛcchā*, the *Samarāṅgaṇa Sūtradhāra* and the *Dīpārṇava* (see Footnote 1). These images were then assessed in terms of the viability of their forms. The most convincing of these, a set of elevations drawn according to *Dīpārṇava* instructions, were then analysed further, looking at the internal logic of their dimensions shown in the diagrams. Having assessed the suitability of different descriptions of spire design, further design details were suggested in order to fill the gaps in these accounts and enable a complete elevation to be constructed. The justifications and reasoning processes behind these analyses are made explicit throughout Chapter 3, and the implications of these methods of Latina spire design for early architectural practice are explored in the chapter's conclusion.

From the most credible descriptions of Latina spire design discussed in Chapter 3, ones that fitted neatly with the measurements of Temple 45's fragments and sanctum, hypothetical spire diagrams were created using a mixture of hand-drawings and Photoshop. Hand-drawn images were linked up in Photoshop to create towers of piled courses and these were then distorted and made to fit the textually prescribed spire elevation shapes, all the time maintaining their overall proportions and congruence with the actual fragments. The details of this process are set out in Chapter 6. The hypothetical images of the spire from Temple 45 were then analysed for suitability, and the measurements offered up by the elevations

compared with those of the spire fragments. A plausible elevation of Temple 45 has to account for all the spire fragments that survive on site.

Results

That the research questions set out above would receive substantive answers was by no means a certainty at the start of the project. For one thing there was no guarantee that the collection of Temple 45's architectural fragments would offer up enough information to allow conclusions to be drawn about its overall dimensions. If the fragments are a three-dimensional jigsaw puzzle, then they are a jigsaw puzzle with an incomplete set of pieces that have become mixed in with pieces from several other puzzles, and since Central Indian Latina design admits novelty and anomaly, the unusual form of Temple 45 being a case in point, there is no useful picture to direct their virtual reassembly. In addition to this, even with enough spire fragments in hand, in the face of the partial and sometimes unconvincing nature of descriptions of Latina spire design from both contemporary scholars and the early Indian texts themselves, that these could be used to create an authentic Latina spire elevation, and one that works with the measurements of Temple 45's sanctum and fragments, was also an unknown.

Happily, the research undertaken here has led to a number of interesting conclusions pertaining to both the original form of Temple 45 and Latina spire design in general. The analysis of Temple 45 and the fragments from its spire has led this thesis to propose an alternative reading of the temple's unusual history to that which was first offered by Marshall in 1918 and is generally accepted today (Chapter 4, Conclusion). The analysis of Temple 45 and its spire fragments have suggested the way in which the courses were carved, erected and stabilised on the Latina spire (Chapter 5, conclusion). The critical analysis of theories of spire design by contemporary scholars and the assessment, through drawings, of descriptions of the same from the *Vastuśāstras* have clarified which instructions and which sets of proportions would lead to plausible Latina elevations. This provides further evidence for our understanding of the role of the *Vastuśāstras* in Indian temple architecture, and, more specifically, how Latina spires were designed (Chapter 3). The thesis validates, in particular, instructions to this effect from a Western Indian *Vastuśāstra* called the *Dīpārṇava* as translated by R P Kulkarni in *Prāsāda – Śikhara*

(Temple – Roof),¹⁸ and then suggests additional design details that could augment these accounts. In the process of justifying these descriptions and theories, this thesis proposes a new reading of the famous yet little understood engraving of half a Latina elevation carved into a seat back of the entrance hall to the Harihara 2 Temple at Osian in Rajasthan.

In Chapter 6, the data collected about Temple 45 of its spire courses are used to establish the plan of its spire. With these vital measurements in hand, using the conclusions drawn in Chapter 3 concerning Latina spire design, a detailed picture of the elevation of the spire from Temple 45 is presented. Its overall appearance above Temple 45's sanctum and the correlation between the measurements from the fragments and those from the elevation, proportioned and drawn up according to textual descriptions, justifies its legitimacy.

Although the research questions driving this thesis revolve around the Latina spire from Temple 45, many of the 500 architectural fragments that were identified and analysed as part of the study come from other parts of the temple. The measurements of many of these fragments are included in the Appendix, along with some preliminary thoughts about what they may imply for the form of the antefix above the vestibule in front of Temple 45, the entrance hall, the superstructures above the wall niches, and the pillars that would have stood on either side of the sanctum doorway. Hopefully these observations and the tables of measured fragments will lay the groundwork for further research into not just Temple 45, but temple design and construction in North India.

Structure

The thesis will begin by discussing the development of the Latina temple in Central India, introducing the temple form, the architectural terminology that will be used in this thesis, and the architectural backdrop against which Temple 45 should be understood. This will begin with an overview of the study of Indian temple architecture, providing the scholarly backdrop against which this thesis should be understood, before moving on to discuss how the Latina temple type originated in North India in the 7th century. The development of its form in Central India will then be addressed, breaking the temple up into its constituent parts and analysing the changing forms of each of these in turn. This chapter explores the innovation and variety shown in Latina design, and in the conclusion considers parallels

¹⁸ R P Kulkarni, op. cit.

between the development of North Indian temple design and evolutionary biology. A glossary of the Sanskrit architectural terms used throughout this thesis is included in the Appendix along with a picture of a Latina temple annotated with some of the terms (Figure 179).

Chapter 3 is concerned with ascertaining an authentic method of Latina spire design and a set of Latina proportions that can be used in the virtual reconstruction of the spire from Temple 45. This chapter will assess scholars' perceptions of the *Vastuśāstras* and their role in early architectural practice, analyse theories of Latina spire design and create Latina elevations from descriptions and proportions detailed in the texts, identifying the most convincing of these and considering the implications of this method of design for early architectural practice.

Chapter 4 will introduce the Buddhist, hill-top site of Sanchi and the scholarly attention it has received. Temple 45's standing remains and its fragments will then be described and scholar's analyses of the story behind its broken form noted. In the conclusion of this chapter an alternative reading of the events behind Temple 45's unusual form will be suggested.

In Chapter 5 the analysis of the spire fragments from Temple 45 will begin in earnest, discussing the style, proportions and three dimensional forms of all the pieces that could pertain to the spire, and parts of the wall mouldings. In the conclusion of this chapter, that the fragments discussed here actually belong to Temple 45 rather than another building at Sanchi will be justified, and the measurements gathered from the fragment analysis will be summarised.

Chapter 6 will first ascertain the plan of the spire from Temple 45, and then, using the set of Latina elevations ratified in Chapter 3 and the information about the fragments' measurements discussed in Chapter 5, create detailed, to-scale, hypothetical Latina elevations. These elevations will be assessed for suitability, and one of these shown to be a convincing representation of the original spire from Temple 45.

The Appendix contains photographs and measurements of many of the fragments from Temple 45, those from its spire and also pieces from its entrance hall and antefix.

Accompanying these tables will be initial suggestions concerning the design of parts of Temple 45 other than the main spire.

Chapter 2: The Development of the Latina Temple in Central India

Introduction

This chapter is an introduction to the origin, architectural composition and development of the Latina temple in Central India from the 7th – 11th century AD. A glossary of the Sanskrit architectural terms used throughout the thesis is included in the Appendix along with an annotated image of a Latina temple (Figure 179). The use of the name ‘Central Indian’ to describe the selection of temples considered here is deliberately broad, cutting through more particular and perhaps overly discriminate dynastic groupings, to allow the temple forms themselves to speak for the fluid way in which temple design unfolds and interacts, a developmental path that is influenced by but continues along a different trajectory from North India’s political history (see Chapter 1). Central India is the stylistic milieu in which Temple 45 was created and should be understood, but additional acknowledgement should be given to its extended architectural family in Western India and the Deccan. The evolution of Rajasthani and Gujarati Latina styles, for example, had particular impact on how Central Indian Latina forms developed.

Latina temples are one of three ‘mainstream’ temple types that developed in North India the 7th century AD, growing out of free-standing, stone temple architecture’s exploratory beginnings in the Gupta period. These Nāgara (North Indian) temple types are ‘mainstream’ in the sense that they were constructed across a large swath of North India that includes parts of North East India, Central India, Western India and Karnataka in the Deccan, rather than the more idiosyncratic or localised Nāgara temple types that developed in Saurashtra, Orissa and Daksina Kosala, for example. Each temple type is distinguished by the shape of its spire: Valabhī Temples have barrel-roofs and horse-shoe shaped facades, Phāṃsanā temples have stepped, pyramidal superstructures, and Latina temples have elegant, curving spires (Figure 5).

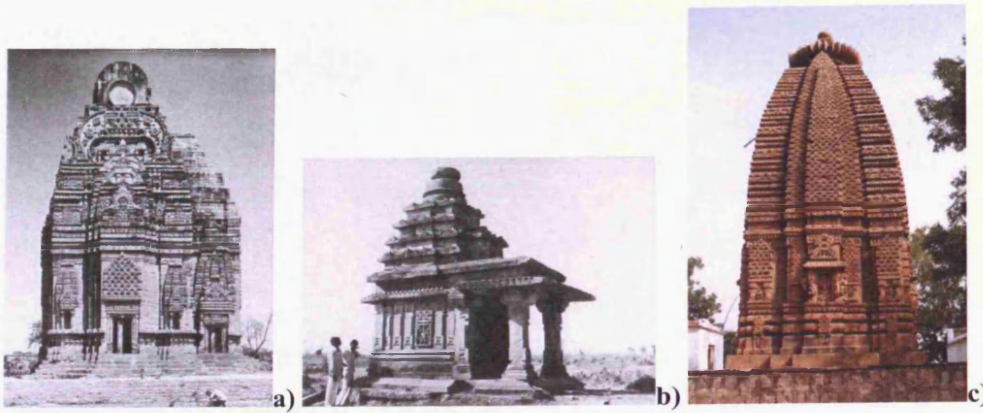


Figure 5: a) a Valabhī temple: the Tēlī-kā-mandir, Gwalior (c. 750 AD) (Photograph courtesy A.I.I.S), b) a Phāṃsanā temple: the Caṇḍāl maṭha, Kadwaha (late 9th century AD) (Photograph courtesy A.I.I.S), c) a Latina temple: Sūrya temple, Umri (825 – 850 AD).

The Latina temple was the most popular temple type across North India during the 7th – 9th centuries, described by Stella Kramrisch as ‘... the most particularly Indian amongst the monumental shapes of the temple ..., [and] the pre-eminent shape of the Hindu temple.’¹ Its spire consists of projecting planes of piled courses that curve smoothly down from the temple’s summit (Figure 15). Interlinked *gavākṣas*, the stylised dormer window shapes that play such an important part in Indian temple architecture, unfurl down from the eaves of the spire’s central projection in the manner of a ‘*lata*’ or ‘creeper’, giving the temple type its name. Like other North Indian temple forms the Latina plan is quadrangular in essence but staggered by multiple stepped offsets or articulated projections. What is particular to the Latina temple is the way in which its spire and temple body act as a cohesive unit, the projections in the temple’s basal mouldings (*vēdībāndha*) continuing up through the temple’s inset walls, stepping out again at the temple’s *varaṇḍikā* and coursing up through the spire (*śikhara*) to its very tip, so that each level steps forward in one harmonious movement. The number and forms of its offsets adapt and change, the spire may be short and stocky or long and lean, but the Latina temple remains solid and unified.

The analysis of how the Latina temple developed in Central India between the 7th – 11th century in this chapter is based on research carried out on site visits across Madhya Pradesh, Uttar Pradesh and Bihar,² and has also relied upon photographs from, in particular, the *Encyclopaedia of North Indian Temple Architecture* volumes,³ the American Institute of

¹ Stella Kramrisch, *The Hindu Temple*, (Calcutta, 1946), p 208

² See Chapter 1, ‘Introduction’.

³ M A Dhaky, Krisna Deva & Michael Meister, (eds), *Encyclopaedia of Indian Temple Architecture: Foundations of a North Indian Style* (Delhi: 1988), : *North India, Period of Early Maturity* (Delhi: 1991), : *North India, Beginning of a Medieval Idiom*, (Delhi: 1998)

Indian Studies online photographic archive,⁴ and the personal collection of Adam Hardy. No temple can be properly seen and ‘digested’ without having the conceptual and linguistic tools with which to understand it and perhaps also contextual information to locate it and inform the appraisal, and as such this study stands on the shoulders of some 200 years of scholarship on North Indian temple architecture. Nor does any assessment or understanding come from a purely objective, theory-free perspective. Indian temples have been approached in different ways since they were first placed under academic scrutiny in the 18th century, asking different types of questions and arriving at different types of answers, expressing the paradigmatic attitudes and approaches of the time in which they were written. Before moving on to the form of the Latina temple therefore, the wealth of work on Nāgara temple architecture and the different approaches used to study the temples must be acknowledged, in doing so situating this thesis within its broader scholarly context, and clarifying its own position, its methodological allegiances and the particularities of its own approach.

The discussion of the Latina temple will begin by looking at how the temple type originated in the 7th century AD. Its developing form in Central India over the next four centuries will then be charted by assessing different architectural parts in turn, working from the base of the temple up to the tip of its spire and then conceptually ‘entering’ the temple, and moving from the porches, through the vestibule to the sacred interior of the temple. Alongside the developing Latina temple, unusual and sometimes unique ‘elaborated-Latina’ temples were also being built, indicating innovation and adaptation in early architectural practice that will be emphasised throughout this chapter and considered afresh in the conclusion. This process of experimentation and growth enacted on the Latina form eventually helped bring about its demise, engendering two new ‘mainstream’ North Indian temple types, the Śēkhari temple in the 10th century AD and the Bhūmija Temple in the 11th century AD, types that quickly became more popular and overshadowed their architectural predecessor.

The study of Indian temples

Although Western trade and communication with India, and interest in the country’s material culture, stretches back more than 2000 years, the point at which the different

⁴ <http://dsal.uchicago.edu/images/aiis/>

disciplinary strands of Indological studies began to be systematised and formalised was perhaps marked by the establishment of the Royal Asiatic Society of Bengal in 1784. The institution, in Partha Mitter's words, managed to '... rescue incipient Indology from the doldrums of ethnology and place it on a par with the study of other major civilisations.'⁵ The study of Indian temple architecture began finding its feet even as art history, archaeology and the study of religions, some of the methods that have been used to study temples over the centuries, were born as academic disciplines. The approach to the subject has therefore taken different avenues, feeling for the best way to understand Indian temples, the accumulated knowledge gathered from these different approaches leading to the multifaceted understanding of Indian temple architecture we have today.

The Royal Asiatic Society (R.A.S.) was begun by the Sanskritist Sir William Jones. Concordant with Jones's training, the institute encouraged that Indian history, religion, art and architecture be understood from the translation and analysis of India's early texts and epigraphic remains, a philological methodology that brought about an 'intellectual revolution' to Indological studies.⁶ A particularly important piece of research undertaken under the Society's auspices was James Prinsep's deciphering of the Brahmi script, his subsequent epigraphic translations helping to create the beginnings of a firm Indian dynastic chronology.

Essay on the Architecture of the Hindús was written by the forefather of the study Indian temple architecture, Ram Raz, and published (posthumously) in the same year as Prinsep's work.⁷ In accordance with the methods of the R.A.S., this first inroad into understanding Indian temple forms came via the translation of *Vastuśāstras* (early texts detailing the 'science' of architecture). In this work Raz translates portions of ten different South Indian śilpa-śāstra fragments, attempting to break open the esoteric Sanskrit and apply the architectural terms to their monumental referents, and in doing so seeking to understand their forms and design using Indian rather than Western terminology and explanatory frameworks. Raz is thorough in his survey: situating the texts historically, detailing their

⁵ Partha Mitter, *Much Maligned Monsters: A History of European Reactions to Indian Art* (Oxford: Clarendon, 1977) P.147

⁶ Mitter, p.105.

⁷ Ram Raz, *Essay on the architecture of the Hindús*, (London: Royal Asiatic Society of Great Britain and Ireland, 1834).

contents chapter by chapter, bolstering the data through comparative analysis of the different *śilpa* texts, and using illustrations to bring to life the texts' descriptions.

In 1856 the Archaeological Survey of India (A.S.I.) was established by archaeologist Alexander Cunningham, an institution that to this day remains responsible for the documentation, restoration, and protection of temples across India. The A.S.I.'s studies of Indian temple sites were predominantly archaeological, epigraphic and numismatic in approach, and often, despite their protective role, fairly rough handed in their investigations (Chapter 4, Footnote 21). Whilst the data amassed by the A.S.I. was valuable to the study of temples, in 1867 James Fergusson assessed the archeologically driven and fairly localised contributions and commented 'The defect of what has been undertaken hitherto is, that it has been done without system ... this difficulty will, I fear, remain till some good handbook or grammar of the subject is published.'⁸ The construction of this 'grammar' Fergusson took upon himself, nine years later publishing *The History of Indian and Eastern Architecture*. This volume was another important foundational work for the study of Indian temples, providing a rubric for understanding the development of Indian temple architecture based on his assessment of architectural and sculptural style, using epigraphic evidence and examples of dated temples as the hooks on which to hang his chronology. In contrast to the text-based studies of Ram Raz and the Royal Asiatic Society, Fergusson asserts:

My authorities, on the contrary, have been mainly the imperishable records in the rocks, or on sculptures and carvings, which necessarily represented at the time the faith and feelings of those who executed them, and which retain their original impress to this day. In such a country as India, the chisels of her sculptors are, so far as I can judge, immeasurably more to be trusted than the pens of her authors.⁹

Equally, Fergusson's use of architectural form and style as the primary evidence for understanding Indian temples broke with the A.S.I.'s conventions, for, as Chandra observes, '... To Cunningham, the evidence of style was not of primary importance, architecture being but an illustration of history, whilst to Fergusson, it was the opposite, architecture serving to illuminate history'.¹⁰ Fergusson argued that architecture was the one solid, imperishable testament to Indian history, the careful stylistic analysis of which could shed light on these

⁸ James Fergusson, *The History of Indian and Eastern Architecture Vol I & II*, (London: John Murray, 1876), p.6.

⁹ James Fergusson, p x – xi.

¹⁰ Pramod Chandra, *On the Study of Indian Art*, Massachusetts: Harvard University Press, 1983, p.27.

inscrutable annals and yield information about the ethnographic movement, customs, 'fables', religion and history of India: ¹¹

In fact, the architecture of the country may be considered as a great stone book, in which each tribe and race has written its annals and recorded its faith, and that in a manner so clear that those who run may read.¹²

Fergusson formed architectural typologies, distinguishing between Drāviḍian (Southern Indian), Chalukyan and 'Indo-Aryan' (North Indian) temples, and created a stylistically-based temple chronology, the order of which, if not the exact dating, has proven to be fairly accurate. Fergusson described Latina, Śekhārī and Bhūmija types of spire, but treated them as a general Nāgara form, which he defined predominantly in terms of its lack of similarity with South Indian forms: '... the outline of the pyramid is curvilinear; no trace of division of storeys is observable, no reminiscence of habitations and no pillars or pilasters anywhere. Even in its modern form ... it still retains the same characteristics, and all the lines of the pyramid or śikhara are curvilinear.'¹³ His observation that there are no traces of habitations or storeys in North Indian temple was to be proven wrong by the scholars that followed him.

The scholarly *zeitgeist* of the 19th century was one of grand cultural and anthropological theories, often influenced by Hegelian and Social Darwinian thought, instigated by Europe's widening international purview and aided by the development of photography which brought evidence of 'exotic locations' to the staid comfort of Western libraries and drawing rooms. The way Fergusson writes reflects the mindset of the era, peppered as it is with comparative ethnographic theories and unhindered speculations about history, linguistics, race, religion, and the like. To present day readers the tone of his work may provoke offence but at a certain point one must leave the outrage at the door and concentrate on the breadth and intentions of his work, his attention to structural and stylistic architectural details and the contribution it made to the young discipline. ¹⁴

¹¹ James Fergusson, p.vi.

¹² James Fergusson, *On the study of Indian architecture: read at a meeting of the Society of Arts on Wednesday, 19th December 1866*, (London: John Murray, 1867), p.10.

¹³ James Fergusson, *The History of Indian and Eastern Architecture*, pp 89 - 90

¹⁴ Western racial prejudices in the study of Indian art and architecture during the 19th century must be acknowledged, but Pramod Chandra is sensible when he says of these preoccupations 'These battles were fought and won a long time ago. I mention these prejudices simply to acknowledge their existence and thus make it possible to discount them with ease from early studies of Indian art that otherwise contain admirable contributions to learning' (*On the Study of Indian Art*, p.2) During the question time after Fergusson's lecture to the Society of Arts in London in 1866, a man suggests that whilst Indian architecture is wonderful and

Inevitably and rightly the colonialist and/or Orientalist tenor of 19th century scholarship prompted a backlash, and in the early 20th century, rejecting the haughty patronage of their predecessors, Indological subjects swung towards a determinedly Indian, 'indigenous' means of interpretation. Whereas, therefore, the majority of work on Indian temple architecture came from Western authors, speaking in a Western architectural language with a catalogue of classical architectural ideals in hand, the new body of scholars demanded that the architecture be understood using its own paradigmatic language and concepts; an example that Raz's work had set in the early 19th century. Unlike Raz, however, this desire for an 'Indian approach' meant that many books on temple architecture from this era prioritised the religious symbolism and textual roots behind the forms of the temples rather than the structure of the forms themselves. In *The Art Heritage of Indian Art*, for example, written in 1911, Ernest Havell states that 'No European can appreciate Indian art who does not divest himself of his Western prepossessions, endeavour to understand Indian thought, and place himself at the Indian point of view.'¹⁵ The only danger of this approach was that on occasion perhaps it became its own kind of essentialising interpretation, a kind of 'appreciative Orientalism': India still being a sensual and mysterious 'other', but now available so that one might take a conceptual holiday into its exotic mindset. The universal 'Indian' view point, according to these Western gentlemen, was a loosely Vedantin outlook in which Indian art is '...always striving to realise something of the universal, the eternal, and the infinite.' Indian art is '... essentially idealistic, mystic, symbolic and transcendental.'¹⁶

There were many positive points about this change in tone. Havell corrected some of the outdated modes of analysis of his predecessors, dismissing the continual references to outside influences in Indian art, for example, saying 'The persistent habit of looking outside of India for the origins of Indian art must necessarily lead to false conclusions', and chastising Albert Foucher and the like for their obsession with and views on Gandharan

'curious', it surely does not have the grace or beauty of its Western counterparts. Fergusson responds to this by saying that, to the contrary, in India there is found architecture '... equal to anything in Europe'. (*On the study of Indian architecture: read at a meeting of the Society of Arts on Wednesday, 19th December 1866* (London: John Murray, 1968) p.15).

¹⁵ E B Havell, *The Art Heritage of Indian Art: comprising, Indian sculpture and painting; and Ideals of Indian art* (London: J Murray, 1911), p.2.

¹⁶ E B Havell, p.7

sculpture from the Kushan era (1st – 3rd centuries AD).¹⁷ In addition, he countered Fergusson and others' continual classification of temples in terms of their religious affiliations rather than their architectural types.¹⁸ One of the negative aspects of his work, on the other hand, was that some of Fergusson's sensitive analyses of architectural shapes were also lost.

The whimsical Indological vagaries of Havell and his colleagues were tightened and refined by Ananda Coomaraswamy, who wrote copious amounts on all forms of Indian history and culture during the 1920's – 40's. Whilst Coomaraswamy placed even more stress on the fact that the essential point of Indian temples and their shapes were their metaphysical underpinnings, the multi-layered and timeless meanings inherent in their forms, he demanded a return to Indian textual sources and grounded his explanations in the *sūtras* and *śāstras*. Coomaraswamy's work was further strengthened by his clear eye for formalistic detail and a vast and detailed kaleidoscopic knowledge of Indian art, architecture, dance, music and more besides. The breadth of his interests and knowledge, therefore, led him to approach Indian architecture in a holistic manner, focussing on particular elements and issues within Indian temple architecture rather than broad studies or chronologies. Coomaraswamy became something of a figurehead for the new, enlightened, textually ratified study of Indian temple architecture, like Raz seeing the early texts as holding the keys to temple architecture, but changing the focus of his search from the structural to the symbolic.

Coomaraswamy's mantle was taken up in the mid-20th century by Stella Kramrisch in *The Hindu Temple*¹⁹, following his emphasis on the symbolic and the textual. The book is a weighty exegetical analysis of the religious symbolism and Vedic roots behind Indian temple architecture, drawing data from a wide range of different Vedic, Purāṇic, and Śāstric texts, collating and cross referencing them to account for the symbolic roots behind each part of an Indian temple. One negative aspect of this textual emphasis is that whilst Coomaraswamy's work remained grounded in the forms that it discussed (perhaps helped by the fact that he tended to write shorter papers that focussed on specific architectural details or subject matters rather than huge books such as *The Hindu Temple*, seeking to

¹⁷ E B Havell, p.32.

¹⁸ E B Havell, p.134

¹⁹ Stella Kramrisch, op. cit.

address all facets of temple architecture), Kramrisch's flood of textual referencing occasionally swamps and drowns the shapes of the temples it refers to. Whilst replete with explanations of the temples' symbolic underpinnings, the book is noticeably bare of references to their form. Instead, her descriptions are general because, for her, the fundamental point of the temple, in whichever form it may take, is its aim to urge the devotee towards a realisation of the ineffable, Vedantin Brahman:

Their towering shapes to the last point of their height teem with forms which have the urge and fullness of Indian nature; step by step, level by level they lead the eye and mind of the devotee from this world to the worlds above. ... in North India they fling their curvilinear faces towards the meeting point above the sanctuary.²⁰

She seems to argue at points that their forms are almost ordained from the outset:

Metaphysical knowledge and realisation by religion have their visible residue in architectural form, in its fundamental shapes and their relation. ... The pyramid or its curvilinear equivalent, the śikhara, placed on the cube [the *garbhagrha*], are the inevitable form of the superstructure of the vimāna.²¹

Whilst interesting from the point of view of Indian metaphysics, beyond broad structural corollaries, symbolic meanings do not necessitate a specific anatomy, but can be realised in or read into multiple different forms equally and nonexclusively. Seven years later Benjamin Rowland continued in this vein in *The Art and Architecture of India: Buddhist-Hindu-Jain*, building on the tone and emphasis that had been distilling from the early 20th century onwards, and stating:

It must be remembered that every work of Indian architecture, Hindu, Buddhist or Jain, must first and foremost be regarded from its metaphysical aspect, that is, as a kind of magic replica of some unseen region or sacred being; and that it was precisely the metaphysical factor that determined the plan and elevation rather than any aesthetic or functional consideration.²²

To deny any 'aesthetic or functional consideration' in the development of a monumental building is to press the point too far, emphasising the symbolic and metaphysical to the exclusion of all else.

A second questionable result of *The Hindu Temple* is that, alongside the effusive but general descriptions of temple forms, it at times plucks a few sacred 'rules' of temple architecture

²⁰ Stella Kramrisch, p 7.

²¹ Stella Kramrisch, pp. 179 – 180.

²² Benjamin Rowland, *The Art and Architecture of India: Buddhist, Hindu and Jain* (Baltimore: Penguin Books, 1953) p.166

from the *śāstras* to explain aspects temple design. This gives the impression that there are one or two specific rules that are ubiquitous to temple design, ignoring the variety of design shown in temple forms themselves, and misrepresenting the role of the *Vastusaśāstras*, the style and content of their descriptions and the great variety of different temple types and proportioning systems offered in their descriptions. This impression influences scholars that follow Kramrisch, leading Rowland to, erroneously, summarise the design of all temples as follows:

Every slightest measurement in the temple is determined by the most specific laws of proportion Putting it as simply as possible, we can say that the architectural modulus was generally the outer width of the wall of the shrine enclosing the garbha griha; this shrine is always in the form of a cube, so the height is the same as the width; the śikhara is made to measure twice the height or width of the temple. In the same way the curve of the śikhara was not left to chance but was determined by a system of geometric progression taking into account the intended height or width of the base of the tower.²³

This oversimplification is referenced back to *The Hindu Temple*. The *Vastusaśāstras* and the *śikhara* design methods mentioned here will be discussed in Chapter 3.

The Hindu Temple was highly influential, but despite its impact perhaps the study of Indian temples had reached its textual and symbolic saturation point. In some senses work on Indian temple architecture from the last quarter of the 20th century has been about balancing Kramrisch's overtly exegetical methods with alternative approaches, bringing the forms of the temples back into focus, and interrogating the nature and function of the *Vastuśāstras*. In 1977, in a book also called *The Hindu Temple*, George Michell gives a much more balanced appraisal of the *Vastuśāstras*, a reading that is perhaps indicative of his architectural rather than philological background and his familiarity with temple forms, having drawn up numerous temple plans and elevations in other publications. Michell describes the *Vastuśāstras* as follows:

From the language in which these works are written and the fragmentary nature of much of the information they contain, it appears that the known Shastras are more likely to be the theoretical writings of theologians, the learned brahmans, than manuals of architectural and artistic practice compiled by builders and craftsmen. Those directly involved with creation of the temples, their sculptures and their paintings, usually had no need to set down their traditions in writing as the knowledge of building techniques was imparted from one generation to the next. ... [The Shastras] are frequently obscure in their terminology and fragmentary in the information they impart; it would seem that their compiler were always one stage removed from building practice.

²³ Benjamin Rowland, p.167.

In fact, the Shastras are rarely concerned with the process of erecting temples and most of their information about building practice relies on the evidence of the temples themselves.²⁴

Michell's reading is much more in keeping with the conclusions drawn during this project, as will be discussed further in the next chapter.

From final quarter of the 20th century to the present day, therefore, studies in Indian temple architecture have become more balanced, making use of textual sources without losing sight of temple forms and encouraging interdisciplinary approaches that bring India's dynastic history, social structures or topography, say, into play, with each scholar weighting their balance differently. Several scholars and publications from this more contemporary period of study have been especially useful for this project and perhaps added significantly to the study of Indian temple architecture. The work of M A Dhaky is particularly eloquent as it weaves together information from the *Vastuśāstras* with his own sensitive observations of temple forms and styles, using the texts in a way that maximises but does not overstretch the insights they can offer into temple architecture. Explaining their nature as they relate to western Indian temple architecture Dhaky states:

Corresponding to the actual practice and in response to it, arose codes embodying the structural rules of the Māru-Gurjara style of sculpture, and more particularly architecture. ... The material found in these texts is indispensable for identifying formal details and in understanding the structural organisation of the temple. What is more, these works equip us with the necessary vocabulary for attempting a truthful description of monuments of the medieval period in Western India. They not only liberate us from the deadly grip of the Classical and European architectural terminology but also from the jargon of tiresome, unsonorous terms of the Indian regional languages used by present day craftsmen.²⁵

Dhaky's work is refreshing and instructive in that it presents different styles of Western Indian temple architecture in a clear and insightful way, describing their formal composition and also capturing their stylistic essence and spirit. He neatly summarises differences between Mahā-Māru and Mahā-Gurjara styles of temples as follows, for example:

A careful analysis makes it clear that the two styles belong to different sensibilities, if not to altogether different worlds of art. In the Mahā-Māru style the temple-body is treated as though it is a monolithic mass sculpted out from living rock. Its decorations are reminiscent of those possible in a brick-and-stucco tradition; they seem appliqué-like, with the carved ornamentation clothing the temple under a rich embroidered veil. The Mahā-Gurjara style, in this respect, behaves altogether differently. It pays careful attention to masonry, emphasizes clean cut blocks, and stresses the beauty of the joinery; so

²⁴ George Michell, *The Hindu Temple* (New York, 1977), p. 78.

²⁵ M A Dhaky, 'The Genesis and Development of the Māru-Gurjara Temple', in Chandra, Pramod (ed) *Studies in Indian Temple Architecture* (New Delhi: American Institute of Indian Studies, 1975), p.125.

that the temple is comparatively structural in intention, look and feeling. The treatment thus is “architectonic” or “architectural” and not “sculpturesque” as is the case with the Mahā-Māru style.²⁶

Michael Meister’s articles about North Indian temple architecture should also be noted here.²⁷ In his work the impress of Kramrisch’s exegetical example can be clearly felt. One of his aims appears to be to ratify Kramrisch’s textual prescriptions for temple design by reconciling them with the material evidence of the temples, thereby promoting the practical utility of the texts. His work provides much interesting data for the study of Nāgara temples, particularly his descriptions of individual temples and inclusion of numerous temple plans. Occasionally, however, his almost *a priori* certainty in the regulatory role and wide applicability of the *Vastuśāstric* texts in temple design, and his desire to prove this to be so, means that he overlooks evidence to the contrary shown in Nāgara temple forms themselves, as discussed later in this chapter.

Krishna Deva, Dhaky and Meister, combined forces during the 1980s and 90s to create the *Encyclopaedia of Indian Temple Architecture*, multiple volumes that comprehensively detail South Indian and North Indian temples through the ‘golden age’ of Indian temple construction from the 5th – 11th century. These volumes are a fantastic database of descriptions and photographs of Indian temples. Although the dynastic/stylistic/regional temple typologies into which the encyclopaedia groups the monuments can on occasion appear unnaturally restrictive,²⁸ and the volumes fail to provide any comprehensive stylistic or formalistic generalisations for the architectural schools or phases of construction that they name, perhaps due to the sheer number of temples they cover and the groups that they divide them into, as a source of information the encyclopaedias have been invaluable to this project.²⁹

²⁶ M A Dhaky, p.149.

²⁷ Michael Meister, ‘Reading Monuments and Seeing Texts’, Anna L Dallapiccola (ed), *Shastric Traditions in Indian Arts*, (Germany: Steiner Verlag Wiesbaden GMBH: 1989), pp. 167-172. ‘Prasada as a Palace: Kutina Origins of the Nagara Temple’, *Artibus Asiae*, 49, 1988, pp. 254-280. ‘On the development of a Morphology for a Symbolic Architecture: India’, *RES Anthropology and Aesthetics*, 1986, pp.33-50. ‘Symbol and Surface: Masonic and Pillared Wall-Structures in North India’, *Artibus Asiae*, 46, 1985, pp.266-96. ‘Measurement and Proportion in Hindu Temple Architecture’, *Interdisciplinary Science Reviews*, Vol 10, 1985, No. 3, 1985, pp. 248-258. ‘Mandala and Practice in Nagara Architecture in N India’ *Journal of the American Oriental Society*, 99.2, 1979, pp.204-219. ‘Analysis of Temple Plans: Indor’, *Artibus Asiae*, Vol 43, 1982, pp. 302 – 320, ‘Mountain Temples and Temple-Mountains: Masrur’, *Journal of the Society of Architectural Historians*, Vol. 65, No. 1, 2006, pp. 26-49.

²⁸ The placing of Temple 45 alongside late 10th – 12th century temple remains from Dudhahi, Chandpur and Ashapuri rather than its mid-9th – early 10th century temple brethren from Umri, Madkheda, Gyaraspur and Barwasagar being a case in point).

²⁹ M A Dhaky (ed), *Encyclopaedia of Indian Temple Architecture, North India: Beginnings of Medieval Idiom (c. A.D. 900-1000)*, (American Institute of Indian Studies, New Delhi: 1998), M A Dhaky & M W Meister

Adam Hardy's analyses of Indian temples has used their changing shapes and forms as primary evidence, 'reading the monuments' as Fergusson may have it, but in this case in order to reveal the origin and development of their design.³⁰ His work highlights the developmental dynamics that propel the formalistic transformation of different modes of Indian temple architecture. He highlights how specific dynamics for growth act both on a small scale, on unfolding, stylised Valabhī temple forms or 'gavākṣas' that climb down the spire of a Latina temple, say, and on a larger scale on the emerging and proliferating shapes of temple plans and superstructures. Hardy's more recent work (as part of The Indian Temple project discussed next) is reminiscent in some ways of Raz's study all those years ago, analysing and drawing up instructions from the 11th century *Vastuśāstra* the *Samarāṅgaṇa Sūtradhāra* pertaining to South Indian temple designs, comparing them to the monuments to see what insight they can bring to South Indian temple design.³¹

In more recent years work has become broader in its spectrum and more interdisciplinary, different approaches informing and impacting on each other to give a multi-faceted impression of different Indian regions and time periods. This approach has been applied to studies of temple architecture and regions of Central India which have been pertinent to this project. In Michael Willis's *Temples of Gopaksetra*, temple forms and styles from the region around Gwalior are illuminated by bringing into play the historical and geographic context in which they were built, drawing from epigraphic and numismatic findings in the area.³² Anne Casile's PhD thesis has provided a comprehensive analysis of the region of Badoh Pathari, referencing, among other things, architecture, iconography, topography, plant life, and the climate to create a multi-layered picture of the domain.³³ In addition to this there have been several projects that have involved multidisciplinary analyses of areas, such as

(eds), *Encyclopaedia of Indian Temple Architecture, North India: Period of Early Maturity (c. A.D. 700 -900)*, (American Institute of Indian Studies, New Delhi: Oxford University Press: 1991), M A Dhaky, M W Meister & Krishna Deva (eds), *Encyclopaedia of Indian Temple Architecture, Foundations of a North Indian Style, (c. A.D. 700 -900)*, (American Institute of Indian Studies, New Delhi: Oxford University Press: 1988)

³⁰ Adam Hardy, *The Temple Architecture of India*, (Chichester: John Wiley, 2007). 'Form, Transformation and Meaning in Indian Temple Architecture', Giles Tillotson (ed), *Paradigms of Indian Architecture* (London: Curzon, 1998), pp. 107 - 136. *Indian Temple Architecture: Form and Transformation* (Delhi, 1995)

³¹ Adam Hardy, 'Drāviḍa Temples in the *Samarāṅgaṇa-Sūtradhāra*.', *Journal of South Asian Studies* 25, 2009, pp. 41 – 62.

³² Michael Willis, *Temples of Gopaksetra: A Regional History of Architecture and Sculpture in Central India AD 600 – 900*, (London: The British Museum, 1997)

³³ Anne Casile, *Temples et Expansion d'un Centre Religieux en Inde Centrale: Lectures du paysage archéologique de Badoh- Pathari du 5e au 10e siècle de notre ère*, (doctoral thesis), (Université Sorbonne Nouvelle-Paris 3, 2009).

the research instigated by the Vidisha Research Group and culminating in *The Indian Temple: Production, Place and Patronage*. This project uses the huge Śiva temple at Bhojpur as its axis of research, and combines Hardy's analysis of engraved temple drawings and the *Samarāṅgaṇa-Sūtradhāra* to help explore medieval methods of temple design; Daud Ali's textual analysis that explores the work of the Paramara king Bhoja; Michael Willis's investigation of the societal function of temples in the Bhojpur area through an analysis of their geographic distribution and epigraphic reference to the endowments they received; and Doria Tichit's analysis of the Udayeśvara Temple at Udayapur.

This thesis has benefited, in particular, from the example set by Hardy's formalistic, temple-based approach, and from his insight into the dynamics underscoring the emergence and development of Indian temple architecture. The research and analysis carried out in this project has attempted to be predominantly object-based, verifiable, and as scientific as possible, using as its primary data the solid bulk of a ruined temple, the shapes and sizes of hundreds of the temples architectural fragments, and, for comparison, the structure and style of the Latina temples across Central India. This is the first time a substantial collection of architectural fragments have been analysed in such a detailed manner, and that the resulting information has been used to establish the original design of the temple they came from. It is also the first time that the question of how Indian temple spires were designed and constructed has drawn from the study of pieces from a fallen spire, adding to information gleaned from standing temples and textual sources.

The reconstruction of Temple 45's design has required that the function of the *Vastuśāstras* with regards to spire design is weighed up by turning their descriptions of Latina spire design analysed by turning them into drawings. This method of the investigation follows aspects of the example set by Ram Raz right at the beginning of the study of temple architecture and, more recently, by Hardy in his investigation of South Indian temple design. The goals of this project and research questions it seeks to answer revolve around questions of the design of Temple 45, and as such, whilst appreciating the value of the many-sided approaches mentioned above, it will not be addressing the numerous other political, iconographic or art historical questions that could arise from a study of Temple 45 and Sanchi.

The origin of the Latina temple

The origin of the Buddhist style is obvious and unmistakable; that of the Drāviḍian and Chalukyan nearly as certain, though not quite so obvious; but the origin of the northern Hindu [Latina] style remains a mystery, There is nothing in Buddhist, or any other art, at all like it. It does not seem to have been derived from any wooden form we know, nor from any brick or stone, or tile mode of roofing found anywhere else.³⁴

The origins and development of the form of the Latina temple were ‘a mystery’ for 19th century scholars, as indicated by Fergusson’s comment above. For Kramrisch working in the mid 20th century the story behind the structural development of North Indian temple forms were not her primary concern for ‘The superstructure of the Hindu temple is a monument whose *raison d’être* is symbolical’.³⁵ Whilst maintaining the importance of the symbolic underpinnings of Latina temple architecture, Michael Meister analysed the Latina form in ‘*Prāsāda* as palace: Kutina Origins of the Nāgara Temple’, and identified the diminutive and often stylised miniature shrine forms that are the modules of Indian temples and account for the make up of the Latina spire. Adam Hardy has built on Meister’s work and provides a more detailed picture of the different ‘aedicular’ components that make up Nāgara temples, and the specific structural machinations that work on them to account for the formalistic development of Indian temple architecture, including the emergence, evolution and eventual demise of the Latina temple. Hardy’s analysis will be the basis of the discussion of the emergence of the Latina form set out below.

Nāgara shrines

³⁴ James Fergusson, *History of Indian and Eastern Architecture*, p.86. Note the fact that different temple types are discussed here according to their religious affiliation. This type of typology was popular in the 19th and continued into the 20th century. This division of types can be misleading since patrons of temples for different religions tended to use the same architects, stone masons and sculptors, following the stylistic and architectural trends of the time period and region. Temple 45 is a case in point: a Latina monument, the ‘pre-eminent Hindu form’, created for the worship of the Buddha.

³⁵ Stella Kramrisch, p.184

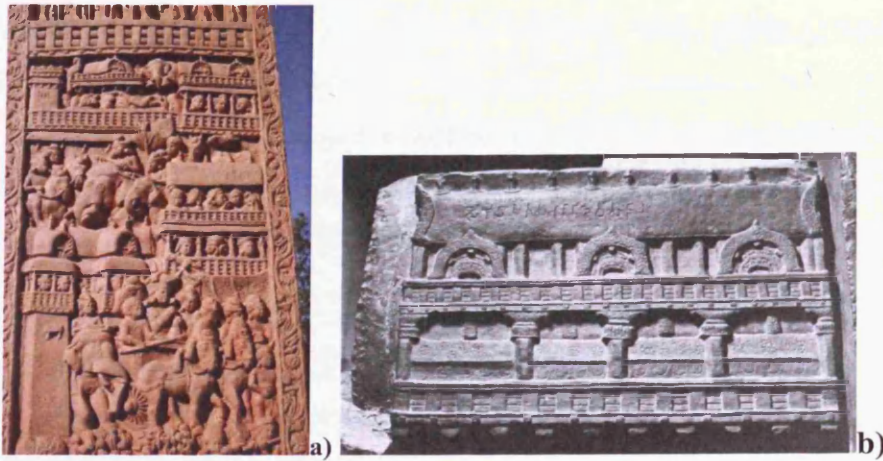


Figure 6: a) Relief carving from the eastern gateway of the Great Stupa, Sanchi, showing the Buddha's mother dreaming of a white elephant entering her side, signifying the immaculate conception of the Buddha. Satavahana Dynasty (1st century BC – 1st century AD), b) Railing from Bharhut, MP, Shunga Dynasty (2nd century BC), showing a barrel-roofed building with arched dormer windows pressing out from its sides. (Photograph courtesy A.I.I.S).

Whilst the timber metropolises of ancient India degraded thousands of years ago, images of these bustling cities are preserved in crisp and exquisite detail in the narrative relief carvings from the *tōraṇas* (gateways) and railings surrounding the *stūpas* at Bharhut (2nd century BC) and Sanchi (1st century BC – 1st century AD) in Madhya Pradesh, at Amaravati in Andhra Pradesh (1st century AD – 3rd century AD) and at Kanganhalli in Karnataka (1st century BC – 1st century AD). As they illustrate the didactic tales of the Buddha's lives, the narrative reliefs also tell of the busy urban landscapes of this era: complex, multi-storeyed networks of palaces, apartments and gateways with plain, mud-brick lower storeys and timber upper storeys, fronted by wooden parapets and walkways over which curious onlookers peer, and topped by barrel-vaulted roofs made from timber rafters and thatch (Figure 6).

The barrel roofs, with their horseshoe-arch gables and dormer windows, the layers of eaves in the multiple storeys, and the simple domed roofs of the more modest dwellings are at the heart of the Indian temple architecture tradition, for, as Coomaraswamy explains with regards to early shrines, 'nothing is more certain than that the dwelling place provided for a deity differed in no essential way ... from that made use of by man as villager or hermit.'³⁶ Hardy has shown convincingly how the basic shapes of these different architectural elements were abstracted from their urban context to create simple timber and masonry

³⁶ Ananda Coomaraswamy, *Essays in Early Indian Architecture*, Michael Meister (ed) (New Delhi: 1992), p.108.

shrine types; the *kūṭa* shrine, a domed top shrine that was to become an important part of Southern rather than Northern Indian temple architecture, the wagon-backed Valabhī shrine with its horse-shoe arched, stylised dormer-window face, and the pyramidal Phāṃsanā shrine with its layers of piled eaves. Phāṃsanā shrines would be crowned with an *āmalaka*, the honorific, striated form of the myrobolan fruit, and in their simple forms may therefore be termed *āmalaka* shrines (Figure 7).

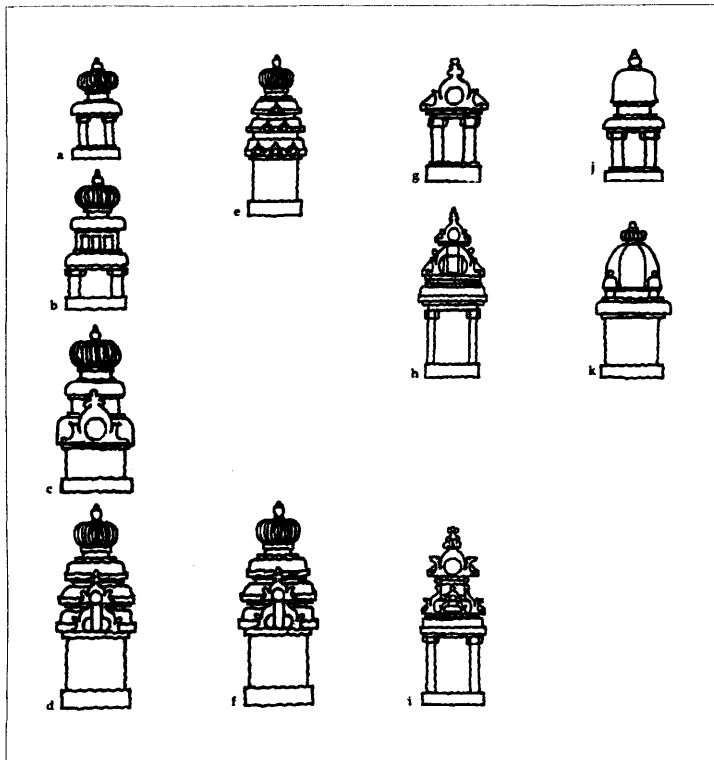


Figure 7: Adam Hardy's drawings of early Nāgara aedicules, (a-d) *āmalaka* aedicules, (e & f) phāṃsanā aedicules, (g-i) Valabhī aedicules, and (j&k) domed *kūṭa* aedicules.³⁷

Stone versions of these shrines are still in evidence today (Figure 8). Discussing the interpenetration of the forms Hardy explains:

[The] fluidity between categories is the bequest of the imagery of ancient timber forms underlying the Nāgara architectural language. An inherent overlap between the Phāṃsanā and the Valabhī arises from the fact that the 'horseshoe arch' or *gavākṣas* form refers back both to the end gable of a thatched barrel roof and to the gable of a dormer window projecting out of an overhanging eave or canopy. Thus *gavākṣa*-dormers, logically adorning the eave mouldings of a Phāṃsanā shrine or aedicule, come to be placed over half-*gavākṣas* derived from the gables or cross sections of side-aisles, and this configuration leads on to splitting and proliferating Balabhi patterns bursting through the Phāṃsanā layers. Conversely, since the new Valabhī patterns have been gestating in a Phāṃsanā matrix, an inconspicuous but unmistakable Phāṃsanā background of curved or triangular eaves is nearly always given to Valabhī aedicules.³⁸

³⁷ Adam Hardy, *Temple Architecture*, p.107.

³⁸ Adam Hardy, *Temple Architecture*, p.107.

These modest little shrine types became the principle modules that multiplied, recombined and transformed into the different types of monumental Nāgara temple *śikharas* that emerged in the 7th century.

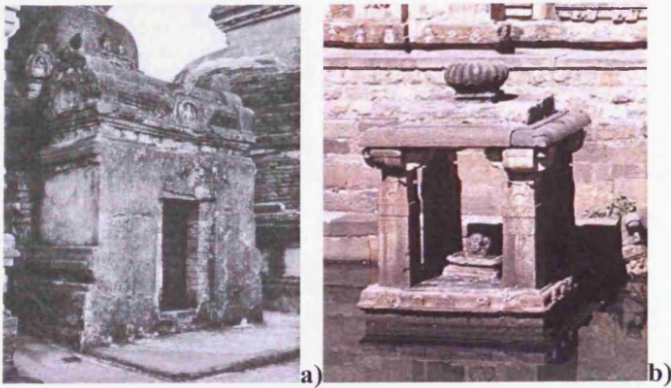


Figure 8: a) Valabhī shrine, Nalanda, Bihar (Late 6th century AD), (Photograph courtesy A.I.I.S), b) phāṃsanā/āmalaka shrine, Mahakūṭa, Karnataka (7th century AD), (Photograph courtesy Adam Hardy)

The formalistic journey from these simple shrine types to the proud and elaborate temple palaces of the gods depends on two key design principles already illustrated in the more complex of Hardy's little Nāgara shrines (Figure 7). The first principle is an unremitting disposition to emerge, expand and proliferate in a downwards and outwards direction as shown by progressive changes to temple forms. This pattern of manifestation is shown in the motion implied by the arrangement of the modules that make up a Latina temple spire particularly in the *latā*'s unfolding *gavākṣa* forms.³⁹ Hardy details the full range of manoeuvres by which this burgeoning forth may occur in 'Form, Transformation and Meaning in Indian Temple Architecture', but in a nutshell the dynamic growth may come about by a 'piling up' of shrines, adding further storeys to the base of a shrine, or through aedicule types multiplying and cloning themselves.⁴⁰ As the temple grows and becomes more composite in a downwards and outwards motion, it is pushed skywards.

The second feature of Indian temple design is the temple's 'multi-aedicular' make-up: simple, diminutive Nāgara shrines of the sort shown in Figure 7 are a temple's principle components, all of which will interact and involve each other. As the burgeoning dynamic is

³⁹ Adam Hardy, *Temple Architecture*, p.69.

⁴⁰ Adam Hardy, 'Form, Transformation and Meaning in Indian Temple Architecture', *Paradigms of Indian Architecture*, Giles Tillotson (ed), (Surrey: Curzon Press, 1998), pp. 107 – 136.

enacted on the Nāgara shrine types, they amalgamate, multiply and become ever more complex, taking the shape of mature, monumental temple types. Echoes of their journey to monumentality are shown in the way the aedicules are arranged on the temples, a sort of architectural vapour trail indicating the route taken to arrive at the end product. Indian temples, therefore, are inherently composite, with miniature shrines issuing forth from larger shrines issuing forth from the principle shrine, the *prāsāda*.⁴¹ These range from more literal shrine types adorning the temple wall, housing emanations of the primary god or related deities, to the ‘abbreviated aedicules’⁴² or *gavākṣas* adorning the Latina *śikhara* whose stylised forms imply the possibility of a heavenly resident.

From shrine to temple



Figure 9: a) Four diminutive Phāṃsanā temples at Naresara, (700 – 725 AD), b) Vārāha temple at Khajuraho (11th century AD). See also Figure 5b. (Photographs courtesy of A.I.I.S.).

These developmental principles can be put into action to create the three mainstream Nāgara temple types. The pyramidal Phāṃsanā superstructure comes from a basic *āmalaka* shrine being given more storeys, a piling up of simple eave-topped shrine upon simple eave-topped shrine, the shrines becoming compressed as they receive their successive layers (Figure 9). Little Valabhī shrines, stylised and compressed into *gavākṣa* forms, often push out from the eaves, in accordance with their multi-aedicular nature and reminiscent of the relief carvings with dormer windows looking out above the balconies of timber apartments (Figure 6). Phāṃsanā temples were popular in Saurashtra in Western India in the 7th century, but in Central India they appear more often as modest, subsidiary shrines or as the roof structures of entrance halls.

⁴¹ Adam Hardy, *Temple Architecture*, p.10.

⁴² Adam Hardy, *Temple Architecture*, p.41.

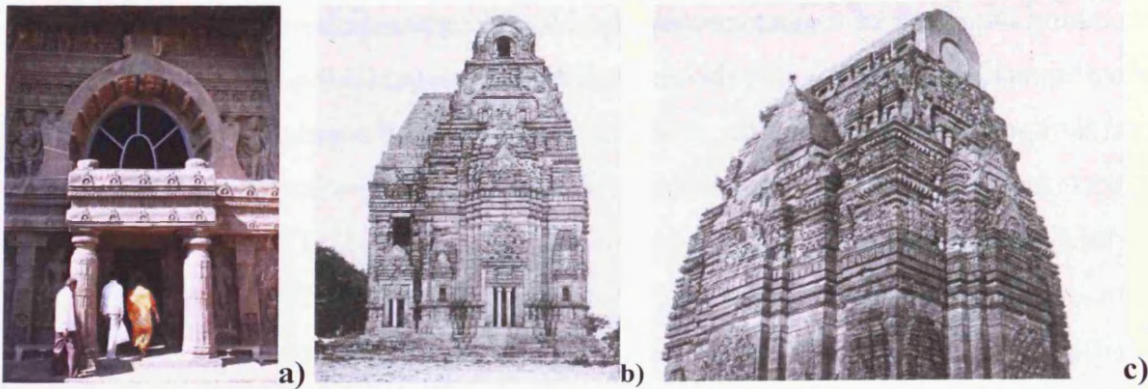


Figure 10: a) Cave 19, Ajanta, Maharashtra, (5th century AD), b) Tēlī-kā-mandir, Gwalior, (c. 750 AD), c) sideview of the Tēlī-kā-mandir. (Photograph courtesy of A.I.I.S)

As Valabhī shrines developed into full-scale Valabhī Temples they maintained their barrel-roofed format, fronted by a large arched dormer window/*gavākṣa* shape, sometimes turned into a trefoil form by the addition of stylised ‘side aisles’ (Figure 10). Their derivation from timber buildings is shown explicitly in the details of the rock-cut cave temples that are most prevalent in Western India, ‘inverted’ versions of their freestanding Valabhī cousins. The Lōmas Ṛṣi cave in Bihar is the earliest surviving cave temple, excavated during the reign of the Mauryan emperor Ashoka in the 3rd century BC. In this early example the cave’s façade is carved as a literal replication of its timber predecessors (Figure 39b). The numerous cave temples excavated from the yielding volcanic stone of the Deccan Traps of western India from the 2nd century BC - 5th century AD become increasingly stylised. By the time of the Tēlī-kā-mandir’s construction at Gwalior in the 8th century AD, the Valabhī temple is monumental and overtly aedicular, with little *āmalaka* shrines holding up the dormer frontispiece, and fully formed Latina temples pushing out from its sides (Figure 10b). Whilst the Valabhī temple did not gain the same popularity as the Latina, it lives on in the form of the fronton or *śukanāsa* standing above the temple’s portico and in its stylised, diminutive avatar, the *gavākṣa*, an intrinsic and ubiquitous part of Indian temple architecture.

The development of the Latina spire involved slightly more complex permutations and interactions of forms. Its story begins by combining all three of the Nāgara shrine forms: larger Valabhī shrine superstructures press out from the eaves of Phāmsanā shrines, and little *āmalaka* shrines not only crown the Phāmsanā substratum shrine but also stand to the side on its eaves (Figure 11). Evidence of this initial multi-aedicular play is shown in relief

carvings in the Gupta period such as those on the walls of the cave temples at Ellora for example, (Figure 11c). Probably these simpler superstructure forms continued alongside larger and more elaborate developments that were edging towards Latina spires proper – as shown by the shrines carved in relief on the doorjambs at Deogarh, (Figure 11a).

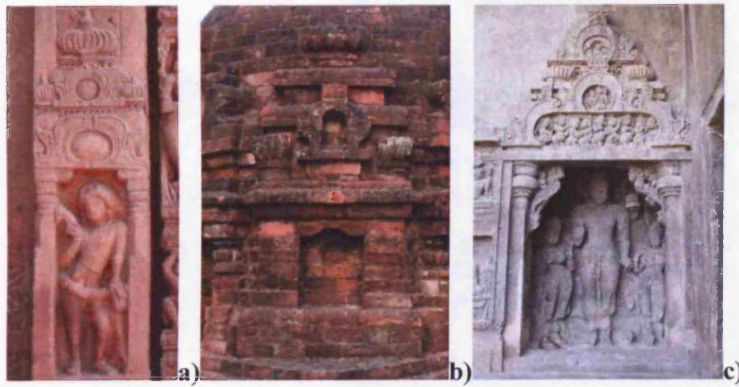


Figure 11: a) From door lintel at Viṣṇu Temple, Deogarh, (c. 500 AD), b) from wall of small stūpa, Nalanda, Bihar, (late 6th century AD), c) from wall beside Cave 10, Ellora, Maharashtra, (6th century AD).

As the Nāgara urge to proliferate continues to work on these diminutive superstructures, the Valabhī shrines multiply down the centre of the spire, taking on more stylised, *gavākṣa* forms and becoming more numerous, splitting and interlinking, and further little *āmalaka* shrines emerge at the side of the spire and push their predecessors upwards. As this process continues the superstructures begin to look more and more like proto-Latina spires. Hardy illustrates the increasingly multi-aedicular progression from smaller shrine to a Latina temple as shown in Figure 12a, describing how ‘a simple “*āmalaka* shrine” (a) becomes the superstructure of a more complex type (b), and a developed form of this is then placed above a further tier (c)’.⁴³ All that is needed to jump to the Latina form proper is for the sides to become curved. Why does this happen? Hardy says the following:

Admittedly, the curvature of the Latina *śikhara* may well have been inspired by the precedent of curved, tapered, thatched buildings, perhaps even storeyed ones, but curvature was secondary to the piling up of shrine forms; and bent bamboo, when it comes to the Nāgara language, tells us little about the detail. To understand the curvature it is enough to consider its advantages: a heightened sense of diminution in the ascending stages, a need for less height to arrive at a given size for the upper platform (normally the same size as the sanctum), and its sheer grace and flow.⁴⁴

⁴³ Adam Hardy, *Temple Architecture*, p.109.

⁴⁴ Adam Hardy, *Temple Architecture*, p.110.

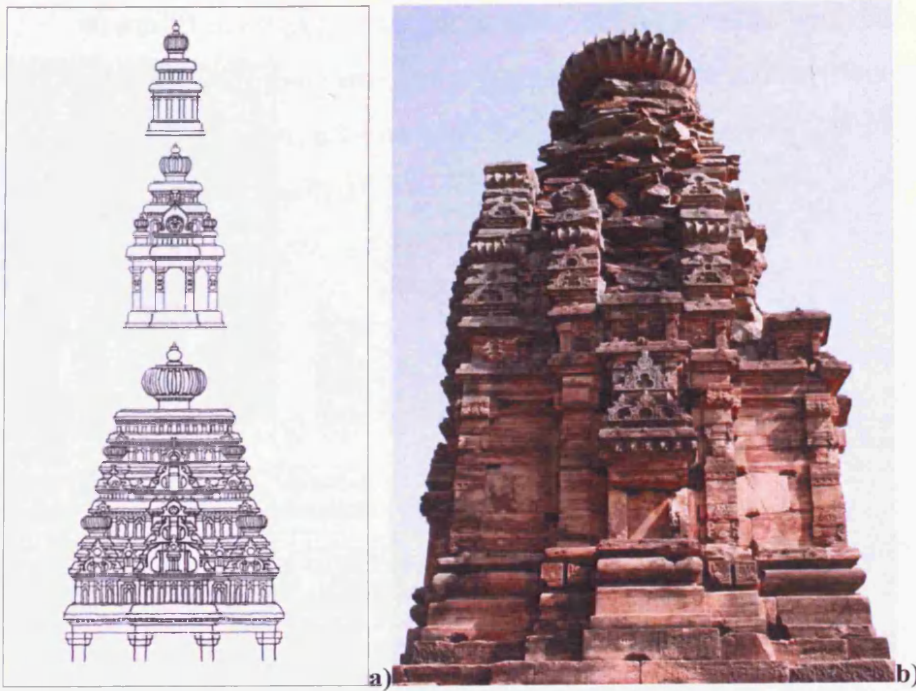


Figure 12: a) Adam Hardy's hypothetical reconstruction of the piling up of early Nāgara shrine forms, leading towards the Latina b) Śiva Temple, Mahua (c. 675 AD).

By the late 7th century the Latina spire had found its form and identity, the earliest surviving examples coming from Karnataka and Rajasthan (Figure 26). The Śiva temple at Mahua from c 675AD is the oldest extant Central Indian Latina example (Figure 15b). The remains of its *śikhara* shows a central spine down which march a succession of *gavākṣa* and half *gavākṣa* patterns, triple-storeyed *āmalaka* shrines (in this setting called *karṇa kūṭas*) with *gavākṣas* pushing from their eaves making up the spire's curving *vēṇukōśa*, and intermediary projections of second *vēṇukōśa*, divided from the *vēṇukōśa* at the corner by a wide inset taking on the form of a false parapet and adorned by *bālapañjaras* (miniature Valabhī shrines).

Having been engendered by the principles mentioned above, the same tendencies continued to act on the design of the Latina form and propel its development and transformation. Following the continuous push towards expansion and elaboration, the Latina *śikhara* gained more *karṇa kūṭas* and more numerous eaves with more complex elaborate *gavākṣa* patterns in its *latā* and *pratilatā*. As further miniature aedicules were added to the spire an inverse effect occurred: the temples became less overtly aedicular and looked more unitary. Like Pointillist paintings viewed from further and further away, the multiple miniature shrines that are the essence of the *śikhara*'s form became smaller and more squashed together, appearing more like surface texture than individual aedicules.

In the latter half of the 9th century it seems as if the Latina temple was beginning to reach the end of its ability to procreate within the boundaries of the Latina form, and the temple designs express within them a desire to break free and proliferate in a larger, more substantial way. Whilst some of the unusual, metamorphosed Latina temple forms that were tried out over the years did not survive beyond their individual instantiations, two of the Latina's architectural offspring flourished and went on to supersede their parent form: the showy and exuberant Śēkharī temple that emerged in the 10th century onwards, its spire made up of a cascade of embedded Latina forms that necessitated a new 'stepped diamond' temple plan, and the Bhūmija temple spire that developed in the 11th century AD with its chains of *kūṭastambhas* (*śikhara*-topped pillars) appearing to burst out of a Latina temple's corners in the place of the *karṇakūṭas*, pushing the Latina's *latā* and *pratīlatā* together and giving the temple an orthogonal or stellate plan.

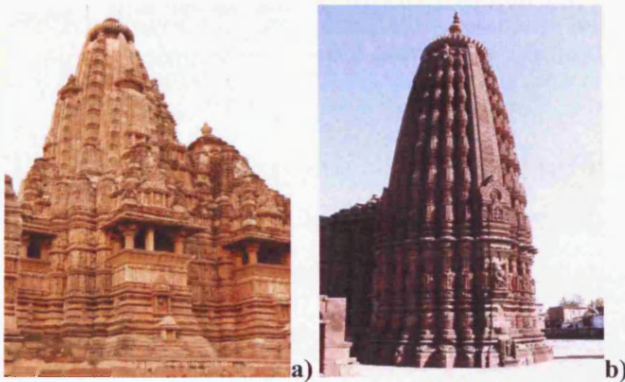


Figure 13: Central Indian Śēkharī and Bhūmija temple examples, a) Lakṣmaṇa Temple, Khajuraho (c. 954 AD), b) Udayeśvara Temple, Udayapur (c. 1059 AD).

Symbolisms inherent in the Latina temple form

Whilst this thesis analyses Latina temple architecture from a formalistic point of view, an approach that is necessitated by the nature of the Temple 45 project, the symbolisms and metaphysical meanings with which the temple forms are imbued are an important other aspect of them, and, as discussed in the earlier part of this chapter, for many scholars a temple's primary onus. Paralleling the inclusive character of Indian belief systems, the symbolisms inherent in Indian temples are multivalent rather than mutually exclusive. The temple can be seen as a representation of the Hindu cosmos. It is also a manifestation of the body of god as indicated by the names of the different parts of the temple: a temple sanctum is its *garbhagrha*, meaning 'womb chamber', walls are known as *jaṅghā* meaning 'thigh',

the spire is concluded by a square course of stone which is the *skandha* or ‘shoulder course’, this is topped by the cylindrical *grīva*, meaning ‘neck’. The temple may also represent parts of the sacred landscape, Michael Meister summarising further symbolisms as follows:

The major metaphors in the minds of Hindu temple-architects – expressed both in texts and in foundational inscriptions – were those of the body of the temple as mountain and the sanctum as cave or womb (*garbha*) opening the earth to the approach of the worshipper. ... [North Indian temple architecture] as it evolved, fitted the temple ever better to the older metaphors of cave and mountain, incorporating within its architectural morphology the temple as axis, altar, fortress palace and marker of time – and thus an appropriate container for the germinating presence of the manifest image presented for worship within.⁴⁵

The temple is the palace of its primary deity, and, as such, temples are called *Prasādas* (palaces) in Indian texts. In keeping with the multi-aedicular nature of *Nāgara* temples mentioned above, at the same time the temple is not just the palatial abode of the primary deity ensconced in majesty in the dark sanctity at the heart of the temple, but also a teeming celestial metropolis of smaller shrines that climb down its exterior. In the niches and pedestals occupied by gods, demigods and *mithuna* couples that appear on temples’ walls and *vēdībhandhas* the temples multi-occupancy is shown literally, by the 10th century the walls becoming decidedly crowded (Figure 14b), whereas in the *bālapañjaras* (stylised Valabhī shrine) or *gavākṣas* of a temple spire the immanent arrival of their celestial residents are implied. In the case of early Latina temples from Western India and the Deccan such as the Galaganātha Temple at Pattadakal (685 – 696 AD), sometimes their occupants have already arrived (Figure 14a).

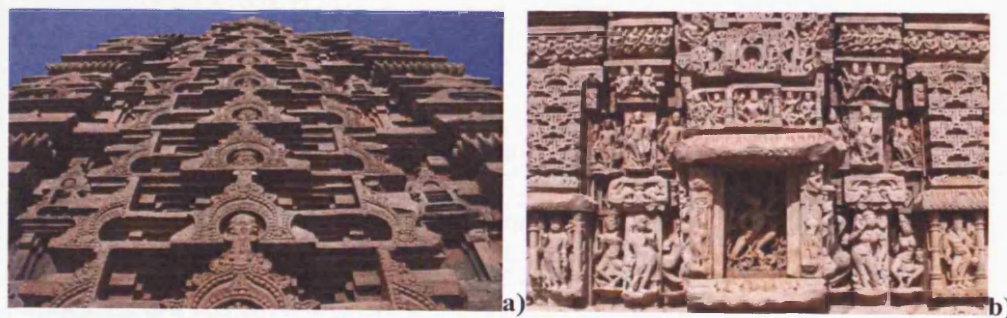


Figure 14: a) Part of *latā* from Galaganātha Temple, Pattadakal, Karnataka (685 – 696 AD), (Photograph courtesy Adam Hardy), b) Temple 2, Survaya (10th century AD).

⁴⁵ Michael Meister, ‘On the development of a Morphology for a Symbolic Architecture: India’, *RES Anthropology and Aesthetics* (1986), pp.33 – 50, p. 35.

The downwards and outwards movement of manifestation by which Nāgara temple forms proliferate, and the way *gavākṣas* cascade down *latā* eaves, parallels Vedantin notions of the way in which the formless and undifferentiated Absolute makes itself material, coming downwards and outwards into the world of name and form. This is a pragmatic and gradual manoeuvre, giving mankind an image towards which to direct their devotions. In a Śiva temple, say, the most sacred of images ensconced in the temple sanctum is the *linga*, the most abstract of his representations. Then, pushing out from the central projections of the temple walls to face the mundane world will be anthropomorphic representations of Śiva in his family, more easily approachable and understandable forms.

The temple is an aggregate of multivalent symbolic meanings, therefore: the temple as a whole is interpreted in multiple ways, the individual parts that make up the temples also carrying their own meanings. These meanings combined with the entourage of gods on the temple's walls and the carnival of lesser deities that cavort around doorways and *vēdībāndhas* make Indian temples resonant with multi-layered metaphysical import which can be accessed in numerous ways to different degrees of abstraction.

The development of Central Indian Latina temple forms

In the rest of this chapter the developing form of Latina temples in Central India will be charted, beginning with a discussion of their plans, moving upwards to consider their basal mouldings, walls and cornice mouldings, before looking higher to their majestic curved spires. Having looked at the temple's outer aspect, the temple will then be entered, as it were, discussing first Latina entrance halls, then their doorways, porches and finally their inner sanctums.

Throughout this discussion a temple's outer walls, its basal mouldings and cornice mouldings will be referred to as the temple 'body' as a simple way of differentiating these lower parts from the temple spire. This is not strictly appropriate, particularly given the fact that the different parts of the temple are named after more select parts of the anatomy, as noted earlier in the chapter, but it is hoped that this short-hand division of the temple into two will be deemed permissible on this occasion.

Photographs of eight Latina temples from Central India that span the architectural time frame considered here are shown in Figure 15, providing a visual overview of the types of temples that will be discussed, and showing them in their entirety rather than focussing in on the parts that make them up.



a)



b)



c)



d)



e)



f)



g)



h)

Figure 15: Central Indian Latina Temples through the ages: a) Mahua, Śiva Temple, c 675 AD b) Naresara, Pretesvara Temple, 700 – 725 BC (Photograph Courtesy Doria Tichit) c) Batesara, 775 – 800 AD, d) Terahi, Śiva Temple, 800-825 AD, e) Umri, Sūrya Temple, 825 – 50 AD f) Madkedha , Sūrya Temple, c. 850 AD g) Kadvaha, Khirnivālā Group, 10th century AD h) Khajuraho, Ādinātha Temple, 11th century AD (Photograph courtesy Alice Buckee).

Latina temple plans

In this section Central Indian Latina plans will be introduced, discussing first how they change over time and then moving on to the question of how they were drawn out and proportioned. The development of Latina temple plans is also the story of the development of the Latina temple in all its 3-dimensional glory. A plan is an abstract, its potential only realised in the solid actuality of the projections and recesses of the *vēdībāndha* and walls of the temple itself, and, as such, arguably it should not be discussed in complete isolation nor be given too much of an autonomous, generative role in its own and, in conjunction, the Latina temple's, design and evolution. This discussion will therefore also refer to the three-dimensional changes to the walls and *vēdībāndha* that the changes to the plan signify. Whilst stressing this point, the importance of the dimensions of a Latina temple's plan at the level of its *vēdībāndha* should not be overlooked either. The measurements of the plan control not just its horizontal aspect, but in most cases are closely related to or parallel the plan of the *śikhara* high above it and, as will be discussed in Chapter 5, are crucial in determining the spire's height and curvature.

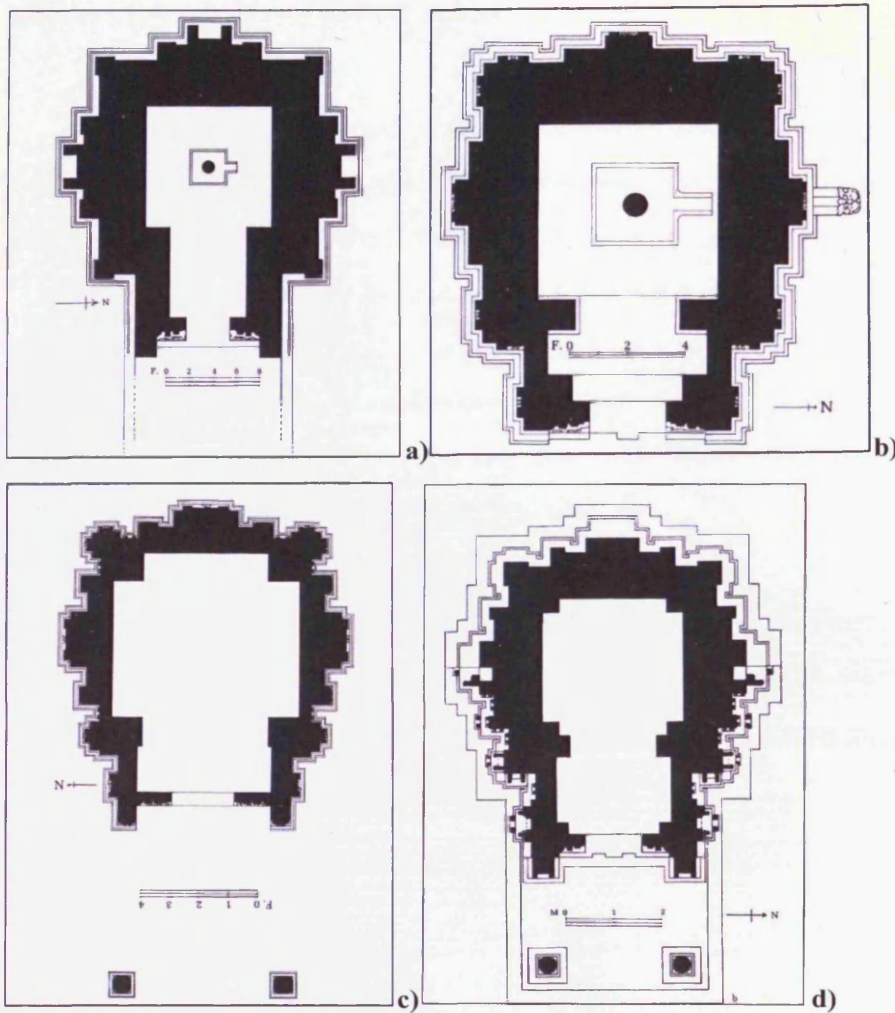


Figure 16: Latina temple plans from a) Mahua, Śiva Temple (c. 675 AD), b) Batesara, Mahādēva Temple, (775 – 800 AD), c) Terahi Śiva Temple, (800 – 825 AD), d) Madhkedha, Sūrya Temple, (850 – 875 AD) (Plans from *Encyclopaedia of Indian Temple Architecture*).

Latina temple plans are quadrangular in essence. The sacred core of the temple, the *garbhagrha*, is either square, ‘nearly square’, or rectangular in plan, with flat, plain walls, often punctuated by square-shaped pillars at each corner creating little indents in the plan. The outer side of these walls step out in offsets or projections in the cardinal directions, the mouldings beneath the walls, the *vēdībandha*, step out a little bit further, and the *vēdībandhas* ‘hoof moulding’ or *khura* and the plinth on which it may stand, its *pīṭha*, each step out a further still. Latina plans therefore tend to be four-faced in a broad sense, but with each face staggered by projections. This sense of staggering is increased in the plans as niches or pillars press out from the *bhadras* and *karnas* (see Figure 16d). Most Latina temples are either *dvi-aṅga* (with two planes of offsets, meaning with three projections in total, see Figure 16a & b and Figure 15a – c) or *tri-aṅga* (with three planes of offsets, meaning with five projections in total, see Figure 13c & d) but in later temples the number

of projections may go up to seven (*catur-aṅga*) as shown in the 11th century Ādinātha Temple at Khajuraho (Figure 15h). Leading to the sanctum entrance is a small antechamber or *kapilī*, with the outer walls treated in much the same way as the temple walls.

Frequently *dvi-aṅga* temples have additional little projections that push further out from the *bhadras*, the temple body's principle cardinal projections. These are topped by niches and treated in much the same way as a *bhadra* proper, their own '*latās*' continuing up through the *śikhara*, as at the Śiva Temple at Mahua (Figure 15a and Figure 16a), the Mahādēva Temple at Batesara (Figure 15c and Figure 16b) and the Sūrya Temple at Umri for example (see Figure 15e and Figure 17a). These can be confused with *bhadras*. Whilst the Encyclopaedia calls the sides of the *bhadra* proper that stand behind the additional projections in these types of *dvi-aṅga* temple '*upabhadras*', described as 'minor offsets flanking but forming part of the central offset [the *bhadra*]', they go on to label these temples *tri-aṅga* (the Śiva temple from Mahua and the Sūrya Temple at Umri for example).⁴⁶ These projections may be identified as additional elements to the main facets of a temple's plan by the fact that they are thinner than the *karṇa* projections, whereas *bhadras* proper will be wider than the *karṇa* projections. In terms of the way that their three-dimensional forms carry up into the *śikhara*, whilst a *latā* will continue up and past the spire's *skandha*, resolving in a point above it, this slimmer '*latā*' will only reach to the *skandha* and the projections that flank it, the true *latā*, will continue past and around it, ending in a peak above it.

⁴⁶ See the description of the Śiva Temple at Mahua, for example, (M A Dhaky et.al, *Encyclopaedia of Indian Temple Architecture: North India Foundations of a North Indian Style*, p.134 – 135) or the Sūrya Temple at Umri. (*North India Period of Early Maturity*, p.44)

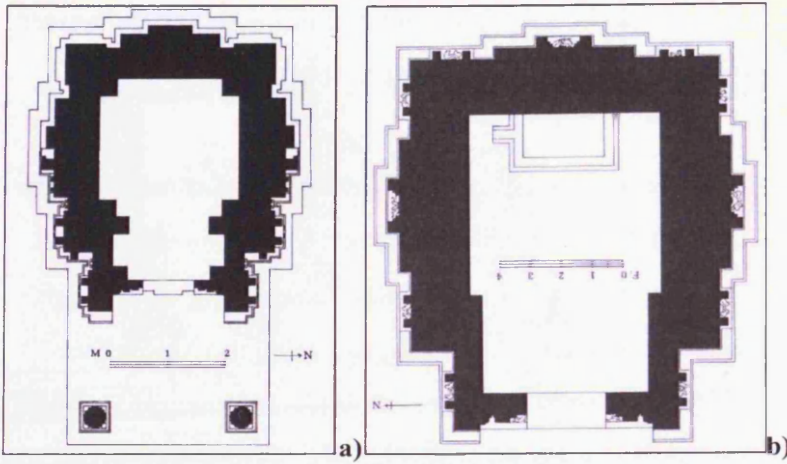


Figure 17: Latina temple plans from a) the Sūrya Temple at Umri (825 – 850 AD), b) Naresar, Durgā Temple (700 – 725 AD).

Prior to the 9th century, when the Latina temple was still in its youthful, more compact form, Central Indian Latina plans are fairly simple, their *karṇas*, *pratirathas* and *latās* stepping outwards in offsets, giving the body a solid and boxy feel (see Figure 16a and b, and Figure 17b). The walls are typically broken up and vivified by the shrines that project from the *jaṅghā* walls, at this stage usually just principle *bhadra* shrines joined by more minor *karṇa* shrines. Whilst temple bodies are stepped, the spire has a recess occupied by *bālapañjaras* between the *karṇa* and the *latā* in *dvi-aṅga* temples, and between the *karṇa* and the *vēṇukōśa* in *tri-aṅga* temples, meaning that the plans of the *vēdībādhā* and the base of the *śikhara* do not match exactly. In these instances the width of the *śikhara*'s *karṇa* is less than that of the temple body and the recess that follows it sits above the inner side of the body's *karṇa* such that the edge of the *śikhara*'s *vēṇukōśa/latā* catches up with the body's *pratiratha/bhadra* and the spire and body step forward in unison once more.

In accordance with the downwards and outwards urge to proliferate discussed earlier in the chapter, from the beginning of the 9th century AD the *karṇa*, *pratiratha* and *bhadra* of Latina temples in Central India emerge further from the temple body and become fully articulated projections, creating recesses or *salilāntaras* between the different planes of the walls (see Figure 16c and d). The most popular temple plans in this era are *tri-aṅga*, the clearly defined projections eliminating the *dvi-aṅga/tri-aṅga/upabhadra* confusion of the earlier offset temples (although the Sūrya temple at Umri is still called *tri-aṅga* by the Encyclopaedia). At this point, in conjunction with the replacement of the spire's second *vēṇukōśa* with *pratilatās* of knitted *gavākṣas*, the plans of Latina *śikharas* also become fully

articulated and lose their *bālapañjaras* (this is with the exception of the Śiva temple at Terahi, 800 – 25AD, which is articulated but keeps a double *vēṇukōśa*, and the Śāntinātha Temple at Deogarh, 775 - 850 AD which keeps its *bālapañjaras* but has a *pratilatā* instead of a double *vēṇukōśa*). The *śikhara* plan now follows that of the *vēḍibandha*, the widths of their projections and the recesses lying between them becoming more or less equal.

Further elaborations to the plan of a Latina temple may come in the form of covered circumambulatory passages around the *garbhagrha*, making the temple *sāndhāra* in Sanskrit terminology, and in the different types of entrance halls that can lead up to the temple. In this respect Central Indian temples are much simpler than some of their counterparts in Western Indian and Karnataka, because they tend to have neither: Central Indian Latina temples prior to the 9th century tend to be fronted only by the projecting *kapilī* (vestibule) leading to the sanctum, those built from the 9th century onwards are preceded by simple, open front porches rather than large entrance halls, and very few are surrounded by a walkway, covered or otherwise. The spires of the Mahādēva temple at Batesara (775 – 800AD) and the Śāntinātha Temple at Deogarh (c 800AD) both rise above the flat roofs of a broader structure, creating a covered circumambulatory passage around them, but the Mahādēva temple's outer casing is acknowledged as a later addition, accounting for its somewhat ungainly appearance, and possibly the same is true of the Śāntinātha temple. Maybe Central Indian Latina temples were not designed originally as *sāndhāra*. The Gaḍarmal Temple at Badoh (825-850AD) has the remains of an open *maṇḍapa* however, although its spire is ruined and has been reassembled in a haphazard way, its plan and temple body suggest that it was an unusual Latina temple with two *latā* projections coursing down the front face and back of its *śikhara*, in the manner of the Jarāi-kā-maṭh temple at Barwasagar (c 900AD). The Mālādēvi Temple at Gyaspur (850-875AD) is *sāndhāra* and has a closed *maṇḍapa*, but it is not strictly a Latina temple: its central Latina-style spire is edged by *kūṭastambhas* topped by Latina spires, indicating that it is an example of an experimental move away from the solidity of the Latina, trying out the types of manoeuvres that eventually led to the creation of the Śēkharī temple. Interestingly, the remains from Temple 45 show that it also had an open *maṇḍapa* complete with benches set around its interior in the manner of the Gaḍarmal temple (Appendix pp.78 – 83).

From about the middle of the 9th century onwards Central India sees a variety of innovative temple forms being designed and, as a part of this, new temple plans being created, as

shown in the ‘split-Latina’ temples from Badoh Pathari (825 – 850 AD) and Barwasagar (c 900AD), the unusual Latina temple with its four entrances and porches at Banpur (900 – 925 AD), and the mutated, no-longer-Latina temples such as the Mālādēvi temple and three-Latina Bājṛā Maṭh Temple (10th century) at Gyaraspur (Figure 61).

Latina plan proportions

There are important precursors to the laying of a temple’s plan such as choosing an auspicious temple site and date of inauguration, and carrying out ritual procedures to sanctify the ground before its construction. The orientation of the plan is established using the path of the sun across the earth and a device called the gnomon, a small stick that is staked vertically into the ground, around which is drawn a circle using a length of rope tied to it. As morning breaks and the sun rises, the long, dawn shadow of the stick gradually shortens and crosses the circumference of the circle, and later, as the afternoon turns to evening, the shadow lengthens and crosses over the opposite side of the circumference. Connecting the two points at which the shadow touched the circumference give an East – West axis according to which the temple plan can be arranged. The door to the sanctum usually faces towards the East so that the inner deity may be bathed in morning light, although temples may also face West (see Terahi Śiva Temple, Figure 16c, and Naresar Durgā Temple, Figure 17b). Temple 45 faces towards the Great Stupa, the sacred centre of Sanchi hill, which is to its North West. Not only does the ‘stick and circle’ method determine the cardinal directions, but it may also have a practical function in creating the shapes of the plans. Adam Hardy has shown the wealth of geometrical permutations enabled by the ‘compass’ function of the gnomon, from simple orthogonal Latina temple plans to the great stellate sunbursts of later temple types.⁴⁷

Latina temple plans are simpler than fractured and more dramatic Śēkharī and Bhūmija temple plans, however the systems of proportions that create them are not uniform. Influenced by the work of Stella Kramrisch, several of Michael Meister’s articles, written in the late 70’s and 80’s, are intent on discovering ubiquitous rules of proportion that apply to Latina temple design. Meister often focusses on temple plans in this respect, and pushes the practical role that a *Vāstupuruṣamaṇḍala* referenced in the *Bṛhat Saṃhitā* has in the proportioning them. In ‘*Maṇḍala* and Practice in Nāgara Architecture in North India’, for example, Meister states that ‘The almost universally appropriate plan for the Hindu temple

⁴⁷ Adam Hardy, *Temple Architecture*, Chapter 12.

from the fifth through the tenth century AD was a basic square, a door on one side leading to a square sanctum within, and one or more projecting planes on the other sides.⁴⁸ The square plan with a square sanctum is neither ‘universal’ nor ‘almost universal’ for all Hindu temples across North India from the 5th – 10th century. Breaking his (almost) categorical rules in Central India are the Telikamandir Temple at Gwalior (c 750 AD), the Śiva Temple at Indor (c 750), the Chamunda Temple at Mahua (800AD), the Śiva Temple at Terahi (c 800 – 25 AD), the Gaḍarmal Temple at Badoh (825 – 800 AD), the Jarāi-kā-maṭh Temple at Barwasagar (c 900 AD), Temple 2 from the Kadwaha Kirnivala Group (10th Century and the Bājra Maṭh Temple at Gyaraspur (10th C), and more besides.

Vāstupuruṣamaṇḍalas are square, sacred diagrams (*maṇḍalas*) that Kramrisch has suggested were used in the construction of Vedic altars, symbolising and enacting through ritual the pinning of a cosmic demon to earth at specific bodily junctures, translating these points into the geometric form of the *maṇḍala*. Both Kramrisch and Meister have argued that this *maṇḍala* was instrumental in generating multiple aspects of plans’ forms, although Kramrisch is more flexible in her understanding and recognises its practical limitations, stating ‘When the great temples were built, after the ninth century, which still stand, the drawing of the *Vāstupuruṣamaṇḍala* had become an architectural rite without necessarily coinciding with the laying out of the ground plan of the *Prāsāda*.’⁴⁹ Several of Meister’s publications, on the other hand, try to prove the practical efficacy of an 8x8 *Vāstupuruṣamaṇḍala* from the *Bṛhat Samhitā*, an early *vastuśāstra* from the 6th century AD. This grid supposedly determined the thickness of the temple’s walls in relation to the sanctum, the width of the latter being half that of the former, and proportioned the projections on the outer faces of the walls such that the width of the projections from *karna* to *karna* are 2:1:2:1:2. . Meister argues:

Throughout [Indian temple architectural history], the ritual grid continued to act as the architect’s tool, sanctifying by its use the monuments the architect created. As a tool, its application to increasingly complex structures ... required a flexible and probably increasingly secret application of the grid’s ritually vital proportions.⁵⁰

The 2:1:2:1:2 proportions for temples’ outer projections does hold for a number of North Indian *dvi-aṅga* temples with the smaller projections stepping out from their *bhadras*, as

⁴⁸ Michael Meister, ‘*Maṇḍala* and Practice’, p. 205.

⁴⁹ Stella Kramrisch, p.228.

⁵⁰ Michael Meister, ‘Measurement and Proportion in Hindu Temple Architecture’, p.253.

discussed above, however, firstly, there is no guarantee that these proportions were created under the orders of the *Brhat Samhitā vāstumāṇḍala*, and secondly, there seems no logic in trying to apply it to all the other North Indian temples whose outer proportions clearly do not obey this system of proportions. Furthermore, few North Indian temples follow the same rule regarding how the width of the walls relate to the width of the *garbhagrha*, let alone the 1:2 proportion of the wall width : sanctum width. The Mahua Śiva Temple is fairly neat, with a square sanctum and half the sanctum width leading to the outer edge of the wall, rather than any part of the *vēḍibandha* (Figure 16a). In the Durgā Temple at Naresar half the sanctum width reaches partway along the side wall of the *bhadra*'s niche (Figure 17b). In the Batesara Mahādēva Temple plan it is unclear if the sanctum is square, and the half sanctum width leads to the edge of the *bhadra*'s *vēḍibandha* (Figure 16b), as is the case in the later Jarāi-kā-maṭh from Barwasagar. At Umri half the sanctum width leads to the end of the *pīṭha* (Figure 17a). In Batesara Temple No. 4, the Śiva Temple at Terahi (Figure 16c) and the temple from Kadwaha the walls are much thinner than the half sanctum dimension, and the sanctums of the latter two temples are not square.

Meister twists and turns the shapes and rules of application of the *Vāstupuruṣamaṇḍala* to try to fit it to his selection of central Indian temples until it loses its power as a normative model, and when a temple plan does not fit with the *maṇḍala* he asserts that the architects are simply interpreting the *maṇḍala* in different ways. Fundamentally there is no positive proof that these shadowy ancient architects used this *maṇḍala* as a practical grid at all, particularly when it does not cleanly relate to temple plans, as explored by Sonit Bafna in his article 'On the Idea of the *Maṇḍala* as a Governing Device in Indian Architectural Tradition.'⁵¹

The *vastuśāstras* and their role in Indian temple design are explored more fully in the next chapter with particular reference to Latina spires. The number of different proportions given in the *vastuśāstras* for determining the dimensions of temples' *vēḍibandhas*, and the variety and innovation shown in the plans of extant Latina temples, ward against seeking firm and overarching rules or a ubiquitous application of one *śāstric* prescription in temple plan design.

⁵¹ Sonit Bafna, 'On the Idea of the *Maṇḍala* as a Governing Device in Indian Architectural Tradition.', *The Journal of the Society of Architectural Historians* 59:1 (March 2000), pp. 26 – 49.

Basal mouldings, wall and cornice

Vēdibandha

Vēdibandhas are temples' basal mouldings, made up of selections of piled courses. Like the *varaṇḍikā*, the stripes of the horizontal mouldings break up and lighten the solid, projecting blocks that make up the core shape of the temple, an impression that continues up into the *śikhara* as the *latā*, *pratilatā* and *karṇa*'s eaves score horizontal lines across their downwards, curving trajectories. Discussing Nāgara temple mouldings Hardy comments 'Like Hindu deities or notes on a scale, they are significant entities and come in sequences'.⁵² The basic format for the *vēdibandhas* of North Indian temples was established as early as the end of the 5th century – beginning of the 6th century AD, prior to the development of the Latina form proper, as evidenced by Gupta period temples such as the Śiva temples at Bhumara and Sakor in present day Madhya Pradesh (5th century AD). The first known Latina temple, the late 7th century Śiva temple at Mahua, has a fully developed Nāgara *vēdibandhas*.



Figure 18: Vēdibandhas from a) Batesara (775 – 800 AD) b) Śiva Temple, Mahua (c 675AD), c) Śiva Temple, Terahi (800 – 825 AD).

⁵² Adam Hardy, *Temple Architecture*, p. 144.

Vēdibandhas from Central India do not change dramatically from the 5th – 10th century. They usually follow a basic formula of three mouldings: (from the bottom up) first a *kumbha*, meaning ‘pot’ or ‘vase’ acting as the foot moulding, curving over and flaring at the bottom, then a *kalaśa*, the rounded ‘pot’ moulding, and finally a *kapotālī*, a double-curved eave moulding usually decorated by intermittent, small *gavākṣa* motifs. This is often made into a foursome with a *khura*, a plain moulding added beneath the *khumba* (Figure 18a). Frequently this basic sequence was enlivened by substituting the parts of the *kalaśa* that coincide with either the *pratiratha* or the *bhadra* with *tulā* (joist ends) bearing *kīrttimukhas* or lotus motifs (Figure 18a & b). From 825 AD onwards they begin to boast little niches topped with ornate *gavākṣa* pediments (*udgama*), housing playful *mithuna* figures, gods or demigods. The *vēdibandha* may be raised up on a *pīṭha* or pedestal which, in its simplest form, is a plain slab of stone (Figure 19).



Figure 19: *Vēdibandhas* from a) Sūrya Temple, Umri (825 – 850 AD), b) Sūrya Temple, Madhkedha (850 – 875 AD).

This *vēdibandha* format was also followed in Western India during the 8th – 9th centuries but with additional decorative recesses sometimes inserted underneath the crowning *kapotālī*. From the 10th century onwards, when Śēkharī temples began to take precedence over Latinas, *pīṭhas* in Western India become elaborate pilings of successive, florid mouldings, with a casts of *apsarās*, say, cavorting above a line of trumpeting elephants, raised above *kīrttimukha* faces, supported by stacked courses. The combined base is busier and higher, compressing the *khura-khumba-kalaśa* into tighter, pointier versions of their early forms. This development in Western India has an impact upon Central Indian temple design, and the *jagatīs* from Śēkharī, Bhūmija and later Latina temples of this era become much more elaborate and ambitious, incorporating a slightly different set of motifs with a more ‘linear’ or minimal feel than the exuberant Western temples, lifting the temple high off the ground (Figure 20).



b)

Figure 20: Vēdibandha with elaborate jagatī, Ādinātha Temple, Khajuraho (11th century AD)
(Photograph courtesy Alice Buckee).

Jaṅghā

Above the *vēdibandha*, stepping back slightly, is the temple's wall frieze or *jaṅghā*. The majority of Central Indian Latina temples are *nirandhāra*, meaning that they do not have a covered circumambulatory passage around the inner sanctum,⁵³ therefore the outer walls of the *garbhagrha* are also the outer walls of the temple. The inner sides of the *jaṅghā* demarcate the simple dark cubical in which the deity resides, and the outer walls push out in stepped offsets or articulated projections. The deity's power radiates outwards in the cardinal directions, and through the external sides of the *bhadra* walls emerge shrines in which the deity appears in different forms, or is represented through his or her family members, making themselves manifest and multiple for the sake of their devotees. Beside these central shrines appear lesser shrines, with *Dikpālas* gracing the *karṇas*, and in later temples, minor deities and celestial beings appearing on the *pratirathas* and in the recesses of the walls. The positioning of the gods and their entourages on the walls is a matter of careful iconographic arrangement that, like the size and treatment of the shrine, depends on the position of the occupant in the celestial hierarchy and their relationship to the central deity. The niches rest on or just above the *vēdibandha*.

⁵³ In the earlier section on plans it was argued that perhaps Central Indian Latina temples were not originally designed with a circumambulatory passage, and these were later additions in the few examples of *sāndhāra* Latina temples that remain.

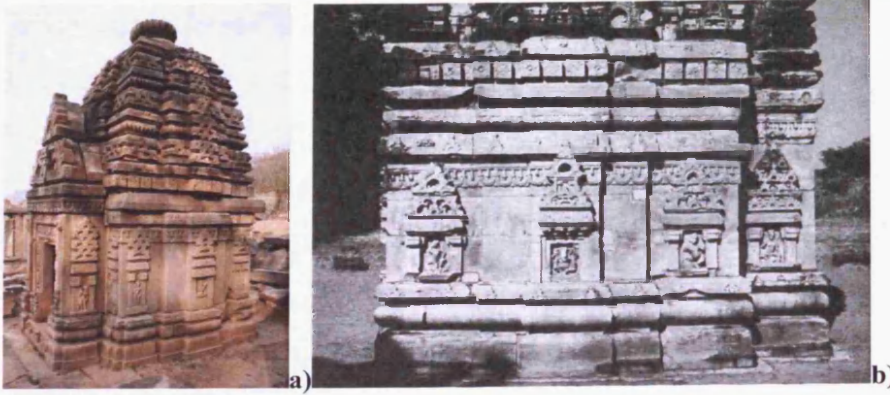


Figure 21: a) Batesara (775 – 800 AD), b) Rāmēśvara Temple, Amrol (c. 750 AD) (Photograph courtesy A.I.I.S.)

The simple, stepped outer walls of Latina temples before 800 AD are conducive to their simple ornament (Figure 21). The walls are made of plain, smooth masonry, and a simple looped garland with a small bell, tassel or occasionally a flower hanging in the centre of each curve, a *kiṅkiṇikājāla*, adorns the top of the *jaṅghā* just beneath the *varaṇḍikā*. During this period shrines typically emerge from the *karṇa*, *bhadra* and *kapilī* walls, although occasionally they appear only on the *bhadra* and *kapilī* projections. The shrines themselves are fairly Spartan and are ‘stuck on’ to the temple *jaṅghā* rather than being set back into the temple walls. The sides of the shrines are formed by plain, *rucaka* (square-shaped) pillars, with plain *kapotālīs* at their top and base. Sometimes the *bhadra*’s shrines’ pillars are topped by two *kapotālī*, and the lower eave may be replaced by a row of joist ends. Crowning the top *kapotālīs* are pediments of interlinked *gavākṣas*. The *udgamas* climb up high enough to cross the looped garlands at the top of the wall, and on occasion the tip of the *bhadra* shrine’s pediment overlaps with the base of the *varaṇḍikā* (Figure 21b).

From 800-825 AD, as indicated by the changes in plans discussed previously, Latina temples’ walls emerge from the temple body and step outwards into fully articulated projections (Figure 22a). These more fractured, multi-faceted walls open up new areas for heavenly occupation and instigate renewed, more complex approaches to the way the shrines, walls and projections are treated, these now involving a wider range of architectural motifs. At about this time the *pratirathas* also come to be treated as pillars, sometimes with a shrine bursting out from them. The *bhadra* and *kapilī* shrines, and sometimes the *karṇa* shrines too, are now protected from the sun by a ribbed awning, a *chāḍya*, projecting out from under the *kapotālī*. Occasionally square shrine pillars are still used, particularly for the lesser wall shrines on the *karṇa*, however they are not all as plain as their earlier

incarnations, decorated with lotus patterns and overflowing vase motifs. More popular than these are the cylindrical pillars that appear in Central India at about this time, perhaps showing the increased Western Indian influence instigated by the Gurjara-Pratihara's territorial expansion to Central India. The loops of the *kin̐kin̐kājāla* still adorn the top of the *jaṅghā* walls however they are obscured by the crowded towers of woven *gavākṣas* that top the shrines on all facets of the wall.



Figure 22: a) Śiva Temple, Terahi (800 – 825 AD), b) Sūrya Temple, Madhkheda (850 – 875 AD).

From the second half of the 9th century onwards wall shrines become increasingly complex and gain a certain autonomy from the main temple (Figure 22b and Figure 23a). The square side pillars are fronted by cylindrical pillars on either side of which *vyālas* curve and twist, and the entrance to the primary wall shrines are treated like miniature *garbhagrha* doorways complete with decorative door-bands, *śākhās*, diminutive little river goddess figures, and doorsteps decorated by lions and a lotus plants. The ribbed awning may form the roof of a miniature porch, fronted by square pillars carved with vase-and-foliage motifs, *ghaṭapallavas*, and *kīrttimukha* faces. It seems almost as if these little temples are straining to be free from their parent body. At the Sūrya Temple at Madhkheda the *bhadra* shrines' pediments, although straight rather than curved, are made up of the elements of a little *dvi-aṅga* Latina *śikhara*, with a tall, slim *latā* and a *karṇa* of piled *karṇakūṭas*, the whole spire crossing up over the *varaṇḍikā* and into the *śikhara* proper, topped by a large *gavākṣa* (Figure 22b). At Barwasagar, secondary shrines appear above the awnings of the primary shrine in its '*śikhara*' (Figure 23a). At this point, in keeping with the increasingly complex surface, the *kin̐kin̐kājālas* become split because of the projecting facets of the walls, the pattern sometimes becoming more complicated with two overlaid *kin̐kin̐kājālas* intersecting each other.

As the central shrines become more grandiose, the smaller shrines become more prolific along the temple walls. Narrow shrines emerge from the *pratibhadra* and from the recesses between the walls' projections, their tall, thin *udgamas* filling up the space above them. Little aedicules press out from the *vēdībandha*, as discussed above. By about the 10th century in Central India, temple walls becoming increasingly crowded as celestial nymphs, *apsarās* and *vyālas* forgo the need for a shrine, and twist and preen in every nook and cranny of available wall space (Figure 23b).



Figure 23: a) Sūrya Temple, Madhkedha (850 – 875 AD), b) Ādinātha Temple, Khajuraho (11th century AD) (Photograph courtesy Alice Buckee).

Varaṇḍikā

Varaṇḍikā mouldings (cornice mouldings) separate the *jaṅghā* from the *śikhara*. They are usually made of three mouldings, although this number may go up to six. The top and bottom of these are carved as fairly plain eaves or *kapotālīs* decorated by little *gavākṣa* motifs. The top eave of the *varaṇḍikā* underscores the *śikhara* and acts as the base eave of its initial *karṇakūṭas*, therefore, when discussing the design of the *śikhara*, there is perhaps some question as to whether it should be incorporated into the *śikhara*'s curves. The *varaṇḍikā* follows the plan of the *vēdībandha* beneath it even as 7th – 8th century *śikhara* plans deviate from that of the *vēdībandha* in order to incorporate their recesses with *bālapañjaras* between the two sets of *vēṇukōśa*. The *varaṇḍikā* cuts straight across the *salilāntaras*, just as the base eaves of the *karṇa kūṭas* above them also do at this stage, creating the platform on which the first *bālapañjara* stands.

Varaṇḍikās from temples built before the 8th century are made from courses that are bigger and heavier than later versions, acting as a more dominant part of the overall temple form. In Gupta temples the top and bottom eaves of the *varaṇḍikā* are divided by recesses which

provide space for the accommodation of more of India's heavenly cast. The lively characters are either present within these recesses – see for example the ruined Devri temple at Marhia (late 5th century AD) in which cheerful *mithuna* couples occupy little square compartments that alternate with square panels containing *makaras* with swirling tails and grimacing *kīrttimukhas* (Figure 24a); or they are awaited, see the Viṣṇu Temple at Deogarh in which little arched doorways between colonnades await the arrival of their occupants (Figure 24b). Following on from this tradition, the *varaṇḍikā* from earliest Latina temple at Mahua (7th century) is carved like a colonnade made up of a succession of *rucaka* (square-type) pillars that hold the upper and lower *kapotālīs* apart, and between them, in their recesses, press little arched doorways in the manner of the Deogarh temple (Figure 24d).

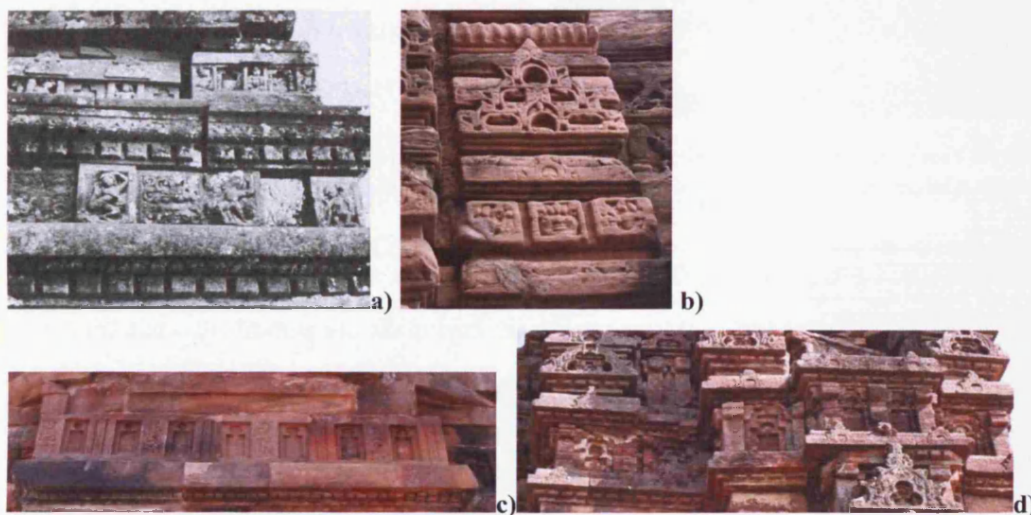


Figure 24: a) Vāmana Temple, Marhia (5th century AD) (Photograph courtesy A.I.I.S) b) Chaturbhuja Temple, Gwalior (c. 875 AD), c) Viṣṇu Temple, Deogarh (c. 500 AD), d) Śiva Temple, Mahua (c. 675 AD).

From the beginning of the 8th century the colonnades disappear from most *varaṇḍikās*, and a typical pattern emerges of *kapotālī-tulā-kapotālī*: an eave topped by a row of joist ends, decorated by *kīrttimukha* faces or lotus flowers, topped by another eave (Figure 24c, Figure 15b - d). At this point the eaves and *tulās* are still quite chunky, in keeping with the blockish feel of the relatively short, stocky temples from this era. Additional eaves and courses may be added to the basic *kapotālī-tulā-kapotālī* set of three, see for example Temple 20 at Naresar and the Amrol temple at Rāmēśvara. From 775 AD onwards the eave-*tulā*-eave pattern becomes more formalised and slimmer as, at the same time, the *śikhara*'s *bhūmis* and eaves multiply and become squashed down and thinner. By the second half of the 9th century Latina *varaṇḍikās* begin to incorporate chequered recessed panels into their *kapotālī*

and *tulā* patterns (Figure 25). Small shrines and their celestial occupants sometimes stand out from the *varaṇḍikā* path (Figure 25b).

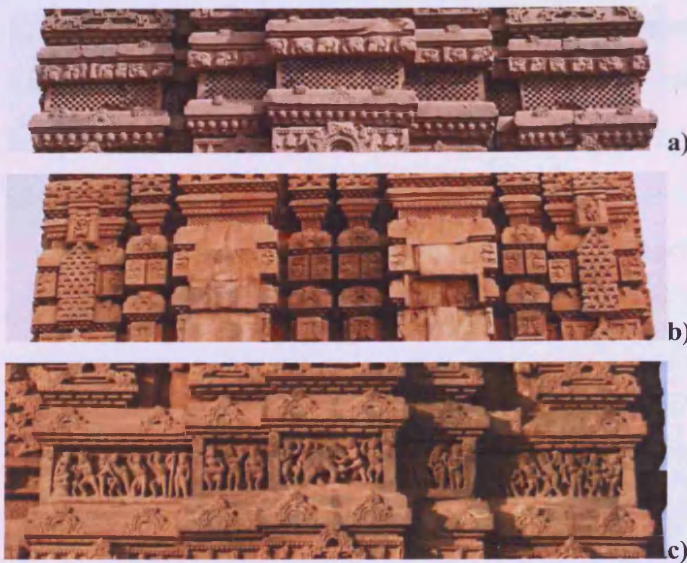


Figure 25: a) Sūrya Temple, Umri (825 – 850 AD), b) Jarāi-kā-maṭh, Barwasagar, (c. 900 AD), c) Harihara 2 Temple, Osian (750-775 AD) (Photograph courtesy Adam Hardy).

Like their *vēḍibandhas*, Latina *varaṇḍikās* from Western India are more lively and decorative than those of Central India. Their two basic *kapotālīs* are parted by wide recesses occupied perhaps by checks, geometric pyramidal patterns, foliate/aquatic swirls and roundels, celestial sprites dancing, or *Kṛṣṇalīlā* scenes (scenes from *Kṛṣṇa*'s life), as seen at the Harihara Temples at Osian (Figure 25c). From the 10th century onwards when Śēkharī temples predominate in Northern India, as was the case for their *vēḍibandhas*, *varaṇḍikās* begin to resemble their Western Indian counterparts and incorporate decorated recesses with patterns, *Kṛṣṇalīlā* scenes or frolicking figures. The arrival of this happy troop of characters coincides with the explosion of deities, demi-gods and celestial maidens on 10th century Latina walls.

The Latina Śikhara

An Indian temple's *śikhara* is perhaps its architectural pièce de résistance, evoking at once awe at its sky-reaching monumentality and grandeur, and delight in the beauty of the busy detail in which it is realised. Its other-worldly peaks are visible from a distance, reaching high above the roof tops and looking out over the mundane hustle of farmlands, villages and towns, a pinnacle of sanctity imbued with multiple symbolic meanings. The eyes are drawn

up the spire and beyond to the ineffable Absolute to which it points, and inversely the temple makes itself manifest downwards and outwards into the world of name and form. Therefore whilst it is easy to talk of the spire curving skywards, following the trajectory of one's glance (as is done frequently in this thesis), it should be noted that conceptually it appears and grows in the opposite direction.

The graceful Latina curve dominated the North Indian religious landscape from the 8th – 10th century AD. Earlier in this chapter the aedicular components that make up the Latina *śikhara* and Adam Hardy's explanation of the developmental principles that engendered it were discussed. This urge to expand and proliferate through the incorporation of new aedicules and the 'piling up' of old ones also helps explain how its early forms develop and become more complex over the centuries. The development of Central Indian Latina spires will be discussed here along with the *grīva*, *āmalaka* and *kalaśa* combinations that crown them. Following this, the origination, different styles and combinations of the *gavākṣas* that are an integral part of their spire's make up will be considered, complementing and augmenting the discussion of the Latina spire's development. How these spires were designed is the subject matter of Chapter 3.

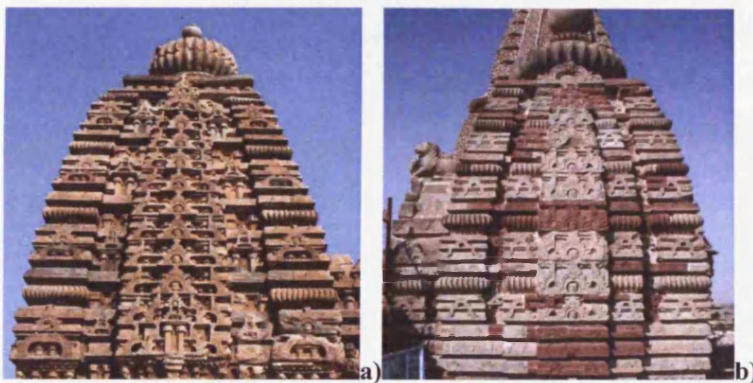


Figure 26: a) Galaganātha Temple, Pattadakal, Karnataka (685 – 696 AD), b) Sūrya Temple 1, Osian, Rajasthan (late 7th – early 8th century AD) (Both photographs courtesy Adam Hardy)

The earliest surviving Central Indian temple, the Śiva Temple at Mahua (c. 675 – 700 AD) was preceded by 7th century Latina temples from Saurashtra, Western India and Karnataka. Those from Western Indian and Karnataka are often particularly charming, with cheerful celestial occupants peering out from the *latās* 'gavākṣas' (Figure 26). That these regions of North India and the Deccan were aware of different temple architectural types being built across India is clear from references to both Southern and Northern temple forms in the

more expansive *Vastuśāstras* such as the *Samarāṅgaṇa Sūtradhāra*, and, as highlighted by Dhaky,⁵⁴ relief carvings of a variety of temple forms on the walls of Karnataka temples. Allowing for regional variations of form and style, that these regions shared ‘mainstream’ Nagara temple types and the commonalities of design practice that this entailed is clear from the shapes of the temple spires. The expansion of the Pratihāra dynasty from West to Central India at the beginning of the 9th century made this connection particularly close, as shown by significant points in the development of Central Indian Latina temples where the aesthetic changes slightly and displays Western Indian influence.

The developing form of the Latina *śikhara*



Figure 27 a) The *śikhara* from the Śiva temple at Mahua (c. 675 AD) b) a close up of the double *vṛṇukōśa* from the spire and the Valabhī topped colonnades that press from the recesses in between them.

Joining the Śiva temple at Mahua (c. 675 AD) (Figure 27 & Figure 15a) as the earliest surviving Latina temples from Central India are the collection of temples at Naresar (700 – 725 AD, Figure 28a), the Rāmēśvara Temple at Amrol (700 – 725 AD, Figure 28b), and the Dānēbābā Temple, also from Amrol (c. 750 AD). In viewing these early temples, particularly the temple at Mahua, it is useful to bear in mind the multi-aedicular piling of Hardy’s hypothetical missing link between pre-Latina, Gupta superstructures and the matured Latina form shown in Figure 12a. Early Central Indian Latina temples are just a few leaps further along the ‘evolutionary’ path than this hypothetical spire, the individual eaves and aedicular units that make up their spires are more smoothly combined and create

⁵⁴ M A Dhaky, *The Indian Temple Forms in Karnata Inscriptions and Architecture* (Delhi: 1977).

curved spires, but the constituent aedicules still maintain a chunky, boxy autonomy that is lost in later Latina spires as they gain more *bhūmis*, more eaves and more *gavākṣas*.

Latina spires from the 7th to the mid – 8th century AD tend to be just three or four *bhūmis* high. As the eaves of the *karṇakūṭas* are thick and heavy, and the *āmalakas* that crown them are fat and inflated, their sizes combine into sizable *karṇa kūṭas* that lend the spire enough height to achieve a graceful Latina curve. From the middle eaves of the *karṇakūṭas* press large, clearly defined *gavākṣas*, occasionally singular but usually following a whole-over-two-halves format that harks back to the trilobate facades of the caves with barrel roofs and aisles in Maharashtra and their three-dimensional Valabhī cousins. At the Śiva temple at Mahua this reference is made more explicit and the cavernous depths of the *karṇakūṭa gavākṣas* are implied by the inclusion of little pillared collonades between the two lower *gavākṣa* halves (Figure 27 b).

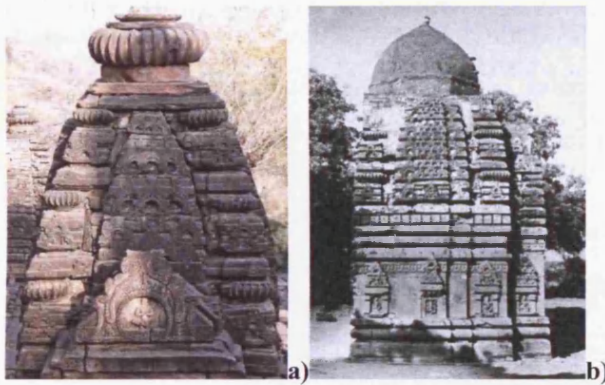


Figure 28 a) Krakōtakēśvara Temple, Naresar (700 – 25 AD) (Photograph courtesy Doria Tichit) , b) Rāmēśvara Temple, Amrol (c 750 AD) (Photograph courtesy A.I.I.S.).

In early *tri-aṅga* temples the *śikhara*'s second projections are usually made up of another pile of little *āmalaka* shrines similar in form to the *karṇakūṭas* known as the temple's 'second *vēṇukōśa*'. The eaves and *āmalakas* of these shrines are the same height as the outer *vēṇukōśa* but they are usually slimmer and the *gavākṣa* patterns they bear may be simpler. Before the 9th century the spire's inner and outer *vēṇukōśa* (or, in the case of a *dvi-aṅga* temple, the spire's outer *vēṇukōśa* and *latā*) are separated by wide recesses or *salilāntaras*. The *karṇakūṭas*' base eaves tend to cut straight across this recess and meet the second *vēṇukōśa* or *latā*, acting as the floor-levels for each new *bhumi* or storey, the *varaṇḍikā* underscoring the entire spire and acting as the first of these. Standing on these base eaves are the little *āmalaka* shrines that make up the *karṇa kūṭas*, and also, in the recesses, little

Valabhī shrines or *bālapañjaras*, standing as tall as the *karṇakūṭa*'s capping *āmalaka* beside them, the foundational eave of the next storey resting just above their heads (Figure 27b). A Latina spire and *varaṇḍikā*'s plan are closely related to that of the temple's *vēdībāndha* beneath it, visually grounding the spire's soaring curves and anchoring them to the solidity of the temple body. During this early period, however, the *śikhara*'s *karṇa* stops short of the *vēdībāndha*'s *karṇa* to leave room for the *salilāntara*, and following this little recess the second *vēṇukōśa* or *pratilatā* steps out again in unison with the *vēdībāndha*'s *pratiratha*.

There are exceptions to the typical, pre-9th century double *venukosha* and *salilāntara* with *bālapañjara* Latina spire combinations. The Rameshvar Temple at Amrol, for example, a *tri-aṅga* Latina built in the early part of the 8th century, does not have a second *venukosha* but instead follows its spire's *karṇakūṭas* and recess with piled courses of large 2/3 *gavākṣas*, each straddling two fat eaves; neither a *vēṇukōśa* nor quite the knitted *gavākṣas* of a 9th century *pratilatā*. The Rāmēśvara Temple also shows another innovative spire addition in the form of a little combination shrine of a central Valabhī façade flanked by two side *āmalakas* placed above the *varaṇḍikā* and forestalling the *latā* piling that continues above it (Figure 28b).

Like the *karṇakūṭas*, the base structure of the *latā* is also more clearly defined in these early Latina *śikharas*. The substratum of eaves from which the *gavākṣas* press are much more hefty and visible, and the 'abbreviated Valabhīs' themselves are larger and come in less complex patterns. This simplicity and weightiness is particularly noticeable in the *latās* of the Naresar temples, their unconnected *gavākṣa* patterns in keeping with the short stockiness of the temples' overall forms.



Figure 29: Mahādēva Temple, Batesara (775 – 800 AD) (Photograph courtesy A.I.I.S).

Towards the end of the 8th century Latina spires begin to change, becoming elongated and busier as they follow the principle of ‘piling up’ and proliferation, their *vēṇukōśa* gaining more *bhūmis* and their *latās* more courses. Usually the format is the same as before, using double *vēṇukōśa* and recesses with *bālapañjaras*, but as the number of eaves and *karnakūṭas* involved increases, the individual elements become slimmer and more compact. The Mahādēva Temple has a pretty spire showing innovation and playful additions to the typical arrangement seen on other Batesara *śikharas* (Figure 29). It is five *bhūmis* (storeys), and the inner *vēṇukōśa* are taller and thinner than the outer *vēṇukōśa*, with a row of three *tulā* inserted beneath the base eave and middle *gavākṣa*-bearing eaves above it. The *latā* has changed from the simpler earlier forms and is becoming much more the creeper of little *gavākṣas* after which it was named, and the whole-over-two-halves format of the *karnakūṭas* *gavākṣas* has been given extra *gavākṣas*.

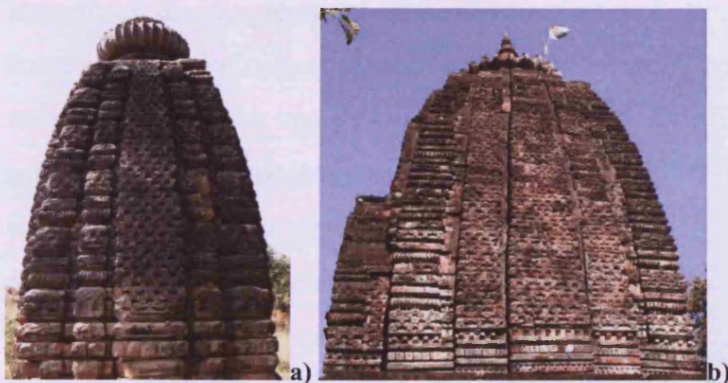


Figure 30: a) Śiva Temple, Terahi (800 – 825 AD), b) Śāntinātha Temple, Deogarh (775 – 800 AD).

The Śāntinātha temple at Deogarh (Figure 30b), the spire of which has been given what seems a rather early date of 775 – 800 AD, and the Śiva Temple at Terahi from 800 –

825AD (Figure 30a) are in some ways transitional to the 9th century temples that follow them, combining elements from the older style of Latina temple with more modern characteristics. The hapahazardly reconstructed *śikhara* of the Śāntinātha Temple has possibly nine *bhūmis* and has achieved a daunting height and breadth, and in conjunction with this the *karṇa kūṭa*'s eaves and *āmalaka* s have become squashed down and slimmer. The *śikhara*'s recesses with *bālapañjaras* still separate the *karṇas* from the spire's next projection, but the *karṇa kūṭas*' base eaves no longer continue across the indent, and the spire's second *vēṇukōśa* has been replaced with a *pratilatā* of piled eaves interlinked by a web of *gavākṣas*. The *latā* is made up of a piling of wide, slim foundational eaves from which press a wider tapestry of linked *gavākṣas*, the individual forms losing something of their original identity as they split and interconnect in the more complex pattern.

The Terahi Śiva Temple is a more diminutive *tri-aṅga* temple with a five *bhūmi* spire, and although allegedly later than the Śāntinātha temple some aspects of its spire are not that dissimilar to the Mahādēva Temple at Batesara: it still has a second *vēṇukōśa*, the spire's eaves, *karṇa āmalakas* and *gavākṣas* are if anything plumper and heavier than the Mahādēva Temple and their *latās* share the same *gavākṣa* pattern, and both of the Terahi temples' *vēṇukōśas* follow the same pattern as the Batesara temple's inner *vēṇukōśa*, with the minor addition of a diminutive diamond lotus between the lower half *gavākṣas*. Its spire breaks with the earlier Latina tradition by losing its inter-*vēṇukōśa* recesses and *bālapañjaras*, the spire's projections stepping out and becoming fully articulated, each separated by narrow, plain recesses of the same size.

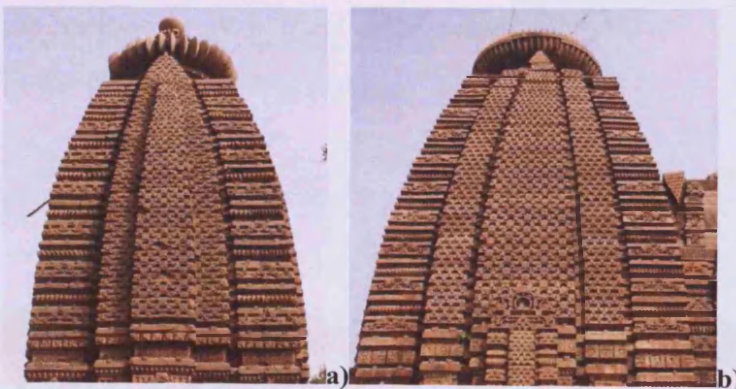


Figure 31: a) Sūrya Temple, Umri (825 – 50AD), b) Sūrya Temple, Madhkedha (c. 850).

From about 825 – 900 AD the Latina temple reaches its mature instantiation in Central India, the Sūrya temples at Umri (c. 825 – 850 AD) and Madhkedha (c. 850 AD) being fine

examples of this (Figure 31). The Latina spire at Umri is *dvi-aṅga* and seven *bhūmis* high, and the Madhkedha temple is *tri-aṅga* and nine *bhūmis* high. Their projections are now fully articulated, without *salilāntaras* and *bālapañjaras*, and with *gavākṣa*-laden *pratilatās* rather than *vēṇukōśa*. The eaves and *āmalakas* of the *karṇa kūṭas* have become wider and flatter, and the earlier ‘whole-over-two-halves’ *gavākṣa* format has become more elaborate. At Umri the basic *karṇa gavākṣa* format is given extra sets of half *gavākṣas* on either side of both the upper *gavākṣa* and the lower half-*gavākṣas* (Figure 32a). At Madhkedha, embellishing the whole-over-two-halves pattern seems to have been a particular work of love. The half *gavākṣas* are given beaded edges and they are separated by little pillars and arched doorways, indicative of their cave-temple roots, and pressing from this colonnaded stretch are little miniature versions of the whole-over-half shrine (Figure 32b).

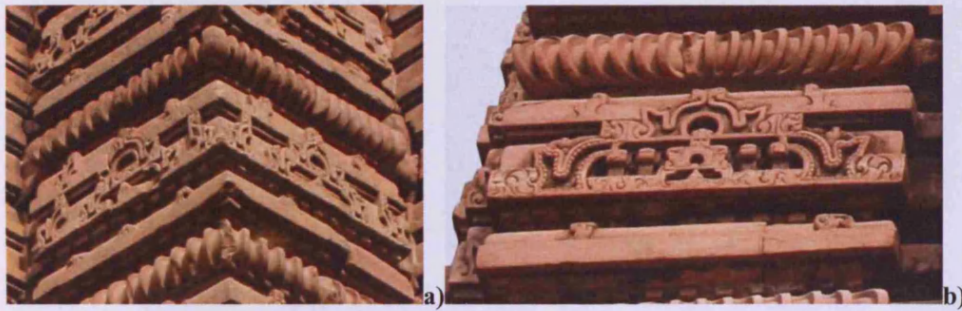


Figure 32:a) A *karṇa kūṭa* from Sūrya Temple, Umri b) a *karṇa kūṭa* from Sūrya Temple, Madhkedha.

By the 10th century, Latina spires have become taller and slimmer, and their *latās*’ *gavākṣas* have multiplied and thereby become smaller, and the range of acrobatics by which they can be innovatively combined has been exhausted, as will be discussed shortly. The directional linearity of the development of the Central Indian Latina spire described above, a gently transformative journey motivated by the underlying urge to expand and become more multi-aedicular, masks the innovation and architectural experimentation that was occurring at the same time. Alongside this steady architectural progression temples were being created that show the Latina spire straining to break out of its confines, transform itself into something new by becoming more aedicular in ways other than the addition of *karṇa kūṭas* to the *vēṇukōśa* and *gavākṣas* and caves to the *latās* and *pratilatās*. Whilst Temple 20 at Naresar is a diminutive, Latina-influenced version of a Valabhī Temple (700 – 725 AD) (, about 200 years later the Jarāi-kā-maṭh at Barwasagar seems to be a Valabhī-influenced version of a Latina temple (Figure 33b). The temple has a rectangular plan, and whilst the northern and southern facing *śikhara* faces look like confidently-worked c. 900 AD *tri-aṅga* Latina faces,

the eastern and western faces are made up of two *latā*, each flanked by a set of *pratilatā*, with the usual *karna kūṭas* at the spire's corners, the reconstructed eastern face showing the double *latā* poking out from behind the *śukanāsa* (Figure 33a). Analysing the remains of the Gaḍarmal Temple at Badoh Pathari (c. 850 AD) show that in all probability its *śikhara* would have followed a similar format to the Jarāi-kā-maṭh's spire. An even more energetic attempt to innovate and expand the Latina comes in the form of the Mālādēvi Temple at Gyarpur (850 – 875 AD), a *sāndhāra* temple with a dominant central Latina spire at the corners of four sets of two *kūṭa stambhas* with Latina superstructures step down (Figure 33b).

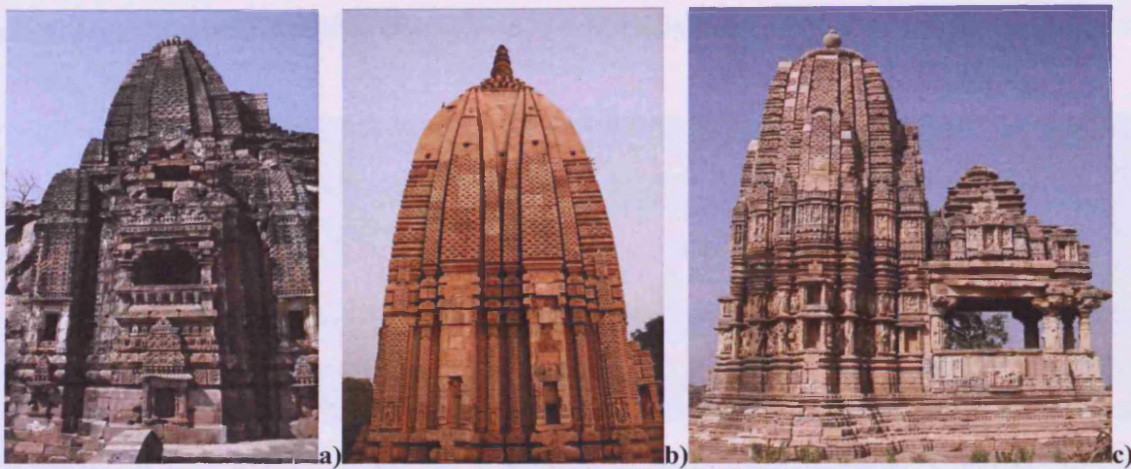


Figure 33: a) Mālādēvi Temple, Gyarpur (850 – 875 AD), b) Jarāi-kā-maṭh, Barwasagar (c. 900 AD), c) Śiva Temple, Kadmaha (late 10th century).

In response to the type of architectural experimentation shown at Gyarpur, the Śēkhārī temple is born, quickly overtaking its Latina parent form in terms of popularity (Figure 33c). In these temples the key module of proliferation are diminutive versions of the Latina spire itself, and as such attention and care to the play of *gavākṣas* on these little Latina's latas becomes of lesser concern. Latina spires continue to be built, but less enthusiasm is shown in the detail of their spires and their unfolding *gavākṣa* forms. Often the knitted *gavākṣas* from the *latās* and *pratilatās* of 10th century temples have lost the attention to detail and movement in the way that they are carved, and are no longer shown as properly autonomous from each other and their substratum of eaves, their forms simplified, melting together and sinking backwards. In some temples influence from western Indian Mahā-Gurjara temple styles can be felt, with the *latā*'s *gavākṣas* becoming stencilled outlines carved into the eaves behind them. By the 10th century, then, Latina spires have lost their

liveliness as they approach old age, and gently retire to a more secondary role as the youthful Śēkharī temple takes centre stage.

Skandha, grīva, āmalasāra, kalaśa

The trunk of a Latina spire is finished by a *skandha* or ‘shoulder’ course: a square slab of stone that acts, according to Kramrisch and Meister, as the temple’s ‘upper *vēdī*’.⁵⁵ The last of the *vēṇukōśa*’s *karna kūṭas* tend to end a little bit below the *skandha*, and a row of *tulā* often fills the gap between the two. Before the 9th century it seems that the *latās* from *dvi-āṅga* temples continue up and resolve in a point just below the *skandha*, and in *tri-āṅga* temples a wide whole-over-two-halves style *udgama* or large *gavākṣa* might straddle the tops of the second *vēṇukōśa* and *latā* creating a final peak (see the Mahādēva Temple at Batesara, Figure 29 and the Sūrya Temple I from Osian, Figure 26b). During the 9th century the *udgamas* that top the *latā* have become more substantial and elongated, sitting solidly on top of the *skandha* and reaching up to the base of the final *āmalaka*. By this time Latina temples’ second *vēṇukōśas* are replaced by *pratilatās*, and the Mālādēvi Temple at Gyarpur indicates that these may have been resolved in pointed *udgamas* alongside the *latās* (Figure 34).



Figure 34: a) *Latā udgama* from the Kirnivala Temple group in Kadwaha (10th century AD) b) *Latā* and *pratilatā* from Mālādēvi Temple, Gyarpur (850 – 875 AD) (Photograph courtesy Adam Hardy).

On top of the *skandha* sits the temple’s *grīva*, or ‘neck’, a short, wide cylinder, on which the pillowy, ribbed form of the temple’s final *āmalaka* (or *āmalasāra*) rests. These are capped by a disc with flared edges (*candrikā*) and sometimes topped by another smaller, flatter *āmalaka* (*āmalasāraka*) followed by a pot form or *kalaśa* and finial. This sequence of elements acts as the temple’s final crescendo, pointing off into the immensity of the heavens. Almost no complete sets of *grīva*, *āmalaka*, *kalaśa* and finial remain on Central Indian Latina temples from the 9th century and before, but as a general rule earlier

⁵⁵ Meister has stated that the *skandha*’s dimensions are always identical to those of the *garbhagrha*, underscoring its identity as a ‘sky altar’. This is disproven by the lack of uniformity in Latina *garbhagrha* sizes as discussed earlier in the chapter.

āmalasāras are slightly fatter and more inflated than later versions. The pot and finial that follow this allow for variations on the theme and can become quite elaborated successions of pieces, as demonstrated by the tip of the Jarāi-kā-maṭh Temple at Barwasagar's *śikhara* (c. 900 AD) (Figure 67).

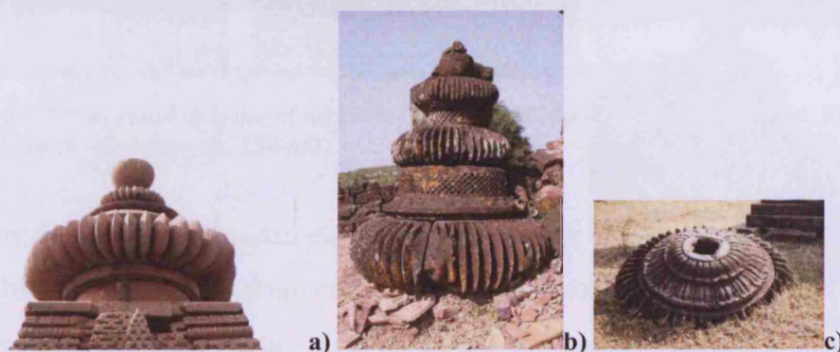


Figure 35 : a) Sūrya Temple, Umri (825 – 850 AD), b) a piled collection of *āmalasāra*, *āmalasāraka*, *grīva* and *kalaśa* from Viṣṇu Temple, Gyarspur (early 10th century) c) ornate *āmalasāra* from a Śiva Temple at Kadwaha (c 10th century AD).

Śukanāsa

A temple's fronton, set above the vestibule that leads to the temple's inner sanctum, is figuratively titled the *śukanāsa*, meaning 'nose' or 'parrots beak'. The *śukanāsa* with its *kapilī* base takes the form of a Valabhī shrine with a façade made up of *caitya* arches and a barrel roof leading backwards to meet the temple's main Latina *śikhara*.

The dimensions of a *śukanāsa*'s base are determined by the length and width of the outer walls of the temple's vestibule, its *kapilī*, and its height usually reaches between $\frac{1}{2}$ - $\frac{3}{4}$ of the way up the *śikhara*. The set of architectural elements used in *śukanāsas* accord with its Valabhī identity. In its simplest forms the *śukanāsa* may consist of just the shrine type's key elements and be made up of a single monumental *gavaskha* or Valabhī arch form (see for example the Krakōtakēśvara Temple at Naresar, 700 – 725 AD, Figure 36a) or perhaps be joined by half-*gavākṣa* 'side aisles' beneath the central *gavākṣa*, separated by rows of pilasters that imply the depth of the Valabhī temple's inner hall, with perhaps a smaller Valabhī shrine or set of proliferated *gavākṣas* pressing out between them (see Temple 3 at Batesara, 775 – 800 AD, Figure 36b). The central *caitya* arches in both simple and more elaborate *śukanāsa* forms are usually ornate and embellished. At the Sūrya temple at

Madhkedha, for example, the *gavākṣas* central cavity houses an image of Sūrya, but within the *gavākṣa*'s form are lotus flowers, sinuous *vyālas* with riders standing on elephants' backs, tiny monkeys and *apsarās*. *Apsarās* fly above the *gavākṣa*'s 'feet' and 'shoulders' (Appendix p.6), monkeys stand on its arms, kirtimukhas project from its shoulders, and a *kīrttimukha* takes the place of its top knot, surmounted by a roaring lion (Figure 38a).

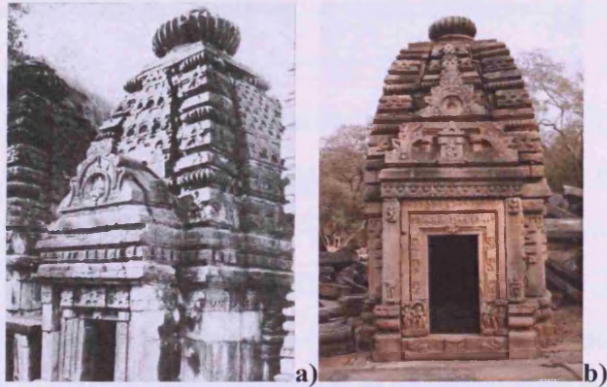


Figure 36: a) Krakōtakēśvara Temple, Naresar (700 – 725 AD), b) Temple No. 3, Batesara (775 – 800 AD).

In accordance with the mix of different shrine types involved in the multi-aedicular proliferation of shrine superstructures, Valabhī shrines become more complex and may begin to incorporate little '*āmalaka* shrines' into their spires as shown in relief carvings from the Gupta period (see Figure 37a). By the 8th century these *āmalaka* shrines have dropped down and sets of them are used to hold up the Valabhī temple's crowning *caitya* arches, as shown in the most famous of Valabhī temples, the Tēlī-kā-mandir at Gwalior (c. 750 AD, figure Figure 37b). This Valabhī trend translates to the fronton forms and *śukanāsas* crowning *caitya* arches are propped up at either end by *āmalaka* shrines, usually appearing in the same form as the *karṇa kūṭas* from the Latina spire behind it.

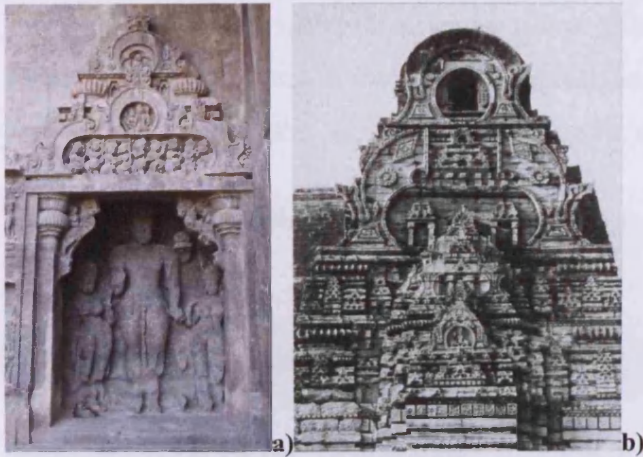


Figure 37: a) relief carving of an elaborate Valabhī shrine outside Cave 10, Ellora (c. 650 AD), b) Telī-kā-mandir, Gwalior, (c. 750 AD).

How these basic *śukanāsa* elements are realised, which other architectural elements are included, and how they are combined, is down to the ingenuity and taste of the architect, but in keeping with the Nāgara developmental disposition they tend to become more complicated over time. Beneath the large central *gavākṣas* smaller Valabhī shrines often push forward. Sometimes the proliferated Valabhī shrines appear in their most abstract and stylised forms as piled, interlaced *gavakashas* or *udgamas*, and sometimes their identity as inhabitable little temples is made explicit as the Valabhī shrines are given awnings, proper pillared doorways and are occupied by deities (Figure 38a). The sides of a temple's *śukanāsa* represent the barrel-sides of a Valabhī temple, supported by a base of *āmalaka* shrines and often with Valabhī shrines projecting out of their curved roofs (Figure 38b)

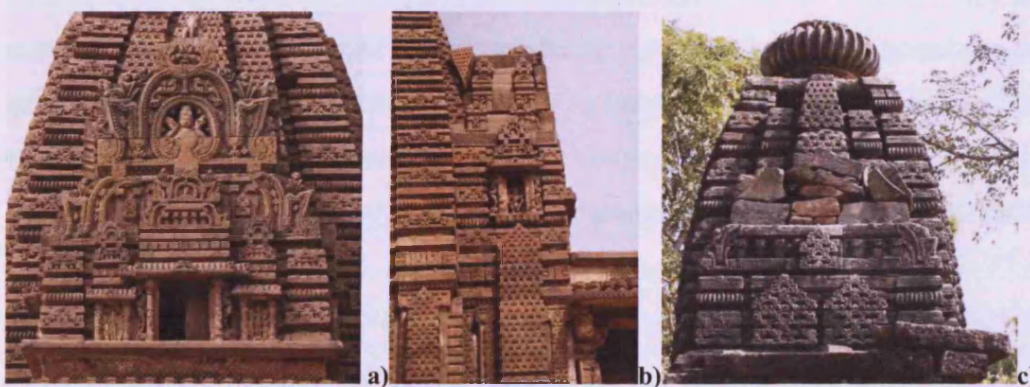


Figure 38: a) Sūrya Temple, Madhkedha (850 – 875 AD) b) side view of the *śukanāsa* from Sūrya Temple, Madhkedha c) Śiva Temple, Terahi (800 – 825 AD).

In the Latina temples that survive in Central India no two *śukanāsas* are alike. Because hardly any of these temples have *maṇḍapas* to distract from or obscure the *śukanāsa* it

stands out clearly in a proud, heraldic flourish, and it seems as if architects took pleasure in the freedom of expression that they had in its design.

Gavākṣas

Gavākṣas are described by Ananda Coomaraswamy as ‘One of the commonest and most distinctive motifs recognizable in Indian architecture from first to last’.⁵⁶ The term *gavākṣa* means literally ‘cow’s eye’.⁵⁷ These delightful little arched forms appear all over Indian temples and are an integral part of a *Latina*’s make up, punctuating *vēdībāndha* and *varaṇḍikā* eaves, interlinking to create wall and *vēdībāndha* shrines’ *udgama* pediments, forming the proud, monumental *śukanāsa*, clustering on the front of the spire’s *karṇa kūṭa* eaves and climbing enmeshed down its *latā* and *pratilatā*, giving the *latā* its name. In each of these contexts the *gavākṣas* act as Valabhi superstructures or dormer windows, more or less literally rendered.

Gavākṣas are much more than incidental surface ornament. Firstly, in terms of their style, *gavākṣas* act perhaps as a distillation of the regional aesthetic character of the temple as a whole. Discussing links between Central Indian and Mahā-Gurjara temples (Western Indian temples from the late 10th century onwards) Dhaky observes

In the rendering, the detailing, and the organization of the formal elements, and in the matter of applied decoration, a temple in the Māru-Gurjara style nevertheless shows its individuality without obscuring the generic ties it maintains with the contemporary styles of North India’.⁵⁸

Regarding the rendering, the detail and the applied decoration, the same is true of different styles of *gavākṣa*. Secondly, the permutations of their forms and the acrobatics they perform as they breed and multiply is a small-scale enactment of the type of developmental dynamic that propels the transformation of Nāgara temples on a larger scale:

In its role as an architectural component, the movement that it expresses, and the way in which the motifs and their combinations evolve, the *gavākṣa* is a kind of paradigm for Indian temple architecture as a whole: something of the totality can be sensed in through this little window’.⁵⁹

⁵⁶ Ananda Coomaraswamy, ‘Indian Architectural Terms’, *Journal of the America Oriental Society*, 48 1928, p 254.

⁵⁷ Depending on how, when, and in which architectural context the members of the family of forms that include *gavākṣas* are used - where on the spectrum of stylisation they appear from timber gable to interlinked *latās*’ *gavākṣas* – these related elements are variously termed, translated or envisaged as, *caitya* arches, *candraśālā* (dormer windows), ‘cow’s eyes’, sunray windows, ray-eyes and sun-arches, each name carrying with it a symbolic or functional resonance.

⁵⁸ M A Dhaky, ‘The Genesis and Development of Māru-Gurjara temple architecture’, pp. 127 – 128.

As such important parts of the Latina temple, it is worth spending time here to appreciate their origin, the styles in which they are realised, and the way they divide and interact.

The origin and development of the *gavākṣa*

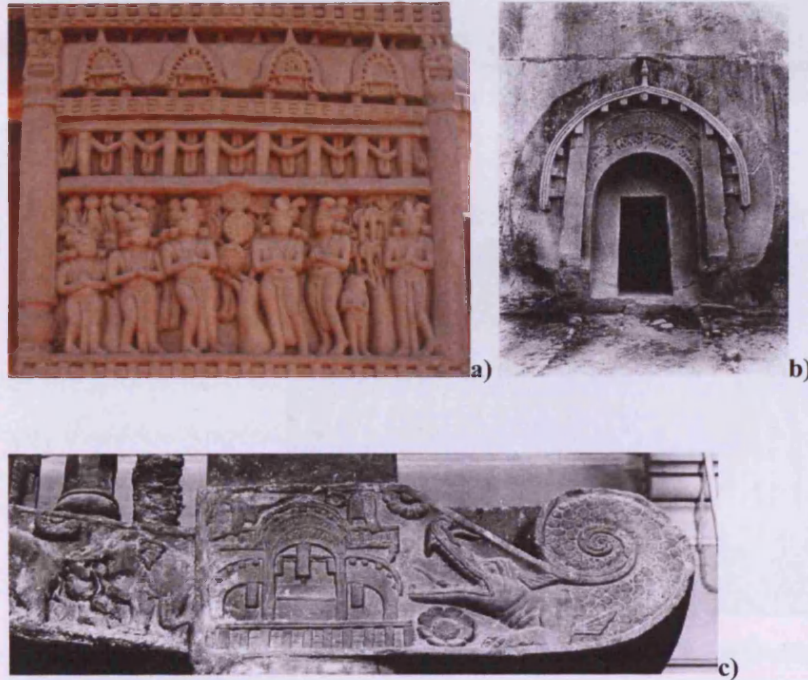


Figure 39: a) A scene from one of the *tōraṇas* of the Great Stupa, Sanchi (1st century BC – 1st century BC), b) Lōmas Ṛṣi Cave, Bihar (3rd century BC), (Photograph courtesy A.I.I.S) c) Bharhut *tōraṇa* (2nd century BC). (Photograph courtesy A.I.I.S).

Gavākṣas are stylised Valabhī forms. As discussed earlier in the chapter, they have their roots in the horseshoe-arched dormer windows, gables or trefoil roofs that appear in the domestic architecture, palaces, congregational halls and religious buildings of the early Indian timber architectural tradition (Figure 39a & c, & Figure 6). The forms of barrel-roofed, timber worship halls are referenced explicitly in the forms of the earliest rock-cut cave temples from the Barabar Hills in Bihar (3rd century BC) and Maharashtra (1st century BC – 2nd century AD). The earliest surviving example, the Lōmas Ṛṣi Cave in Bihar (3rd century BC) faithfully replicates its timber counterparts: its gable arches are topped by a finial⁶⁰ and joist ends press out at regular intervals beneath

⁵⁹ Adam Hardy, *Temple Architecture*, p 160

⁶⁰ These little finials appear spine-like all along the thatched barrel-roofs and above the dormer windows and gables from the narrative relief carvings from Sanchi and Bharhut. Vidya Dehejia discusses the finial as it appears in the cave temples of western India, suggesting that it might have originally been made of pottery. *Early Buddhist Rock Cut Architecture* (London: Thames and Hudson, 1972), p.73.

them, a decorative, arched lattice hangs below the gables and create the curved porch roof to the doorway proper, and two relief carvings of posts appear to hold the whole thing up (Figure 39b). In some slightly later examples from Maharashtra side aisles create a circumambulatory passage around the hall, turning the cave façades into trefoil forms (Figure 40a). The interior of the cave temples may also mimic their wooden equivalents with a rib-cage of arched beams appearing to support their ceilings as illustrated by the much later cave temple, Cave 10 at Ellora (Figure 40b). Multiple smaller dormer windows appear in the multi-storeyed timber apartments that flank the monumental central Valabhī façade.

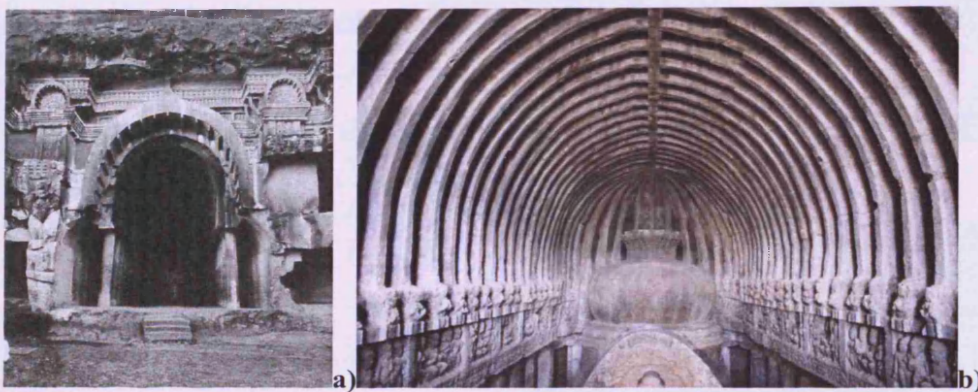


Figure 40: a) Cave temple, Bhaja, Pune (mid 2nd century BC) (Photograph courtesy A.I.I.S) b) Cave 10, Ellora (c. 650 AD).

A few centuries later, Valabhī shrines and dormer windows are shown in relief carvings from the Kushan Dynasty in North India from the 1st – 3rd centuries AD. These have become slightly further removed from their timber originals. Part of a Gandharan relief carving of a complex shrine (Figure 41a & b) shows a stylised *caitya* arch with side aisles that have become detached from the central gable and the gable ends have transformed into little curls, their joist ends have shrunk down to a zigzag pattern and the finial has been replaced by a decorative half rosette shape. An autonomous little dormer-window shape from Mathura has drifted away into whimsy and its simplistic shape is filled with lotus petals, protecting a fan of curling feathers perhaps (Figure 41c).

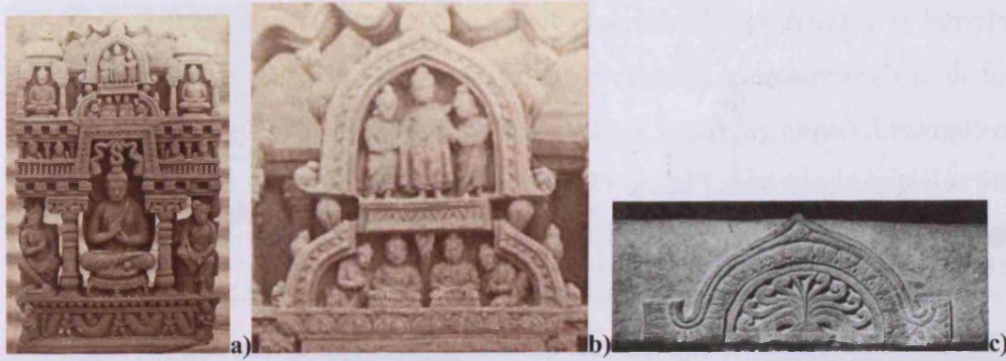


Figure 41: a) Relief from Gandhara (2nd century BC), b) close up from the Gandharan relief, (Photographs courtesy British Library) c) relief from Mathura (2nd century BC), (Photograph courtesy A.I.I.S).

Caitya doorways, dormer windows and Valabhī superstructures take one stylistic step further and become recognisable as *gavākṣas* during the Gupta period (4th – 6th century AD). The beautiful cave temple facades from the 5th century onwards show that the base supports of the gables have taken on a life of their own, flicking up and forming the ‘arms’ of the *gavākṣa* (see Appendix p.6 for the descriptive terminology used for *gavākṣas* here). The gable’s joist ends have shrunk down and multiplied to give the *caitya* arches a beaded outline, and the finial has become the bursting curls of a *gavākṣa*’s ‘topknot’. The outer arch of the wooden-style gables of the Lōmas R̥ṣi cave and the curves and cross-hatching of its lattice have fused together into one form, the lattice’s inner arch curving round to create a circular shape (Figure 42b). The side aisles follow suit and flow gracefully upwards to tuck behind the feet of the central Valabhī. This fluid, circular form of the *caitya* arch continues in experimental composite Valabhī shrine superstructures (Figure 37a), and in the little dormer windows that push out from the eaves and celestial apartment blocks that surround the central entrance (Figure 42a).

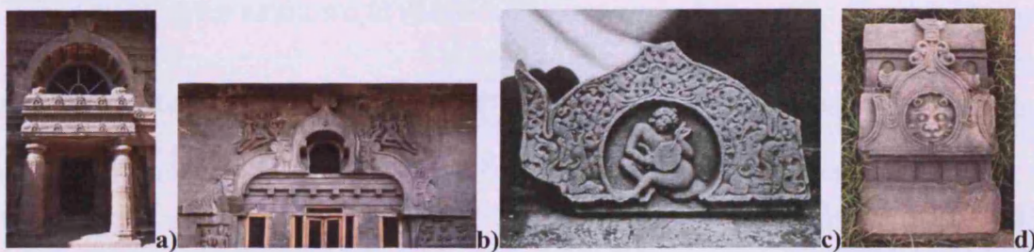


Figure 42: a) Cave 19, Ajanta (5th century AD), b) The Valabhī façade of Cave 10, Ellora (c. 650 AD), c) *Gavākṣa* with musician, Darra (early 5th century AD) (Photograph courtesy A.I.I.S), d) *gavākṣa* with lion face, Sarnath (early 6th century AD).

From the Gupta period therefore, whilst maintaining clear formalistic connections to their original forms, dormer window and *caitya* arch shapes have become stylised enough to be

legitimately referred to as *gavākṣas*. These early forms come in different shapes and proportions and show the sweetness, animation and creativity for which the sculpture from this period is recognised. Gupta *gavākṣas* are frequently populated by a variety of enchanting little celestial characters: Figure 42c shows a lone *gavākṣa* filled with two makaras and their foliate/aquatic outpourings, harbouring a curly-haired musician, Figure 42d shows a *gavākṣa* with little wing-like ‘ears’ housing a cheerful-looking lion face. At this stage the curve of the inner archway has not quite become a full circle.

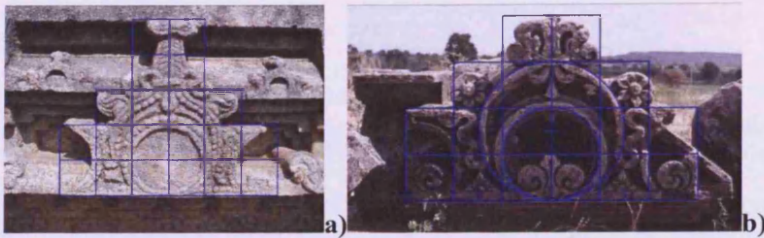


Figure 43: a) A late 7th century example of a mainstream *gavākṣa* from Temple 2, Nalanda, b) a late 8th century mainstream *gavākṣa* in Mahā-Gurjara style from Roda, Gujarat. (Images courtesy Adam Hardy).⁶¹

After the Gupta period, from the 7th century onwards, the *gavākṣa* took its final step and gained its basic components: its inner circle, its flag-like arms and curling feet, the swirling burst of its gathered topknot. Hardy notes that a ‘mainstream *gavākṣa*’ with a standardised set of proportions was now established across North India and parts of the Deccan its parts fitting together and measured out according to a standardised geometric framework. Despite this normalisation, *gavākṣas* show the distinctive aesthetics of different regional and chronological styles. Adam Hardy likens the variations in style to calligraphy:

As with calligraphy, their linear flow follows a geometrical framework, and like handwriting they combine cultural norm with personal idiosyncrasy, and careful learned construction with happy variation and accident.⁶²

In parts of Gujarat and Rajasthan from the 8th – 10th century, for example, the ‘virile and handsome’⁶³ form of Dhaky’s Mahā-Gurjara temples prevailed, and concordant with the temples’ form, the *gavākṣas* show confident grace in the curve of their outlines, but an upfront minimalism in the flat, cut-outs of their shapes.

⁶¹ Adam Hardy, *Temple Architecture*, Figs. 16.4 & 16.5, p. 162.

⁶² Adam Hardy, *Temple Architecture*, p.161

⁶³ M A Dhaky, ‘The Genesis and Development of Māru-Gurjara temple architecture’, p.20.



Figure 44: Harishchandra-ni-cori Temple, Shamalji (c 825 AD), Mahā-Gurjara style, a) part of *latā* , b) Valabhī wall niche (Photographs courtesy Adam Hardy).

During the same time period just north and north east of the Mahā-Gurjara regions the ‘ornate and bewitchingly beautiful’⁶⁴ Mahā-Māru temple style of the Pratihāra dynasty uses *gavākṣas* that, whilst following the same proportions, are frilly and playful, with piped outlines and twirling topknots, ears and feet.

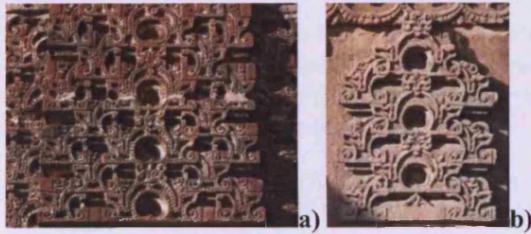


Figure 45: Harihara Temple 2, Osian (750 – 775 AD) a) part of *latā* , b) *udgama* from wall niche. (Photographs courtesy Adam Hardy).

Central Indian *gavākṣas*

Central Indian *gavākṣas* from the 7th – 8th century are close to Mahā-Māru *gavākṣas* in style. Those from the 8th century in particular have a similar freshness and ribbon-y daintiness to the Mahā-Māru sorts. Since this period is prior to the Pratihāra dynasty’s migration from Western to Central India this linear prettiness was probably simply a natural development from Gupta styles as shown in the Sarnath *gavākṣa* in Figure 42d.

Large monumental *gavākṣas* from Latina temple’s *śukanāśas* or primary wall shrines are almost as merrily adorned as their Gupta predecessors. They have beaded edges that swoop upwards until they are pulled together with a band at the top, erupting forth in watery, feathery swirls, their waves sliding down the *gavākṣa*’s shoulders and ending in final flourishes, giving the *gavākṣa* its ears. Little lotus flowers sit within the *gavākṣas*’ bounds, and frequently an image of a deity or a smiling celestial face is shown within their stylised Valabhī interiors (Figure 46). Like Mahā -Māru examples, the smaller, less showy *gavākṣas*

⁶⁴M A Dhaky, ‘The Genesis and Development of Māru-Gurjara temple architecture’, p. 20.

used in the shikahra's *latā* and more minor Valabhī superstructures or piled *udgamas* have fluid, piped edges and their shapes are rounded and delicate (Figure 47).



Figure 46: *Śukanāsa gavākṣas* from a) Naresar (700-725 AD) (Photograph courtesy Doria Tichit) b) & c) Batesara (775 – 800 AD).

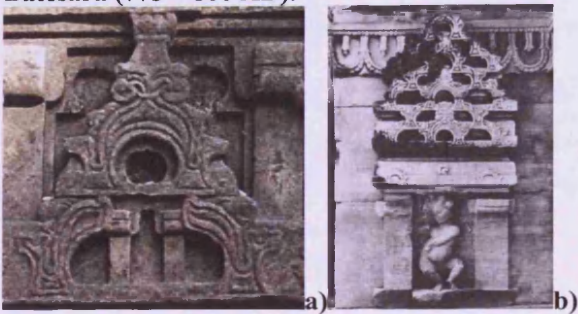


Figure 47: a) Diminutive Valabhī superstructure from Naresar (700 – 725 AD), (Photograph courtesy of Doria Tichit) b) niche *udgama* from Rāmēśvara Temple, Amrol (c. 750 AD) (Photograph courtesy of A.I.I.S).

Over the next few centuries both the smaller piped *gavākṣa* types and the more monumental versions begin to lose their freshness, becoming formulaic and flat, with less movement shown in the cords of their outlines. The *gavākṣas* of some temples maintain a certain elegance: the Śiva Temple at Terahi has *gavākṣas* outlined by slim cords that are incised and angled so that they twist inwards and outwards, gently italicised, adding to the *gavākṣa*'s three-dimensionality. The *gavākṣas* from the Sūrya Temple at Umri's spire are made up of fatter, more flattened piping, but still there is some movement in the way, for example, the lines twist round and outwards in anticipation of their sprouting topknots.

From the second half of the 9th century onwards *gavākṣa* shapes become less rounded and more awkward, losing their individuality and some of the details and incised fluidity of their curling feet and top knots. In the interconnected *gavākṣas* from the *latās* and *pratilatās* of the Sūrya Temple at Madhkedha and the Jarāi-kā-maṭh Temple at Barwasagar, for example, there is no longer a sense of each *gavākṣa* or *gavākṣa* part being an autonomous unit. The italicisation of their cords and the attention to detail in their topknots and feet have melted away, and the *gavākṣas* look as if they would lift away from the eaves behind them in one knitted layer, like a web of plasticine worms flattened out with a rolling pin. Modern,

squarer *gavākṣas* are used at this time, sometimes creating lively *udgama* designs (Figure 48b), but often appearing flat and static (Figure 48 a & c-d). Changes in the style and execution of *gavākṣas* seems partly to do with, as Dhaky puts it, ‘slow gradational changes which the inescapable law of decay imposes on everything’⁶⁵, but also probably depend on the care that is taken at a particular temple or by particular craftsmen, and *gavākṣa* quality varies even on the same temple.



Figure 48: a) *Bhadra* niche from Sūrya Temple, Madhkeda (850 – 875 AD) b) wall niche from Śiva Temple, Kadwaha, Khirivālā Group (10th century AD), c) niche *udgama* from Mālādēvi Temple, Gyaspur (850 – 875 AD) (Photograph courtesy Adam Hardy), d) *gavākṣa* fragments from outside the Yogini Temple near Padhaoli.

From the late 9th – 10th century fat little oniony *gavākṣa* types evolved alongside the balanced curves of the mainstream Nāgara *gavākṣa*. This was used as a sort of secondary *gavākṣa* form, punctuating *vēdibandha* and *varaṇḍikā kapotālīs* rather than forming the *śukanāsa* or climbing down the spire. Later, from the advent of the Bhūmija temple architecture in the 11th century AD, the onion *gavākṣa* usurps its popular cousin and dominates the temple. These may be rendered as delicate little lacy forms (Figure 49a) or as more abstract, flattened stencilled shapes (Figure 49).



Figure 49: Niche *udgama* from a pillar in front of the Śāntinātha Temple, Deogarh (10th century AD), b) *gavākṣas* from the *vedibandha* of Śiva temple at Kadwaha (10th century AD).

⁶⁵ M A Dhaky, ‘The Genesis and Development of Māru-Gurjara temple architecture’, P 114

Unfolding Valabhīs

The origin of the complex interlocked *gavākṣas* that tessellate down Latina temple's *latās* comes from the urge to proliferate and multiply in a downwards motion acting on the simple gable arches and trefoil facades of *caitya* halls, paralleling the developmental dynamic that functions on a larger scale to create Nāgara temple forms from the simple shrine types.

The simplest way for a *gavākṣa* to proliferate is in a 'splitting and dropping' manoeuvre that was probably inspired by the trefoil format of the *caitya* halls with side aisles (Figure 40a & c). This simple 'whole-over-two-halves' *gavākṣa* arrangement or versions of it continue to adorn Latina spires' *vēṇukōśa* throughout the temple's history (Figure 50b & c). To make this configuration more aedicular additional little Valabhī shrine may press out from the larger one's its cavernous depths as shown in Latina *śukanāśas* and Valibhi shrine superstructures (Figure 46c & Figure 50), or by the pattern may unfold and repeat to form *udgamas* (Figure 45b). In the *latā* patterns of early Latina temples the trefoil 'splitting and dropping' pattern is played with further, given an extra 'side aisle' or half *gavākṣa* and left to propagate downwards as at the Śiva Temple at Mahua (Figure 50c), or the whole and two half *gavākṣas* used in the trefoil pattern detached from each other, rearranged and set side by side, as shown at Naresar (Figure 50b).

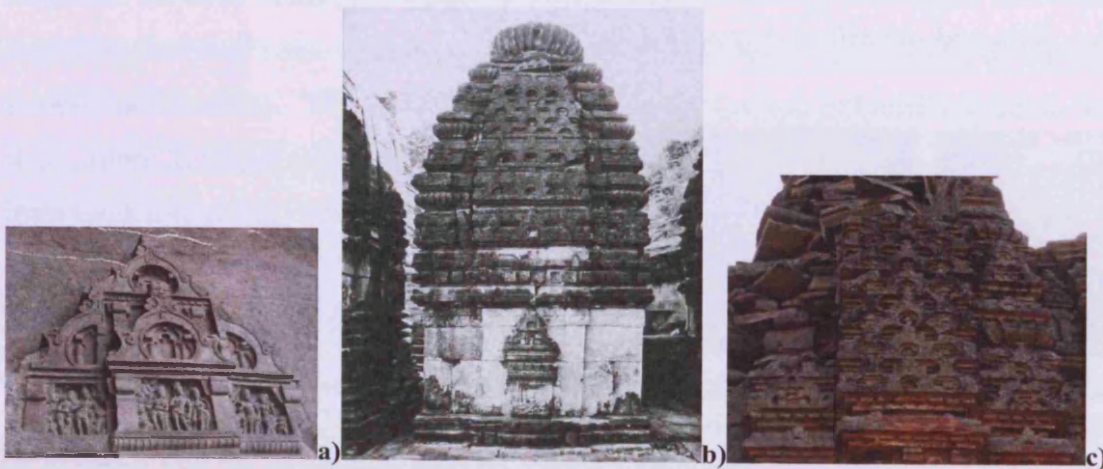


Figure 50: a) Valabhī superstructure from shrine in the wall beside Cave 10, Ellora, Maharashtra (c. 6th century AD), b) Krakōtakēśvara Temple, Naresar (700 – 725 AD) (Photograph courtesy A.I.I.S), c) Śiva Temple, Mahua (c. 675 AD).

The proportioning grid that established the 'mainstream' *gavākṣa* in the 7th century, far from restricting the creativity of the craftsmen, led them to experiment with the way *gavākṣa*

patterns could become more complex and move beyond limitations of the whole-and-two-half forms of earlier years. The grid provided a rubric that allowed the *gavākṣas* to be broken up in different ways and recombined to create a set of *gavākṣa* shapes from the 8th century onwards that make up part of Hardy's Nāgara 'kit of parts' (Figure 51a): *gavākṣas* may have 'high-arms' or 'low-arms', half a 'high-arm' *gavākṣa* makes an 'X' shape, a *gavākṣa* may have one 'high-arm' and one 'low-arm' (See Appendix p.6 for illustrations of these types). This 'kit of parts' could then be interwoven in a multitude of ways according to the predilections of the architect, using the proportioning grid to maintain the regularity of their patterns (Figure 51).

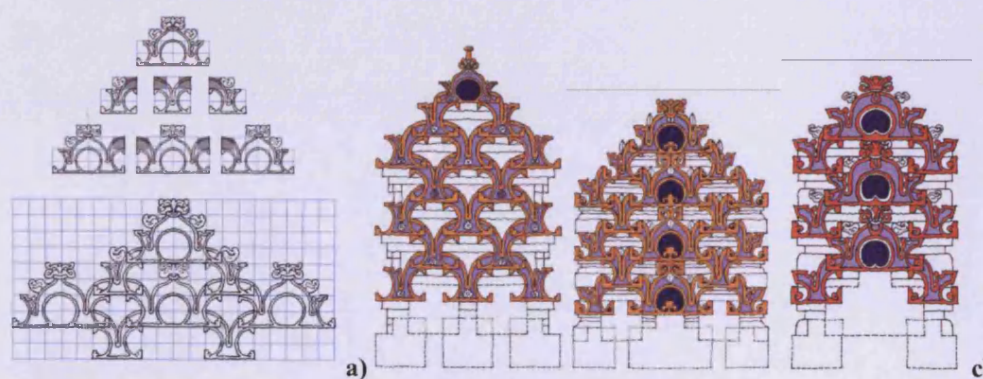


Figure 51: Adam Hardy's drawings a) 'Kit of parts invented in the 8th century and then used until at least the 13th. Shaded grid squares denote parts which overlap when these components are combined. The grid may be stretched or distorted and was modulated to the curvature and diminution of temple superstructures.' B) Varieties of typical *gavākṣa* patterns.⁶⁶

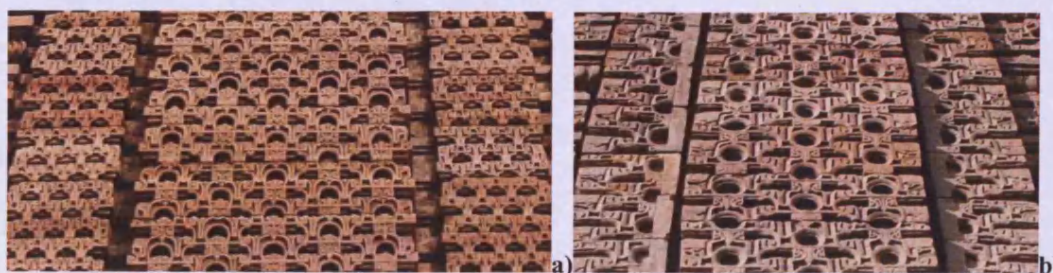


Figure 52: a) Sūrya Temple, Madhkeda (850–875 AD), b) Śiva Temple, Kadwaha, Khirnīvalā Group (10th century AD) (see Figure 107a for close up of Madhkeda).

⁶⁶ Adam Hardy, *Temple Architecture*, Figs. 16.11 & 16.12, pp. 164–165.

Hardy observes:

After the 8th century ... no fundamentally new *jāla* designs were invented. Further proliferation undermined the individual unit: currency is devalued by inflation. Depth was lost, as *gavākṣas* were flattened out, interior vistas forgotten, and coalescence of motifs in a single plane supplanted conceptual overlap. Sequential growth was vestigially implied in the *jālas*, but probably no longer thought about by the craftsmen. By providing a ready-made recipe, the very geometry that had generated the patterns must have contributed to their fossilisation. In any case, the possibilities of the system were exhausted.⁶⁷

Arguably the ‘flattening out’ of *jālas* discussed by Hardy happens in Central India in the 9th century rather than the 8th century, and with this the sequential growth of the *gavākṣas* is less clearly intimated by the craftsmen. At the same time, there still seems to have been a certain pride taken in creating an original or less obvious combination of elements. By the 10th century Central Indian interlocked *latā gavākṣas* have melted into the eaves behind them, looking more like the stencilled outlines of Western India (Figure 53a). In Śēkharī temples of the 11th – 12th centuries and beyond *gavākṣas* become geometric and abstract forms that are mere nods to their original form, and occasionally they sink clean away and only plain eaves are left (Figure 53b & c).

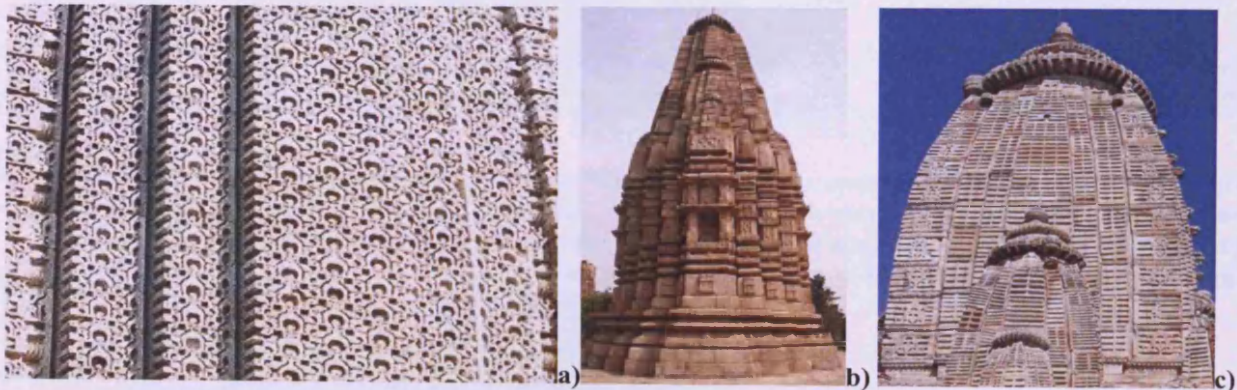


Figure 53: a) Ādinātha Temple, Khajuraho (11th century AD), b) Śiva Temple, Bhadagaon (11th – 12th century AD), c) Viṣṇu Temple, Chittorgarh, Rajasthan (c. 1449 AD) (Photograph courtesy James Buckee).

⁶⁷ Adam Hardy, *Temple Architecture*, p. 164.

Entering the temple

Porches



Figure 54: a) Śiva Temple, Mahua (675 – 700 AD) b) Rāmēśvara Temple, Amrol (c. 750 AD) (Photograph courtesy of A.I.I.S).

During the 8th century AD Central Indian Latina temple *garbhagrhas* appear to have been approached by nothing more than the temple's vestibule or *antarāla*, the *śukanāsa* standing above it turning the vestibule into a foreshortened Valabhī shrine (see Figure 36a & b, and Figure 54). The *antarāla*'s outer walls or *kapilī* are treated in the same manner as the temple's *jaṅghā*, with a *vēdībādhā* supporting their walls and a shrine pressing out from them. Ornate *garbhagrha* doorways mark the entrance to the vestibule, and its inner walls and ceiling are usually plain.

From about the 9th century onwards Central Indian Latina temples are preceded by fairly simple little open porches (*mukhamaṇḍapas*) rather than the more substantial entrance halls of Western Indian Latina temples. Even late Central Indian Latina temples from the 10th and 11th centuries that coexist with lavishly halled Śēkharī and Bhūmija temples have porches rather than proper entrance halls, perhaps because at this point and in this situation the Latina temples tended to function as subsidiary shrines to the newer and more popular forms.



Figure 55: a) Śiva Temple, Terahi (800 – 825 AD), b) Sūrya Temple, Madhkheda (c 850 AD), c) porch ceiling from the Sūrya Temple, Madhkheda, d) Chorepura Temple, Shivpuri (10th century AD) (Photograph courtesy A.I.I.S).

The porch roofs are made up of flat courses run at about the same height as the *varaṇḍikā* on the temple body, with stone awnings (*chāḍya*) projecting out from underneath them to give the interior and the sanctum some protection from the elements. The porches' ceilings are usually carved with lotus medallions and supported by decorative beams. The roofs are held aloft by four pillars. The first two pillars are usually square (*rucaka*) and made up of sequences of vase-and-foliage, *kīrttimukha* and scrolling foliate elements, standing at the front of the vestibule on either side of the *garbhagrha* doorway, resting on pillar bases that often act as extensions of the temple's *vēdibandha*. Door guardians or *pratiharas* affiliated to the temple's central deity are placed against these, sometimes housed in little shrines; at the Sūrya temple at Madhkheda shrines with complete *dvi-aṅga* Latina *śikharas* press out from the pillars to house Sūrya's celestial attendants.

The second set of pillars stand opposite the first, holding up the front of the porch. These latter pillars come in a variety of different North Indian pillar forms. At Terahi they are *rucaka* with *ghaṭapallava* capitals and bases, the central pillar shafts showing swirling columns of vegetation that appear equally to be issuing forth from the grimacing *kīrttimukha* faces above them and rising up from the vase-of-plenty beneath them. The pillars stand on square bases and have palmette brackets above them to hold up the edges of the damaged porch roof. On other temples *miśraka* (mixed-form) pillars are used at the front of the porch: at the Umri and Madhkheda Sūrya temples for example the base and capital of the pillars are square *ghaṭapallavas*, the pillars' central shafts are polygonal with 16 facets, *kīrttimukhas* holding bell festoons circling their tops, and above these are ribbed and beaded circular elements. These pillars stand on square bases that rest on *pīṭhas*, which in Madhkheda's case comes in an ornate lotus petal form. The door-side pillars and the porch-

edge pillars are both usually topped by square, ribbed, little flattened pillows and followed by plain or perhaps palmette roof brackets (Figure 55).

Central Indian Latina architects seem to have used this standardised, basic *mukhamandapa* format but expressed creativity in the pillar, beam, ceiling designs, and doorway. As always however there are several exceptions to the rule. The 'split Latina' Gaḍarmal Temple at Badoh, has the remains of what once would have been an impressive open *mandapa*, with a roof held up by *miśraka* pillars and seats against its walls. Temple 45, most unusually, seems to have had a similar *mandapa* with seats around its edges too as discussed in the Appendix. Banpur has four entrances rather than the usual singular entrance, each proceeded by its own porch.

***Garbhagrha* doorways**

Latina temple doorways are busy with ornament and joyfully occupied by a multifarious celestial entourage. They stand at the front of the temple's vestibule and lead in to the contrasting peace and darkness of the temple's inner sanctum. Their forms from the 7th – 10th century AD show a continuation and increasing development of Gupta period models. For an in depth analysis of the changing styles and compositions of North Indian temple doorways see Odette Viennot's *Les divinités fluviales Ganga et Yamuna*.⁶⁸

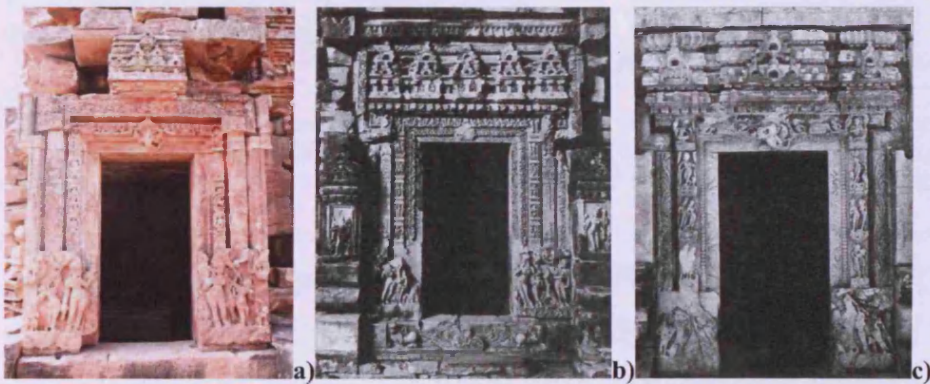


Figure 56: a) Śiva Temple at Mahua (675 - 700 AD), b) Śiva Temple at Indor (675 – 700 AD), c) Rāmēśvara Temple at Amrol (c 750 AD) (Photographs b) and c) courtesy A.I.I.S).

Garbhagrha doorways from some of the earliest Central Indian Latina temples such as the Śiva Temple at Mahua (675 - 700 AD), the Śiva Temple at Indor (675 – 700 AD, Figure

⁶⁸ Odette Viennot, *Les divinités fluviales Ga'nga et Yamuna: aux portes des sanctuaires de l'Inde : essai d'évolution d'un thème décorative* (Paris: Presses universitaires de France, 1964)

56b) and the Rāmēśvara Temple at Amrol (c 750 AD, Figure 56c) maintain the ‘T’-shaped Gupta door outline shown at the entrances to the Udayagiri caves (5th century AD) and at the Viṣṇu Temple at Deogarh (c. 500 AD) (Figure 56a). This door shape is discontinued at the end of the 8th century, and the majority of Latina doorways follow a rectangular plan. In Gupta period temples figures of the river goddesses Gaṅgā and Yamunā stand in graceful *tribhaṅga* poses on the backs of their *vāhanas* (mounts) at the top of the outer door jambs on either side of the lintel, and door guardians (*Dvārapālas*) and voluptuous female attendants stand on either side of the door at its base. By the time Latina temples are being built Gaṅgā and Yamunā have sunk down to the base of the temple doorway and are accompanied by a celestial retinue that may involve women, children, *apsarās* and/or *gaṇas*, with handmaidens holding parasols above their heads, and the door guardians sentry posts have moved to the *stambhaśākhās* mentioned above. The way the clothes, hairstyles, and bodily forms of Gaṅgā, Yamunā and the other door attendants are depicted, who they incorporate and how they are arranged changes according to the mode of the time and region.



Figure 57: a) Śiva Temple, Terahi (800-825 AD), b) Gaḍarmal, Badoh (825 – 850 AD), (Photograph courtesy of Anne Casile), c) & d) Sūrya Temple, Umri (825 – 850 AD).

Latina temple doorways are made up of a combination of three to six ornately carved door jambs or *śākhās*, the type of *śākhās* used chosen from a standard set of decorative jamb forms, but combined, ordered, embellished or styled in different ways (Figure 57). The number of *śākhās* and the complexity of their forms tend to increase over time. The innermost *śākhās* are usually carved with leafy scrolls or *patravallī*. The fairly wide and loose swirling patterns of 8th century temples tend become slimmer and tighter in the 9th century, and by the 10th century the leaves and tendrils are formalised into pierced, filigree-style patterns reminiscent of the medieval Western Indian temple aesthetic. These foliate

eddies may be followed by a slimmer *śākhā* of what looks like threaded lotus buds or perhaps the knotted, intertwined forms of supplicant serpents (*nāgas*). Next usually comes the most charming of the *śākhās*: affectionate *mithuna* couples or triplets, or sometimes prancing *gaṇas*, separated into registers. Before the 10th century the divisions between the figures are floating pedestals: at the Mahua Śiva Temple and the Terahi Śiva Temple the registers are created by simple two-eave ‘platforms’, at some of the Naresar and Batesara temples *mithunas* or *gaṇas* stand on floral joist ends or *tulā*, at the Rāmēśvara Temple at Amrol and the Gaḍarmal Temple at Badoh figures stand on lotuses with burgeoning roots and leaves, and at the Sūrya Temple at Umri triplets stand on little pillared compartments housing *gaṇas*, some of which play instruments for the dancing groups above them (Figure 57c). On top of each of these crowded *mithunaśākhās* usually stand a god, demi-god or saint associated with the temple’s main deity. The doorway may have a penultimate *śākhā* in the form of a pillar topped by another character relating to the primary deity, and finally the last jamb is usually another column of curling foliage surging out of a ‘vase-of-plenty’ at its base.



Figure 58: a) Śiva Temple, Terahi, b) Śiva Temple, Kadwaha (10th century AD), c) Jarāi-kā-maṭh Temple, Barwasagar (c. 900 AD).

The doorway’s architrave has the same number of courses as it has doorjambs, with further carved decorative bands standing above these (Figure 58). Whilst the outermost and innermost *patravallī* and *nāgaśākhās* usually continue up and across the lintel, the lintel course that joins up with the *mithuna* and triplet registers may host a chorus of garland-bearing *apsarās* or *vidyādēvis*, and the *stambhaśākhā* often connects to a lintel of deities related to the temple’s god of perhaps the Navagrahas and Saptamātṛkās. At the centre of the door’s combination architrave presses an image of temple’s primary deity or sometimes, in Viṣṇu’s case, Garuḍa. Above the architrave may stand a row of spire or shrine forms: at the Rāmēśvara Temple at Amrol the two *āmalaka* shrines and central Valabhī and eaves form dominates the doorway, the shrine forms correlating with the initial courses of its *śikhara*, at Terahi the architrave is topped by five little Valabhī aedicules separated by further little

recessed Valabhī shrines, Umri and Madhkedha incorporate full Latina spires into their architrave arrangements.

Surviving Central Indian Latina temples from before 750AD have plain steps leading into the sanctum (Figure 56a & Figure 57b), but after this Latina doorsteps become increasingly flamboyant until they are fitting companions for the ornate jambs and lintels above them. Doorsteps from Batesara temples from 775 – 800 AD represent the simple beginning of this decorative development, showing the two key elements that persist in later temples: a central half-lotus flower with a surging tangle of leaves and roots beneath it, creating a semi-circular projection out from the doorstep, and two animated lion figures that stand on either side of it (Figure 59a). Over the next couple of centuries this basic format is played with and augmented. Sometimes the lions lie peacefully on either side of the doorstep, licking their paws and looking out with proud disdain at the mundane world before them, and sometimes, roused from their idle grooming, they jump on the backs of unfortunate, fleeing elephants, or battle with celestial warriors (Figure 59b & c). Sometimes *apsarās*, animals or birds emerge from the central lotus step's densely knotted roots and leaves (Figure 59d). The area between the lotus and the lions show a variety of designs, perhaps filled with *kīrttimukha* faces, with foliate swirls, or in the case of the Sūrya Temple at Madhkedha with a figure riding a *makara*, leaving behind it a watery trail (Figure 59d).



Figure 59: Doorsteps from a) Batesara (775 – 800 AD), b) Gaḍarmal Temple, Badoh (825 – 850 AD) (Photograph courtesy of Anne Casile), c) & d) Sūrya Temple, Madhkedha (850 – 875 AD).

The overall style and form of temple doorjambs get tighter and busier during the 9th century, and by the 10th century the sculpture loses the earthy but animated, sensual, early medieval Central Indian aesthetic harking back to Gupta sculptural style, foliage and figures that are

made dynamic by incised carving but are still closely bound to the sandstone behind them, and gain a pierced, filigree aesthetic similar that of medieval Western India. From the 10th century onwards figures become slightly taller and slimmer, compositions get busier, figures are housed in niches with cylindrical pillars, *Dvārapālas* gain a greater prominence on the door, perhaps covered by what look like arched *tōraṇas* and wearing pillar-box headdresses, and the foliate swirls are pierced through like piping.



Figure 60: Doorways from a) & b) a Śiva Temple, Kadwaha (10th century AD, c) Jarāi-kā-maṭh Temple, Barwasagar (c. 900 AD).

Garbhagrha

The ground plan of the temple in *vāstumāṇḍala* or *vāstupuruṣamāṇḍala* represents the created world. The movement in the *māṇḍala*, as far as the devotee is concerned, is from the outer details to the inner centre, which is a point representing the one creative principle, the deity from which everything has evolved. The devotee has to start from outside, pass through circuitous routes, gates, courtyards and successive stages to come to the centre. Leaving the grand externals, one has to progress towards the *garbhagrha*, the very heart of the temple complex, housing the One Cosmic Principle.⁶⁹

The inner sanctum is the holiest part of the temple, but it is also the plainest in architectural terms. Within the sanctum sits an image of the central deity to whom the temple is dedicated. Gone is the profusion of *gavākṣas*, lotuses, and niches, gone is the visual clamour of *vyālas*, *gaṇas*, celestial maidens and gods, and gone are the proliferating forms of the temple walls and spire, for these are created for the human world. Instead the sanctum's walls are made of plain masonry with square 'rucaka' pillars with *kīrttimukha* and 'vase-of-plenty' patterns perhaps standing at each corner supporting the ceiling beams. Lotus medallions are carved into the sanctum's ceiling, sometimes set within rotated, receding squares and known as 'lantern ceilings'. This cell is a dark well of condensed numen and

⁶⁹ Lal Mani Dubey, *Apparajitapreccha – a critical study (Encyclopaedic Manual on Art and Architecture)* (Allahabad: Lakshmi Publications: 1987) p.144.

other-worldliness: no architectural fancy is to distract from the central deity, and none would do the deity justice whose essential essence has no earth-bound form. If the appropriate priestly rituals are performed and the image is properly worshipped, then the deity might imbue the sculpture with their spirit. The devotee may then have a literal and personal audience with the god and receive *darśan*, one of the key goals of devotional worship at the temple.

Conclusion

This chapter has charted the origin and development of the Latina temple in Central India, in doing so hoping to highlight, on the one hand, the structural and stylistic norms followed by these temples and the developmental urges that propelled their growth and transformation, and, on the other hand, the variety and innovation shown in the design of individual temples.

In simple terms, there are always exceptions to the ‘rules’ of Central Indian architecture. *Tri-aṅga* Latina spires built during the 7th – 8th centuries AD have double *vēṇukōśa* with *salilāntaras* between them bearing *bālapañjaras*, except, that is, for the spire of the Rāmēśvara Temple at Amrol (c. 750 AD), which has *salilāntaras* and *bālapañjaras* that are followed by, instead of a second *vēṇukōśa*, an unusual *pratilatā* made up of large $\frac{2}{3}$ *gavākṣa* forms pressing from thick eaves. Double *vēṇukōśa* are always separated by a wide recess with *bālapañjaras* and their temple bodies have plans with stepped offsets with no recesses between them, except in the case of the Śiva Temple at Terahi (9th century AD), which has a spire that includes double *vēṇukōśa* but no *salilāntaras* or *bālapañjaras*, instead each projection being fully articulated and separated by narrow, equal-sized recesses, matching the plan of its *vēdībandha*. Once Latina spires have matured, replacing their second *vēṇukōśas* with *pratilatās* made up of eaves covered in intertwined *gavākṣas*, they lose their *salilāntaras* and *bālapañjaras*. This is usually true, but the Śāntinātha Temple at Deogarh (c. 800 AD) has both *bālapañjaras* following its outer *vēṇukōśa* and a *pratilatā* bearing a complex web of *gavākṣas*. *Śikhara* plans are closely related to that of the *vēdībandha*, but the Śāntinātha Temple has a *dvi-aṅga vēdībandha* plan and a *tri-aṅga* spire.⁷⁰ Earlier in this chapter it was pointed out that ‘Hindu temple’ plans are not always

⁷⁰ This anomaly could be due to the fact that the spire and the temple body were products of two different phases of construction. Perhaps this is why the Śāntinātha temple spire looks like it may be later than its 775 –

square, and nor do the widths of their walls, sanctums and projections share a common system of proportion. Except for some small, humble Latina shrines, Latina temple plans have central *bhadra* projections, except in the case of the Jain temple at Banpur which has four entrances pointing in the cardinal directions, and therefore has a plan that is all doors, corners and porches. The details of Central Indian Latina temples' forms – i.e. the type of pillars used, the way the wall shrines are constructed and decorated, the detail and arrangement of the *garbhagrha* doorway, the *śukanāsa* or the spire's *gavākṣa* patterns – are always different, suggesting that the guilds of architects and builders intended that each temple was individual. In the late 9th – 10th century experimental temple spire types are created that have broken free from the Latina category but at the same time do not qualify as any of the later 'mainstream' Nagara temple types (Figure 61b & c).

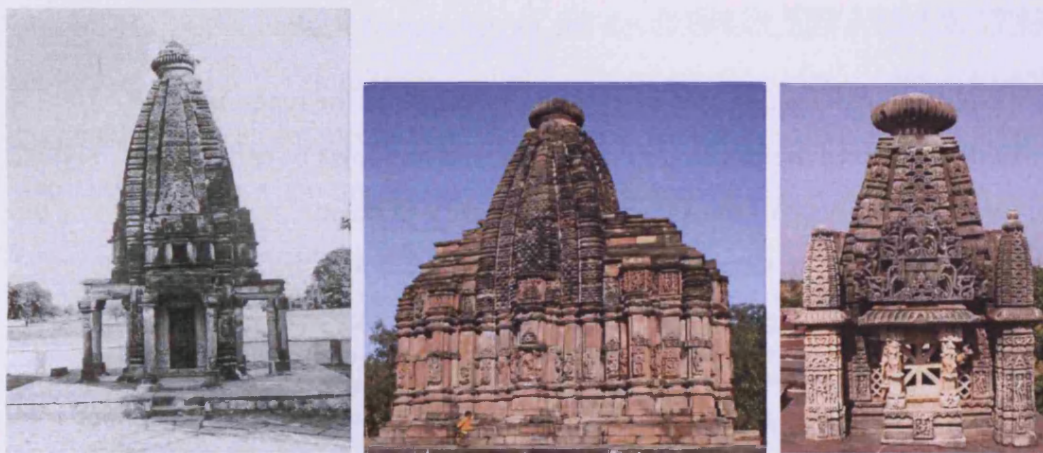


Figure 61: a) Jain Temple, Banpur (10th century) (Photograph courtesy A.I.I.S) b) Bājra Maṭh, Gyāraspur (late 10th century AD) (Photograph courtesy Adam Hardy) c) small shrine on top of monastery at Survaya (10th century AD).

The anomaly and innovation shown in Central Indian temple design indicates that, within fundamental parameters of practise, architects were able to express themselves and push the boundaries of Nāgara temple design. Unfolding temple forms developed along their own trajectories, journeys which were neither linear nor shackled to unbending *Vastuśāstric* 'rules' of design. There is maybe no such thing as an 'ordinary temple mechanically built on Vastuśāstra dictums' as described by Devanangana Desai in reference to the exceptional

800 AD dating by the Encyclopaedia (reference). The *vēdibandha* and spire plans do not match in Temple 45 either. As will be argued in Chapter 4, this too may indicate that the temple body and spire were built at different times.

qualities of the Kandāriya Mahādeva temple at Khajuraho.⁷¹ The *Vastusaśāstras* will be discussed in the next chapter as they pertain to Latina spire design. The style and content of the writing in these texts, as discussed next, and the ambiguity and frequent inaccuracy of their descriptions, also wards against seeing them as 'practical rule books' for Indian temple design.

Using an evolutionary model to explain the origination, design transformations and demise of Latina temples is irresistible. M A Dhaky notes this pull too as he explains how Mahā-Māru and Mahā-Gurjara styles of temple architecture conceived the new Māru-Gurjara temple type in Western Indian:

The story of the birth of the Māru-Gurjara style, as we know it, is one of the most fascinating I have known in my dealings with the history of Indian temple architecture, almost simulating the drama of biological creation, and reflecting as it were the principles of genetics to which the organic forms of a living world are subject.⁷²

The history of Nāgara temple architecture begins with simple shrine types with superstructures derived from the eaves, gables and dormer windows of early timber architectural forms. The design of the Latina temple spire was not an inevitable outcome of the urge to proliferate acting on these shrines types, nor did the way the Latina temple and its Valabhī and Phāmsanā cousins develop follow three deterministic trajectories. Instead the Nāgara developmental path involved tendrils and tributaries that digressed and diversified, exploring design innovations using Nāgara aedicular modules according to Nāgara developmental propensities. This developmental picture, then, follows a loosely evolutionary model, an analogy that was discussed further with evolutionary epidemiologist Caroline Buckee. Whilst being aware of the dangers involved in trying to draw parallels between biological dynamics and architectural history, among other cultural subjects, the ideas that were explored during these discussions will be included here in order to provoke thought .

The North Indian modules used in temple design (the Nāgara aedicule types) may be seen as being analogous to 'genes' or genetic units within an evolutionary framework. These genetic

⁷¹ Devangana Desai, 'The location of sculptures in the architectural scheme of the Kandariya Mahādēva Temple of Khajuraho *Śāstra* and practice', Anna L Dallapiccola (ed), (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989, pp. 155 – 165) p.153

⁷² M A Dhaky, 'The Genesis and Development of the Māru-Gurjara Temple', p.121.

modules were used and recombined according to the selective landscape imposed by the emergence of Latina aesthetic principles, namely a tendency towards increasingly multi-aedicular structures. Culturally successful designs survived and adapted in this selective environment, and were passed down from generation to generation. Innovative new temple designs types and combinations were tried over the centuries in a manner similar to the mutation and recombination processes occurring within the genetic evolution of populations.

Through a process of functional and aesthetic selection, many novel temple types would have died out, just as most branches of the “tree of life” reconstructed from the fossil record were short-lived, and may be seen as evolutionary experiments generated by mutation or recombination leading to organisms that were simply not viable within a given selective regime. For this reason early mutant-Latina temples should not be seen as proto-Shekharis or proto-Bhūmijas, because temple design and development, like evolution, is not directed, but instead reflects the simultaneous exploration of possible ‘design space’ in different directions, given the architectural modules available, with varying degrees of success and long-term viability. Caroline Buckee describes ‘design space’ as follows:

Here, design space is analogous to “morphology space” in the evolution of organisms’ body structures, and can be envisaged as a hypothetical, multi-dimensional space of possible temple designs, with each dimension representing a particular axis of the temple’s form (for example multi-aedicularity), and the shape of the space being bounded by the physical constraints of viable temple construction. Each temple design represents a point within this high dimensional space, and small changes due to mutation marginally move the position of this point in a particular direction. Recombination between temple designs facilitates larger changes, however, allowing for “jumps” in design space. Evolution of temple design within this context may be seen as the simultaneous exploration of this space in different directions. Within an evolutionary context, the success or fitness of design innovations relate directly to the selective landscape of the aesthetic environment of the time. This dynamic, selective, cultural landscape therefore determines the trajectory of architectural forms and the rate at which unviable innovations die out.⁷³

This evolutionary picture incorporates innovation and novelty in Nāgara temple design, and in doing so tacitly acknowledges the architectural guilds that are responsible for the unfolding of Nāgara temple forms.

⁷³ Dr Caroline Buckee, Assistant Professor of Epidemiology, Harvard School of Public Health. In conversation.

Chapter 3: The *Vastuśāstras* and Latina Spire Design

The *Vastuśāstras* are early Indian treatises on, among other things, the ‘science’ of Indian temple architecture. Certain scholars have sought within them the definitive rules of Indian temple design. In Chapter 2 it was suggested that this quest for rigid design formulae for within the texts could mask the architect-led variety and innovation shown in the design of the temples themselves. This chapter will begin by exploring contemporary scholars’ perceptions of the nature and practical function of the *Vastuśāstras*.

Whilst the exact role and authorship of the *Vastuśāstras* are questioned in this thesis, they remain, nevertheless, key records from the past. Even if the information they contain is descriptive rather than prescriptive, even if it is incomplete, inconsistent and often inaccurate, it contains vital details and clues regarding temple construction and design. Whilst highlighting aspects of the texts that make them unreliable as architectural design manuals, and countering the textual emphasis in certain earlier scholarship on temple architecture, this project also relies on them to provide it with clues as to the question of how Latina spires were designed.

To be credible and useful, textual descriptions of spire design need to be convincing in terms of how they compare with the forms of existing Latina spires, and detailed enough to enable the virtual reconstruction of the spire from Temple 45. Following the discussion of the *Vastuśāstras* therefore, alternative theories of Latina spire design proposed by scholars, each based on different interpretations of relevant *Śāstric* descriptions, will be weighed up. The most convincing of these will then be examined further by putting them through their paces and turning them into Latina spire elevations using a set of proportions detailed in a Western Indian text called the *Dīpārṇava*, as translated by R P Kulkarni,¹ and select descriptions from the *Samarāṅgaṇa Sūtradhāra*, as translated by Mattia Salvini.² These elevations will be evaluated in terms of their overall appearance. The internal logic shown in the most credible of these, the *Dīpārṇava* descriptions, will be investigated, and solutions to the gaps in their instructions concerning the design of spires’ *latas* and *pratīlatas* proposed.

¹ R P Kulkarni, *Prāsāda – Śikhara* (Temple – Roof), (Maharashtra: Itithas Patrika Prakashan Publishers, 2000)

² Mattia Salvini, Unpublished. Part of ‘The Indian Temple: Production, Place and Patronage’ project (2006 – 2009)

At the end of this chapter the implications for this method of spire design will be considered and a new reading be given to the enigmatic engraving of what appears to be half a Latina spire from a *maṇḍapa* seat back from the Harihara Temple 1 in Osian. In Chapter 6 the *Dīpārṇava* elevations ratified in this chapter will be cross-referenced with the dimensions of Temple 45's garbhagrha and śikhara fragments, and used to draw up a selection of hypothetical spires for Temple 45 which will then be assessed to establish their relative propriety.

The Vastuśāstras

Śāstras, meaning 'rules', are encyclopaedic treatises containing 'authentic knowledge'³ advising on the correct ways in which to go about a wide variety of different types of human activity and endeavour, be it painting or statecraft, astrology or town planning, animal training or dancing. Sheldon Pollock describes the *Śāstras* as the textual '... codification of rules, whether of divine or human provenance, for the positive and negative regulation of particular cultural practises',⁴ and argues that the term '*Śāstra*' should refer to all texts that have the authority, fulfil the function and follow the classical mode of presentation of the *Śāstras*, rather than solely text that have the specific nomenclature.⁵ Bruno Dagens concurs with this widening of the *Vastuśāstric* umbrella, saying of the *Śāstras*, *Puranas* and other 'cognate texts':

It seems to me that, as far as architecture and iconography are concerned, there is no fundamental difference in the way they are dealt with in these two categories of works. ... In short we may say that the *śāstric* literature comprises the *Śāstras* by title, as well as any other text which deals in technical terms with the topics of those *Śāstras*, even if by accident and briefly.⁶

For this reason pertinent Agamas and Puranas will be implicitly included in this discussion of the *Vastuśāstras* rather than being treated separately. Pollock describes the texts' 'formalised and public character', the style of writing typified by 'systematicity, stability and repetition ... that seems to attest ... to their adoption or potential adoption (or mere

³ Sheldon Pollock, 'The idea of *Śāstra* in traditional India', in *Śāstric Traditions in the Indian Arts*, Anna L Dallapiccola (ed), (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989), pp. 17 – 27 (p.18)

⁴ Pollock, p.18.

⁵ Pollock, p.17.

⁶ Bruno Dagens, "Iconography in Śaivāgamas: description or prescription?", in *Śāstric Traditions in the Indian Arts*, Anna L Dallapiccola (ed), (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989), pp. 151 – 153 (p.151)

pretension of adoption) as widely accepted by normative models.⁷ In what sense and to what extent the *Vastuśāstras* acted as normative models is one of the questions that helps to motivate the following discussion.

A number of *Śāstras* that reference North Indian temple architecture still survive, the majority of which were either written or collected and preserved in Gujarat and Rajasthan as detailed by Dhaky in 'The *Vastuśāstras* of Western India'.⁸ The 13th century onwards was a time of political upheaval in North India, but Western Indian pockets of wealth and autonomy survived the tumult, and, unlike their neighbours further East, continued the Nāgara temple tradition by carrying on constructing temples, collecting and preserving older *Vastuśāstras* and creating new ones. Most of the *Vastuśāstras* are from the 11th century or later, although the dating of these texts is rarely definitive given that the rules they contain may derive from older oral traditions and/or earlier texts, be the product of multiple authors and be added to over the centuries as indicated by the different styles of writing, subject matters, and varied terminology of the texts. In keeping with this sacred 'scrap book' quality some of the texts treat temple architecture from different regions and on occasion (the *Samarāṅgaṇa Sūtradhāra*, for example) deal with both Nāgara and Drāviḍian architectural modes. The most well known of these that mention North Indian temple design are the *Samarāṅgaṇa Sūtradhāra*, ascribed (or perhaps, more literally, dedicated) to the Paramara king Bhoja (11th century AD), and the *Aparājitaṭṭhā* (13th century AD). Dhaky explains how even these formidable texts may be manifestly derivative of their *śāstric* predecessors: the *Aparājitaṭṭhā*, for example, whilst 'one of the most authentic works' and also highly influential on later Vastu texts, is itself a product of its forbearers, drawing from the 11th century Western Indian *Vastuśāstra* of Viśvakarmā and the *Samarāṅgaṇa Sūtradhāra*, as well as the lesser known *Jayaṭṭhā* and *Rekhārṇava* texts.⁹

⁷ Pollock, p.19.

⁸ M. A. Dhaky, 'The *Vastuśāstras* of Western India', eds V M Kulkarni, Devaṅgaṇa Desai, *Journal of the Asiatic Society of Bombay* Vol 71 for 1996, (India: Asiatic Society of Bombay, 1997) pp. 65 – 84, p.66.

⁹ M. A. Dhaky, p. 69.



Figure 62: Builders working on a temple in Delwara in Rajasthan. (Photograph courtesy James Buckee).

There are several reasons why these texts have not offered up any easy answers to the question of how a Latina *śikhara* was designed and built. For one thing, both scholars and contemporary Indian architects¹⁰ have had trouble understanding exactly to what the Sanskrit architectural terminology applies. The *Vastuśāstras* were probably written by the Sanskrit-speaking literati who reported on or perhaps interviewed architects and workers who were part of the guilds that had comprehensive and *practised* knowledge of regional temple design and construction that was passed on orally and through example in a chain of transmission that has now been broken.¹¹ The results of this gulf between doer and reporter were described by Ram Raz as far back as 1834 as he tried to translate South Indian architectural texts:

...the former [the architects] were compelled to refer to the latter [the Brahmins] for the interpretation of the superior dialect, and the latter to seek from the former for definitions of technical terms, which neither one nor the other seem to have been able to explain or understand accurately.¹²

Other characteristics prevent the texts from being seen as comprehensive architectural manuals. As part of the multi-stranded project 'The Indian Temple: Production, Place and Patronage' centred around the ruined temple at Bhojpur, Adam Hardy has been testing the

¹⁰ R P Kulkarni, op.cit., pii.

¹¹ Note that neither do contemporary Indian temple architects follow the same practises as early Indian architects. Although the subject of contemporary practice and interviews with guilds of temple architects would be interesting and useful, the differences in the shapes of the spires of contemporary temples and those of earlier Indian temples show that they must have been created using different architectural practices: modern temples usually have *śekhara* spires made up of rather angular, less smoothly curved Latina parts that do not fit with the shapes of earlier spires, and less attention is paid to their projections.

¹² Ram Raz, *Essay on the architecture of the Hindus*, (London: Royal Asiatic Society of Great Britain and Ireland, 1834, p.xii) Raz goes on to describe their impenetrability, saying; 'Our best pundits have given them up as altogether inexplicable ... I might, without any exaggeration, affirm that the whole is no more intelligible than the darkest oracles are, at least, to those who are unacquainted with the science itself. It is a melancholy truth that these venerable sages to whom our works on art and sciences are attributed, in endeavouring to communicate instruction to the world have been guided rather by a mistaken ambition of rendering themselves reputable by the difficulty and abstruseness of their style, than by the anxiety to make themselves intelligent. (pp.x – xi)

precision and therefore the extent of the practical application of the *Samarāṅgaṇa Sūtradhāra*¹³ by drawing up images of Drāviḍian temples from the text's stipulations and assessing their credibility, comparing them to the forms of their stone referents.¹⁴ Turning the texts into images is probably exactly how they were meant to be used, for, as Bruno Dagens puts it, 'Most of the descriptive prescriptions are little else but written transcriptions of graphic representations.'¹⁵ Hardy has found that, in accordance with Raz's frustrations, the meaning of the architectural terms used in the text are often inconsistent or vague, the same term being used for different things in different parts of the text (or even in the same parts of the texts), or the same thing being referred to by multiple names. The instructions are usually incomplete in that they do not explain the construction of all parts of the temple they are discussing, and sometimes the proportions cited are simply inaccurate or wrong, creating drawings with implausible temple proportions. Hardy suggests that occasionally these errors may have been created as the architectural instructions were altered by aesthetically sensitive scribes who wished to preserve the elegance of the wording and metre of the line at the expense of the semantics of the original instruction. Despite these inaccuracies the texts show a detailed knowledge of Indian temple architecture – and require a detailed knowledge of temple architecture to be understood – and often aspects of a description or occasionally a complete description create credible temple diagrams. Later in this chapter the descriptions of Latina spire design are drawn out and tested and the results back up Hardy's Drāviḍa observations (Figure 67).

The prevailing elegance and continuities of form of surviving Nāgara temples show that, of course, the generations of architects and builders responsible for these striking and beautiful buildings contained between them an exhaustive understanding of how to design and build Latina temples. The vagaries, incompleteness and sporadic inaccuracies of the texts make them a shadowy and sometimes distorted reflection of the tradition of knowledge they represent. What then is to be made of these texts? Who were they written for and why? Did they have any kind of practical application? Certain scholars maintain that their intended audience were indeed architects and they were used in temple construction, their incompleteness due to the fact that the architects would be already familiar with the omitted

¹³ Mattia Salvini, op.cit.

¹⁴ Adam Hardy, 'Drāviḍa Temples in the *Samarāṅgaṇa-Sūtradhāra*.', *Journal of South Asian Studies* 25, 2009, pp. 41 – 62.

¹⁵ Bruno Dagens, p. 152.

parts of the instruction. In the introduction to Dr Kulkarni's book on Nāgara temple spires Arvind Jamkhedar explains the texts thus:

One more inadequacy of the Shilpa tradition is that the texts started as manuals for the Sthapatis in a particular tradition; and thus certain things could afford to remain unexplained. These were known orally. And whenever additions were to be made, they were made. The texts never posed themselves to be or took up the task of historically treating the subject matter. This might be one of the reasons why the subjects like classification of temple types were not done in a systematic manner.¹⁶

In the introduction to Vibhuti Chakrabarti's *Indian Architectural Theory: Contemporary Uses of Vastu Vidya*, a book that examines the role of *Vāstu-Vīdya* (the 'Indic Theory of Architecture' as opposed to its textual expression in the *Śāstras*) in secular architecture, Giles Tillotsen writes:

Taken as a whole Vastu Vidya represents a complete system of design, covering all those aspects of the architectural process which are capable of being expressed in words. This does not necessarily mean that any given fragmentary text must once have contained all of those sections which can be found in others, for it is easily conceivable that some of the texts were originally intended only as partial accounts of the whole system, other parts being well understood by the anticipated audience.¹⁷

But what of the errors and inconsistencies within the texts? In the introduction to the publication of the 1998 proceedings from a conference that tackled the nature and function of *Śāstras* Anna Dallapiccola provides a more subtle reading of the way in which they may have been consulted by the architects.¹⁸ She describes the *Śāstras* as representing 'floating knowledge', collected from different sources, that was not necessarily intended to be followed word for word by the artist or architect, but instead acted as an 'inventory of themes' from which to draw 'useful suggestions'.¹⁹ This therefore gives the texts a practical role in aiding the artisans, but at the same time allows them a certain degree of individuality and interpretation in the way they work with them. That their instruction may be brief and incomplete, she argues, is so that they are easy to remember and also so that the knowledge they share is only for those who are already party to the 'secrets of the trade'.²⁰

¹⁶ R P Kulkarni, p. x.

¹⁷ Giles Tillotsen, 'Introduction', *Indian Architectural Theory: Contemporary Uses of Vastu Vidya*. By Vibhuti Chakrabarti. (Richmond, Curzon Press, 1998), p vii.

¹⁸ *Śāstric Traditions in the Indian Arts*, Anna L Dallapiccola (ed), (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989).

¹⁹ Anna Dallapiccola, 'Introduction', *Śāstric Traditions in the Indian Arts*, Anna L Dallapiccola (ed), (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989) xv – xvii , p.xvi.

²⁰ A Dallapiccola, p. xvi.

In the same publication John Mosteller discusses whether the *Śāstras* dealing with iconometry should be identified as theory of practise, and suggests that they were intended for an alternative audience:

My work suggests that iconometric texts are neither strictly technical nor theoretical in nature. Instead, they record a censored view of the reality of artistic practice which nonetheless relates to that practice and, therefore, cannot be accurately characterized as theory. As such, these texts are didactic in nature; their contents insufficient for technical instruction appear to be aimed at informing the non-practitioner.²¹

Mosteller's observations when applied to architectural *Śāstras* seem unlikely given the fact that the reader would have needed an advanced understanding of the architecture in order to make sense of the texts. This and the inconsistency of *Vastuśāstric* language use also make it unlikely that, as suggested by Patrick George, the texts acted as some kind of dictionary of architectural terminology to aid communication between scholar-priest and architect.²²

The *Vastuśāstras* are clearly not practical step-by-step guides to temple building. I would argue that the references to temple building are descriptions of different regional architectural practises collated after these principles of design and construction had been practised for some time, hence the fact that the texts reach completion after India's 'golden age' of temple construction, rather than prescriptions that propelled and regulated temple construction through its heyday. If the idea of the texts as rigid and assiduously-followed taskmasters was taken literally, then the transformations and experiments shown in developing North Indian temple design as discussed in Chapter 2 would not occur. The different pieces from the collage of *Vastuśāstric* information act as still-frames from the cinematic unfolding of temple forms; they are snap-shots of evolving traditions of temple design, diverse regional trends interweaving with each other to create a multi-coloured yet harmonious Nāgara developmental tapestry, following its own developmental trajectory and allowing for innovations and individualities in temple design on the part of the architects, and therefore should not be treated as permanent and unbending. They are not necessarily written by architectural guilds, nor for the architectural guilds of the time. This then

²¹ John Mosteller, 'The practice of early Indian iconometry: The evidence of images and texts.', *Śāstric Traditions in the Indian Arts*, ed Anna L Dallapiccola, (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989) pp. 123 – 131, p.130.

²² '... These treatises (of architectural rules) functioned, at least as far as the priests who composed them were concerned, primarily as assemblages of terminology that defined the technical vocabulary necessary for the production of temple architecture, producing a common ground of reference for communication between priests and architects.' Patrick George 'The numerical roots of N Indian temple architecture and Frank Gehry's 'digital curvatures'', *RES Anthropology and Aesthetics*, 34 (1988), p.134.

explains aspects of their nature: they will not explain all details of a temple's design, the design instructions for a particular temple type will not apply to all examples of that form, they will not cover all of the different temple types ever built in India, and they will contain inaccuracies due to losses in translation and human error.

This is not to render the *Vastuśāstras* insignificant, for they certainly performed important functions. Firstly, that these architectural techniques were recorded in the *Śāstras* would have given them the all-important *Śāstric* seal stamp of authenticity. Therefore when inscriptions on temples refer to the architect's following the *Vastuśāstras* perhaps this was mentioned to legitimise the building and underscore the architects authority rather than indicating that a *Vastuśāstra* was closely followed in its design – perhaps it indicates the 'pretension of adoption' of the *Vastuśāstras* as normative rules, in Pollock's words.²³ Secondly, writing down lists of architectural codes of practise would have had the function of preserving them for future centuries. Dhaky makes the interesting observation that in the 11th century in North India a burst of temple building and creation of *Vastuśāstras* might have occurred in anticipation of an oncoming period of political and financial instability, the textual records attempting to save vestiges of cultural practise from a halcyon age so that they might survive through the troubled future. Discussing Śaivite, Vaishnavite and Jain sects during this period he says:

... they built with a premonition as though such good times shall never return. This was then an auspicious hour also for codifying the structural rules of architecture consolidated through intensive and unbroken activity. The written rules, it possibly was hoped, may act as a regulator for the building processes and thus a useful guide to posterity; it could help keep the lamp of tradition burning, indeed with brilliance and assured continuance.²⁴

Bruno Dagens agrees with the understanding of the *Vastuśāstras* as descriptions rather than prescriptions, and points out that in their practical function as the regulators of future generations they are not rigid and unbending taskmasters:

²³ One of these inscriptions occurs on the Viśvanātha Temple at Khajuraho: '... built by the Candella King Dhaṅgadeva in A.D. 1002, records the name of its architect (*Sūtradhāra*) Chiccha, who is described as well-versed in *Viśvakarmā Śāstra*.' Devangana Desai, 'The location of sculptures in the architectural scheme of the Kandariya Mahādēva Temple of Khajuraho *Śāstra* and practice.', Anna L Dallapiccola (ed), (Stuttgart: Steiner Verlag Wiesbaden GMBH, 1989) pp. 155 – 165, p.155.

²⁴ M A Dhaky, p.66.

Now for the architect to whom the text entrusts the task of putting into practise what it 'prescribes' the main result of the process seems to provide him with a very large freedom and moreover with what I shall call the 'right to originality'. This freedom is in the first place due to the wide choice of elements and of compositions the treatise proposes; this is supported by the fact that, in spite of general imperative formulation of 'rules' ... [they] leave it specifically to the architect to choose this or that option (or even to follow a third one unaccounted for: *anyathā vā!*).²⁵

Dagens' understanding accords with the originality shown in the development of Central Indian Latina temples discussed in Chapter 2, and also in the mixture of conformity and innovation shown in Temple 45's hypothetical reconstructed design shown at the end of this chapter. Treating the *Vastuśāstra*'s rules as the rigid task masters to which all temple design obeyed is misleading therefore.

Despite the qualifications given to *Vastuśāstric* accuracy and practical use as discussed above, seeing them as descriptions of architectural practice gathered together perhaps by knowledgeable connoisseurs of the practise or scholars of architecture at court, these texts should not be seen as entirely unreliable, for some of the information they contain produces accurate elevations of temple architecture, and even those which lead to inaccurate temple diagrams show in their instruction the types of ways in which temples were designed. From the point of view of this project following an 'authentic' method of Latina spire design in the recreation of Temple 45's spire is imperative. What is surprising given both the inaccuracies of the *Vastuśāstras* and the oddities of other parts of Temple 45's design is how very well a particular set of textual rules does work for its spire.

Theories of Latina spire design

Whilst the curved Latina spire is a seminal feature of North Indian Temple architecture, dominating the religious landscape throughout the 8th – 9th centuries AD, the details of its design are not fully understood. The *Vastuśāstras* have been the starting place for scholars seeking the secrets of temple design. As an upshot of the elusive nature of *Vastuśāstric* descriptions, however, the analyses of their references to Latina *śikhara* design have been more a matter of interpretation and extrapolation than direct translation, and the few scholars who have sought to understand them have drawn different conclusions concerning

²⁵ Bruno Dagens, p152.

their message. This chapter will begin by giving a précis of the theories of Latina *śikhara* design proposed by Stella Kramrisch, Patrick George and R P Kulkarni.

There are three key questions concerning the design of the curved Latina spire around which scholars' opinions diverge. Were the measurements of the stone courses arrived at through the use of a to-scale drawing of the spire, or was a mathematical system used to calculate the dimensions of the courses without using graphic representation? If a proportionate drawing was used, were the curves of the spire on the diagram achieved through a system of geometric progression or were they drawn using a rope and stick formulation that acted as a compass? Related to this, was the curve of the Latina spire's elevation circular?

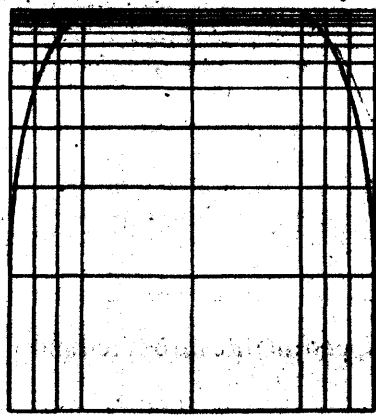
Interpretations of textual references have taken different stances on these questions.

Fundamentally each of their arguments have to answer to the spires of extant temples and make sense formalistically, and also to the constraints of practicality and common sense.

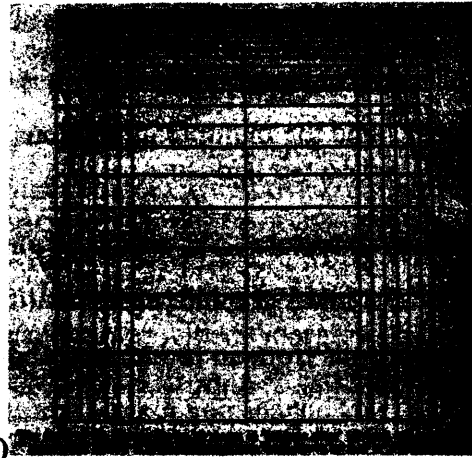
In *The Hindu Temple* Stella Kramrisch argued that the Latina curve was achieved by drawing a diagram using a system of geometric progression. The curvilinear outline is not a circular curve but is derived from the form of '... the Tabernacle of leaves, bamboo or branches ... The arch of vegetation, the arch of Nature surmounts and encloses the seat of God.'²⁶ She states that the height and the width of the spire are 'givens' and therefore not included in the text, and mentions a *Samarāṅgaṇa Sūtradhāra* statement that the top width of the spire should be 0.6 times the base width. She then cites a selection of rules from the *Agnipurāṇa* and *Samarāṅgaṇa Sūtradhāra* that specify different numbers of horizontal and vertical lines that are to be scored across the 'rectangle' created by the height and base width according to an unspecified geometric progression. The curve of the *śikhara* is created by connecting the points of intersection of these lines.²⁷

²⁶ Stella Kramrisch, *The Hindu Temple*, (Calcutta: 1946), p.207.

²⁷ Stella Kramrisch, pp. 207 – 208. Citing *Agnipurāṇa*, 42: 15 – 17 and *Samarāṅgaṇa Sūtradhāra*, 56 & 57.



Curve of *śikhara* drawn by means of 'triguṇa sūtra', the end of the passage
"The *śikhara* is drawn by this and the *śikhara* by geometrical proportion of them."



a) b)

Figure 63: Kramrisch's diagrams of a) the '*triguṇa sūtra*' Latina spire and b) the '*sadguṇa sūtra*' Latina spire.²⁸

One of the problems with Kramrisch's interpretation of the texts is that they are too limited and imprecise to result in the *śikhara* diagrams that accompany her explanation. It is unclear how the intersecting lines are positioned and how they should be connected: in the diagrams she includes to illustrate this method the curve of the '*triguṇa sūtra*' *śikhara*'s outline only cuts through one intersection exactly, rather than connecting all of them as she seems to suggest, and in the '*sadguṇa sūtra*' outline the curve cuts through three. Possibly conscious of these shortcomings, she concludes her instructions by reassuring the reader that at least the architects would know how to create them:

The method of drawing the curve was common knowledge and did not require an explanation. A different curve resulted according to the number of divisions. It sufficed if this number was stated; by controlling the lines according to a well known method, the batter of the superstructure had to be made.²⁹

In addition to the vagaries of the instructions, and perhaps even more damagingly, Kramrisch's theory fails on the formalistic front too as the diagrams of the spires she has created, particularly the '*triguṇa sūtra*' spire, are not convincing Latina spire shapes, perhaps more closely resembling Orissan Rekha spires.

In contrast to Kramrisch, Patrick George proposed that Latina curves were derived from a 'mathematically definable process' that generated the course measurements for the spire, a process that '...has more in common with numerically based 'digital' methods than with

²⁸ Stella Kramrisch, p.209.

²⁹ Stella Kramrisch, p.208.

graphically based geometric methods³⁰, therefore dispensing with the need for a diagram altogether. Contrary to Dagens observation that the *Vastuśāstras* are ‘written transcriptions of graphic representations’³¹ and the multiple injunctions to ‘draw’ in Mattia Salvini’s translation of the *Samarāṅgaṇa Sūtradhāra*, George maintains that ‘At no place in the extant literature on temple architecture ... is reference made to accompanying illustrations, nor is reference made to a system of graphic representation.’³² Rather tenuously, he bases his theory on a list of proportions from an Indian text about superstructures from temple carts rather than any of the texts concerning temple spires, and then has to ‘modify’ the proportions given in the texts in order to create an arithmetic progression.³³ He goes on to explain the procedure

.... Architects would determine first the overall proportions of the temple to be built, and then the fixed width and height of the temple from which they would derive an arithmetic progression that fulfilled these dimensions. Having defined the dimensions of the successive layers of stone, the architect would then communicate these measurements to the stonemasons through the office of the *sūtradhāra* or stringholder. The *sūtradhāra*, presumably, would monitor the dimensions of the stones and their positions, as well as the overall dimensions of the temple throughout the process of construction.³⁴

This explanation is convoluted and impractical, and, most importantly, in the end it completely sidesteps the crucial question altogether. He states vaguely that ‘architects would determine first the overall proportions of the temple to be built’ and then derive an arithmetic progression that ‘fulfilled these dimensions’, and yet how the overall proportions of the temple spire were divined is exactly the question that needs answering. If the dimensions of the temple spire have already been determined, then creating a geometric progression to express this is secondary to the main event. Secondly, even ignoring this fundamental point, despite analysing temple spires from 8th – 9th century temples at Bandogarh neither George nor the architects working there could come up with a geometric progression that would lead to the spire shapes.³⁵ Like Kramrisch, he has to play the explanatorily useless ‘now forgotten, but previously well known’ card:

³⁰ Patrick George, p 132.

³¹ Bruno Dagens, p. 152.

³² Patrick George, p. 132.

³³ Patrick George, p 136. The text that George refers to is R P Kulkarni, ed. *Vishvakarmiya Rathalakshanam: A Study of Ancient Indian Chariots* (Delhi: Kanishka Publishers, Distributors, 1994) Verses 2.109ab - 111

³⁴ Patrick George, p 136 – 7.

³⁵ Patrick George p.136.

The specific methods by which architects derived arithmetic progressions and solved overall proportional requirements have not been transmitted to us, although the knowledge required to do so was well known in India during that period of temple construction..³⁶

These types of conclusions are essentially truisms: that the people who built the temples knew how to build the temples.

Coincidentally, the same R P Kulkarni who provided George with the temple cart text published *Prasāda – Śikhara (Temple – Roof)* in 2000,³⁷ gathering together and translating references to *śikhara* design from numerous *Vastuśāstras*, conferring with present-day *sthāpatis* to aid his exposition. In this work Kulkarni has succeeded in providing the clearest, most detailed and convincing descriptions of Latina spire design so far, ratified by textual cross-referencing and, importantly, by the sense they make of Central and Western Indian Latina spire forms including, remarkably, the fragments and dimensions of Temple 45. What has been particularly useful is that Kulkarni has brought another text to the table: a Gujarati text called the *Dīpārṇava*. Due to the formal similarities between Western and Central Indian Latina temples, and the aggregate nature of *Vastuśāstric* information regardless of their place of origin, information about Central Indian temples is pertinent to Western Indian Latina models, and vice versa.³⁸

In Dhaky's overview of Western Indian *Vastuśāstras* he identifies the *Dīpārṇava* as a post-15th century text, also known as the *Viśvakarmāvatāra*, and observes that, like other *Vastuśāstras* from this later date, it is almost entirely a compilation of earlier texts with little original information added. He states that the text is '...verily a fragment of the earlier work, *Vāstyuvidyā*, modified at places and mixed with excerpts from the *Vastuśāstra*, the *Aparājītapṛcchā*, the *Kṣīrārṇava*, and even the *Vṛkṣārṇava*.'³⁹ Perhaps that this is a compilation text (as all of the *Vastuśāstras* are to a certain degree) should not be taken as a negative, and in this case, given that the *Aparājītapṛcchā* draws significantly from the *Samarāṅgaṇa Sūtradhāra*, it could be appreciated as a distillation of these important texts' rules as they apply to both Western and Central Indian temples. This optimistic suggestion is a possibility since, as will be explored below, from Kulkarni's translation it does indeed have greater detail about the Latina spire than its other 'parent' texts.

³⁶ Patrick George, p 137.

³⁷ R P Kulkarni, *Prāsāda – Śikhara (Temple – Roof)*, (Maharashtra: Itithas Patrika Prakashan Publishers, 2000)

³⁸ M A Dhaky, 'The Genesis and Development of the Māru-Gurjara Temple' in Pramod Chandra (ed) *Studies in Indian Temple Architecture* (New Delhi: American Institute of Indian Studies, 1975), p. 126 – 127.

³⁹ M A Dhaky, *The Vastuśāstras of Western India*, p75.

Below details of Latina spire design taken from Kulkarni's translation of parts of the *Dīpārṇava* and *Aparājitaṭṭhā* will be investigated by drawing up and considering the spire outlines that the instructions produce. The investigation will then look at alternative Latina outlines provided in the *Samarāṅgaṇa Sūtradhāra*, for many more rules for Latina spire construction appear in this text than the isolated references by Stella Kramrisch and even Kulkarni himself may suggest.⁴⁰ Following this, further details of Kulkarni's translation of the *Dīpārṇava*'s Latina spire will be added to the spire pictures, and the results analysed.

Analysis of descriptions of spire design

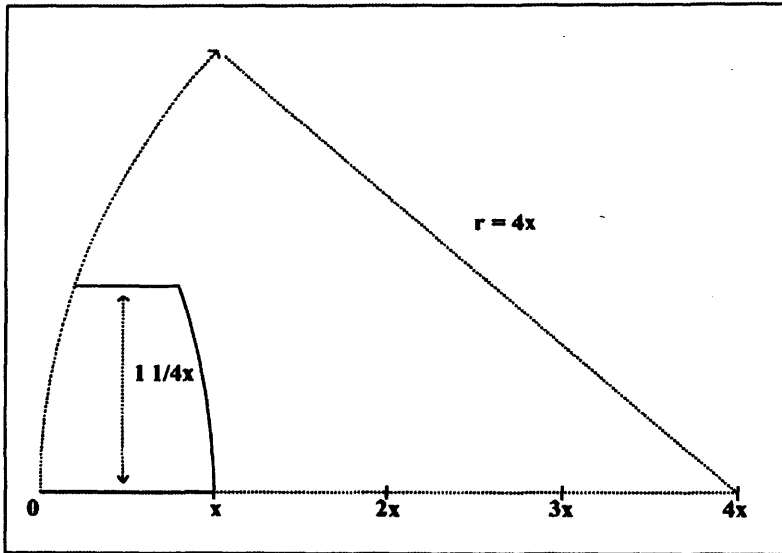


Figure 64: Diagram showing how a Latina spire elevation is created, using one set of proportions from the *Dīpārṇava*.

Two key points emerge from Kulkarni's translations. Firstly, the width of the *śikhara* base is a key measurement in Latina spire design, multiples and fractions of which can determine its shape and dimensions. Secondly, a section of a circle, the radius of which is a multiple of the width of the *śikhara* base, creates the curvature of its spire or *padmakōśa*. This would

⁴⁰ This variety of proportions and the flexibility it implies regarding Latina temple construction is no doubt true of other *Vastuśāstric* texts too: that the consultation of *Vastuśāstric* primary sources is here confined to the *Samarāṅgaṇa Sūtradhāra* is due to my lack of linguistic ability and the fact that few of these texts have been translated into English. The *Dīpārṇava*, for example, is only available in Gujarati.

require that a diagram was drawn to ascertain the spire's dimensions, and the measurements for the carving of each course scaled-up from the diagram.⁴¹

Before elaborating on the details of this system of design and discussing diagrams of the spires created using this method, one point should be clarified. The way that these diagrams would work is that more detailed versions of them would ascertain the measurements of the spire's courses, and these would then be carved out and piled up one layer at a time. These diminishing widths would create successively decreasing plans that would pull the spires' faces inwards and create the Latina's 3-dimensional, receding curves. The elevation will therefore not look exactly like its 3-dimensional counterpart with its courses pulled backwards, particularly when perspective is brought into play: in reality the spire will appear shorter than the diagram, its curve will appear to become more acute towards the summit of the spire and its top width will appear narrower (see Figure 173). The curve of the spire's corners, taken by a line drawn up through the outer edges of the *śikhara*'s *karṇa kūṭas*, will stretch backwards as well as inwards and form an ellipse rather than a circular curve like the one that helped create it. Another important point to bear in mind is that although this may be how the spire dimensions should be achieved, it would not be necessary to create a new drawing for every temple built. This will be expanded on in the conclusion of this chapter.

Kulkarni's translations of parts of the *Dīpārṇava*, *Aparājitaṭṭhā* and *Samarāṅgaṇa Sūtradhāra* that refer to Latina spire design can be summarised as follows. The *Dīpārṇava* and *Aparājitaṭṭhā* both contain instruction for Latina spire design in which the height of the Latina spire is a multiple of the width of the *śikhara* at its base (the width of the *śikhara* at its base will henceforth be referred to as 'X' for simplicity's sake). The *Dīpārṇava* partners heights with appropriate *padmakōśa*: a spire of height $1\frac{1}{4}X$ has a curvature determined by a circle with a $4X$ radius, a $1\frac{1}{3}X$ height has a curvature determined by a circle with a $4.5X$ radius, a $1\frac{1}{2}X$ height has a curvature that uses a $5X$ radius, and a $1\frac{3}{4}X$ height a curvature that uses a $6\frac{3}{4}X$ radius, see Figure 65.⁴² An *Aparājitaṭṭhā* direction

⁴¹ Michael Meister also briefly mentions a similar theory of Latina spire design in 'On the development of a Morphology for a Symbolic Architecture: India' (*RES Anthropology and Aesthetics*, 1986) p39, however he does not reference his sources and the regulatory proportions he describes are questionable as will be discussed further in the next section of this chapter.

⁴² *Dīpārṇava*, 9.41 – 42 (from R P Kulkarni, *Prāsāda – Śikhara*, p.10)

states that the height of a *śikhara* could be X , $\sqrt{2}X$,⁴³ or, if the width of the *śikhara* at its base is divided into four parts, its height could be $4 \frac{1}{4}$ of these parts (which works out as $1/16 X$). In this latter case the *padmakōśa* should be formed using a circle of radius $4X$.⁴⁴ The *Samarāṅgaṇa Sūtradhāra* mentions that the curve of the Latina spire comes from a circle with radius $3X$.⁴⁵ The *Dīpārṇava* advises that the ideal top width of the *śikhara* should be between $0.6X - 0.5X$, and in accordance with this Kramrisch cites a rule from the *Samarāṅgaṇa Sūtradhāra* and *Bṛhacchilpaśāstra* that states that the top width of the *śikhara* should be 0.6 that of its base.⁴⁶ The *Dīpārṇava* continues by detailing that the base *śikhara* width should be divided into 10 parts, and the *karṇa* : *pratilata* : *latā* widths should equal 2 parts : 1.5 parts : 3 parts. Similarly, the width of the top of the *śikhara* should be divided into 9 parts, and the relationship between *karṇa*:*pratilata*:*latā* widths should be 2 parts: 1.5 parts : 2 parts.⁴⁷

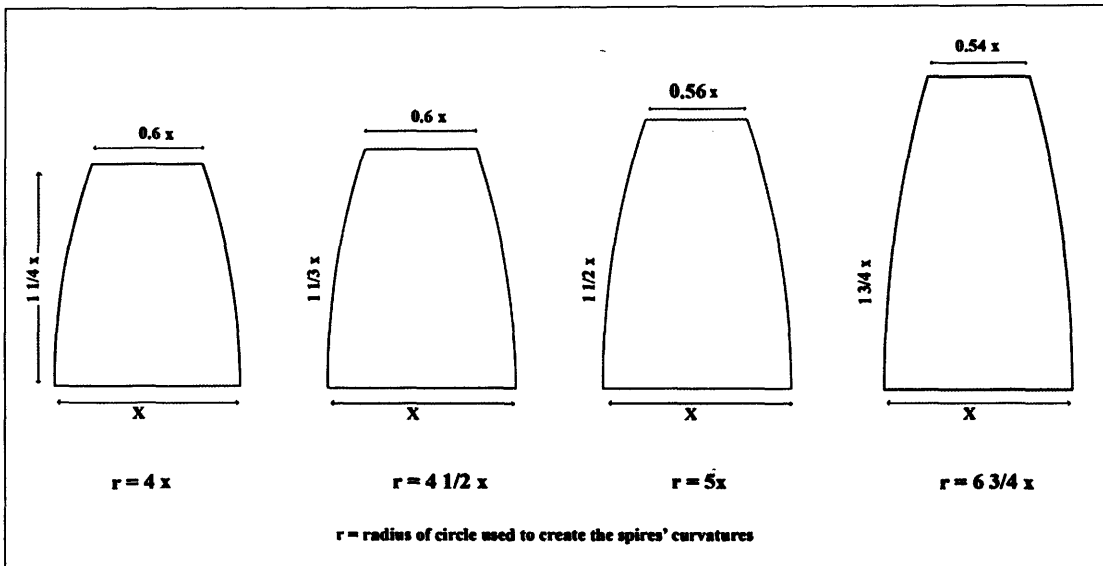


Figure 65: Diagrams of four Latina spires described in the *Dīpārṇava*.

Kulkarni's translations from the *Dīpārṇava*, therefore, offer up four testable spire results (Figure 65), and the description from the *Aparājitaṭṭhā* he includes provides one (Figure 66). From their initial appearance the *Dīpārṇava* instructions create convincing Latina

⁴³ *Aparājitaṭṭhā*, 141.1 (from R P Kulkarni, *Prāsāda – Śikhara*, p.9)

⁴⁴ *Aparājitaṭṭhā*, 158.9 – 14 (from R P Kulkarni, *Prāsāda – Śikhara*, p.34)

⁴⁵ *Samarāṅgaṇa Sūtradhāra*, 56.45 – 50 (from R P Kulkarni, *Prāsāda – Śikhara*, p.35)

⁴⁶ *Samarāṅgaṇa Sūtradhāra*, 57.664b, *Bṛhacchilpaśāstra*, 3.81, (from Stella Kramrisch, p.207) In fact there may be an inaccuracy in the details of her *Samarāṅgaṇa* citation since it does not lead to the reference she cites.

⁴⁷ *Dīpārṇava*, 9.22 – 24a, 0.24 – 26a (from R P Kulkarni, *Prāsāda – Śikhara*, pp.8 – 9)

elevations, particularly the first three. The final spire seems too tall and slender for a Latina spire even by the standards of the lofty and ornate Ādinātha Temple at Khajuraho (11th century, Figure 15h), but perhaps in this instance it is intended to be the core spire of a Śēkharī temple, the proliferating Latinas down its sides fleshing out its overall shape. The different parameters taken from the *Dīpārṇava* are logical consequences of each other, therefore the rules validate each other in terms of following an internal logic, and not all of them are needed for the construction of the diagram. Spires drawn to a height of $1 \frac{1}{4} X$ and $1 \frac{1}{3} X$ using curvatures based on circles with radii of $4X$ and $4.5X$ respectively will lead to the top width of the *śikhara* being exactly $0.6X$. The $1 \frac{1}{2} X$ height paired with circle of $5X$ radius will have a top width of $0.56X$, and the spire with a $1 \frac{3}{4} X$ height and $6X$ radius curvature will have a top width of $0.54X$, both of which are within the desired $0.5X - 0.6X$ *Dīpārṇava* limits for top *śikhara* width.

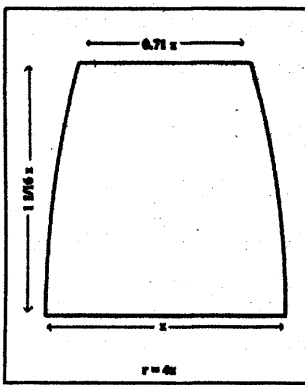


Figure 66: Diagram of Latina spire created according to an *Aparājītapṛcchā* description.

The *Aparājītapṛcchā* prototype, on the other hand, creates an unlikely Latina elevation. The curvature of its outline is too obtuse, making its shape stocky and the upper width of the spire rather wide (Figure 66a): this is apparent from just looking at the image, and if the *Dīpārṇava* proportions for the top width of the spire were widespread rules then it also breaks these, the width of the top of the spire turning out as $0.71X$. Could this spire's rules be the result of a misunderstanding between Sanskritist and architect/explainer, or an alteration made to the verse in order to add to its lyricism or change its meter, as Hardy noted happening in the *Samarāṅgaṇa Sūtradhāra*? The height of the spire is said to be $4 \frac{1}{4}$ times a quarter of the spire's base width: $4 \frac{1}{4}(1/4X)$. Given the acknowledged occasional inaccuracies in the textual references to spire design, could it be the case that the original rule was that the height of the spire is 4 times a quarter of the spires base width plus another quarter of the spire's base width: $4(\frac{1}{4}X) + \frac{1}{4}X$. This would come to $1 \frac{1}{4} X$ and mean that

this set of *Aparājitaṭṭcchā* rules for the construction of a Latina elevation is the same as that for the smallest *Dīpārṇava* spire - a spire of height $1 \frac{1}{4} X$ has a curvature determined by a circle with a $4X$ radius - which creates a perfectly convincing Latina shape. Dhaky noted that the *Dīpārṇava* rules are derived from a selection of sources including the *Aparājitaṭṭcchā*, therefore whilst it would not be surprising if the texts shared rules, it would be more likely that the mistake would be on the part of the *Dīpārṇava*, not the text the *Dīpārṇava* is drawing from.

The *Samarāṅgaṇa Sūtradhāra* can now be read in light of Kulkarni's lucid descriptions of spire design. As noted above, some of the information about Latina spires in the *Samarāṅgaṇa Sūtradhāra* refers to the central Latina spire of a Śēkharī temple's multi-spired edifice, Kulkarni notes however that the design systems hold for both 'Latina' spire types.⁴⁸ For the sake of simplicity all the spires will be referred to as Latinas here.

Samarāṅgaṇa Sūtradhāra descriptions of Latina spire design

Two different *Samarāṅgaṇa Sūtradhāra* translations were considered here: Sudarshan Kumar Sharma's translation⁴⁹ and Mattias Salvini's translation.⁵⁰ Viewing these versions in tandem highlights the interpretive dimension of *Vastuśāstric* translation, for different translations of the same texts and passages can lead to very different ideas of how temples and their spires were designed. A key example of this is in Sharma and Salvini's reading of the term '*sūtra*', meaning literally 'string' or 'cord', as it appears in the Latina *vēṇukōśa* context. Sharma translates *sūtra* as 'plumbline', which evokes a picture of spire design akin to Kramrisch's suggestion (Figure 63), whereas Salvini translates '*sūtra*' literally as string, which then is understood, according to the theory of spire design supported by Kulkarni and this thesis, as that which draws out the circular curve. Given the greater congruence between Salvini's interpretation and this project's understanding, Salvini's translation will be the primary references.

Reading the *Samarāṅgaṇa Sūtradhāra* underscores many of the observations made in the discussion of the nature of the *Vastuśāstras* from the start of the chapter. It highlights the

⁴⁸ Kulkarni, p 34

⁴⁹ Sudarshan Kumar Sharma, *Samarāṅgaṇa Sūtradhāra of Bhojadeva: (An introduction, Sanskrit text, English Translation and Notes*, (New Delhi: Parimal Publications, 2007)

⁵⁰ Mattias Salvini, op. cit.

heterogeneity of temple types that are described in this text, not just in the *Samarāṅgaṇa* as a whole but in individual chapters. The opening of Chapter 56, for example, sets out its agenda in the first *śloka* by saying ‘I am now going to explain in due order, according to their names and defining traits, the sixty-four temples having *śikhara*s, starting from the *Rucaka*.’⁵¹ Drawing up the instructions concerning Latina spires also confirms that the information contained in the texts is often brief, does not cover all aspects of the task, is frequently ambiguous, and, as will become clear, may not lead to accurate representations of Indian temples. The ambiguity of the texts is not helped by the way language is used. By way of illustration, consider the following excerpt from Chapter 55 of Salvini’s translation:

27. The *śikhara* should be made six *bhāgas* in extension and elevated up to the seventh. The extension of the *skandha* at the base should be in six or ten *bhāgas*.⁵²

‘*Bhāga*’ can be roughly translated as a ‘part’ or perhaps seen as a logical signifier such as ‘x’. This *śloka* then is thoroughly confusing: the *śikhara* is six parts wide at the base of the spire, and six or ten parts wide at its top, therefore its top width is equal or wider than its base width. *Bhāga* in this instance must therefore refer to two different measurements. The upshot of all these observations is that if architects were to go from text to temple they would be able to create all manner of different temple types, and, further, given the incompleteness and vagaries of the instructions, create their own personal interpretations or à la mode versions of the listed temple types.

Chapters 55 and 56 of the *Samarāṅgaṇa Sūtradhāra* are the main chapters that reference Nāgara temple types. Three sets of Latina spire instructions from Salvini’s translation of Chapter 56 of the *Samarangana* will be looked at here, noting first what the texts say in each instance, and then looking at the drawings they produce. The first concerns the spire of the Sarvatobhadra temple type:

135. ... One should make the *śikhara* extending for six *bhāgas* and seven *bhāgas* high.

136. In this way, the expert should construct this in eight storeys. The *rathas* and *pratirathas* alike should be bereft of *jalanirgamas*.

137. With *sūtras* made into four, he should draw the *padmakōśa*. A beautiful *mañjarī* should be constructed, with the shape of blue-lotus’ petals.⁵³

⁵¹ Adam Hardy, op. cit.

⁵² *ṣaḍbhāgāt viśṭṭam kāryaṁ śikharaṁ saptaṁocchritam | ṣaḍbhir daśabhir bhāgaiḥ syān mūlajā skandhaviśṭṭam ||27||*

According to *śloka* 135, therefore, if the base width of the *śikhara* is six parts wide, then its height is seven parts: if the *śikhara* width is 'X', then the height is $1 \frac{1}{6}X$. The curvature of the spire is drawn by a *sūtra* that is four times the width of the spire base: the radius of the circle used to create the spire's curve is $4X$.

The Mandira temple spire is discussed as follows:

161. One should draw a *veṇukośa*, six *aṁśas* wide, six and a half *aṁśas* high, with a *sūtra* made into four parts.⁵⁴

'*Aṁśa*' acts in the same manner as '*bhāga*', therefore the base width of the spire is 6 parts and the height is 6.5 parts or $1 \frac{1}{2}X$, and the spire's curve seems to be, once again, 4 times the base width of the spire or $4X$. These spire dimensions therefore do not diverge that much from those of the Sarvatobhadra spire, the spire is just slightly shorter.

The last set of instructions looked at here are for Chapter 56's *Rucaka* temple spire:

47. According to the *bhāga* of the height of the *pīṭha*, the *jaṅghā* should be two *bhāgas*. the *patra* should be half *bhāga* (...) and the *varaṇḍikā*, one *pāda*.

48. The height of the *śikhara* is known as four *bhāgas* plus one *pāda*. With a *sūtra* in three *guṇas*, one should draw the *padmakośa*.⁵⁵

Pāda means a quarter. This is the only one of the spire instructions looked at here that does not use a multiple of the spire's base to establish its height, but rather is proportioned according to a different part of the temple's body. In order to draw up a picture of this temple spire, the instruction from verse 47 describing the *jaṅghā* as two *bhāgas* high will be used as a proportioning measure: if the *jaṅghā* height is Y , then the *śikhara* height is $2.25Y$. More information is needed from the *Rucaka* description to create a Latina spire design,

⁵³ ... *ṣaḍbhāgān viśṛtaṁ kuryāc chikharaṁ saptaṁocchritam*||135||
evaṁ bhūmibhir aṣṭābhīḥ kuryād enaṁ vicakṣaṇaḥ
jalanirgamavicchinā rathāḥ pratirathāstathā||136||
caturguṇaiḥ prthakasūtraṁ (traiḥ) padmakośaṁ samālikhet
mañjarī lalitā kāryā nilotpalaḍalākṛtiḥ||137||

⁵⁴ *ṣaḍaṁśavistṛtaṁ caitat sārḍhaṣaṭkasamucchritam*
caturguṇena sūtreṇa veṇukośaṁ samālikhet||161||

⁵⁵ *pīṭhotsedhasya bhāgena bhavej jaṅghā dvibhāgikā*
Bhāgārdha+taraṁ patraṁpādena syād varaṇḍikā||47||
ṣaḍpādāṁś caturo bhāgān śikharaśyocchrayaḥ smṛtaḥ
triguṇena ca sūtreṇa padmakośaṁ samālikhet||48||

either the width of the spire base or the width of the *skandha* in order to indicate how far apart its curving sides should be. Perhaps it rests on the fact that the *śikhara* base will be the same width as the *vēdībāṇḍha* base. In order to translate these instructions into an image the height of Temple 45's *jaṅghā* and the width of its spire base are used here.

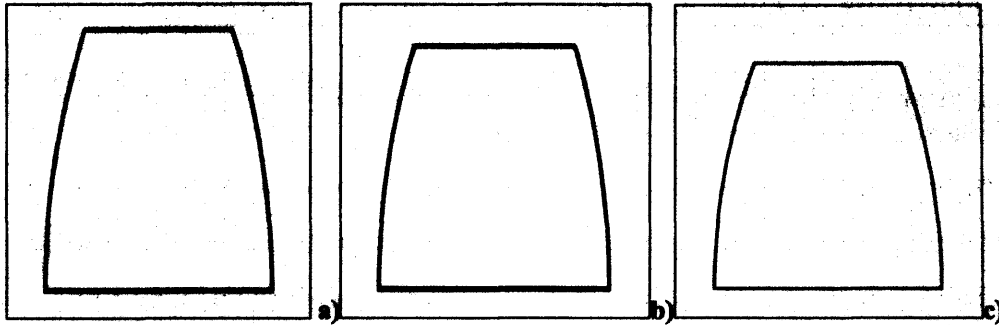


Figure 67: Diagrams of spires described in Chapter 56 of the *Samarāṅgaṇa Sūtradhāra* a) Sarvatobhadra temple spire (56. 135 – 137), b) Mandira temple spire (56. 161), c) Rucaka temple spire (56.47 – 48).

The three descriptions of temple spire design discussed create elevations as depicted in Figure 67. Like the *Aparājitaṭṭṛcchā* diagram referenced by Kulkarni and drawn up in Figure 66, it appears as if the temple spires are shorter and therefore their *skandha* widths wider than they would be in real life, even if perspective and the recession involved in their three-dimensional actualities are taken into account. What is interesting here is that the 4-fold *sūtra* that creates the spire's *vēṇukōśa*, or the circular curve with a radius of 4X, is used in both the Sarvatobhadra and Mandira Temple examples, in further spire types that are discussed in the *Samarāṅgaṇa Sūtradhāra* that use the Sarvatobhadra as the basis of their forms, i.e. the Nandiśāla (Chapter 56. 150 – 153, see also section), in the *Aparājitaṭṭṛcchā* spire mentioned by Kulkarni and shown in Figure 66, and also in the *Dīpārṇava*. All that changes is how high the spires are. Perhaps the squatness of the *Samarāṅgaṇa* and *Aparājitaṭṭṛcchā* elevations shown in the examples given here indicate that the instructions concerning the height of the spires are inaccurate in these particular examples.

From the images shown above, the Sarvatobhadra spire in Figure 67a seems the most convincing Latina spire elevation because it is taller than the others, and the width of the *skandha* is 0.65 times that of the base of the spire which is only a little off the *Dīpārṇava* proportions for a beautiful spire (and the *Samarāṅgaṇa* proportions cited by Kramrisch, although her reference to the verse may be wrong since the instruction has not been found in

this translation of the text). None of these spires are as elegant and convincing as the *Dīpārṇava* spires, and none of the *Samarāṅgaṇa Sūtradhāra* instructions are as detailed. Kulkarni's translations of Diparvana instructions will therefore be returned to, and further aspects of their descriptions explored and tested.

Dīpārṇava descriptions of *Latā*, *pratilatā* and *kārṇa kūṭa* dimensions

The rewarding thing about the *Dīpārṇava* text is the detail that it contains relative to the other texts. It is the only text found in this study that includes reference to the offsets or projections that stagger the face of the spire. Marking in the *latā*, *pratilatā* and *kārṇa* widths at the base of the spire according to the *Dīpārṇava*'s 2:1.5:3 ratio leads to an interesting geometric corollary in the spires with top widths of exactly 0.6X: the combined widths of *pratilatas* and *latā* at the bottom of the *śikhara* are also 0.6X or, to put it another way, the edges at the top of these spires are exactly congruent with the inner edge of the *kārṇa* and outer edge of the *pratilatā* at the *śikhara*'s base as shown in Figure 68. Note that this is unaffected by variations to a spire's height or the degree of its curvature because it is created by the simple equation of 0.6X with the *Dīpārṇava*'s ratio for the projections at the base of the *śikhara*: $1.5/10 + 3/10 + 1.5/10 = 6/10$.

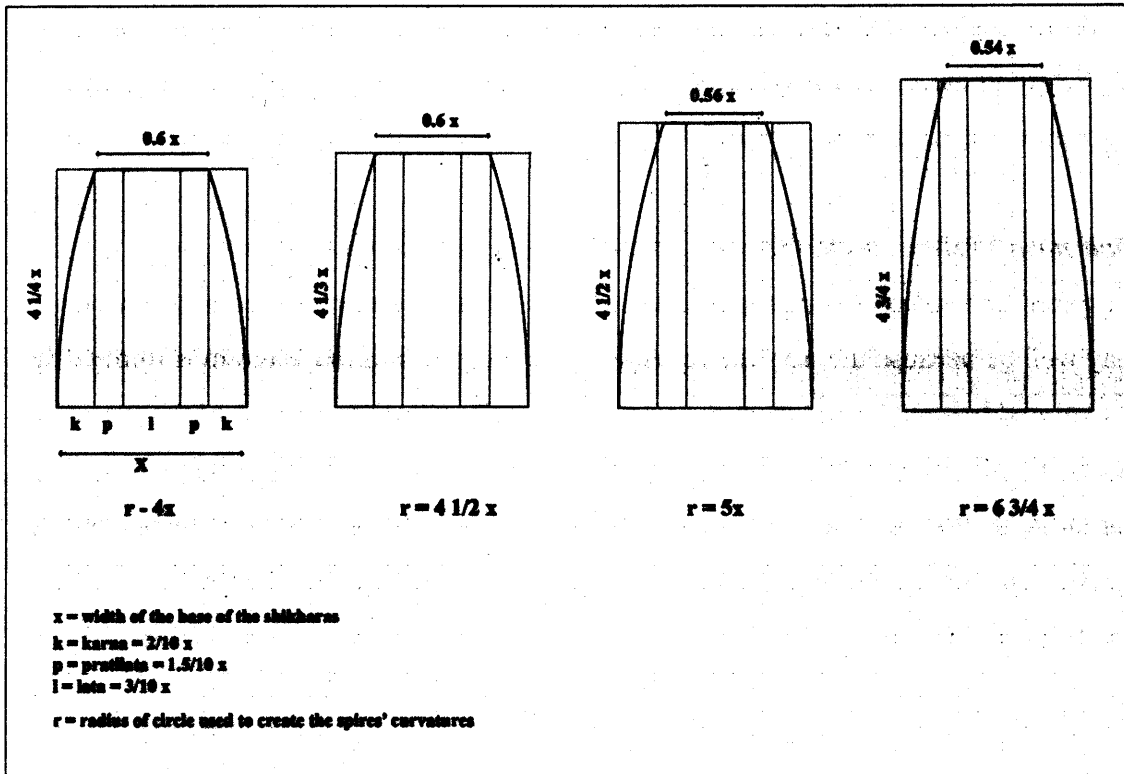


Figure 68: *Dīpārṇava* spires with *karna*, *pratilatā* and *latā* base widths included.

Michael Meister also briefly mentions a similar method of Latina spire design using circular curves whose radii are multiples of the *śikhara* width at its base in 'On the development of a morphology for a symbolic architecture', however rather than give specific heights to curtail the curvatures he states that the curves are cut off when the top of the spire reaches the same dimensions as the inner sanctum, the spire's *skandha* acting as the 'upper *vēdī*'.⁵⁶ Meister does not reference where this information is coming from, but it seems to depend on his assumption that the temple plan and sanctum dimensions equate and follow a strictly defined set of proportions, a premise that was questioned in the section on plans in Chapter 2. The *Dīpārṇava* ratio for *latā*:*pratilatā*:*karna kūṭa* widths at the *śikhara* base do not follow the *Bṛhat Samhitā vāstumaṇḍala* proportions that Meister believes regulated the dimensions of the sanctum and its walls at *vēdībandha* level: using the *Dīpārṇava* rules, if the top dimensions of the spire matches those of the sanctum, then the width of the walls of the temple are a $\frac{1}{3}$ of that of the sanctum rather than $\frac{1}{2}$, as Meister suggests. In more general terms, the lack of uniformity in Latina temple plans discussed in Chapter 2 show that the sanctum proportions did not always match the top of the *śikhara*, see the Terahi Śiva

⁵⁶ Michael Meister, 'On the development of a Morphology for a Symbolic Architecture: India', *RES Anthropology and Aesthetics* (1986, pp. 33 – 50), p.40.

Temple for example (c 825AD) with an inner sanctum is wider than its *skandha*. Therefore this paralleling of the sanctum and ‘upper *vēdī*’ cannot have been a standard that determined the height of all Latina spires.

The *Dīpārṇava*’s references to the *karṇa*, *pratīlata* and *latā* seem to apply to entirely stepped spires since no mention is made of the recesses between articulated projections. This may well be because the way the recesses were worked into the diagram is implied, as will be explored below. Absent from the texts are details of how the curves of the *karṇa*, *pratīlata* and *latā* projections are determined, however Latina spires have staggered rather than flat faces, therefore, if these geometric diagrams are at the basis of the dimensions used when carving, then the measurements needed are those of the individual widths of the projections’ courses.

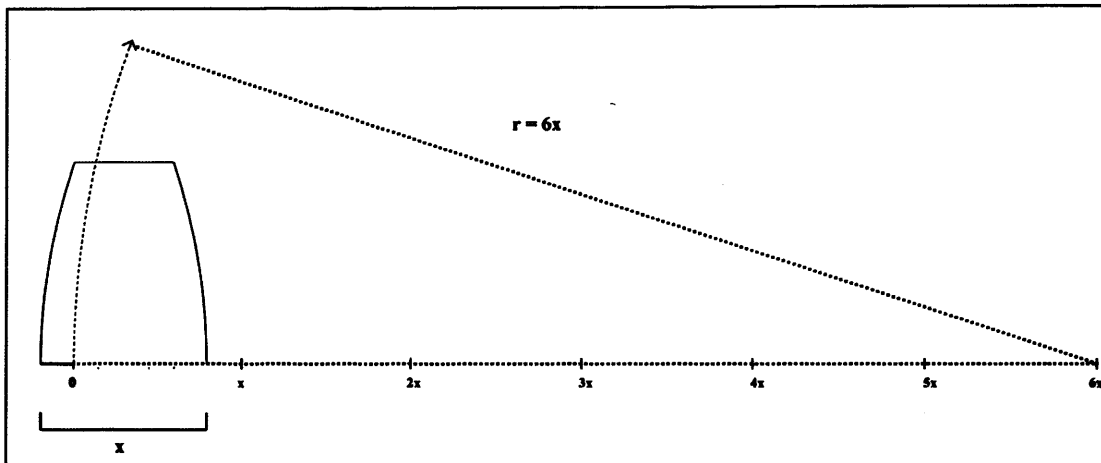


Figure 69: Diagram showing a *pratīlata* curve being created according to first set of proportions suggested in Table 1. The *latā* curves would follow the same procedure.

Based on the curves of Latina *śikhara*s that still stand, and in keeping with consistency of practise, I would argue that *latā* and *pratīlata* curves are also made from sections of circles with radii that are multiples of the width of the base of the *śikhara* (‘X’). The *pratīlata* curve is more obtuse than the *karṇa*’s outer curve and therefore the *pratīlata*’s radius will be a larger multiple of X than the *karṇa*’s radius, and the *latā* curve is more obtuse still and therefore its radius will be a larger multiple of X than that of the *pratīlata*. These curves would begin at the preordained points where the *pratīlatas* and *latā* start at the base of the *śikhara*, points determined in the *Dīpārṇava* by fixed ratios. The ‘drawing point’ of the ‘compass’ would begin at these points of departure and its anchor point would stretch back horizontally for a distance that is a multiple of the *śikhara* base width. The *pratīlata* and

latās lines would then curve upwards until they reach the spire's summit (Figure 69).

Keeping with the *Dīpārṇava* proportions, the different radii required such that the widths of the *kārṇa*, *pratīlata* and *latā* at the top of the summit fit with the 2:1.5:2 ratio works out as follows:

Height of <i>Śikhara</i>	Radius for outer <i>kārṇa</i> curvature	Radius for outer <i>pratīlata</i> curvature	Radius for <i>latā</i> curvature
1 ¼ X	4X	6X	9X
1 1/3 X	4 ½ X	6 ½ X	10X
1 ½ X	5 X	8X	13X
1 ¾ X	6 ¾ X	10 ½ X	17 ½ X

Table 1: Radii used to create *latā*, *pratīlata* and *kārṇa kūṣa* curvature (in multiples of the width of spire base – 'X') required to fit with *Dīpārṇava* proportions for top widths of the spire.

These proportions create diagrams of spires as shown in Figure 70. Another tidy geometric pairing occurs here. Whereas the highest point of the outer curves of the spires that are 1 1/2X and 1 3/4X tall do not align exactly with the point where the *kārṇa* meets the *pratīlata* at the base of the *śikhara* (as is the case with the other two spires with 0.6X wide summits), the point at which the *kārṇa* meets the *pratīlata* at the top of the spire aligns with the point where the *pratīlata* meets the *latā* at its base, see Figure 70.

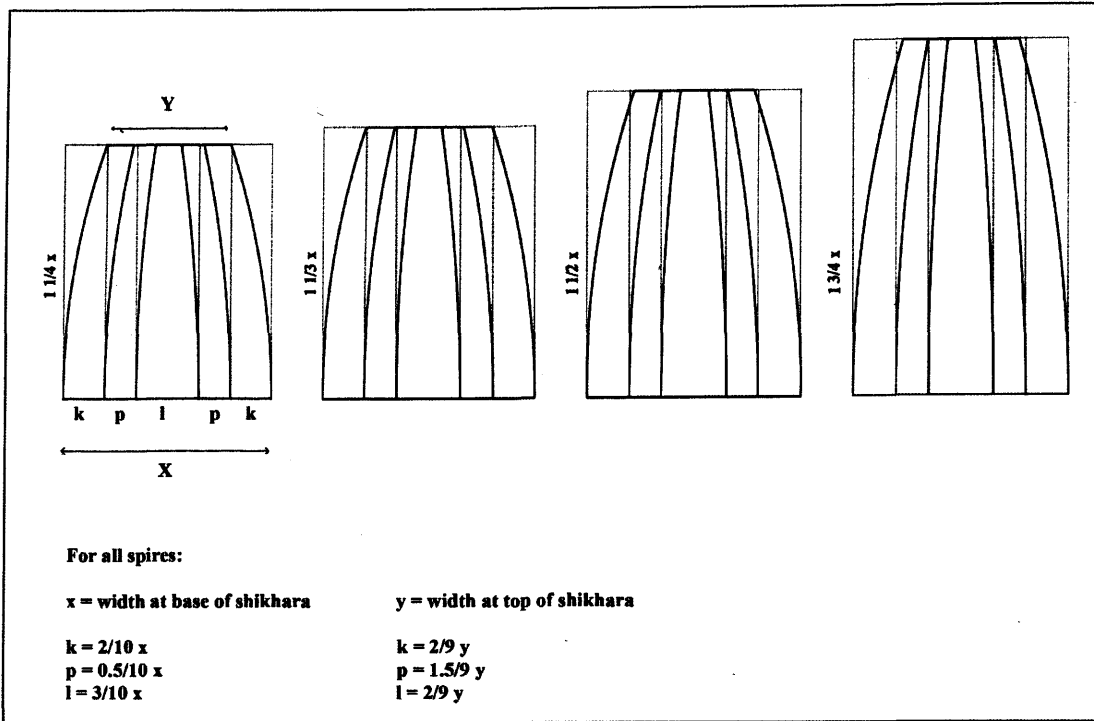


Figure 70 *Dīpārṇava* spires with *latā*, *pratilatā* and *karṇa kūṭa* curves included according to dimensions detailed in Table 1.

Unlike these images, Latina spires do not tend to have entirely stepped spires. Prior to the first quarter of the 9th century they are broken up by the wide recesses housing *bālapañjaras* that follow the *karṇa kūṭas*, and after this they tend to be articulated with slimmer, regular recesses between all of the projections. Interestingly, the only purely stepped spires without interceding *bālapañjaras* appear in Gujarat, where the *Dīpārṇava* is from, see the Mahā-Gurjara-style Latina temple at Shamalji for example. That the vast majority of Latina spires do involve recesses does not pose too much of a problem for the above theory since these do not seem to change width significantly regardless of how far up the spire they appear.

Because of this, the curves of the stepped *śikhara* can be ‘parted’ by the width of the recess, and then the inner curve of *karṇa* will follow that of *pratilatā*, and inner curve of *pratilatā* will follow that of *latā*. In typical Latina temples (but not in the case of the Temple 45) according to the model offered by 8th – early 9th century temples with *bālapañjaras*, the *karṇa* and the *pratilatā* projections each ‘take’ a recess into their width dimensions, and the recesses fall over temple body’s *karṇa* and *pratiratha*.

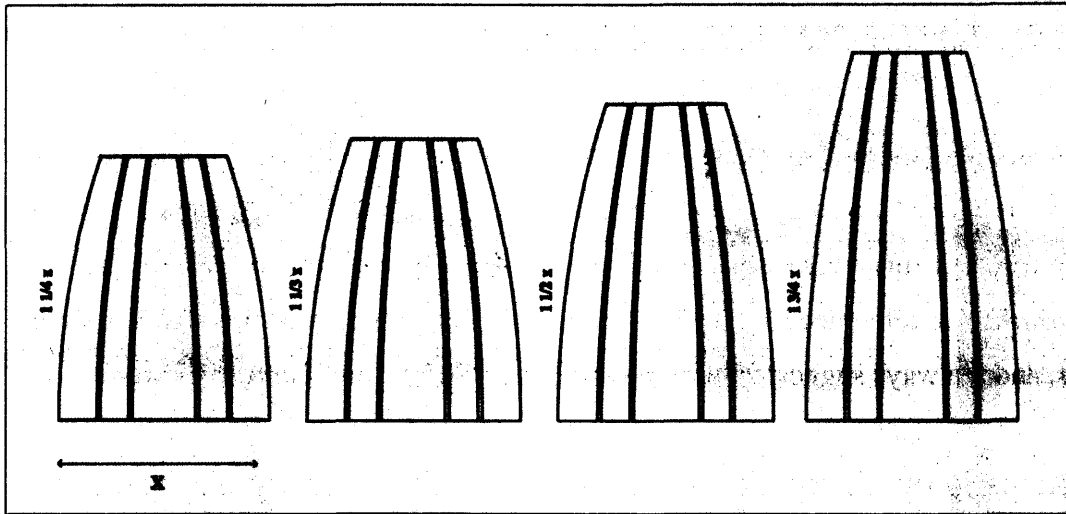


Figure 71: Articulated *Dipāṇava* spires with recesses between their *latā*, *pratilatā* and *kārṇa kārṇa* projections.

Thinking of these diagrams as practical tools to enable the carving of the *śikhara* courses, now that the widths of the courses are determined, all that is needed are the heights of the courses. This is simple in the unusual case of Temple 45, for the courses remain the same height and therefore regular horizontal lines can be scored across the spire, the measurements of the courses scaled up, and the carving commence. Adam Hardy has observed that the *Samarāṅgaṇa Sūtradhāra* appears to establish the height and vertical proportions of Drāviḍian temples by following a simple system of numerical progression.⁵⁷ With the curvatures of the spire in place this could be quite possible also in Latina temples. Otherwise, given that usually a Latina spire's *latā*, *pratilatā* and *kārṇa*'s courses maintain the same overall proportions despite changing widths, perhaps there was a simple proportional system such that the height of a *latā* course is a fixed fraction of its width. Therefore, the width of the base course would be known, and its height worked out from this equation: if the height of a *latā* course is $\frac{1}{3}$ its width, for example, then if the first course laid is 120cm, its height will be 40cm. Where the base of the next course begins would then be known, its width could be taken from the diagram and the calculation repeated: if the top width of the first course is 118cm according to the diagram, then this will be the base width of the second course and the second course's height will be $118/3 = 39\frac{1}{3}$ cm, etc. This is just speculation, but it would fit with the proportionate way in which other measurements are ascertained.

⁵⁷ Adam Hardy, op. cit.

Thoughts on this system of Latina spire design

This kind of geometric play, and indeed the textual instructions themselves, do not come to much if they cannot be backed up by some of those things that they describe; the indisputable forms of surviving Latina temple spires. Despite reservations as to the practical utility of *Vastuśāstric* references to *śikhara* design, the diagrams created by the *Dīpārṇava*'s instructions, and the ways suggested here in which the *pratīlata* and *latā* curves were achieved, do seem fit with some Central and Western Latina spires. This study does not suggest these rules apply to all Latina temples, and throughout this thesis the variety and innovation shown in temple design has been underlined, but they must be ratified by at least some standing temples.

The elevations of Latina spires that still stand cannot be tested against the *Dīpārṇava* proportions unless they are actually climbed and each individual course measured, an undertaking that has not been possible in this study but which Adam Hardy has carried out on certain temples as part of his research for 'The Indian Temple' project. Whether Central Indian temples other than Temple 45 follow the *Dīpārṇava* proportions for *karna:pratīlatā:latā* at the base and summit of the spire is testable however, particularly given the corollary between spire and *vēdībāndha* plan. Happily there are examples of temples that ratify these *Dīpārṇava* proportions, see for example the plans of the Sūrya Temple at Madhkedha and the Śiva Temple that is part of the Kadwaha Khirnīvālā group (Figure 72).

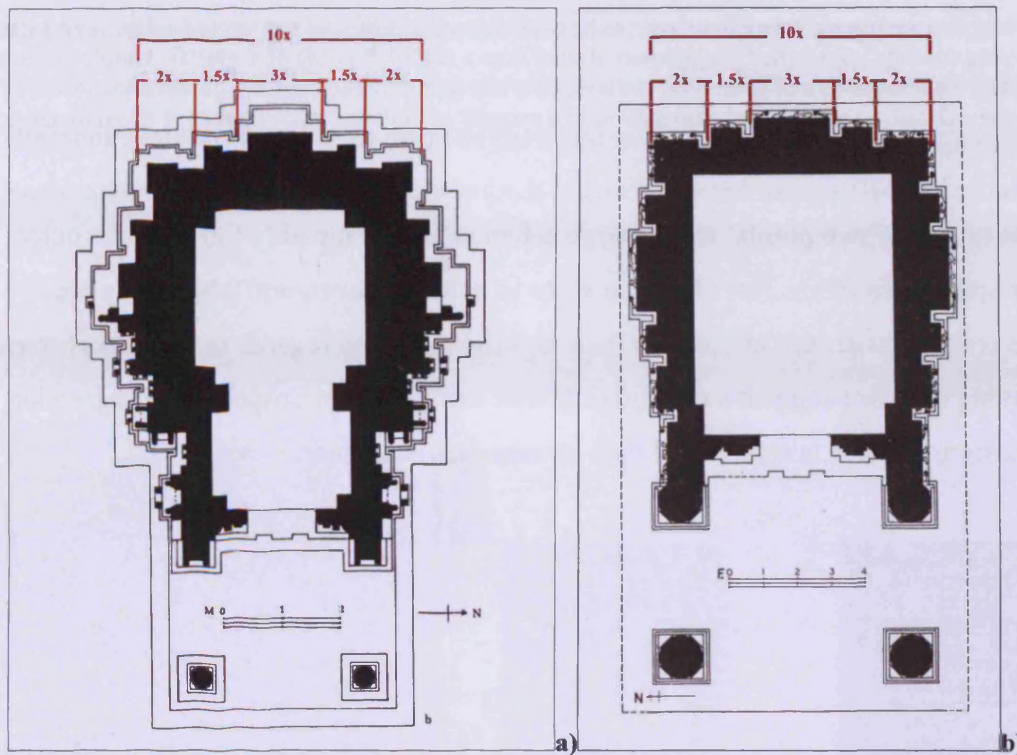


Figure 72: Plans from a) Madhkedha Sūrya Temple (c 850 AD), b) Śiva Temple, Kadwaha, Khirnīvālā Group (late 10th century).

In addition to the evidence of temples and texts, an engraved diagram on one of the *maṇḍapa* seat backs from the second Hari Hara temple at Osian in Rajasthan offers up a different intriguing piece of evidence. The seat backs are carved with two architectural sketches; one showing half a Latina spire elevation, see Figure 73a, and the other showing the elevation of one side of a fairly simply designed Phāmsanā roof of the sort that might crown a *maṇḍapa*. The former shows what appears to be the curve of the temple's *vēṇukōśa* followed by a *salilāntara*, followed by the side of the *pratilatā* and then the *latā*; a *tri-aṅga* Latina spire with a recess between *karṇa* and *pratilatā*, but no recess between *pratilatā* and *latā*, in the manner of the Harihara 2 temple itself. Could this be a graphic representation of a Latina elevation of the sort discussed above? Although this diagram is well known and has been published in the *Encyclopaedia of North Indian Temple Architecture*,⁵⁸ it has yet to receive much analysis. Patrick George uses the diagram to back up his theory of spire design mentioned in section :

The sketch appears to show a division of a temple superstructure using a series of sets of two points. The single mark on the upper right appears to define both the height of the superstructure and the difference between the widths of the top and bottom. According to this interpretation, this diagram

⁵⁸ M A Dhaky et al., *Encyclopaedia of Indian Temple Architecture: North India Period of Early Maturity*, (New Delhi, 1991) Plate 409.

indicates that the temple superstructure is to be constructed by means of a discrete process, step by step, according to some unspecified progression. Rather than a scaled drawing of a specific temple elevation, or a diagram of a process of geometric construction, this representation appears to have been a pedagogical tool, an abbreviated explanation of a process of building that would have taken months, if not years, to complete.⁵⁹

The ‘series of sets of two points’ that George refers to are presumably those on the outer side of the spire’s *vēṇukōśa*. Not all of these are in pairs however, and where they are positioned is not regular, nor obvious in their significance with regards to the Latina spire. The engraving does not suggest a pedagogical tool explaining an unspecified progression for spire design, and if it is such a tool then its message is unclear.

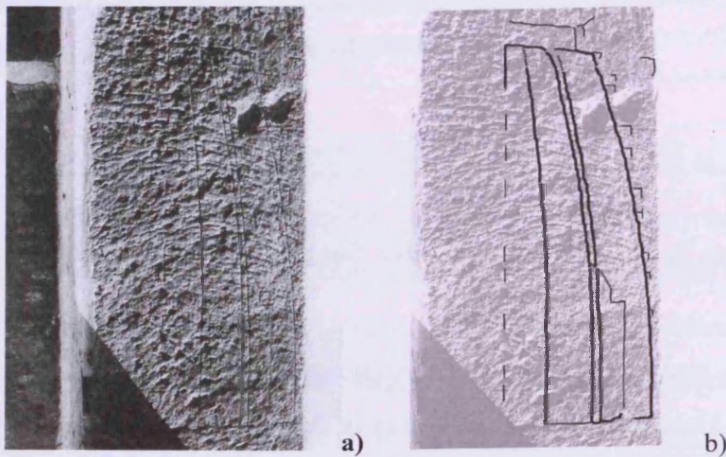


Figure 73: a) enigmatic carving of part of a Latina *śikhara* on a seat back from the *maṇḍapa* of Harihara 2 Temple, Osian (775 – 800 AD) (Photograph courtesy of Encyclopaedia of Indian Temple Architecture)⁶⁰ b) the same carving outlined.

In fact from a close analysis of the curves of the Harihara diagram, the form concurs remarkably well with one of the *Dīpārṇava* spires. To aid in this analysis the fine scored lines of the diagram have been drawn over to make them more visible (Figure 73b). The first question regarding this diagram is whether the *latā*, *pratilatā* and *karṇa*’s outlines are circular curves that could have been created in the manner described in previous sections. Overlaying the *latā*, *pratilatā* and *karṇa* curves with circular curves indicates that this is indeed the case; the *latā* and *karṇa* curves fit very closely with the overlaid circular curves, and whilst the *pratilatā* curve has a very minor deviation at its centre this could be to do with natural deviations that occur when using a ‘compass’ mechanism (Figure 74). Whether the diagram fits with any of the dimensions described above cannot be tested directly since the *Dīpārṇava* and *Samarāṅgaṇa Sūtradhāra*’s key proportioning measurement, the base

⁵⁹ Patrick George, p.133.

⁶⁰ M A Dhaky et al., op. cit., Plate 409.

width of the *śikhara*, is not available in this instance; it should not be assumed that the diagram shows exactly half a vertically-divided *śikhara*. In order to test therefore whether the diagram's curvatures fit with those of the *Dīpārṇava* spires and relate to each other in the same manner as the *Dīpārṇava* curvatures has to be tested using self-referential means.

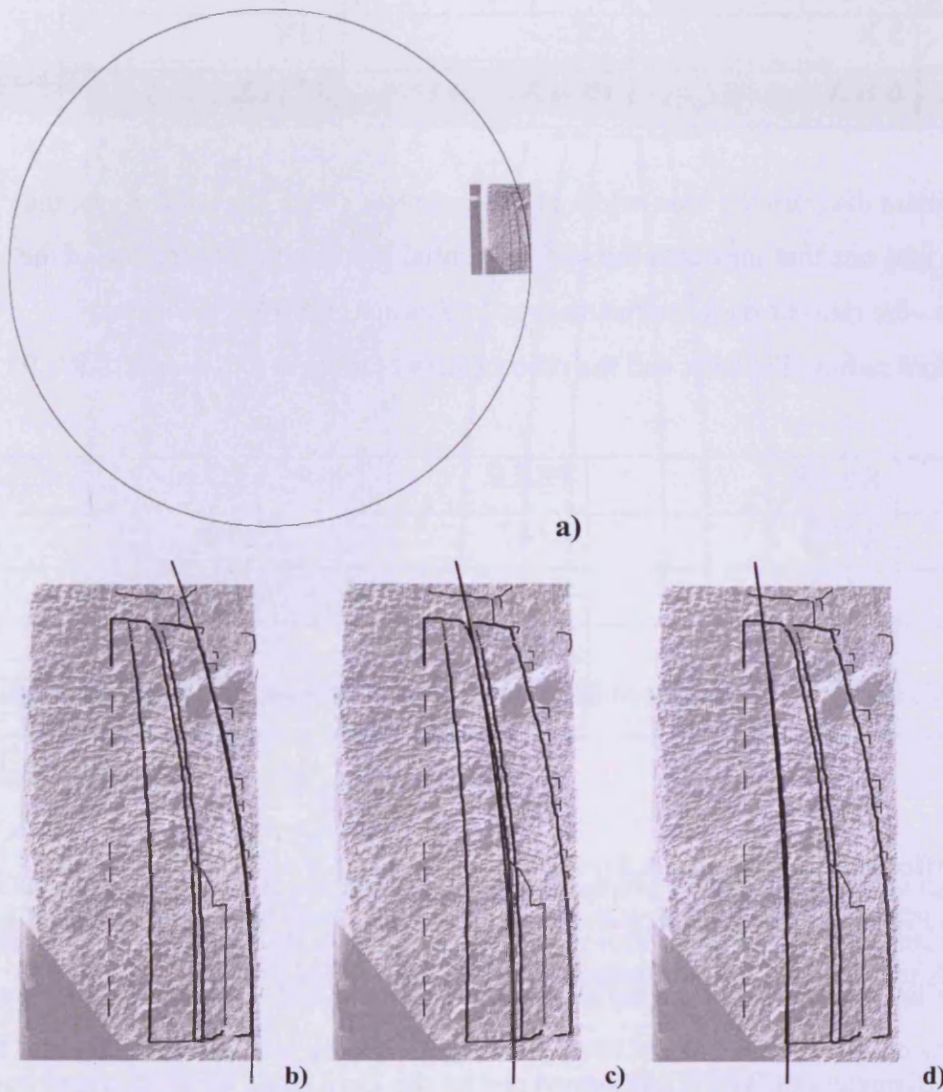


Figure 74: The carved spire diagram from Harihara 2 Temple, Osian a) diagram showing how the circular curves are tested against the carving, b) the *latā* curvature, c) the *pratilatā* curvature, d) the *latā* curvature.

The proposed proportions and manner in which the *Dīpārṇava* spires *pratilatā* and *latā* were created have been previously offered as follows (see Table 1, p 139), based on 'X', the width of the *śikhara* at its base:

Height of <i>Śikhara</i>	Radius for outer <i>karṇa</i> curvature	Radius for outer <i>pratīlata</i> curvature	Radius for <i>latā</i> curvature
1 ¼ X	4X	6X	9X
1 1/3 X	4 ½ X	6 ½ X	10X
1 ½ X	5 X	8X	13X
1 ¾ X	6 ¾ X	10 ½ X	17 ½ X

Because in the Harihara diagram the base width of the complete *śikhara* is not a given, the table is now turned into one that indicates the self-referential proportions of the radii of the different curvatures –the ratio of *karṇa* radius to *pratīlatā* radius (KR/PR), the ratio of *pratīlatā* radius to *latā* radius (PR/LR), and the ratio of *karṇa* radius to *latā* radius (KR/LR):

Height of <i>Śikhara</i>	KR/PR	PR/LR	KR/LR
1 ¼ X	0.667	0.667	0.444
1 1/3 X	0.692	0.65	0.45
1 ½ X	0.625	0.615	0.385
1 ¾ X	0.643	0.6	0.386

Interestingly, the difference between the KR/PR values is: $0.625 - 0.692 = 0.067$, and the difference between PR/LR values is exactly the same: $0.6 - 0.667 = 0.067$. The variety of KR/LR values leads to a slightly smaller difference of: $0.385 - 0.444 = 0.06$

Using the different diameters of the Photoshopped circles the HariHara 2 diagram works out as:

<i>Śikhara</i>	KR/PR	PR/LR	KR/LR
Harihara diagram	0.633	0.608	0.385

These fit very closely with the proportions of a tower of 1.5X height (1.5 times the width of the *śikhara* base): the KR/LR ratio is exactly the same, and the KR/PR ratio and PR/LR ratio are out by only 0.008 and 0.007, which is a minor divergence and could be merely to

do with the approximations of the drawing. Flipping the Harihara diagram over and connecting it to its original half shows how this makes sense visually. The Harihara diagram therefore seems to ratify both the *Dīpārṇava* proportions discussed above and also the suggestions made here for how the *latā* and *pratilatā* curves were established.

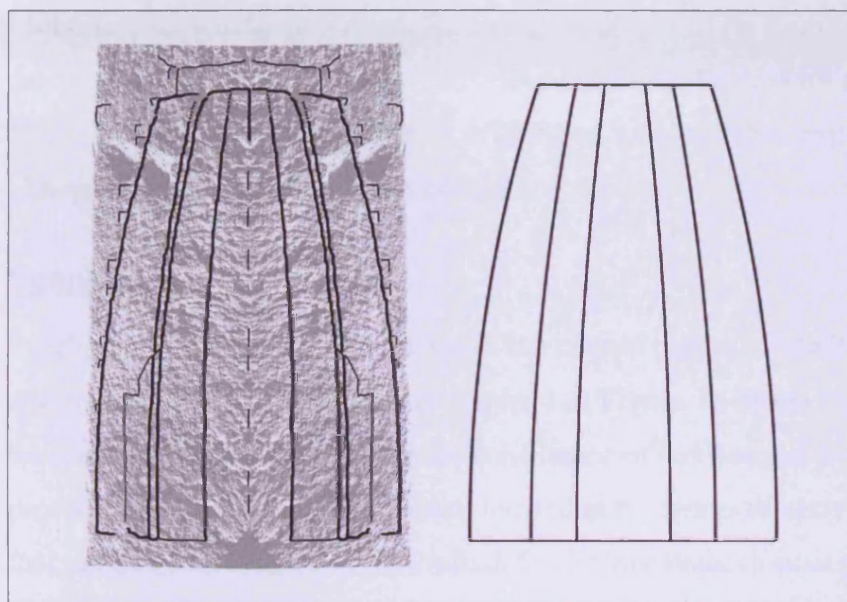


Figure 75: Latina diagram from the Harihara 2 Temple compared with the spire of 1.5X height.

Conclusion

One important point to realise about these diagrams is that though they may generate sets of dimensions that are used to create differently proportioned Latina spires, a new diagram would not have to be drawn for each temple. Working with hypothetical spires for Temple 45 it becomes clear that the drawings themselves lead to what could be abbreviated to fairly simple numerical (rather than geometric) progressions – perhaps the ‘unspecified progressions’ that eluded George - that could then apply to differently dimensioned Latina spires. A few different sets of numeric progressions could be learned by rote or listed for a few different types of spire, and then these base measurements could be multiplied out so that they work for any temple size.

There seems to be a substantial amount of evidence that backs up the credibility of the *Dīpārṇava* proportions discussed above; the fact that they lead to elegant and convincing looking Latina spires which have tidy geometric patterns and corollaries hidden in their

forms, the fact that their measurements accord with surviving Central Indian Latina temples, and the fact that the Harihara rock-cut diagram may fit with a set of their dimensions. This provides enough verification to justify testing these descriptions against Temple 45's body and spire fragments in Chapter 6. The fact that they do fit closely with Temple 45's measurements then offers enough confirmation to justify their use in the reconstruction of Temple 45's spire.

Chapter 4: Sanchi and Temple 45

This chapter is an introduction to the Buddhist site of Sanchi in Madhya Pradesh and, set within it, Temple 45, the focus of this thesis. It will begin by giving a broad overview of the site and the work that has been done to study it. Following this Temple 45 and Monastery 45 will be described, focussing on details of its form rather than questions of date and circumstance. Scholars' theories concerning the history and original form of Temple 45 will then be considered, offering up an alternative explanation of its idiosyncratic composition in the conclusion.

Sanchi

Sanchi is in District Raisen, situated in the central region of Madhya Pradesh known in ancient times as Daśārṇadēśa (See Figure 1 & Figure 3). 10km north east of Sanchi lies the ancient city of Vidisha set in the confluence of the Bes and Betwa rivers, a prosperous and vibrant market town, located at the nexus of early Indian trade routes that ran down through Madhya Pradesh from Uttar Pradesh (using current regional nomenclature) and then heading onwards to Rajasthan, Gujarat, Maharashtra and Karnataka.¹ As a busy crossroads of trade and communication, Vidisha's strategic location may well have contributed to the fact that the region was politically significant from as early as the 6th – 5th centuries BC, about the time of the Buddha's birth.

Imperial interest in the area is attested to by the monuments and epigraphy that survive. About 13km north of Sanchi lie the Udaygiri caves, Hindu and Jain rock-cut temples built during the Gupta dynasty (4th – 5th centuries AD) that represent some of the earliest sculptural representations of a burgeoning of Hindu iconography, and one cave bears an inscription referencing Chandragupta II (375 – 415 AD). Equally important are the wealth of Buddhist monuments, monasteries and sculptures that were built on top of Sanchi hill, the beauty and historical import of which have led to it being recognised as a World Heritage Site. The sheer longevity of Buddhist monastic activity and residence at Sanchi, and, as a result of this, the sustained architectural and sculptural production that occurred there, is unparalleled in India: Sanchi's monuments span almost the entire

¹ Michael Willis, *Temples of Gopaksetra: A Regional History of Architecture and Sculpture in Central India AD 600 – 900*, (London: The British Museum, 1997), pp.17 – 18.

history of the religion in India, from its initial imperial endorsement by the Mauryan Emperor Ashoka in the 3rd century BC, through to the religion's gradual demise in India during the 11th – 12th centuries AD.

A brief history of Sanchi

It is unclear why Sanchi was chosen as such a repository of Buddhist architecture and activity given that it was neither visited by Buddha Śākyamuni during his life, nor the venue for any significant event in Buddhist history. Strangely, it does not feature in the catalogue of key Buddhist sites compiled by the Chinese traveller Huiyen Tsang whilst on pilgrimage across Northern India in 630 – 631 AD despite being well established at this time.² Sukumar Dutt points out that the fact that the Mauryan emperor Ashoka chose to build a *stūpa* at Sanchi, as will be discussed below, would have endowed it with sanctity enough to make it henceforth a Buddhist pilgrimage site and appropriate locale for monastic settlement.³ Whatever the original reason may have been, Sanchi would have been an ideal location for a Buddhist settlement, near enough to the affluent market town of Vidisha for regular lay patronage to sustain the monastery, as indicated by lay donor inscriptions on the *stūpa* railings, and yet sufficiently far removed from the urban hustle and bustle to provide the peace and detachment required for monastic life. Note that throughout its history Sanchi was by no means an isolated island of Buddhism, for over the centuries it was joined by numerous other Buddhist stupa and monastery sites in the Vidisha region.⁴

² M.K. Dhavalikar, *Sanchi*, (Oxford: Oxford University Press, 2003), p.15.

³ Sukumar Dutt, *Buddhist Monks and Monasteries of India: their History and their Contribution to Indian Culture*, (London: George Allen & Unwin Ltd, 1962), p.220.

⁴ See Julia Shaw, *Buddhist landscapes in central India: Sanchi Hill and archaeologies of religious and social change, c. third century BC to fifth century AD* (London: British Association for South Asian Studies, 2007).

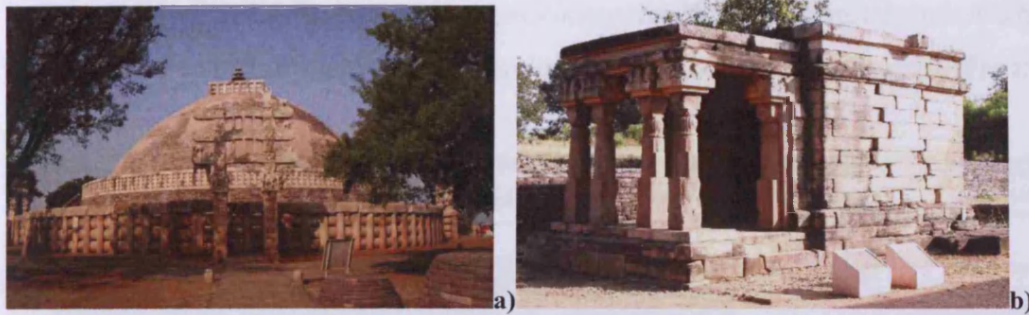


Figure 76: a) Sanchi's Great Stupa, constructed during the Mauryan dynasty (c .232 BC) and given railings and carved gateways during the Shunga dynasty (2nd century BC) and Satavahana dynasty (1st century BC – 1st century AD), b) Temple 17, Gupta Period Temple, 5th century AD.

Ashoka, ruling across a huge swathe of Northern India from about 272 – 231BC, was the first imperial sponsor of Buddhism, transforming it from the minor, inconsequential religion it had been since the Buddha's death, made up of small and sometimes doctrinally discordant monastic communities, into an important and politically influential religion.⁵ As a means of propagating the religion he built, according to legend, some 84,000 Buddhist *stūpas* (masonry memorial domes, derived from burial mounds) and pillars bearing Buddhist edicts at important points across India.⁶ Sanchi's Great Stupa and edict pillar were erected during Ashoka's reign, John Marshall suggesting that this was in response to a request by one of Ashoka's wives. The *Mahāvamsā*, a Sri Lankan text, describes how she came from nearby Vidisha and oversaw the building of a 'sumptuous *vihāra* (monastery)' at Chetiyagiri, an ancient site of unknown location which some have identified with present-day Sanchi.⁷ The building of the Great Stupa spiritually sanctioned the site, and in the centuries that followed Sanchi became a dynamic Buddhist centre of the sort that Dutt describes as:

... centres abounding with life and activity, alive and agog with worshippers in their hundreds congregating around them to celebrate Buddhist religious festivals. ... Round these *stūpas*, viharas naturally grew up in clusters – not of mushroom growth, but settled monastic establishments traversing a centuries-old history of decay, renovation, structural additions and alterations.⁸

⁵ See Amita Kanekar, *A Spoke In The Wheel*, (Noida, UP: HarperCollins, 2005), a historically-based, fictional account of the life of the Buddha and the motivations behind Ashoka's support of the religion

⁶ Roy Craven, *Indian Art*, (London: Thames and Hudson, 1976).

⁷ John Marshall, *Guide to Sanchi*, 2nd ed. (Delhi, 1936) p. 8.

⁸ Sukumar Dutt, p.220.

Sandrine Gill notes that the fact that buildings were always orientated towards the Great Stupa throughout the centuries of architectural expansion shows that it remained the spiritual heart of the site.⁹

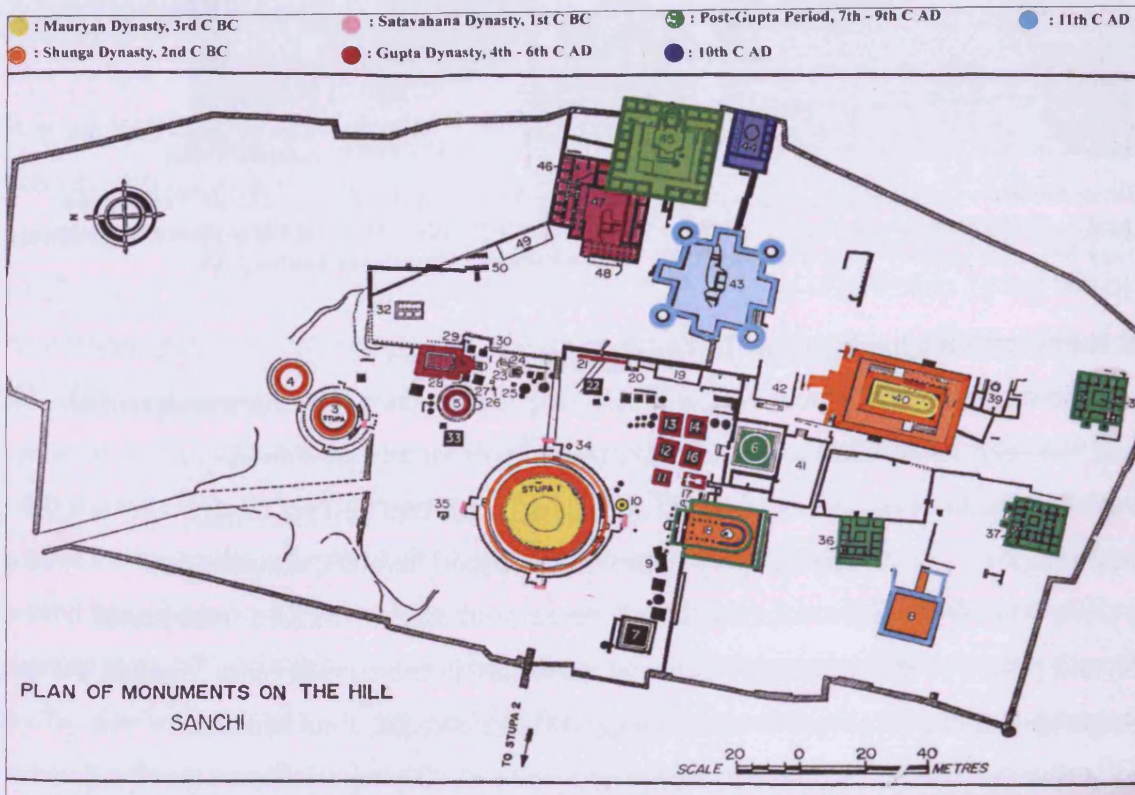


Figure 77: Colour-coded map of Sanchi, from John Marshall's map (1936, pl. X).

After the Great Stupa was erected, building activities continued at Sanchi for the next fourteen centuries, new monuments and monasteries layered over the foundations of older structures as century followed century. During the Shunga dynasty in the 2nd century BC the Great Stupa was repaired, expanded and given railings, and two more *stūpas* erected. Under Satavahana rule from the 1st century BC – 1st century AD, exquisitely carved *tōraṇas* (gateways) were added to the railings, showing scenes from Śākyamuni Buddha's lives (according to most scholars, the scenes showing the Buddha aniconically at this early date), processions of devotees on pilgrimage, scenes of worship, and an animated cast of *gaṇas* (mischievous dwarves), lions, *yakṣis* (female fertility/tree spirits) and the like (Figure 78). After a lull in patronage from the 1st – 3rd centuries AD, whilst the Kushan dynasty held sway over the north west of India, the

⁹ Sandrine Gill, *L'architecture et la sculpture à Sanchi* (Madhya Pradesh, Inde, III^e s. av. J.-C. - XI^e s. apr. J.-C.) reconsidérées à la lumière des recherches récentes sur l'art indien, (PhD thesis), (Paris 3 Sorbonne Nouvelle, 1999), p.353.

construction of monasteries and temples resumed under the Gupta kings. Gupta monuments include Temple 17 from the 5th century AD, a flat-roofed stone temple that is considered to be the earliest, free-standing temple that survives in India (Figure 76b).¹⁰



Figure 78: Carvings from the eastern gateway of the Great Stūpa's torana, Satavahana dynasty (1st century BC – 1st century AD) a) a *yakṣi* from the eastern gateway, b) narrative relief carving showing Maya's dream of the white elephant, signifying the Buddha's miraculous conception.

Political unrest brought about by Hun invasions in Northern India led to another pause in production in the 6th century, but this was followed by fairly continuous building activity from the 7th through to the 11th century AD. The Central Indian arm of the Gurjara-Pratihara dynasty held control over a large part of Central India including Daśārṇadēśa from the 8th century, their power dwindling in the 10th century having suffered defeats at the hands of the Pala dynasty in the north east of India and facing insurgencies from their Chandella, Cedi and Paramara feudatories. It was during the 9th century, just before the Pratihara dynasty's demise, that Temple 45 was constructed.

It appears that the site was abandoned at some point after the 12th century AD since no buildings have been dated later than this. The decline is typically ascribed to an increasingly strong Hindu influence that eventually engulfed and snuffed out the religion in India. John Irwin asserts that 'By the eleventh century, Hinduism was so successful in the surrounding area that Buddhism was gradually eclipsed as an independent religion, the Buddha himself now being reduced in status to an incarnation

¹⁰ Krishna Deva, M A Dhaky, M Meister, *The Encyclopaedia of North Indian Temple Architecture: Beginnings of a Medieval Idiom*, (New Delhi: American Institute of Indian Studies, 1998), p.26.

of the god Viṣṇu, thus illustrating another stage in the age-old Indian mythological process of assimilating-to-kill.’¹¹ As indicative of this perhaps, Temple 45 has a doorway carved in typical ‘Hindu style’, complete with the Hindu river goddesses Gaṅgā and Yamunā standing at the base of its inner doorjambs, and plaques of Hindu gods from about the time of Sanchi’s decline also been found scattered on the hill top and are now displayed in the Sanchi museum.

As Hinduism increased in power and prestige, and Buddhist patronage declined, the monastic community either deserted the hill or coalesced with the Hindu majority as the 13th century approached. That the patronage of Buddhist monuments at Sanchi continued even this long is surprising given the religion’s decline in Central India from the 9th century onwards; the vast majority of other temples that survive in Central India from this period are Hindu or Jain, and by this time Buddhism only existed in an active and politically consequential manner in Kashmir and North East India, India’s two last Buddhist strongholds. B N Puri notes that none of the Pratihara rulers was Buddhist and that records suggest that the patrons of Buddhist sites from this period were lay people and monks.¹² Whilst Buddhism was declining and Śaivism and Bhāgavatism gaining prominence, however, Puri observes that the era was characterized by ‘an atmosphere of tolerance and fellow-feeling even in the midst of divergent religious cross-currents’,¹³ perhaps helping to explain why Buddhist occupation continued at Sanchi during the Pratihara period. Despite this sustained patronage, by the 13th century Sanchi was finally deserted and nearly 1500 years of Buddhist architecture was forgotten as it became slowly enmeshed in the vegetation that grew up and around it.

Sanchi Rediscovered

A party of British soldiers led by a General Taylor came across the hilltop monuments by chance in 1818. The site was subsequently reported to the East India Company in Calcutta and given the name of Sanchi after the small village sitting at the base of the

¹¹ John Irwin, ‘The Sanchi Torso’, *Victoria and Albert Museum Year Book*, Vol 3, (London: Phaidon, 1972), p.9.

¹² B N Puri, *The History of the Gurjara-Pratiharas*, 2nd ed, (New Delhi: Munshiram Manoharlal Publishers, 1986), p.216.

¹³ B N Puri, p.205.

hill.¹⁴ The first report on the Sanchi *stūpas* was published the following year,¹⁵ followed by a series of monographs on the beautiful Satavahana *tōraṇa* carvings.



Figure 79: Temple 45, photograph by Deen Dyal, 1882 (Photograph 1000/14 (1438) British Library India Office).

In 1854 General Alexander Cunningham published the first comprehensive analysis of the Sanchi *stūpas* as part of a wider investigation he undertook with Lieutenant F C Maisey into the cluster of *stūpa* sites in the Bhilsa area (present day District Vidisha).¹⁶ Whilst mentioning a ruined monastery and temple on the Eastern side of the summit and indicating its position on his map, Cunningham's documentation of the Sanchi monuments stops at the *stūpas* and his discussion of Buddhist history does not continue beyond the 7th century AD. This publication was followed in 1868 by James Fergusson's *Tree and Serpent Worship*, an art historical analysis of the Great Stupa's narrative relief carvings.¹⁷ Fergusson includes in his work an early photograph of Temple 45 similar to that shown in Figure 79, but dismisses it as too damaged to be of any use to architectural history and fails to recognise it as the sanctum of a temple, complete with spire:

¹⁴ Sukumar Dutt, p.489.

¹⁵ Captain E Fell, Description of an ancient and remarkable monument, near Bhilsa', in *The Calcutta Journal* (1819), reprinted in *Journal of the Asiatic Society of Bengal*, III, (1834), pp. 490 - 494

¹⁶ Alexander Cunningham, *The Bhilsa Topes*, (London, 1854).

¹⁷ James Fergusson, *Tree and Serpent Worship*, (London : W. M. Allen & Co., 1873).

... [Monastery 45 is] the only standing remains of one of the *vihāras* or monasteries which, when Buddhism was flourishing, were found in every part of India. ... The central cell is a feature not found in the caves before the 6th or 7th century, and this one has so Hindu-like an aspect that it may be much more modern. ... It is now so completely ruined that its plan can hardly be made out, and no details of architecture are standing from which its character or age could be determined.¹⁸

General F C Maisey published the photographs and drawings that he had made during his work with Cunningham independently in 1892.¹⁹ Whilst his analysis of the monuments is inaccurate in many respects, and in the introduction to Maisey's book (Cunningham does little to conceal his disagreement with, for example, the author's dating²⁰) he includes a slightly more detailed and accurate description of the '*vihāra* - temple', as he calls it, and includes a hypothetical picture of the temple complete with what appears to be a rather short, curved Latina spire (Figure 80).

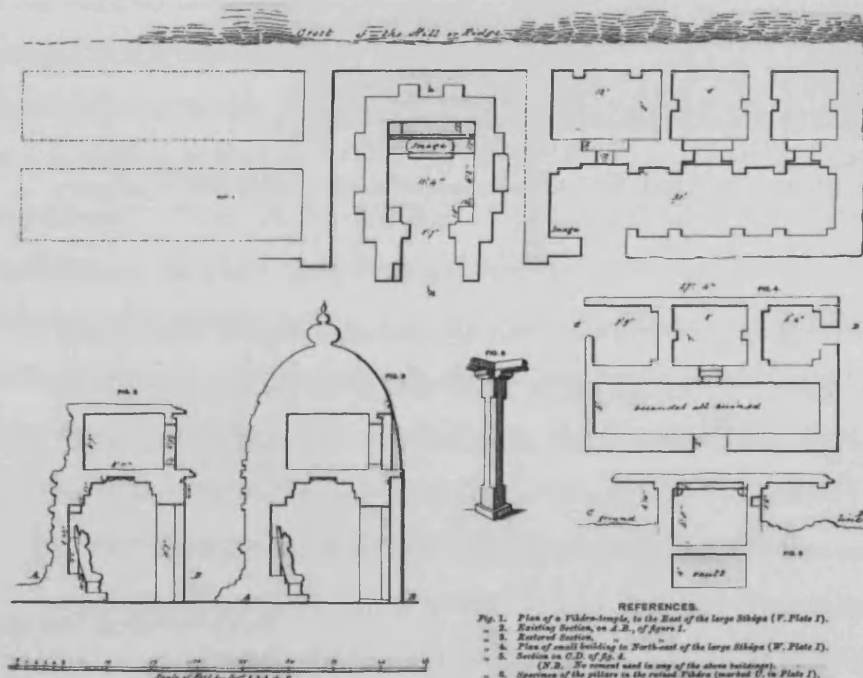


Figure 80: Maisey's drawing of Temple and Monastery 45, 1892, p. XXXVIII.

From General Taylor's rediscovery of Sanchi until nearly a century later, therefore, when the then Director General of Archaeology in India, Sir John Marshall, undertook the thorough clearing, excavation and restoration of the site, Temple 45 and the other

¹⁸ James Fergusson, p.112.

¹⁹ F C Maisey, *Sanchi and its Remains: A full description of the ancient buildings, sculptures, and inscriptions at Sanchi, near Bhilra in Central India with remarks on the evidence of Gotama, or Sāṅke Muni*, (London: 1892).

²⁰ F C Maisey, p. xii.

buildings of the eastern plateau received only minor interest from, in Marshall's words, the 'treasure seekers and amateurs' that enthusiastically and invasively examined the Sanchi *stūpas* and *tōraṇas*.²¹ Regarding the work of Major Cole at Sanchi, Curator of Ancient Monuments from 1881 – 1883, Marshall states:

No attempt ... was made by him to preserve the other monuments which were crumbling to ruin, to exhume from their debris the monasteries, temples and other edifices which cover the hill-top around the Great Stupa, or to protect the hundreds of loose sculptures and inscriptions lying on the site. These tasks ... were left for the writer to carry out between 1912 and 1919. For the rest, the whole site was buried beneath such deep accumulations of debris and so overgrown with jungle, that the very existence of the majority of the monuments had not even been suspected. ... [Temple 45] had reached the last stage of decay and was a menace to anyone entering its shrine'.²²

Marshall therefore set about stabilising, clearing and restoring all of the remaining monuments at Sanchi and set up the Sanchi Museum to house some of its sculptural and architectural remains. In 1918 he published the first comprehensive analysis of Sanchi and, with this, the first assessment of Monastery and Temple 45,²³ and in 1940 published a second version augmented by more photographs and accompanied by the commentary of archaeologist Albert Foucher.²⁴

²¹ Many of the early investigations were instigated with no thought to the preservation of the site, a prime example being the exploratory efforts of Captain Johnson in 1822 that involved breaking open the Great *Stūpa*, knocking down the Western gateway, and damaging other *stūpas*. Whilst disapproving of Johnson's rough technique, Cunningham himself enthusiastically 'opened' the 'topes' he came across in search of relics, and appealed to scholars to do the same at other early Buddhist sites. Further, recognising the beauty and importance of the *tōraṇa* carvings, Cunningham urged that they be sent to the British Museum for safe keeping – a way of thought that prompted a backlash, and, involuntarily, became an impetus for the re-assessment of attitudes concerning the ownership, preservation and conservation of Indian monuments in India. (Cunningham, pp x – xi.)

²² John Marshall, p.28. Note that in the 1912 – 1913 report Temple 45 is known as Temple XXI. By his 1916 – 1917 report it has become Temple 45, the numbering pushed up probably due to the discovery of additional monastic and temple remains. Photographs of Temple 45 taken by Deen Dyal in 1882 corroborate Marshall's claims and show the sanctum rising up out of a great tumbled mass of architectural fragments and rubble, hemmed in by a tangle of trees and bushes (Figure 79). ('Ruins or the Vihara at Sanchi', Archaeological Survey of India Collections: India Office Series (volume 14: Central India), Deen Dyal, Photograph 1000/14 (1448), British Library India Office Select Materials). A photograph taken in 1899 during a visit by the Viceroy of Bhopal, however, shows a neatly cleared area in front of the temple, with newly trimmed grass covering the base of the entrance hall and courtyard in front of the temple. ('Ruins of Vihara Temple', from Curzon Collection: 'Visit of His Excellency the Viceroy. Bhopal, November 1899', Herzog & Higgins, Photograph 430/26/52, British Library India Office Select Materials). Given that this photograph was taken before his own efforts, it seems Marshall was exaggerating the disrepute of the site prior to his arrival and ignoring earlier clearing work. In fact, Marshall himself only gives sustained consideration to Temple 45 in his later publications, for in the Archaeological Survey of India Annual Report 1912 – 1913 he describes 'only those [buildings] of exceptional interest' which, it seems, did not include Temple 45. The same is true of his report from 1916 – 1917.

²³ John Marshall, op. cit.

²⁴ John Marshall & Albert Foucher, *The Monuments of Sanchi* (London: Probsthain, 1940)

Part of the clearing efforts of Marshall and his team involved stacking the architectural fragments from Temple 45 and surrounding monuments around areas 44 – 49 of the site (Figure 77), housing a few in the Sanchi museum. Frustratingly, no record was made of where the fragments were found originally. The fragments were numbered in an arbitrary manner and an apparently random selection of the pieces were listed and briefly described by Mohammad Hamid in the 1922 *Catalogue of the Museum of Archaeology Sanchi*,²⁵ however only a few are accompanied by photographs and without these some of the descriptions are too brief or ambiguous to determine the identity of the fragments he is referring to. Most of the fragments have since been given 'SAN numbers', a numbering system based on location rather than typology, but no accompanying description of the pieces has yet been published.

Bar alterations to their dating, Marshall and Foucher's assessment of Temple and Monastery 45 has remained the template for later general publications about Sanchi,²⁶ and the bedrock from which more specific studies of the ruins have departed.²⁷ What remains of the temple will first be described in terms of its form alone before turning to the scholarly speculations of Marshall and others concerning its date, history and original form.

²⁵ Mohammad Hamid, op. cit.

²⁶ Debala Mitra, *Sanchi*, (New Delhi: Archeological Survey of India, 2001), Krishna Murthy, *Material Culture of Sanchi* (New Delhi : Sundeep, 1983), M K Dhavalikar, op.cit.

²⁷ Odette Viennot, *Temples de l'Inde centrale et occidentale : etude stylistique et essai de chronologie relative du VIe au milieu du Xe siecle* (Paris : École Française d'Extrême-Orient, 1976), Krishna Deva, M A Dhaky, and Michael Meister, op. cit., Sandrine Gill, op. cit.

Temple and Monastery 45

Monastery 45

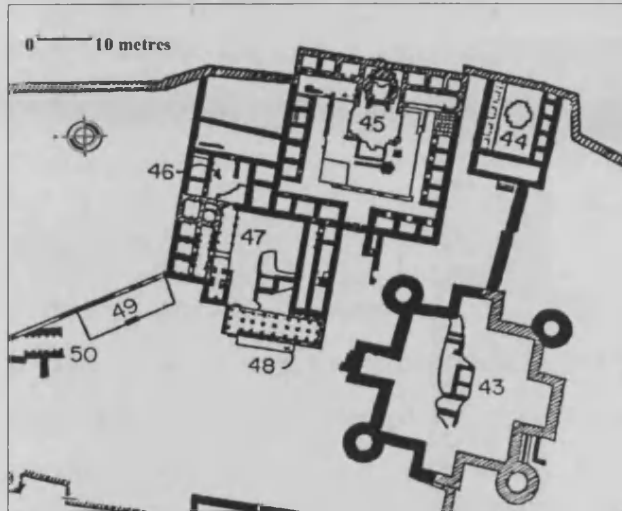


Figure 81: Sanchi's eastern plateau. From John Marshall's map (1936, pl. X).

Monastery 45 stands on the edge of Sanchi's eastern plateau. It is set within a larger complex of other monastic units, with Monasteries 46 and 47 connecting to its north western corner, Building 44 standing beside it to the south, and Building 43 to its south west; the majority of the architectural remains from Temple 45 and other Sanchi monuments lie stacked around the foundations of these buildings. The remains of these structures represent some of the later building activities at Sanchi, layered over the remnants of earlier constructions. Monasteries 46 and 47 were comprised of pillared verandas and monastic cells sharing a common courtyard and are believed to have been built in the 11th century, over the top of an earlier Gupta monastery.²⁸ Building 44 was probably an 8th – 9th century rectangular building prefaced by a wide antechamber, its northern and southern walls lined with diminutive cells intended for sculptures rather than monks, facing towards a *stūpa* that would have stood in the centre of the courtyard.²⁹ Marshall compared the large, cruciform plan of Building 43 to the monumental Kushan period *stūpa* from Peshawar in present day Pakistan, but he

²⁸ John Marshall, *Guide to Sanchi*, p 142. M K Dhavalikar, p 98.

²⁹ John Marshall, *Guide to Sanchi*, p 141. M K Dhavalikar, p 98.

acknowledges that both the form of its superstructure and its exact date of construction are unknown.³⁰

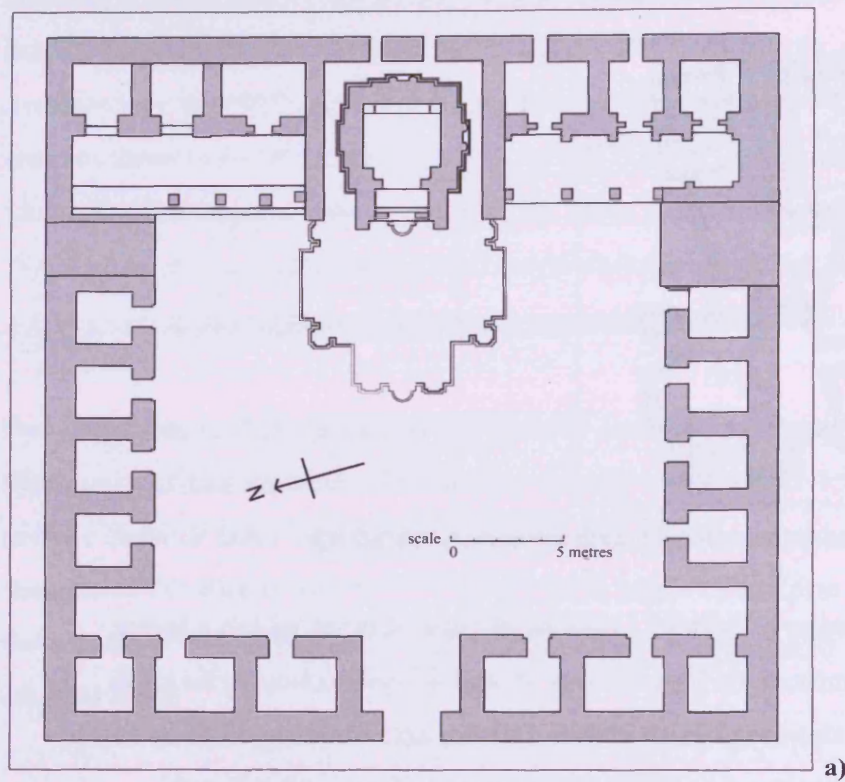


Figure 82: a) Plan of Monastery 45 and Temple 45, b) Temple 45, c) View from the raised cells on the north side of Temple 45, looking out over the outline of Monastery 45's northern cell walls towards the Great Stupa.

Monastery 45 is a square monastery measuring approximately 33m by 33m from wall to wall (see Figure 82a) built on two levels. The foundations of the rectangular monastic cells stand at ground level around its southern, northern and western walls, their narrow

³⁰ John Marshall, *Guide to Sanchi*, pp. 145 – 6.

entrances leading out to the courtyard. Remnants of the kerb that marked the end of the cell's verandas are still visible, and square blocks dividing the kerb at regular intervals indicate where pillars would have stood to hold up the veranda roof. Six cells along the monastery's eastern wall stand raised by about 175cm above ground level. Emerging from this line of cells, parting them down the middle, is the substantial, ruined form of Temple 45, the base of its entrance hall stretching before it and into the monastic courtyard, looking west towards the dome of The Great Stupa (Figure 2). The plinth from a small *stūpa* stands in the courtyard south west of the *maṇḍapa* base.

Temple 45

Temple 45 was a Latina temple as indicated by the *latā*, *pratilatā* and *karnakūṭa* courses found amongst fragments (see Chapter 5). Today the temple's sanctum, the rough inner core of the lower part of its spire and the base of its entrance hall remain standing. Whilst, as discussed in Chapter 2, Latina temples were the most common temple form across Northern India during the 7th – 10th centuries, Temple 45 displays innovation in its design, conception and context as a full-sized temple incorporated into and forming a part of an enclosed, monastic complex. Famous North East Indian monasteries such as Nalanda and Ratnagiri (from which the layout of the Sanchi monastic settlements may have evolved) experimented during the 6th – 7th centuries and 8th – 9th centuries respectively by incorporating Buddhist 'chapels' for worship within their boundaries, yet neither had attempted to include a full, monumental temple in their wings.³¹

Temple 45's simple plan, unadorned, plain walls and negligible *vēḍibandha* contrast sharply with the articulated plans and walls, busy with happy celestial hordes, niches and *udgamas* familiar from most Central Indian Latina temples post-8th century, as discussed in Chapter 2. Temple 45 has a stepped, *tri-anga* plan without recesses between its projections (Figure 82). Its walls are made up of large, plain blocks of creamy sandstone punctuated by niches projecting from the walls of its *bhadrās* housing Buddhist figures, two of which still survive. Its *vēḍibandha*, most unusually, is equally plain, the typical sweeps and curves of a North Indian *vēḍibandha*'s piled courses and their plinths abbreviated to two basic masonry courses that jut out successively beneath the *janḡhā*, the first stepping out by about 11.5cm and standing about 108 cm tall, the

³¹ Sandrine Gill, pp. 333 – 338.

second stepping out by 4.5cm and standing approximately 25cm high. The top of the temple's spire and its outer sheath have fallen away, bringing with it the upper part of the walls' facing, including whatever *kinḥinikājālas* it may have sported, the *varaṇḍikā* and the *bhadra* niche's crowning elements, leaving behind the roughly piled slabs of stone, protruding out at irregular intervals. A rectangular, window-like entrance at the front of the spire leads into a hollow chamber above the temple's inner sanctum, a space that was in all probability a pragmatic structural device used to lighten the load of the spire rather than to act as some kind of habitable cell or storage chamber, as seen from the cores of several other Central Indian Latina spires.

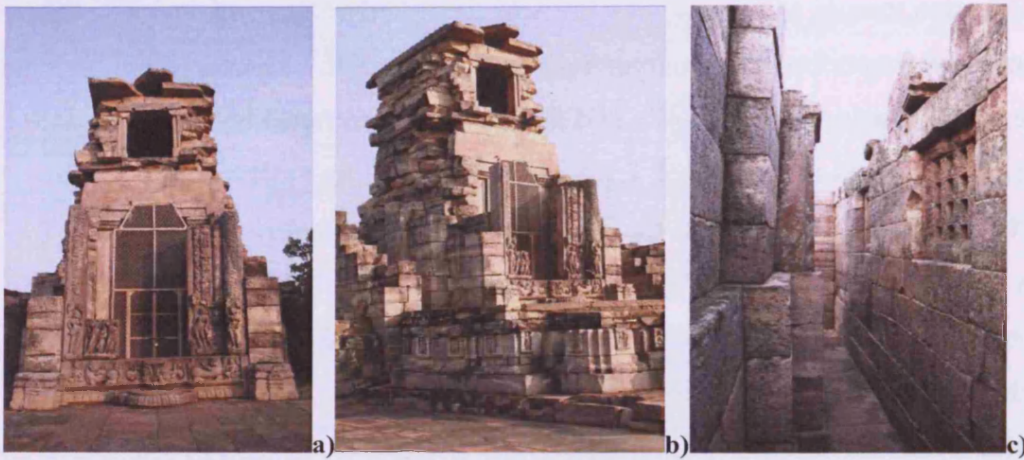


Figure 83: a)&b) Temple 45 c) *Pradakṣiṇā* aisle on Temple 45's south side.

The pillars and fragmented *kapotālīs* that create the temple's *bhadra* niches on its southern and eastern walls still survive, occupied by two Buddhist figures with their enourage. Both of the niches have square pillars with three main decorative registers. In the southern niche the pillars are made up of a crowning vase-of-plenty, followed by a *kīrttimukha* spouting forth watery swirls, followed by a grimacing gorgon face that is shown in full underneath a beaded horseshoe arch; in the eastern niche the pillars are made up of another crowning vase-of-plenty, followed by a diamond lotus pattern, followed by a fleshy half-lotus also framed by a beaded horseshoe arch shape. These are both topped by plain eaves bearing small *gavākṣas*, rather than the *chādyas* that might be expected. Whatever superstructures, if anything, surmounted the plain eave lintels no longer remain.

In the southern niche is a bodhisattva who has been variously identified as Mañjuśrī and as Lōkēśvara, seated on a double-lotus pedestal with his right leg hanging pendant in the posture of royal ease. Beneath him stands his faithful mount, identified as a peacock, and two diminutive female attendants stand on either side of his throne. He wears an ornate necklace, armlets, belt and sacred thread, and behind him radiates a splendid circular halo adorned with concentric lotus petals. In the eastern niche sits the Buddha in meditative pose, also flanked by two female attendants. Sadly the heads have been knocked from the figures, but despite their damaged state they both show the subtle, sensual realism and inner animation for which medieval Central Indian sculpture is often admired – a sensitivity of modelling that is somewhat lacking from the Buddha seated in the temple sanctum. The fact that these sculptures and those of numerous other Central Indian temples have been decapitated but remain more or less intact points to intended sabotage rather than degradation by natural causes.



Figure 84: a) Lōkēśvara from Temple 45's southern *bhadra* niche, b) southern niche pillar, c) Buddha from the eastern *bhadra* niche, d) eastern niche pillar.

The walls of the cells that flank Temple 45 create a slim *pradakṣiṇā* around the sanctum, a passage for ritual circumambulation that measures 54 – 58 cm at its narrowest points between the *bhadras* and *pradakṣiṇā* walls. These are rough and bare, cut through with just two windows on the eastern back wall, their frames and stone lattices enlivened by simple lotus and lotus petal relief carving.

The front of the porch that leads to the *garbhagrha* entrance has an elaborately carved doorway whose overall form is reminiscent of 9th century Central Indian temples such as the Śiva Temple at Terahi (800 – 825 AD), the Gaḍarmal Temple at Badoh (825 – 850),

and the Sūrya Temples at Umri (825 – 850 AD) and Madhekdha (850 – 875) (Figure 85a & b and). The lintel is missing and the left-hand door jamb is incomplete, part of it surviving amongst the fragments from in area g of Monastery 47 (Figure 85c), but the majority of the right-hand door jamb and the doorstep remain intact. The door jambs are made up of five ornate *śākhās* (door-bands). A slim band of foliate/aquatic swirls on its inner side is followed by a door-band of *gaṇas* prancing on the backs of leogryphs who balance on the shoulders of kneeling elephants. Following this is a *śākhā* of affectionate and playful triplet groups, separated into registers by double lotus pedestals fronted by *gavākṣa* motifs, rather than the stacked, individual, pillared Valabhi shrines of temples from 900 AD onwards, and crowned with a dome – perhaps a reference to Sanchi's *stūpas*? - preceded by a *gavākṣa* and topped by an *āmalaka*. Following these are *stambhaśākhās* (bands that resemble slim pillars) with vases-of-plenty that lead down to *kīrttimukhas* spouting forth narrow vertical columns of watery/foliate swirls. At the outer edge of the doorway is a broader pillar entirely made up of swirling forms, projecting beyond the other door-bands. Inside the sanctum, resting against the northern wall, is part of a door lintel bearing a chorus of garland-bearing *apsarās* (matching an architectural fragment of the same in area f of Monastery 47), possibly intended to fit above the *garbhagrha* door.

On either side of the doorway base are the Hindu river goddesses Yamunā and Gaṅgā, standing on their respective aquatic *vahānas*, the crocodile and the *makara*. Each are accompanied by attendants: a small child at their side and a lady-in-waiting holding a parasol or fly whisk above their head, beside which *nāgadeities* curve and join hands in supplication to the Buddha (Figure 85a). At their feet on the inner side of the doorways sit small. The goddesses and their attendants are guarded, atypically, by female rather than male *Dvārapāla* standing on the doorways outer jamb. Whilst the faces of goddesses and their female attendants are missing or damaged, their bodies show the full breasts, narrow waist and broad, curving hips familiar to Central Indian sculpture, standing voluptuously in *tribhaṅga* poses. The Hindu river goddesses and the affectionate triplets that cavort on either side of the doorway are surprising attendants at a Buddhist temple.



Figure 85: Temple 45 *garbhagṛha* doorway a) Gaṅgā and her attendants standing to the right of the doorway, b) door *śākhās* from the right jamb, c) fragment from the left-hand doorjamb, SAN 434, d) Temple 45's doorway, e) lion and Kubēra from the right of the doorstep.

An ornate threshold supports the doorjambs, occupied by pairs of Kubēra, lion, diminutive female devotee and half-*kīrttimukha* faces, mirroring each other on either side of the projecting central portion of the door step, decorated with a lotus-branch and bird design (Figure 85d & e). The step is in better condition than the door jambs and shows a skilful liveliness of carving: the Kubēra figures exude a calm, portly majesty, the lions cheerfully lick their paws whilst their tails sweep up to elegantly duplicate the smooth arch of their haunches, and the rounded plains of the toothily-grinning gorgon faces echo the swirling effluence washing around them. The doorstep is lifted from the ground by a course of lotus petals with a semi-circular central step.

The elaborate doorway leads through the plain walls of the *antarāla*, its ceiling missing, to the entrance of the sanctum proper. The sides of the door are formed by two square pillars, their upper half decorated by a lotus medallion pattern. Whilst the pillar on the right hand side of the entrance displays a complete lotus set, with a half lotus topped by

a full lotus medallion, the pillar at the left of the doorway is prematurely truncated, cutting the full lotus in half (Figure 86b). This indicates that the pillars were not originally designed for Temple 45's doorway but instead clumsily modified to fit this setting. The pillars are topped by square ribbed pillows that in turn prop up the plain brackets.

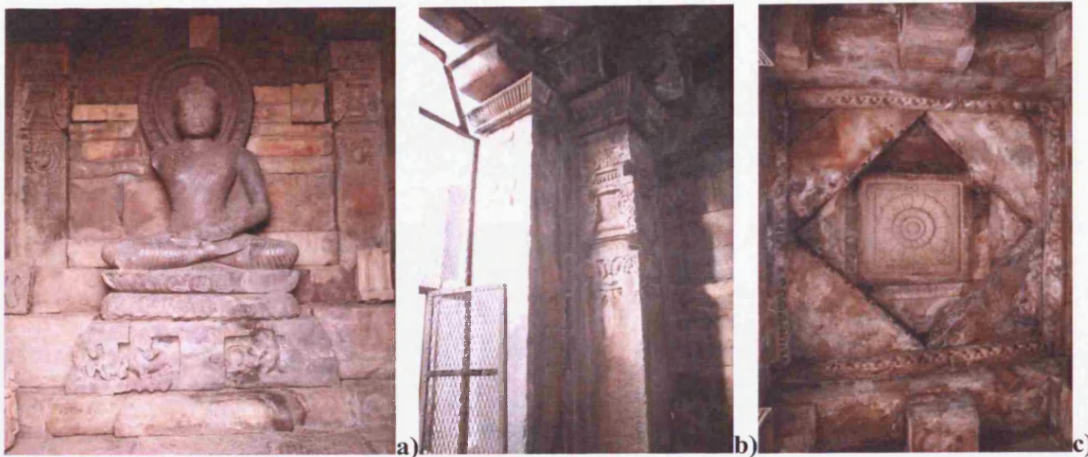


Figure 86: Inside the sanctum, a) Seated Buddha, b) pillars from the sanctum's entrance, c) the 'lantern ceiling' from the sanctum.

The inner sanctum is rectangular, about 353cm by 347cm wall to wall. The plain, sombre walls of the sanctum are cheered by four pillars set into the inner corners of the chamber, their upper parts decorated with a half *kīrttimukha* faces, vase-and-foliage and diamond lotus designs, and topped by more gilded pillows and plain brackets. These hold up plain stone beams that support the roof, leading up to a 'lantern ceiling' of two turned squares receding to a fleshy lotus medallion (Figure 86c). Against the back of this chamber sits a large, rather stiff-looking, reddish sandstone statue of the Buddha in *bhūmisparshamudra* pose (right-hand-touching-the-earth gesture, signifying *Śākyamuni*'s enlightenment, though his right hand is now missing), seated on a double lotus pedestal (Figure 86a). This sculpture rests upon a separate, damaged lion throne which sits on top of a lotus petal plinth. Two roughly carved and asymmetric stone courses, one resting on top of the other, are cut to hem the sculpture's lotus pedestals and lion throne in at their sides. On top of the highest course is a wall of irregularly-cut stone blocks and bricks, against which the Buddha's back rests, and into which part of his halo slots, obscuring one side of the corner pillars' carved faces. The overall impression of the awkwardly paired lion throne and Buddha and the untidy stone courses supporting him creates a discordant centrepiece, appearing hastily cobbled

together rather than planned and executed with this space in mind. Along with the remains of a door-lintel mentioned above, the sanctum contains an architectural fragment with a *makara* and a celestial maiden at its sides.

***Maṇḍapa* base**



Figure 87: Temple 45's *maṇḍapa* base.

Of the *mandapa*, only the base remains (Figure 87). The *vēdībāndha* rests on an elegant lotus-petal base which stands on top of a plain plinth course. The *vēdībāndha* is of a typical *khura – khumba – kalaśa – kapotālī* format topped by a *vāsantapaṭṭikā* (broad band carved with a floral or foliate scroll). The *kumbha* is punctuated by niches housing *mithunas* or triplets, standing together affectionately, or in two examples engaged in some type of theatrical exchange (Figure 87c), and two house Kubēra figures, each with an attendant. The little figures shrines have square pillars decorated with lotus designs and capped by small *chādyas* followed in the majority of the shrines by composite *gavākṣa* pediments, blossoming outwards prettily and reaching the top of the *mandapa*, and in the shrines from the *mandapa* base's indented walls nearest the temple by various simpler *gavākṣa* designs. The *vēdībāndha* and plinth courses rest on layers of rough stone blocks that lead down unevenly to the courtyard floor.

The cells standing beside Temple 45

The lateral walls of Temple 45's *pradakṣiṇā* double as the initial walls of the cells that stand on either side of the temple, stretching the eastern length of Monastery 45 and mirroring the cell walls on the monastery's lower, western face. Although the cells to

the south of the temple are in much better repair than the cells to the temple's north, both the doorways of the cells that neighbour Temple 45 still have complete, and ornately decorated doorjambs like simpler versions of the *garbhagrha* doorway. Both follow similar formats: they have plain doorsteps and are made up of three door-bands, the outer bands made up of a vase-of-plenty shooting its fecund swirls skywards, and the inner bands made up of curling, twisted plant tendrils, those of the southern cells sprouting lotus buds. The southern doorway entertains more celestial characters than the northern doorway. Gaṅgā and Yamunā on the northern cell are accompanied by one attendant each, holding parasols above their heads above which rises the caped head of a *nāga* with hands joined, and the inner door-band houses sweet-faced *mithuna* couples. On the southern cell doorway a figure of a child stands between the goddesses and their attendants, and the middle door-band displays affectionate triplets. Unlike the *garbhagrha* doorway, in these doorways the *mithunas* and triplets are separated by sections containing little people, antelope and elephants. These doorways are in some ways more playful and charming than the *garbhagrha* doorway, and yet, surprisingly, their beauty is abruptly curtailed by entirely mismatched, plain lintels balanced on top of their broken ends (Figure 88a). They appear strikingly out of place and no attempt has been made to integrate the two forms.

The walls and doorways of the southern cells are still in place. The doorways of the cells following the first one are plain with a small niche containing a figure seated in the posture of royal ease. Apart from a raised section in the first cell resembling a bed the cells that remain standing to the south of Temple 45 are bare, the roofs supported by plain, corbel brackets and the walls partially restored with smaller stones. The cells give way to a veranda, the roof of which was held up by a combination of simple and ornate pillars. A rushed pillar substitute of the sort witnessed in the sanctum occurs on here, with a decapitated *kīrttimukha* and vase-and-foliage pillar holding up one of the beams that would have supported the veranda roof.

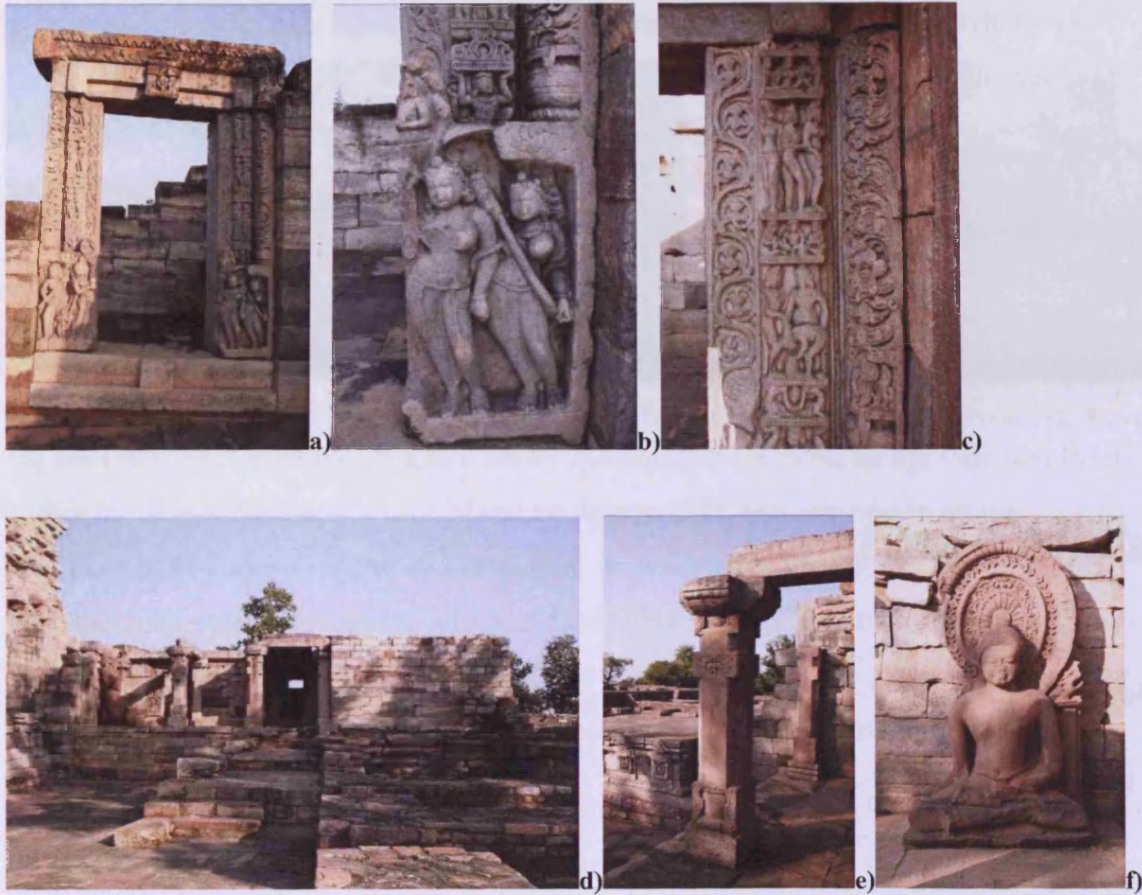


Figure 88: Temple 45's side cells a) the doorway of the first cell to the north of Temple 45, b) Gaṅgā and her attendants on the northern doorway, c) doorjamb from the first cell of south of Temple 45, d) view of southern side cells, e) pillar from southern cells, f) the Buddha seated against the wall of the southern cells.

Architectural fragments

Stacked around areas 44 – 49 (Figure 81) are somewhere in the region of 500 architectural fragments, a large percentage of them from the Temple 45's spire, temple walls and its *maṇḍapa*. Amongst the pieces are the repeated *gavākṣa* and eave patterns of its *latā* and *pratilatā*, *karṇakūṭa* eaves and broken *karṇa āmalaka* fragments, knitted *gavākṣa udgamas*, monumental *śukanāsa*-style *gavākṣas*, festoons with leaf motifs, *vyālas* and demon faces within their loops, horizontal courses made up of alternating lotus and 'vase-of-plenty' designs, pillar fragments, door fragments, brackets and broken sculptural remains. The number of surviving fragments is a blessing, waiting to be measured, documented and analysed so that they may offer up the wealth of architectural information they contain pertaining to not just the original design of the spire from Temple 45, but also aspects of North Indian architectural practice in general.



Figure 89: Architectural fragments piled around Monastery 47.

Analyses of Temple 45

Dating Temple 45

John Marshall was the first person to thoroughly excavate and assess Monastery and Temple 45. He concluded that the monastery and temple had been subject to two different phases of construction. According to his analysis the cells on the monastery's northern, southern and western sides and the open courtyard – all of the areas that are at ground level today – were built in about the 8th century AD. These, he proposed, were accompanied by a temple, *mandapa* and an eastern set of monastic cells in the same location and following a similar form as Temple 45 and its neighbouring cells do today, but standing at the lower level. Carbon deposits and piled earth lying beneath the later, built-up stone layers that Marshall discovered in his excavations led him to conclude that the earlier temple must at some point have burnt down and been abandoned:

It might have been expected that, when the Buddhists set about rebuilding it, their first step would have been to clear away all this debris and utilise as far as possible the old materials; but, whether from religious or other motives, they preferred to level up the remains, lay a new pavement about 2 ft 6 in. above the old one, and completely rebuild the shrine and cells adjoining it on the east side of the court.³²

Marshall suggested that the temple's reconstruction took place in the 10th century, and involved raising the level of the courtyard and the height of the eastern set of cells, the temple and the *mandapa*, and the side chambers closest to the temple were changed

³² John Marshall, *Guide to Sanchi*, p.134.

from monastic cells to chapels for worship, and, as such, given their ornate doorways.³³ He observed that although certain architectural pieces from the earlier temple were used in Temple 45, along with fragments from different temples altogether, the majority of it was constructed from pieces carved specifically for Temple 45.

This account explains the peculiar mixture of care and haste shown in aspects of the temple's design and construction. The pillars in the four corners of the temple's inner sanctum, the mismatched lotus pillars at its doorway, and the curtailed pillar in front of the cells to the south of the temple were by Marshall's reckoning all appropriated from earlier buildings. Similarly whilst Marshall dated a Buddhist inscription on the Buddha's lotus pedestal to the 10th century from analysis of the style of the script, the lion throne he ascribed to an earlier temple, likening it to a 7th century equivalent from Ellora. The roughly stacked bricks behind the Buddha image were placed there in order to steady this awkward pairing.³⁴ The plain lintels perched incongruously above the busy, medieval doorways of the side 'chapels' he suggested were even later than Temple 45: '... the building both of the temple and of the wings must have been suddenly interrupted – for what reason is not known – and not resumed again until many years afterwards.'³⁵ The surprising Hindu style of the *garbhagrha* doorway, Marshall, writing in the tones of his time, put down to the:

... the rapidly declining purity both of the Buddhist religion and of Buddhist art ... in Temple 45, which is by far the most pretentious monument of its epoch, ... the visitor will most quickly recognise the overwhelming influence which Hinduism, and particularly the Tantric cult, had exercised on Buddhism before the 11th century AD.³⁶

The details of Marshall's story of Temple 45's tumultuous history have remained unchallenged over the years, although his dating has been questioned and revised. Odette Viennot dated Temple 45, the second construction, to the third quarter of the 9th century rather than the 10th century on the basis of her analysis of the sculptural style and content of the *garbhagrha* doorway. In Temple 45's section in the Encyclopaedia of North Indian Temple architecture Krishna Deva follows Marshall's version of events but, without specifying his reasons, dates the earlier temple to the 9th century, arguing that the pillars at the entrance to and in the corners of the *garbhagrha*, and the seated

³³ John Marshall, *Guide to Sanchi*, p.134.

³⁴ John Marshall, *Guide to Sanchi*, p.136.

³⁵ John Marshall, *Guide to Sanchi*, p.140.

³⁶ John Marshall, *Guide to Sanchi*, pp.24 – 25.

Buddha seated within it, originally came from an earlier temple. Temple 45 he dates to the early 10th century based on stylistic comparisons with the Mālādēvi Temple at Gyāraspur (850 – 875AD). The Hindu goddesses fronting the Buddhist sanctum he argues are ‘... an important illustration of the non-sectarian nature of art motifs’.³⁷

Temple 45’s Buddha images have also been the focus of speculation. In ‘The Sanchi Torso’³⁸ John Irwin discusses the discovery of a Maitreya figure in the backrooms of Sanchi Museum, a partner for the Avalokiteśvara from Sanchi that has retired to the Victoria and Albert Museum. Contrary to Krishna Deva’s opinion, he argues that these bodhisattvas and the Buddha currently in Temple 45 were sculpted in about 900 AD as a triad created specifically for the *garbhagrha* space, justifying his grouping through a stylistic and iconographic comparison of the three figures with other Buddha images around Sanchi. In Sandrine Gill’s analysis of the sculptures of Sanchi she discusses the large Buddha figure seated against the southern cells’ western wall, its back facing Temple 45. She suggests that it was moved given its unusual position; it is not in a cell, not facing the Great Stupa, and the lack of an equivalent icon on the northern veranda disrupts the symmetry of the area. In fact, photographs taken in 1899, before Marshall took over the reorganisation of the site, show that whilst this Buddha was in the same area at this time - in front of the first, raised southern cell – it was facing to the east, with its back to the Great Stupa.³⁹ Clearly this is not an appropriate position either, and yet it does show that its current placement was orchestrated after Marshall took over the site, which he does not mention in his A.S.I reports

Analyses of the original form of Temple 45

Aside from recognising the temple as Latina, very little has been said about Temple 45’s original form and the fragments have not received sustained attention. Marshall acknowledges that the temple had a curved spire, but determined it impossible to ascertain its height and proportions.⁴⁰ In 1942, Percy Brown drew up a whimsical 3-

³⁷ Krishna Deva, *Encyclopaedia of North Indian Temple Architecture*, p 8.

³⁸ John Irwin, p.9.

³⁹ Photograph 430/26 (52) Annual Report for the A.S.I, 1912 – 1913, Photograph 1010/11 (348), British Library.

⁴⁰ John Marshall, *Guide to Sanchi*, p.139. At this early date the term ‘Latina’ was not commonly used. Instead Marshall says it is ‘... of the usual curvilinear type which distinguishes the Hindu temple architecture of the

dimensional sketch of the site based on Marshall's description (Figure 90a).⁴¹ It is unclear whether the temple in the 45 area is intended to be Marshall's earlier or later building, but given that all the monastic cells are level, including those along the eastern wall, presumably this picture is meant to depict the earlier version. In any case, neither of the buildings would yet have existed in, as his title proclaims, 'the Early Centuries of the Christian Era', and he makes no mention of the drawing in his text, or indeed any of the post-Gupta constructions. In this questionable proposal, the ambulatory is covered with a plain, flat, stone roof, that joins directly onto the *varaṇḍikā* of the compact Latina temple, and carries on to form the uninterrupted roofs of the cells that surround the inner courtyard.

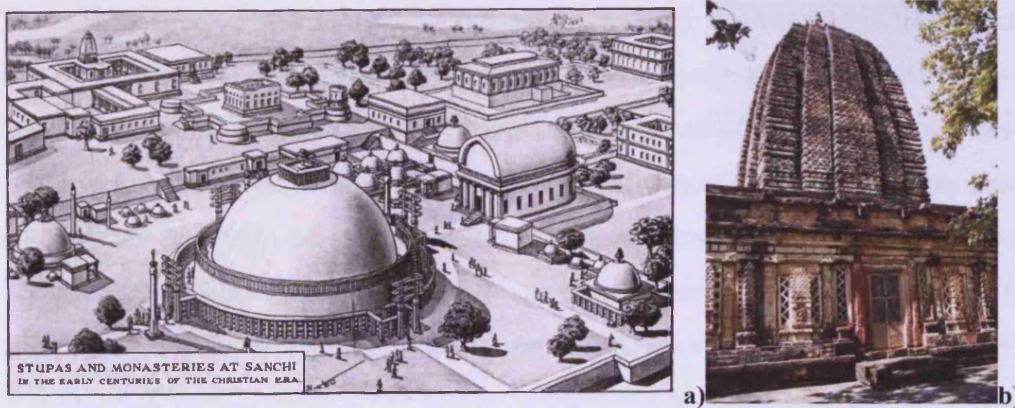


Figure 90: a) Impression of Sanchi by Percy Brown,⁴² b) Śāntinātha Temple, Deogarh (775 – 800 AD).

With regards to the *śikhara* from Temple 45, having discussed the spire fragments in more detail than other scholars, Gill surmises that Temple 45 had an impressive *triangha* Latina spire comparable to two other temples from the Gurjara-Pratihāra era: the Shantinatha Temple from Deogarh (Figure 90b), and the Naktīmātā temple of Bhavanipur in Rajasthan. These comparisons are thought-provoking and relevant, but they do not lead to a specific picture of the spire from Temple 45, particularly given that the two analogous temples are fairly different in size and form. The *Encyclopaedia* is vaguer still, asserting that the temple is representative of the third phase of the Daśārṇadēśa/Pratihara style of temple architecture, one of the 'stylistic territories' that

northern style', and makes reference to the corner *āmalaka* s '... alternating with stylised *caitya* designs', which clearly refers to the *bhūmis* of the Latina design.

⁴¹ Percy Brown, *Indian Architecture (Buddhist and Hindu Periods)*, 2nd edn, (Bombay: Taraporevala, 1942), Pl. XVII.

⁴² Ibid.

volumes recognise. No mention is made of what this means for the form of the temple and it is not clear, nor explained, why on formalistic/stylistic grounds Temple 45 has been placed shoulder-to-shoulder with the later temples that occupy the group, i.e. the Choti Suranga temple from Dudhahi and the doorway from the Śāntinātha Temple at Deogarh, both from the late 10th century, fragments from the Ashapuri temples from 10th – 11th centuries, and the group of temples at Chandpur from the 11th century. This may highlight how the regional/political stylistic divisions between temples used in the *Encyclopaedia* volumes can in some cases be inappropriate or misleading, suggesting specific parities between temples that are different in many respects, and unnecessary divisions between others.

A final speculation raised concerning the form of Temple 45 concerns its *pradakṣiṇā*. Krishna Deva states that the passage would have been *sāndhāra* (of a covered form). Gill points out how unusual it would have been to have a covered circumambulatory passage, as Deva suggests, without large windows on all of the exterior walls to illuminate the pathway and niches. As the lateral *pradakṣiṇā* walls acted also as the cell walls beside them they could not be pierced, and so only the two small windows behind the temple would have let light in, leaving the passage, if it was covered, particularly dim and gloomy. This, she concludes, is just another one of the peculiarities of Temple 45 and its unusual context: ‘De toute manière il faut considérer le temple 45 comme un cas particulier, puisqu’il reproduit le modèle d’un temple indépendant dans un monastère ...’⁴³ The narrowness and darkness of the *pradakṣiṇā*, she observes, would also account for the lack of decoration on the outer walls of the sanctum: such a tight and dark passage would not have allowed the devotee the perspective or light needed to appreciate a more fully decorated wall, hence the inclusion of only the central wall niches placed at just above eye-level.

Conclusion

Temple 45 is an unusual temple, both in terms of the innovative way in which it was conceived and situated – as a resplendent, full-scale Latina temple pressing out from the walls of a monastery – and in terms of the inconsistent way it seems to have been

⁴³ Sandrine Gill, pp. 340 – 341.

constructed. Care and attention has been lavished on the ornately carved doorway from Temple 45, the niche sculptures and the base of its entrance hall, but haste and convenience has taken precedence over elegance in the haphazard way truncated, mismatching pillars and lintels from earlier temples have been used in the sanctum and side cells' verandas. That little attempt seems to have been made to make the new insertions compliment their host building is odd given the spiritual value and financial investment given to the temple at other times. This striking contrast is heightened when the delicacy of the *gavākṣas* from the spire of Temple 45 and the graceful monumentality of its hypothetically reconstructed form, a preview of which is shown in Figure 91, are compared with the plain stone blocks of its boxy, stepped temple body, a *garbhagrha* that, unlike the spire, is most unusual for this time period and region.

It seems clear that, as Marshall suggested, the temple is a product of at least two phases of construction. Whether this came about in the manner Marshall offered is more contestable. Firstly, sandstone does not burn, therefore how would the original Latina temple have burnt down? If parts of the monastery were made of wood, their veranda roofs perhaps, then these might have caught fire and left the carbon residue Marshall talks of, and the resulting inferno may have scorched the temple. This need not have led to the temple falling down however, and even if it somehow had, presumably some of the pieces either would have been reused in the later temple or would have appeared amongst the architectural fragments that survive today, which, according to this study, they do not. There is no visible evidence from the early photographic records of Temple 45's *maṇḍapa* remains to indicate what Marshall was referring to when he talks of finding foundations from an earlier *maṇḍapa* base beneath the one visible today. Further, it is uncertain how Marshall ascertained that there was a Latina temple similar to Temple 45 standing in place of the present one, because no excavations were carried out underneath the still-standing temple, and even if there had been and these had revealed the foundations of a temple, they could have said nothing about the shape and size of the spire.

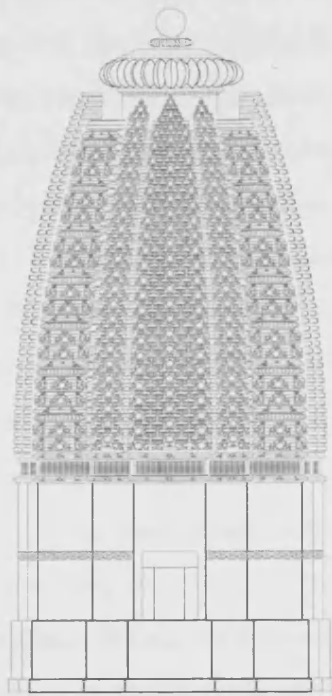


Figure 91: Preview of a hypothetical elevation, complete with spire, proposed for Temple 45 in Chapter 6.

From the analyses conducted in this thesis in Chapters 5 and 6 it transpires that the mismatch between temple body and temple spire is not just one of style and attention to detail, but also a fundamental discordance of plan: the plan of the temple body has stepped offsets and the plan of the spire has articulated projections, a combination that is not seen in any other Central Indian Latina temple, and the measurements of the projections of the two do not neatly align. This suggests that there was a hiatus in construction in between the construction of the two parts. Perhaps when the original inspiration for Temple 45 arose, on-site builders who had been responsible for creating the Spartan cells of the monasteries, rather than professional temple architects, constructed the plain and somewhat coarsely executed body of Temple 45. Either because the more prettily detailed parts of the *garbhagrha* were beyond the sculptural capabilities of the site builders, or perhaps simply as a means of cutting time and costs, they used disused pillars from earlier buildings to cobble together and complete the sanctum and the side cells. It would make sense, therefore, that the skilfully executed doorjambs from Temple 45 (and perhaps even those from the side cells too) were also part of this architectural recycling project: maybe they are not just Hindu in style, they are Hindu in origin, taken from an abandoned temple in the Vidisha region and reused to give the otherwise rather dour body of Temple 45 an appropriately sacred threshold.

After the *garbhagrha* was complete there could have been a pause in construction as the project was exhausted of enthusiasm and money, or perhaps even because the workman did not have the ability to design and build a complex Latina spire. Perhaps the Temple 45 project at some point later inspired some generous patron to give the project a further financial backing, but this time enabling an experienced guild of medieval architects to be employed to create a proud and elegant medieval Latina spire and ornate entrance hall. Rather than attempting to construct a stepped spire to match the stepped temple body, a spire type that would have been about a century out-of-date at this point, they went ahead and created an articulated Latina *śikhara* congruent with Central Indian late 9th century norms, set it on top of the earlier, simple *garbhagrha* and constructed the *mandapa* in front of it.

What does this mean for the dating of the temple then? Firstly, it would suggest that Temple 45, both its temple body and spire, must have been constructed later than the doorjambs. I would argue that the style of the doorway points to an earlier date than the 10th century date as suggested by Krishna Deva and even the last quarter of the 9th century as suggested by Odette Viennot, perhaps making them as early as 825 - 850 AD and putting them on a par with doorways from the Gaḍarmal Temple at Badoh and the Sūrya temples at Umri and Madhkeda. There is nothing much to go on regarding the dating of the plain body of Temple 45, since all of the architectural pieces within it that offer material for stylistic analysis came originally from other, earlier temples. The style of the Latina spire and the *mandapa* is reminiscent of Central Indian temples from the mid-9th century to the early 10th century. Certainly it would seem to fit alongside the group of temples from the *Encyclopaedia of Indian Temple Architecture* that include Sūrya temples at Madhkeda and Umri, the Mālādēvi Temple at Gyarspur (850 – 875 AD) and the Jarāi-kā-maṭh at Barwasagar (c 900 AD),⁴⁴ rather than the late 10th – 12th century temple remains from Dudhahi, Chandpur and Ashapuri that it is grouped with at present.⁴⁵

⁴⁴ Krishna Deva, 'Gurjara-Pratihara of Kankyakubja', M A Dhaky & M W Meister (eds), *Encyclopaedia of Indian Temple Architecture, North India: Period of Early Maturity (c. A.D. 700 -900)*, (American Institute of Indian Studies, New Delhi: Oxford University Press: 1991), pp. 27 – 61.

⁴⁵ Krishna Deva 'Later Pratihara of Kanauj', M A Dhaky (ed), *Encyclopaedia of Indian Temple Architecture, North India: Beginnings of Medieval Idiom (c. A.D. 900-1000)*, (American Institute of Indian Studies, New Delhi: 1998) pp.13 – 15.

Chapter 5: Analysis of the Fragments from Temple 45

Introduction

The key to the original form of Temple 45 lies in the jumbled fragments that lie around the eastern areas of Sanchi. The analysis of these pieces offers up not just concrete information about the original design of this specific temple, but also data pertinent to Latina temple design and construction in general.

Up until this point the architectural fragments have not received sustained analysis. During John Marshall's stewardship of the site at the beginning of the 20th century some of the fragments were numbered in a cursory fashion and detailed by Muhammad Hamid in the catalogue from Sanchi Museum.¹ Only about 60 fragments are listed in this publication however, 25 of which remain on site and 34 that are now housed within the museum. The majority of the numbered items are not accompanied by photographs and the descriptions of the pieces are often ambiguous, therefore the catalogue does not explicitly identify each piece nor suggest their original locations. In the foreword to the Museum catalogue Marshall defends the lack of information given about where the pieces were found saying:

Their find spots offered little or no clue as to their date, for the reason that many of the objects had manifestly been transferred from older to later buildings and the debris of the ruined structures was too confused to admit of precise conclusions being drawn on the basis of its stratification.²

Although, as Marshall observed, architectural fragments from earlier temples were clearly used in the composition of Temple 45, a record of their 'find spots' would have been helpful to this project, indicating which fragments belonged to Temple 45 and whether they came from the *śikhara*, *maṇḍapa*, or monastic cells.

This project has subjected the fragments to a thorough analysis, measuring and photographing each before isolating the pieces that could belong to the *śikhara* from Temple 45. Considered here are the *latā*, *pratilatā*, and *karṇa* courses from the spire, and

¹ Muhammad Hamid, *Catalogue of the Museum of Archaeology at Sanchi, Bhopal State* (Calcutta: Superintendent Government Printing, India, 1922)

² John Marshall, 'Foreword', Muhammad Hamid, *Catalogue of the Museum of Archaeology at Sanchi, Bhopal State* (Calcutta: Superintendent Government Printing, India, 1922)

fragments from its crowning *āmalaka* and *kalaśa*. The fragments that constituted the temple's *varaṇḍikā* will also be discussed in this chapter since the cornice mouldings are inherently linked to the spire, their top eaves acting as the base eaves of the first of the spire's *karṇakūṭa*. *Kiṅkiṇikājālas* and leaf festoons from the outer walls of the *garbhagrha* will also be discussed since these will be included in reconstructive drawings to enliven plain exterior. Additional surviving fragments from Temple 45 that do not apply to the main trunk of the *śikhara* will be discussed in the Appendix (pp.47 – 83).

Photographs and drawings of key architectural fragments from Temple 45 are included in this and the following chapter to illustrate the discussion, but the complete set of measured fragments relevant to this discussion are included in tables in the Appendix. The descriptive terms and annotation used in the discussion of the *gavākṣas* are also detailed in Appendix (p.6). At some point over the past century Marshall's numbering system has been altered and today most of the fragments are painted with 'SAN numbers', assigned to each fragment sequentially according to location. These SAN numbers have been referenced where possible, but in the absence of a SAN number the pieces have been identified by a 'photograph number'. This refers to the DVD of the complete set of photographs taken of Temple 45 and the architectural fragments lying near it taken during fieldtrips in 2006 and 2008. Like the SAN numbers, the pieces were photographed according to location rather than type, and they are included in order to provide contextual information for the more focussed discussions from Chapters 4 – 6.

This chapter will leave questions as to how the elements fitted together and what they imply for the design of Temple 45 until Chapter 6. In the conclusion of this chapter the key fragments and measurements discussed in this chapter will be summarised, their part in ascertaining the dimensions of the *śikhara* will be highlighted and their measurements noted. The implications of the shapes of the fragments for the way they were carved and the spire assembled will then be reviewed, and, importantly, that the fragments under discussion are attributable to Temple 45 will be justified.

Latā and Pratilatā Fragments

As ascertained by the undisturbed plan of the temple, the main body of Temple 45 is *tri-aṅga*, with the *karṇa*, *pratiratha* and *bhadra* stepping out in offsets rather than in the

articulated projections separated by recesses more typical of North Indian temples from the 9th century onwards (Chapter 2). The courses from the spire of Temple 45 are easily identifiable amongst the stacked fragments due to their prevalence, their repetition of their *gavākṣa* patterns and their characteristic shapes and dimensions. The broad, *gavākṣa*-laden *latā* courses, the narrower *pratilatā* courses and the solid corner eaves of the spire's *karṇakūṭas* indicate that, in accordance with its body, Temple 45 was a *tri-aṅga* Latina temple. As will be discussed below, in surprising contrast to the temple body, the small offsets attached to the sides of the *pratilatās* and *karṇakūṭas* show that the spire had fully articulated rather than stepped projections.

The *latā* and *pratilatā* courses from Temple 45 are from the same family. Although they are different widths and bear different *gavākṣa* patterns, the style and proportions of the *gavākṣas* and the eaves from which they spring are identical. As such the *latā* and *pratilatā* course fragments will be discussed alongside each other, looking in turn at their *gavākṣa* patterns, the style of the *gavākṣas*, the proportions of the interlinked *gavākṣas* and eaves on the front faces of the courses, and the three-dimensional forms of the courses. The different *karṇakūṭa* courses are not as closely related to the *latā* and *pratilatā* in terms of their conception and proportions, therefore they will be treated separately, following the same order of investigation. See the Appendix pp.8 – 44 for the complete list of these courses and their measurements.

***Latā* pattern**



Figure 92: *Latā* fragments, SAN 74 (top) & SAN 75.

Each of the *latā* courses from the spire bears the same vertical section of interlinked *gavākṣa* pattern pressing out from two slimmer eaves with recessed fillets between them so that when piled up they coalesced to form the creeper or *latā* of interlocking *gavākṣas*.

unfolding down the central spine of the spire. The *latā* are the widest courses in the *śikhara* and therefore, for all but the slimmest two courses, their full widths are made up of two sections of stone clipped together. The point at which these joins were made is not uniform and the length of the *latā* courses have also left them more prone to breaking than the *pratilatā* and *karṇa* fragments, therefore the fragments show different horizontal segments of the *latā*'s *gavākṣa* pattern.

There are 65 *latā* fragments remaining, 63 of which are substantial enough to allow estimates of their overall proportions to be made. 39 of these are of more than half the total width of the complete *latā* course and therefore can be used to extrapolate the *gavākṣa* pattern of a complete *latā* course, taking into account the fact that these must be symmetrical and using practical considerations to constrain the size of the hypothetical course. The broken fragments would logically allow two different options therefore, either:

) () O () (
d O () () () O b

or a wider version:

) () O () () () O () (
d O () () () O () () () O b

From just a cursory consideration the second option is clearly much too wide, for *latās* of this width do not appear on even the most grandiose of Latina temples. Furthermore, a hypothetical *latā* course following this pattern made up of *gavākṣas* that are a fairly modest 33 cm at the base, according to the proportions discussed below, would be 231 cm. This is an impossible width given that the *bhadra* from Temple 45 is 162 - 163 cm at its widest point at the lowest projection beneath its '*vēdībādhā*'. Therefore, the pattern of a whole *latā* course must be the narrower, first option shown above. When piled, the *latā* courses would, therefore, have appeared as depicted in Figure 93.

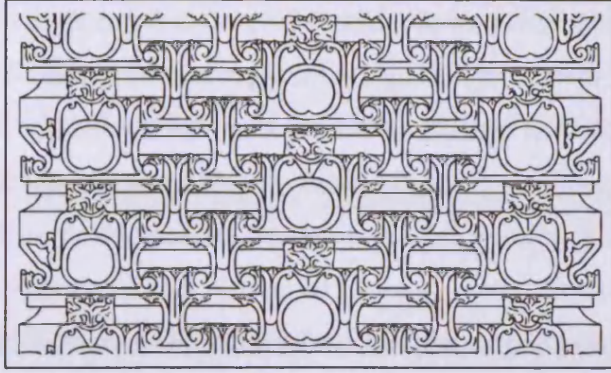


Figure 93: The piled *latā* pattern from Temple 45.

SAN 183, 109 and 363 are the slimmest *latā* fragments that remain at Sanchi, and, due to their diminutive size, the only *latā* courses carved from a single block of stone.

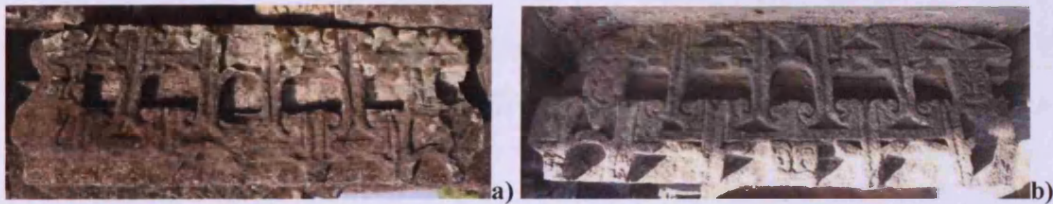


Figure 94: The two slimmest *latā* fragments a) SAN 109, total width 65 – 66.5cm, b) SAN 185, total width 80cm.

Pratilatā pattern.



Figure 95: *Pratilatā* fragments SAN 112 (left) total width 47.5 cm, SAN 113 (top right) total width 57cm, & SAN 114 total width 54cm.

There are 84 *pratilatā* fragments amongst the remains from Temple 45, 78 of which offer up concrete measurements. Like the *latā*, each *pratilatā* course is made up of two smaller eave courses from which spring identical *gavākṣa* patterns that would have been piled on top of each other and formed the meshed *gavākṣas* patterns of the *pratilatā* columns. Each *pratilatā* course shows a central *gavākṣa* with its top-knot severed with a lone topknot

hanging at its base. The feet of two half *gavākṣas* cover up the arms of the central *gavākṣa*, and in turn the central *gavākṣa*'s feet cover up the top of two half *gavākṣas* beneath it. The narrower form of the *pratilatā* pieces allows the total breadth of the course to be carved in one block, and most of the pieces to remain intact. The piled *pratilatās* would have looked as depicted in Figure 96.

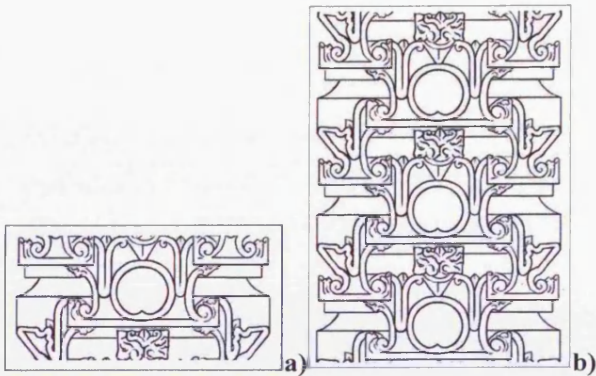


Figure 96: a) A *pratilatā* course, b) the pattern of the piled *pratilatā* from Temple 45.

Surviving amongst the *pratilatā* fragments are two fragments from the base of the spire, pieces that, like the slimmest *latā* courses, will provide crucial information for discerning its overall proportions. The base *pratilatā* courses are identified as such by the fact that the lowest half-*gavākṣas* are neatly finished and connected by a slim course topped by a half lotus, the central *gavākṣa* held aloft by miniature pilasters. These are both about 60 cm wide.

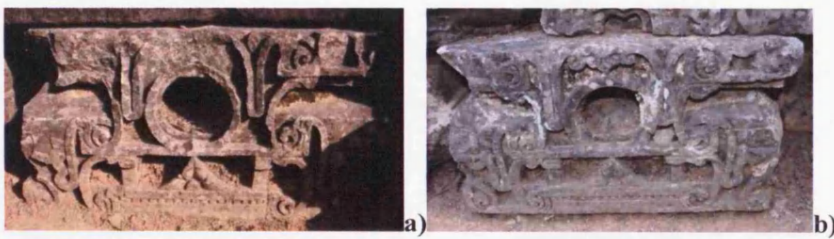


Figure 97: a) *Pratilatā* fragment SAN 122, total width 60cm, b) *pratilatā* fragment SAN 13*, total width 60 cm.

Comparative analysis of the *gavākṣa* patterns from the *latā* and *pratilatā*

The *gavākṣa* patterns shown on the *latā* and *pratilatā* from Temple 45 are representative of those from Central Indian Latina temple spires from the second half of the 9th – 10th century: the *latā* has a wide, interknitted, complex *gavākṣa* pattern, both *latā* and *pratilatā* make ample use of 'high-arm' *gavākṣa* combinations (i.e. using)O(variations as opposed

to dOb variations, see Appendix p.6), and the courses' eaves are more numerous and slimmer than those from the 7th - 8th century. Whilst Central Indian Latina temples do not tend to share the same *latā* and *pratilatā* designs (in keeping with the individuality shown in temple design discussed in Chapter 2), *gavākṣa* patterns on the *pratilatā* and *latā* from Temple 45 also appear in the Jarāi-kā-maṭh Temple at Barwasagar (c 900 AD). The Jarāi-kā-maṭh Temple has an unusual spire that in strict terms breaks free of the Latina category, for although the sides of the temple *jaṅghā* and *śikhara* are made up of the same elements as a normal, articulated, *tri-aṅga* Latina temple, the back of the temple has two slimmer *latā*, each flanked by two *pratilatā*, with a *karṇa* on either extremity. The top of two *latā* and their attendant *pratilatās* poke out from behind the sukanasha on the front of the temple (Figure 98). The wider, singular *latā* on the sides of the temple have the same *gavākṣa* configuration as the *latā* from Temple 45, whilst the *pratilatās* that stand beside the two slimmer *latās* on the back of the temple *śikhara* are the same as the *pratilatā* from Temple 45 (Figure 98). The horizontal 'break points' shown between the spire's courses indicate that they do not match in terms of their vertical section, because each Barwasagar course incorporates two complete sets of the *gavākṣa* patterns pressing out from two sets of the base eaves, starting and finishing at different points from those at Sanchi.

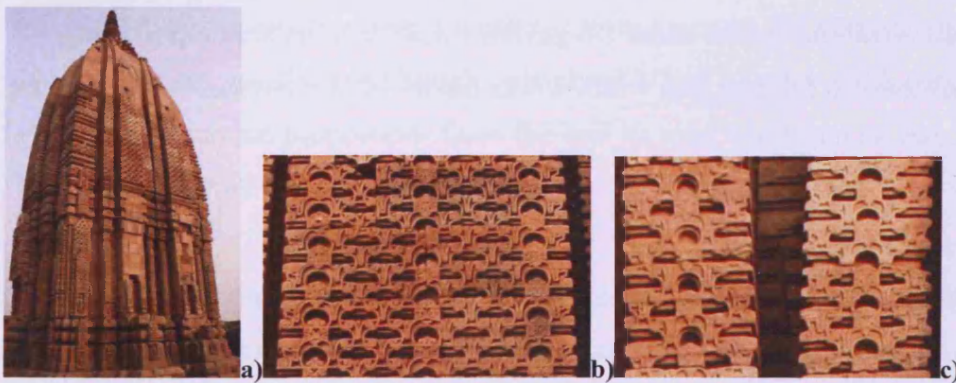


Figure 98: Jarāi-kā-maṭh, Barwasagar (c. 900 AD) a) *Latā* from the side faces of the spire from Jarāi-kā-maṭh b) two *pratilatās* from the inner sides of the two *latās* from the front and back of the spire.

Proportions and foundational eaves

Having worked out the *gavākṣa* patterns of the *pratilatā* and *latā* courses, the smaller, more damaged fragments that are not immediately obvious as *latā* or *pratilatā* parts can be identified, the measurements for all the fragments collated (Appendix pp. 39 - 44), and the proportions of their eaves and *gavākṣa* patterns ascertained. The proportions of the projecting, front faces of the *latā*'s and *pratilatā*'s *gavākṣas*, courses and eaves will be

discussed here. Following this the style in which their *gavākṣas* are carved will be considered, and then the three-dimensional shapes of the *latā* and *pratilatā* courses will be assessed, viewing the pieces from above and from the sides. Given the complexity of the *latā* pattern, the different sizes of the fragmentary remains, and the fact that the curvature of the Latina spire means that slanted courses distend the *gavākṣa* forms, the standard *gavākṣa* width used here is taken, where possible, from the base of the central *gavākṣa* from the *latā* and *pratilatā* courses. The ‘height-to-shoulder’ is used as a convenient measurement for height comparisons since the topknot is broken off from the *latā* and *pratilatā* courses’ central *gavākṣas*, and the top knots hanging from the central *gavākṣas*’ bases are frequently damaged. It is also the height of the ‘)(‘ shape (Appendix, p.6).

The *latā* and *pratilatā* courses change in width according to where they would have appeared on the curving Latina *śikhara*. The *gavākṣas* therefore also change in width but keep to a fixed system of horizontal proportions (Chapter 2). The *latā* is made up of ‘)(‘ shapes which are half the full *gavākṣa* width, full *gavākṣas* and half *gavākṣas*, fitting together and tucking under each other. A single ‘tucking’ width is 1/6 of the full *gavākṣa* width, and the matrix into which the pieces fit can be proportioned in terms of this measure such that the full *latā* length is 4 x the *gavākṣa* width (Figure 99). The *pratilatā* is made up of a *gavākṣa* and half *gavākṣa*, and the same 1/6 *gavākṣa* width acts as the proportioning measure. This means that the full *pratilatā* width works out as $1 \frac{2}{3}$ x *gavākṣa* width (Figure 100)

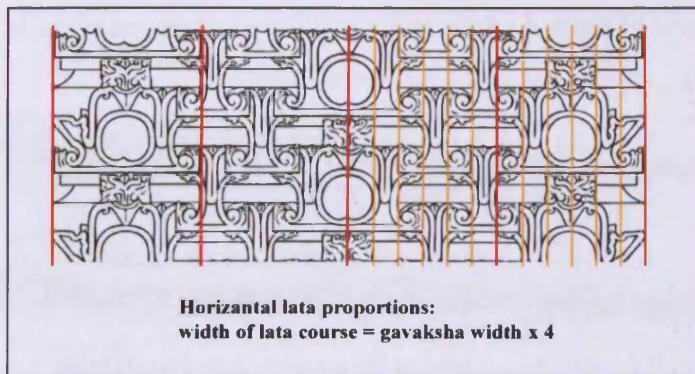


Figure 99: Horizontal *latā* proportions.

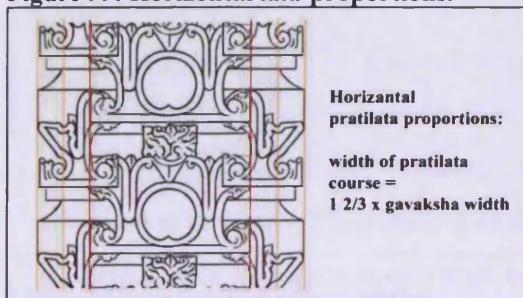


Figure 100: Horizontal *pratilatā* proportions.

Because of this fixed system of proportions the measurements of a particular *latā* or *pratilatā* course in its entirety can be worked out from just a fragment of *gavākṣa*. The *latā* fragment that involves the widest *gavākṣas* from amongst the surviving *latā* pieces is SAN 367, with 36cm *gavākṣas*. Although only about 1/3 of its total width survives, using the system of horizontal proportions from the *latā* its total width can be estimated at about 144cm (36cm x 4).

Typically the height of Latina *śikhara*s courses adapt to fit their changing widths so that their *gavākṣa* patterns always maintain the same proportions (Figure 101). One of the unusual features of the *śikhara* courses from Temple 45 is that, whilst their widths change, all except the very narrowest *latā* course remain the same height.



Figure 101: *Śikhara* from Terahi Śiva Temple (800 – 825 AD), showing the *gavākṣa* patterns from the *latā* maintaining the same proportions.

The *latā* and *pratilatā* *gavākṣas*' vertical proportions are mapped on to the shapes of the eaves from which they spring. Both *latā* and *pratilatā* use the same height and form of eaves and fillets. The top eave is a plain rectangular fillet with a slimmer, inset fillet supporting it from below. The lower eave has a curved top swooping downwards and outwards from the fillet above, a rectangular face, and then two slimmer support fillets receding progressively beneath it, the second one taller than the first (Figure 102a).

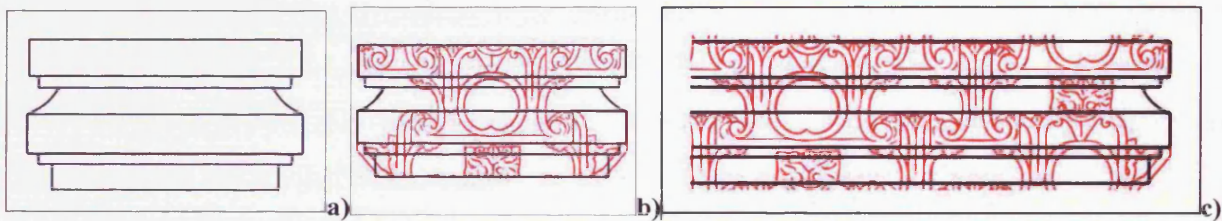


Figure 102: a) Eave formation beneath the *latā* and *pratilatā* courses, b) *pratilatā* eaves, c) *latā* eaves.

The *latā* and *pratilatā* *gavākṣas* project outwards from these, referencing one of the *gavākṣa* forms original identities as dormer windows pushing out through rooftop eaves. The vertical section of *gavākṣa* pattern covers over a complete set of these foundational eaves, the supporting fillets of the lower eave hidden by the 'low-arms' of the *latā*'s outer *gavākṣas* and the *pratilatā*'s outer half *gavākṣas* (Figure 102b&c).

With the exception of the slimmest *latā* course, all of the eave heights remain broadly the same. Vertical measurements of the different parts of the eaves in a course vary slightly, but when combined they lead to a discrepancy of up to 1.5 cm in the larger measurements: the height-to-shoulder of the *latā* and *pratilatā* *gavākṣas* are between 21 – 22.5 cm, the height of a full *gavākṣa*, which coincides with the complete height of the *latā* and *pratilatā* courses, is between 28 – 29.5cm. These variations in size are not significant enough to

suggest that the vertical heights are changing in an intended, systematic way, and neither do slight changes in height correlate with changes in width.

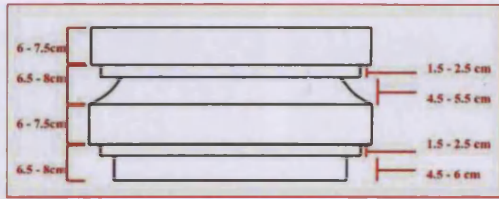


Figure 103: vertical measurements of the *latā* and *pratilatā*'s foundational eaves.

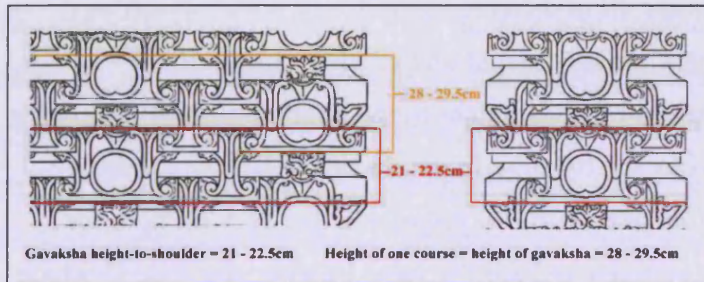


Figure 104: *Latā* and *pratilatā* heights.



Figure 105: *Gavākṣas* from *latā* fragments a) SAN 367 b) SAN 89 c) Photograph 108.

The fact that the height-to-shoulder of the *gavākṣas* of the *latā* and *pratilatā* remains the same even as the width becomes narrower or wider means the *śikhara gavākṣas* from Temple 45 change from being broad shouldered, robust arches, to more graceful, rounded forms, to lean oblong shapes (Figure 105). In addition to this, since the curve of a Latina *śikhara* becomes more acute towards its summit, the *śikhara* courses and *gavākṣa* forms become more slanted the higher up the spire they appear (Figure 106). The curve of a *śikhara*'s *karṇa* is more acute than its *pratilatā*, and its *pratilatā* is more acutely curved than its *latā*, therefore this distortion is most apparent in the *pratilatā* and *karṇa* fragments from Temple 45. The grid based on the 1/6 *gavākṣa* width proportions discussed above would enable the correct eave and *gavākṣa* dimensions to be mapped on to and correctly carved into *pratilatā* and *latā* courses of all widths whether slanted or upright.

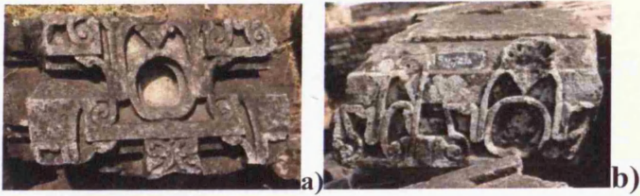


Figure 106: a) Slim *pratilatā* piece SAN 343 slanting to the left, b) SAN 414, partial middle *karṇakūṭa* eave slanting to the right.

Style and form

The fragments from the *śikhara* courses are all in different conditions; some appear as if they were carved recently, the crisp edges, delicate detail and creamy colour of the sandstone preserved, whilst other fragments bear testament to the degradations of time, their edges and details broken, abraded, and blurred by coverings of mottled lichen. Curiously, it is not just the general condition of the *latā* and *pratilatā* fragments that vary though, for although they all use the same *gavākṣa* patterns and are the same heights, the style in which they are carved and the details of their form differ.

In comparison to certain other Central Indian Latina spires from the second half of the 9th century onwards, the *latā* and *pratilatā* courses from Temple 45 are elegantly carved. In Chapter 2 the way in which *gavākṣas* from Latina spires during this period lose some of their life, grace and individuality was discussed, appearing as fat, abstracted geometric forms and carved all at the same level. Often the *gavākṣas* are not made properly distinct from their *kapotālī* base, and only the fronds of the topknots are detailed: the tufts at the feet and at the inner base of the *gavākṣa* become abstracted representations, without added incisions to create a feathery effect (Figure 107a). The *gavākṣas* from the *śikhara* of Temple 45, on the other hand, are carved with delicacy and sensitivity. Their lines are slim and sinuous, and they appear as distinct *gavākṣas* tessellating together, pressing out from the eaves indented behind them. Attention is paid to the feathery tendrils at the curls of the feet and the carving of the topknot shows surging movement and three-dimensionality. In some the lines of the *gavākṣas* have a subtle, italicised feel, gently incised so as to show movement: the cords from the arms and the shoulders slant slightly inwards as they come down to meet each other, the inner lines of the arms may curve sinuously outwards, the ends undercut, as the arms tuck under the feet of the *gavākṣas* above, and the shoulders angle gently in anticipation of the sprouting topknot. This quality of carving does not appear in all

of the *śikhara* courses for some are carved in a more basic way, lacking the 3-dimensional, moving quality.



Figure 107: Contrasting *gavākṣa* styles: a) flattened *gavākṣas* on a section of *latā* from the Sūrya Temple Madkheda (c 850 – 875AD), b) a lively ‘italicised’ *gavākṣa* from SAN 101 *latā* fragment, Temple 45.

The majority of the *gavākṣas* from the *latā* and *pratilatā* of Temple 45 are of a fairly simple linear form. The curving lines of the inner circle meet at the bottom and press up into a small point and there is a smooth-edged, dagger point beneath the ‘sash’ that pulls the topknot together (Figure 107 & Figure 108a). Occasionally these dagger points have subtle feathery lines scored on them. There are intriguing exceptions to this however. Four of the *latā* fragments and six of the *pratilatā* fragments have wider, points beneath their topknots, carved like dishevelled feathers as if they are a more literal continuation of the top knot swirls (Figure 108b).



Figure 108: Different styles of points beneath the *gavākṣas*’ topknots a) SAN 92 b) SAN 89.

In three of the *latā* fragments and four of the *pratilatā* fragments the lines of the inner circle meet at the bottom and then burst upwards into a great flourish (Figure 109a) rather than joining in the usual minimalistic upward point (Figure 109b). *Gavākṣas* with this plumage at the base of the inner circle also seem to have had extra attention paid to the feathery surges at their feet. Whilst these exuberant bursts at the base of the inner circle are similar in style to the feathered points beneath the topknots, the two flourishes do not appear in the same *gavākṣas*. Given that the courses break at a certain point which leaves only one complete *gavākṣa* intact, it is impossible to tell whether the flourishes would have continued in the *gavākṣas* of the courses above and beneath them.



Figure 109: Different treatments of the base of the inner circle of the *gavākṣa*, a) *pratilatā* fragment SAN 117, b) *latā* fragment SAN 92.

There are divergences of form even within the set of triangular points: some are wider and some are slimmer, irrespective of and unconnected to the width of the *gavākṣa* itself (Figure 110). Some of the feathery motifs have thicker, fleshier tendrils, some are neat, flat and are veined like a leaf.



Figure 110: a) *Latā* fragment Photograph 80, b) *pratilatā* fragment SAN 388, c) *pratilatā* fragment SAN 112, d) *latā* fragment SAN 405.

The question of whether all these different *gavākṣa* types can be ascribed to Temple 45 will be addressed in the conclusion of this chapter. Given the prevalence of the *gavākṣas* with simple upwards points at the base of their inner circles, and the dagger-like downward point above the inner circle, this style of *gavākṣa* will be used in the reconstructive drawings.

Three-dimensional shapes

Thus far the *gavākṣa* patterns and dimensions of the *latā* and *pratilatā* pieces have been discussed in terms of their projecting faces, but their three-dimensional forms and proportions are equally important to how they appear on the spire and fundamental to how they fit together to create the plan of the *śikhara* from Temple 45. In addition to this the shapes of the bases of the *śikhara* pieces and the little rectangular ‘staple’ holes in some of their tops provide insight into the way in which they were carved and assembled on the spire, as will be discussed in the conclusion of this chapter.

The *latā* courses are essentially cuboid. On their sides their foundational eaves continue backwards, perpendicular to the front of the *latā*, maintaining the same vertical proportions

(Figure 103). As the *latā* courses are carved in two parts due to their width, a *latā* fragment has only one finished side, the other left rough, waiting to connect to the other part of the course. There are two ways in which the side eaves from the *latā* are concluded (Figure 111). On some, called here ‘Type A’ *latā* fragments, the eave goes back 35 – 36 cm and is broken off by an indent roughly carved into the back of the *latā*. On others, ‘Type B’ *latā* fragments, the side eave stretches back for 35 – 36 cm but is finished neatly and followed by a smooth, un-carved section of stone for about 7.5 cm. Note that the eaves are not actually visible when viewing the top of the *latā* and *pratilatā* courses, however in the line drawings in Figure 111, and in those that follow, two parallel lines have been used to indicate where they lie.

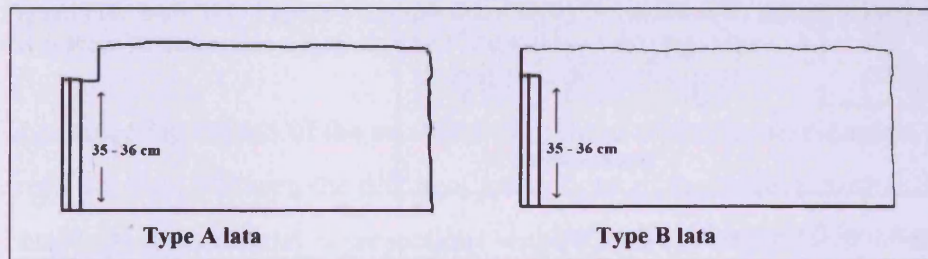


Figure 111: *Latā* types A and B as viewed from above.



Figure 112: a) & b) SAN 260, Type A *Latā*, showing roughly finished side eaves with a cut out inset, c) SAN 74, Type B *Latā*, showing neatly finished side eaves followed by plain area of stone.

The sides of the *pratilatā* courses are carved with eaves, like the *latā*, but on one side of the *pratilatā* these are followed by offsets projecting outwards from the central body. These of course can appear on either the left or the right side of the *pratilatā*'s front face: since two *pratilatā* columns flank the central *latā*, there are left-hand and right-hand *pratilatās*, mirror images of each other. As such, there are also equivalent mirror images to the forms shown in the diagrams below. Like the *latā*, there are two different ways in which the eaves along their sides and offsets are realised. In Type A *pratilatā*, along the side without the offset, the *pratilatās* have carved eaves that stretch back 35 – 36cm and finish roughly as a square-ish indent is cut from the back corner of the fragment in the manner of Type A *latā*. On the side leading to the offset the eaves continue backwards perpendicular to the front face of the

pratilatā for 17 – 18 cm, and then the offset projects outwards at a 90 degree angle, and the eave continues for 7 – 8 cm. In Type A *pratilatā* this eaves of the offset are neatly finished and followed by an 8.5 – 9.5 cm stretch of plain stone (Figure 113 – Figure 115). In Type B *pratilatā* the eaves from the side without the offset continue backwards for 35 – 36cm and are then neatly finished and followed by a small stretch of smooth stone of about 8 – 9.5 cm in the manner of Type B *latā*. The eaves of Type B's offset however stop suddenly after 7 – 8 cm without formal completion, the ends of these projections roughly but levelly carved (Figure 116).

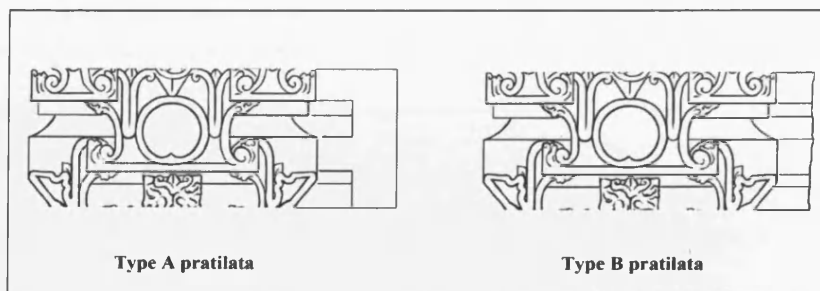


Figure 113: *Pratilatā* types A and B viewed from the front.

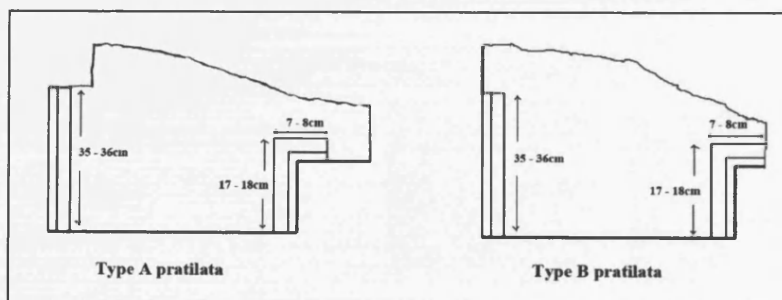


Figure 114: *Pratilatā* types A and B as viewed from above.

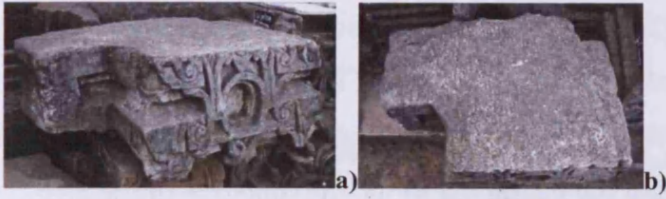


Figure 115: SAN 200, Type A *Pratilatā*, showing a) the eaves on its offset neatly finished and followed by plain stone, and b) eaves broken off abruptly on its outer side as a square inset is cut from its back



Figure 116: SAN 387, Type B *Pratilatā*, showing a) the eaves of its offsets ending abruptly, and b) the eaves from its outer side neatly finished and followed by plain stone.

The projecting offsets of the *pratilatā* (and those of the *karṇa* elements discussed below) create recesses between the different projections of the spire, meaning that the *śikhara* from Temple 45 had articulated projections with recesses between them rather than the stepped offsets of its *jaṅghā* and *vēdibandha*. The unlikely combination of stepped base and articulated spire and the way they work together will be discussed in Chapter 6.

Karṇakūṭa fragments

The make up of the *karṇakūṭas*

Karṇakūṭas from Latina temple spires are typically made up of a simple eave, topped by courses made up of piled eaves interlinked by *gavākṣas*, often following variations of the ‘whole-over-two-halves’ format reminiscent of *caitya* arches with side aisles, topped by an *āmalaka*. Each of the *karṇakūṭas* act as a little, compressed *āmalaka* shrine (Figure 7). To differentiate between the two types of eaves involved in the *karṇakūṭas* henceforth the simple, lowest eave will be referred to as the ‘base eave’, and the more substantial, *gavākṣa*-laden eaves will be called the ‘middle eaves’ of the *bhūmi* or *karṇakūṭa*. As corner elements, *karṇakūṭas* have two perpendicular faces in view on the temple spire that are identically carved in terms of pattern and dimensions. This requirement allows the constituent parts of the *karṇa* from Temple 45 to be identified.

The middle eaves of the *karṇakūṭas* from Temple 45 are heavy, carved courses from which press *gavākṣas* arranged in an unconnected ‘d(d0b)b’ pattern. The broad shapes of the corner pieces are not carved in a single block of stone and so only one full *gavākṣa* pattern and course will appear completely intact, but the beginning of the continuation of the pattern on another perpendicular face is usually in evidence. 30 fragments of the *karṇakūṭa* middle eaves survive, 25 of which offer utilisable measurements.



Figure 117: a) fragment of a middle eave from a *karṇakūṭa*, SAN 398, total width from front = 65cm, b) a middle eave from a *karṇakūṭa*, SAN 432, total width = 79cm.

The slim, square *āmalakas* that top the *karṇakūṭas* are easily identifiable by their typical squashed, ribbed forms, their corner-piece shapes and the fact that their dimensions are congruent with those of the *karṇa* eaves. There are 14 *karṇa āmalaka* fragments remaining, but only five of them sufficiently undamaged to be able to extrapolate their full widths from their forms.



Figure 118: Photograph 503 of piled *karṇa āmalakas*.

There are four different slim eave forms that could have been feasibly been used as the base eaves in the *karṇakūṭas*. They are all *cyma* eaves (*kapotālī*) supported by three slim recessed fillets that follow similar proportions. The first three types have a half diamond lotus set on top of their central projection in the middle of the course, in ‘Type A’ eave this is flanked by half *gavākṣas* in a ‘mainstream’, piped, Central Indian , the same pattern is replicated in ‘Type B’ eave but using half *gavākṣas* of the fat, onion-shaped, stencilled form that became

popular from the 10th century onwards, and in ‘Type C’ eave on either side of the half diamond lotus stand swirling forms that look almost like little birds (Figure 119a-c). The fourth type of *kapotālī*, ‘Type D’, has a little, circular, ‘mainstream’ *gavākṣa* in place of the half diamond lotus with half *gavākṣas* of the same type on either side of it.

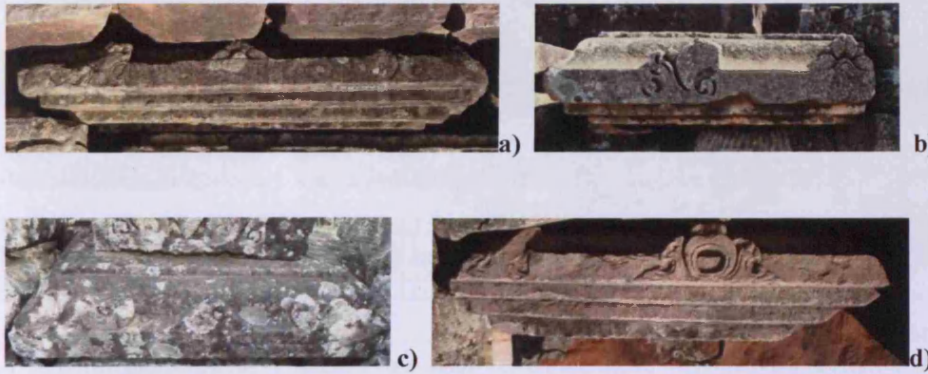


Figure 119: Types of *kapotālī* that could be *karnākūṭa* base eaves a) ‘Type A’, SAN 86, b) ‘Type B’, Photograph 1502, c) ‘Type C’, Photograph 774 d) ‘Type D’, SAN 65.

There are ten ‘Type A’ eave fragments remaining, eight of which show that they were carved with the same design on two perpendicular faces as necessary for *karnākūṭa* pieces and offer up measurements showing them to be congruent with those of the other *karnākūṭa* elements. Two of these have offsets projecting from their sides to create the recess between the spire’s *karna* and *pratīlatā* (Figure 120a). There is only one example of ‘Type B’ eave and one of ‘Type C’ eave, which makes it unlikely that these would have been the base eaves of the *karnākūṭa*. Only two ‘Type D’ eave fragments remain, and one of these has an offset that would suit the *karna* setting. Other architectural fragments however show that these style of eaves were used to top more substantial courses with heavier carved fillets beneath them (Figure 120b & c). ‘Type A’ eaves are therefore the most likely to be the *karnākūṭa* base eaves from Temple 45.



Figure 120: a) ‘Type A’ eave, showing offset Photograph 730.

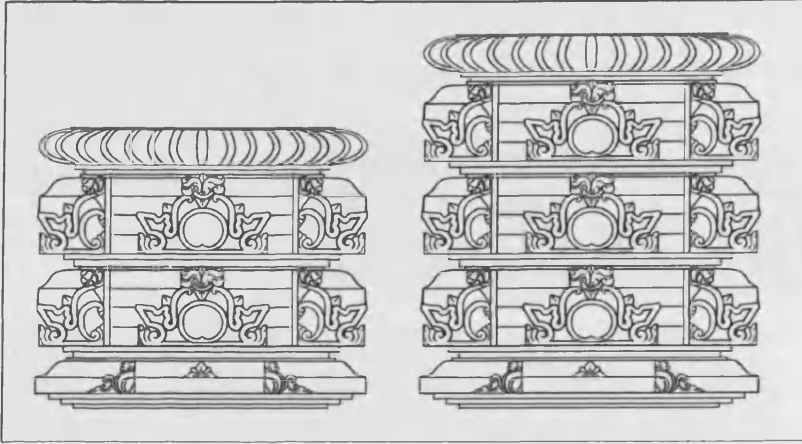


Figure 121: Two hypothetical *karṇakūṭas* from Temple 45.

Figure 121 shows the two different possible ways in which the *karṇa* eaves could be combined to create the *karṇakūṭas* from Temple 45, one using two piled middle eaves between the base eave and crowning *āmalaka* in the manner of the Śāntinātha Temple at Deogarh for example (Figure 122a), and one using three piled middle eaves in the manner of the Mahādēva Temple at Nacchna (Figure 123).

The suitability of the one over the other will be addressed when creating hypothetical elevations for Temple 45 in Chapter 6.

The majority of Latina temples have piled *karṇa* eaves that are joined together by interlaced *gavākṣa* patterns (Chapter 2). Unusually, the half *gavākṣa* - full *gavākṣa* - half *gavākṣa*, or ‘d(d0b)b’ pattern that springs from the solid, heavy body of the middle eaves of the *karṇakūṭas* from Temple 45 have no intermediate *gavākṣa* parts to link the *gavākṣas* to either each other or those of the eaves piled above or below them. When the ‘d(d0b)b’ pattern shown in the Temple 45 fragments is used on the middle *karṇa* eaves of other temples it appears with intermediate ‘)(’ or ‘d(and)b’ elements that connect it to a second ‘d(d0b)b’ patterned eave above it, as is the case at the Deogarh Śāntinātha Temple (Figure 122a) and the Barwasagar Jarāi-kā-maṭh Temple, for example.

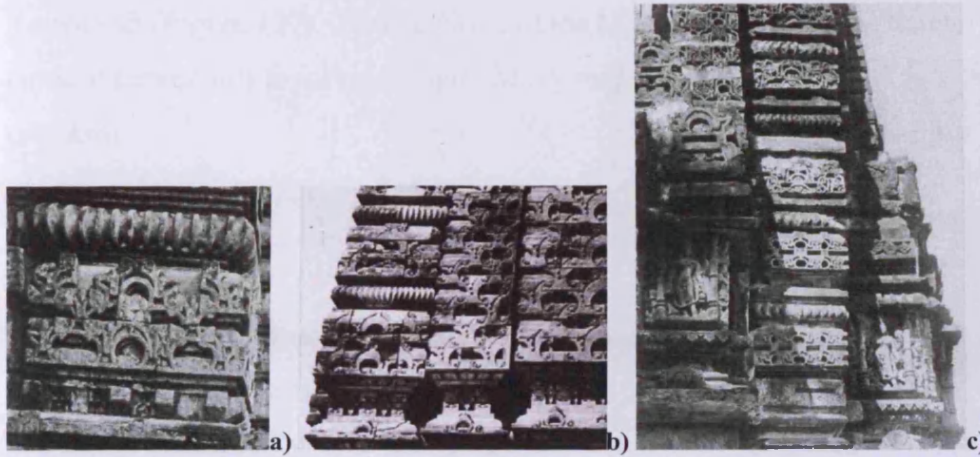


Figure 122: Base *karṇakūṭas* from: a) Śāntinātha Temple, Deogarh (775 – 800 AD, b) Temple no. 3 at Roda, Gujarat (late 8th century), c) Jain Temple, Banpur, MP (900 – 925AD), (Photographs courtesy of A.I.I.S.).

A few temples show related *karṇakūṭa* middle eave forms that indicate that Temple 45 may not be completely anomalous. The lowest two *karṇakūṭas* on the *śikhara* of Temple no. 3 from Roda in Western India (late 8th century) have middle eaves with the same format as those from Temple 45, carved in the stencilled, linear, Mahā-Gurjara manner (Figure 122b). The *karṇakūṭas* above them break from this form, however, and go back to the typical whole-over-two-halves *gavakṣa* arrangement, although they do not have a simple, base eave beneath the knitted eaves. Similarly, and more closely related to Temple 45 in terms of location and date, the Jain temple at Banpur in Central India (c. 900 – 925 AD) has a rather haphazardly reconstructed *tri-aṅga śikhara* over an unusual *garbhagrha* with four covered entrances facing in the cardinal directions. The two lowest *karṇakūṭas* on this *śikhara* have middle eaves that follow the same pattern as Temple 45, although depicted in the flatter, ‘cut out’, Western-influenced style that becomes popular in Central India the 10th century. Above these middle eaves, however, the middle eaves change to a lacy, stylised form of the whole-over-two-halves layout.

The Caturmukha Mahādēva Temple at Nachna (c. 850 AD) and the Chorepūra Temple at Shivapuri (10th century) sport middle *karṇa* eaves with *gavākṣa* patterns that do not interconnect between layers. In these cases, though, the ‘topknots’ touch the base of the higher eave and join them, in a sense, through this contact. In the case of the Temple 45 *karṇa* mouldings the slim, recessed fillet on the top of the moulding and the two fillets receding beneath it would lift the two piled eaves away from each other so that the lower *gavākṣa* topknot would not touch the base of the higher (Figure 121).

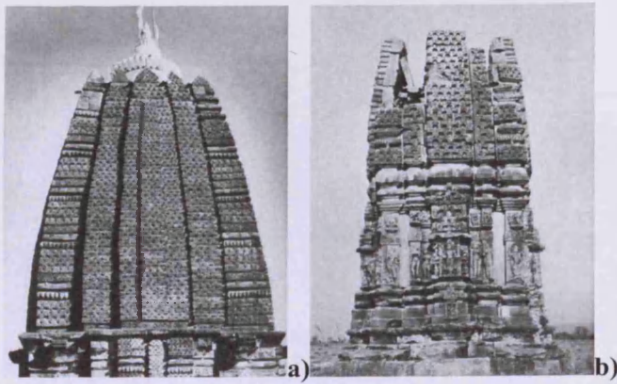


Figure 123: a) Chaturmukha Mahādēva Temple, Nachna (c 850 AD), b) Chorepura Temple, Shivpuri, (c 10th century AD) (Photographs courtesy A.I.I.S.).

Another unusual thing about the middle *karṇa* eaves from Temple 45 is that each one is autonomous, carved separately and then literally piled one upon the other. Typically, if the *karṇakūṭa* is relatively modest in size, although their entire width may be carved from two pieces of stone, the vertical face of the two middle eaves are made from one block, the lines of the different *kapotālī* levels carved into them.

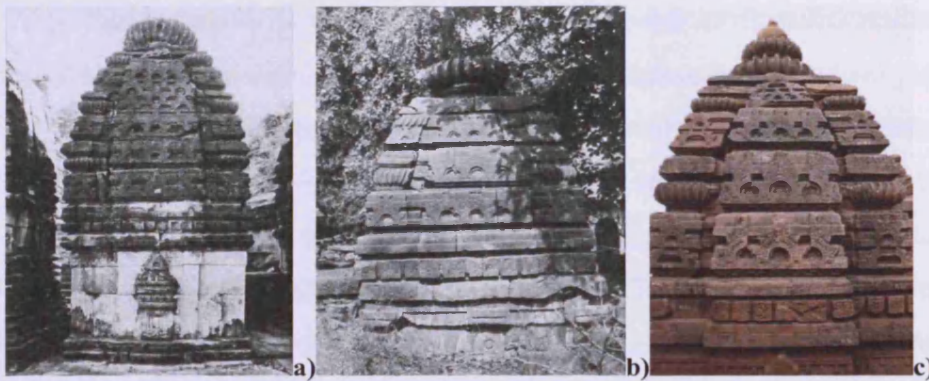


Figure 124: a) Krakōtakēśvara Temple, Naresar (700 – 725 AD) (Photograph courtesy A.I.I.S) b) Temple no. 2, Mahādēva Complex, Batesara (775 – 800 AD) (Photograph courtesy A.I.I.S), c) Latina spire from Batesara (775 – 800 AD).

Perhaps the *śikhara* eaves that are most similar to the middle *karṇakūṭa* eaves from Temple 45 are from the much earlier temple complexes of Naresar (700 – 725 AD) and Batesara (775 – 800). Whilst most of the temples have typical whole-over-two-halves *gavākṣa* patterns, some of the *dvi-aṅga śikharas* have *latā* that show the same unconnected, ‘d()O()b’ forms (Figure 124). These too are heavy courses, each carved separately, and the recessed fillets in between prevent the *gavākṣas*’ topknots from reaching the courses above. Although it appears as if the *gavākṣas* on the eaves are massive and themselves connect two distinct courses, each is in fact one block of stone carved two resemble two eave mouldings in a way that follows the same format, on a larger scale, of the *karṇakūṭa* middle eaves from

Temple 45 (Figure 127). Temple No. 2 of the Mahādēva complex at Batesara also has unusual *karṇakūṭas* involving single, heavy middle eaves from which push large, single *gavākṣas*.

Style

The middle *karṇakūṭa* eaves of the spire, although unusual in their bulky autonomy, bear *gavākṣas* that are relatively delicately carved, paralleling the style of the *gavākṣas* from the *latā* and *pratilatā* of Temple 45. The *gavākṣas* are made from slender cords that press out and are properly distinct from the background eaves. Some of the *gavākṣas* show the incised, slightly angled lines mentioned when discussing the *latā* and *pratilatā* *gavākṣas*. For this reason, whilst the *karṇakūṭa* eaves from Temple 45 are less ambitious or ornate than some of its Central Indian counterparts in terms of size, pattern and conception, and although the piling of the individually carved middle *gavākṣa* eaves looks somewhat heavy and ungainly, the *gavākṣas* themselves are arguably more elegant than the flattened out, abstracted and undifferentiated *gavākṣas* of some Central Indian temples from the second half of the 9th century onwards (Figure 125).



Figure 125: a) *Karṇakūṭa* from the Jarāi-kā-maṭh Temple at Barwasagar, b) one of the *karṇakūṭa* middle eaves from Temple 45, SAN 162.

As was the case for the *latā* and *pratilatā* courses, not all the *gavākṣas* from the middle *karṇa* eaves are carved in exactly the same style. Four middle *karṇa* eave pieces, SAN 114, 115 and photograph numbers 752 and 1448, are noticeably ‘curlier’ than the usual *gavākṣa* forms, with trilobate bursts at the base of the inner circles rather than the usual slight point (Figure 126 & Appendix p.33). These are the slimmest of these type of eaves, and as a result they appear slanted and less circular, and their piped outlines are less distinct from the eave walls behind them.

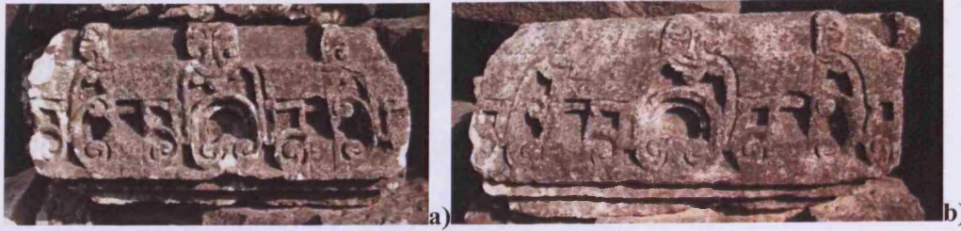


Figure 126: Two unusual middle eaves from Temple 45's *karṇakūṭas*: a) SAN 116 and b) Photograph 752.

The style of the simple base eaves and crowning *āmalakas* from the *karṇakūṭas* from Temple 45 are fairly standard amongst Central Indian Latina temples and therefore will not be discussed here.

Horizontal proportions

The middle eaves of the *karṇakūṭas* do not follow an exact set of proportions in the manner of the *latā* and *pratīlatā* pieces do in terms of the *gavākṣas*' dimensions, the spaces that separate them and their relationship to the overall breadth of the course. This is because the *gavākṣas* in the central eaves of the *karṇakūṭa* are not linked together and therefore do not have or need as clear a matrix in terms of their carving: unlike the *latā* and *pratīlatā* courses, whether the measurements of the *gavākṣas* on these eaves are off-kilter or not will be irrelevant to the eaves above and beneath them because they are independent entities. Therefore the gaps inbetween the *gavākṣa* pieces are not entirely consistent in terms of measurement or proportion, nor are the half *gavākṣas* at the side of the eaves exactly half the width of the central *gavākṣa*. Related to the lack of a conceptual grid required for the unconnected *karṇakūṭas*, the *gavākṣas* themselves are more freely proportioned, and the width at the top of the arms of the central *gavākṣa* is usually (but not always) wider than the *gavākṣa* width at its base, and wider by different amounts.

The widths of the *karṇakūṭas*' base eaves and *āmalakas* change according to their place on the spire. The little half *gavākṣas* and half lotuses on the base eaves are about 10cm in width, and the distance between them changes according to the widths of the overall course.

Vertical proportions

The substratum of eaves that makes up the middle *karṇakūṭa* courses follow a different form to those of the *latā* and *pratilatā* from Temple 45. A curved top arches down to meet the first of two projecting eaves, which are separated by a stepped recess. Unlike the *latā* and *pratilatā* courses, each of which is a part of a connected ladder of eaves, as discrete units the middle *karṇa* eaves are topped with a slim, recessed capping and supported by two base fillets (Figure 127)..

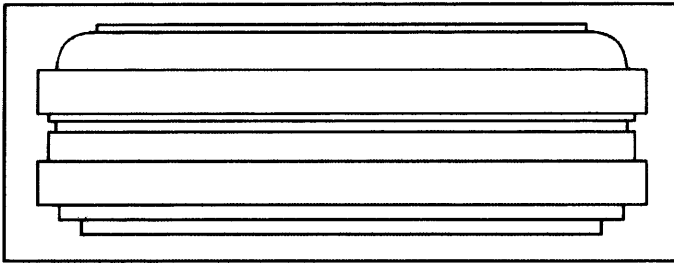


Figure 127: Diagram of the substratum of smaller eaves beneath one of the *karṇakūṭas*' middle courses.

Like the *latā* and *pratilatā* courses, and unusually for a Latina temple, whilst the width of the *karṇa* eaves change depending on where they are positioned on the curving Latina spire, they stay the same height. The lines of the eaves determine the vertical proportions of the *gavākṣas* that spring out from them. The height of the *gavākṣa*'s feet parallels and covers the lowest of the two projecting mouldings, the tops of the arms and the inner circle touch the base of the higher of the projecting mouldings, the sash at the base of the topknot comes to the top of this moulding, and the topknot is about as high as the curved top of the course. The top projecting rectangular fillet is 5 – 6 cm in height and the lower one half a cm taller, the stepped recess between the fillets is 6 – 7cm and the curved top reaches up 5 – 5.5 cm (Figure 128). As with the *latā* and *pratilatā*, these slight variations in height are not purposeful gradations but instead probably reflect unintended variations in carving. They combine and compensate for each other in a way that means that the larger measurements do not vary by too much: they lead to the *gavākṣas* height-to-shoulder measurements being 17 – 18cm, and the full height with topknot 23 – 24 cm. The total height of the middle eaves of the *karṇakūṭa* is about 28-29cm, which matches that of the *pratilatā* and *latā* courses. The horizontal measurements of the insets and how far the capping and supporting fillets are set back from the face of the eaves also remains constant, regardless of the width of the eave.

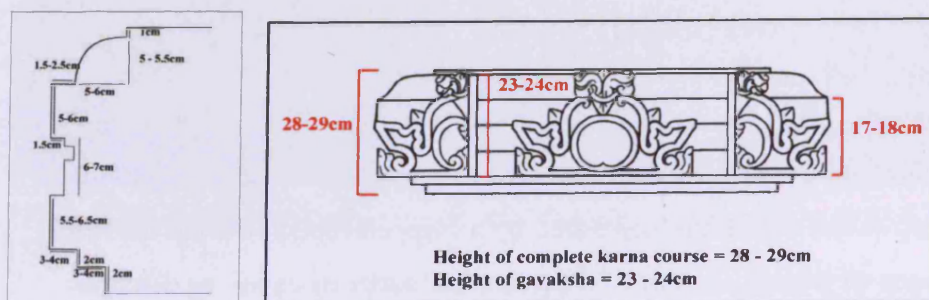


Figure 128: Vertical measurements for the middle eaves of the *karṇakūṭas* from Temple 45.

Note that as the external courses creating the signature curved Latina outline of the spire, the *karṇa* pieces become even more slanted and distorted than the *pratilatā* pieces. This distortion is clearly visible in the narrower pieces (Figure 126).

Karṇa āmalaka and base eaves

Both the *karṇakūṭas'* *āmalakas* and base eaves are 14 – 15cm high in total. Like the other courses from the *śikhara* of Temple 45, their heights stay the same regardless of changing widths.

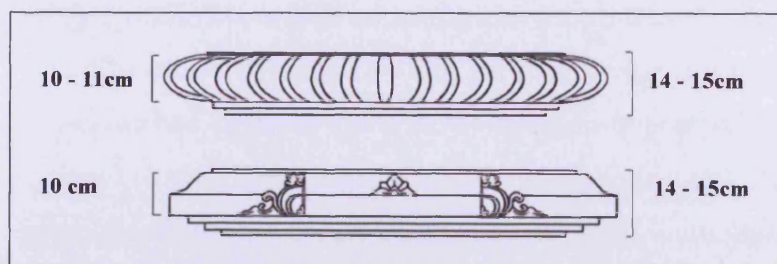


Figure 129: vertical measurements of the *karṇakūṭa āmalakas* and base eaves from Temple 45.

Three-dimensional shapes

The full breadth of the middle *karṇa* eaves is constructed using two pieces of stone, the holes carved to receive the metal ‘staples’ that pinned them together visible on top of most of the fragments (Figure 130). Most of the remaining fragments from the middle *karṇakūṭa* eaves are fairly well preserved. Their front faces are complete and show the proper set of *gavākṣas*, and one of the sides perpendicular to this face begins its *gavākṣa* set but is cut short before it is completed. The other part of the *karṇa* eave would have been clipped to

this section to complete the pattern, as indicated by the positioning of staple holes on top of the fragments (Figure 130a & b).

On the other perpendicular side of the surviving *karṇakūṭa* middle courses the simple lines of the eave mouldings stretch backwards for between 17 – 18cm and then make a 90 degree turn to continue the eave mouldings for 6.5 – 7.5 cm until they end abruptly (Figure 130c). When assembled, therefore, one of the middle *karṇakūṭa* courses would have had two perpendicular faces with the *gavākṣa* patterns pressing out from the eave mouldings, with simple unadorned eaves tucking behind them for 17 – 18 cm before turning out for 6.5 – 7.5 cm.

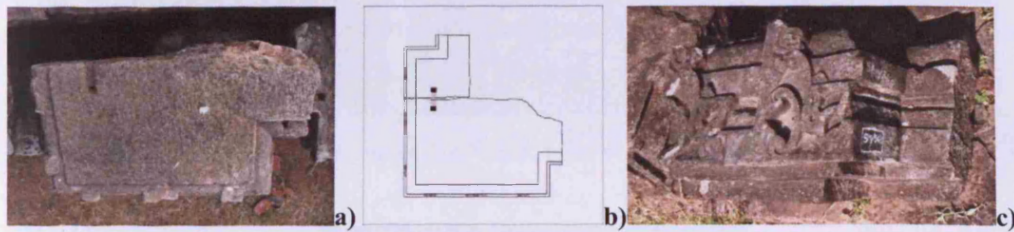


Figure 130: a) *Karṇakūṭa* middle eave SAN 398, b) diagram of paired *karṇakūṭa* eaves, c) SAN 345.

A couple of the *karṇa āmalakas* and *karṇakūṭa* base eaves are undamaged enough to show their offsets. These few surviving examples have eaves carved into a side perpendicular to their main decorated faces that stretches backwards for 17 – 18cm before turning 90 degrees and continuing along the offset. The eaves finish after 6.5 – 7.5 cm and are followed by a plain stretch of stone for 8 – 10 cm in the manner of ‘Type A’ *pratilatā* courses.

Vēṇukōṣa* courses between the final *karṇakūṭa* and the *skandha

The main trunk of a Latina *śikhara* is completed by a *skandha*, a fairly plain, square panel of stone that lies across the summit of the spire. Although fragments of the *skandha* from Temple 45 may still exist it is impossible to identify them conclusively from amongst the fragments for there are any number of anonymous, wide, flat sections of stone lying around Sanchi that could have been used for this purpose. The *pratilatā* and *latā* usually edge up past the *skandha* and resolve in *udgamas* that sit on top of or slot over this platform, therefore the *skandha* is not visible behind them. The final *āmalaka* of the highest *karṇakūṭa*, on the other hand, usually either reaches up to the edge of the *skandha* or stops

just short of it, the space between the two filled by a course of *tulā* decorated with lotus flowers. As always there are variations to this format, for example at the Harihara Temple 1 at Osian the final *karṇa āmalaka* is topped by a *kapotālī* followed by a *tulā* row and then the *skandha* eave.

Whether there is a gap to be filled between the final *karṇakūṭa* from the spire of Temple 45 and the *skandha* depends on the height and curvature of the spire and how the *karṇakūṭa* elements are formulated and fit within this, but no lotus *tulā* courses that would typically be used for this have been identified from amongst the fragments from Temple 45. There are two different *tulā* types amongst the Sanchi fragments. One fragment of *tulā* that is carved with *kīrttimukha* faces rather than lotus flowers, and this is 92cm in width and therefore too wide to fit the top of the spire (Figure 131a). There are six substantial pieces that include lotus *tulā*, but these are part of much larger, complex architectural arrangements rather than being the simple courses required (Figure 131b).



Figure 131: *Tulā* fragments a) SAN 1270, b) SAN 125.

In the face of this lack of material regarding the *skandha* and final *vēṇukōśa* elements from Temple 45, hypothetical versions of these courses will be included in the reconstructive pictures according to what is required in each image, drawing from examples set by Central Indian Latina temples that are contemporary with Temple 45.

Key fragments and anomalies from the spire courses.

Key fragments.

The analysis of the *latā* and *pratilatā* courses from Temple 45 brings to light fragments that are integral to establishing the proportions of the spire. The complete *latā* course SAN 363, carved from one block of stone, measures 66.5cm in width at its base and 65cm at its top

and breaks with the standardised height of all the other *latā* pieces standing at 25cm rather than 28-29.5cm (Figure 132). This latter piece is the final fragment from one of the *latās* from Temple 45, as indicated by the fact that at its top eave the *gavākṣa* pattern from the *latā* changes and narrows so as to receive its crowning *udgama*: the top-knots of the *gavākṣas* at the course's extremities reach up to touch abstracted, triangular feet of half *gavākṣas* with plain stretches of stone at their edges, rather than the full *gavākṣa* base that would be expected from normal *latā* pieces (Figure 132b). The width of the shortened, knitted *gavākṣa* pattern, begun at the edge of their triangular feet, is about 54cm.



Figure 132: The smallest *latā* course, SAN 363, total width 65 – 66.5cm.

The shapes and measurements of two surviving *latā udgamas* confirm that SAN 363 is a final *latā* course, and it, in turn, confirms that the *udgamas* would indeed have topped the *latā*, since their *gavākṣa* patterns match up in terms of size and arrangement. The *udgamas* are heavy pyramids of *gavākṣas* and half *gavākṣas* with shallow insets cut from their bases. This would mean that their main bulk was intended to sit on top of the *skandha*, and then the slimmer, lower section of *gavākṣa* pattern would have reached down in front of the *skandha* to connect up with the altered *gavākṣa* pattern of SAN 363. The Mālādēvi Temple at Gyarpur also has *pratilatā udgamas* that slot over the *skandha* in this way (Figure 134a). SAN 363 is a much more shallowly carved course than the other *latā* pieces, suggesting that perhaps it too would have sat in front of the *skandha* (Figure 132c). Like the altered section of *gavākṣa* pattern at the top of SAN 363, the base width of the *latā udgamas* are 55 – 56cm, and the total height of the *udgamas* are 53 - 54cm.



Figure 133: *Latā udgamas* a) Photograph 1393, total height about 54cm, base width about 55cm, b) Photograph 130, total height about 53cm, base width about 56cm c) side view of *udgama* from Photograph 130.

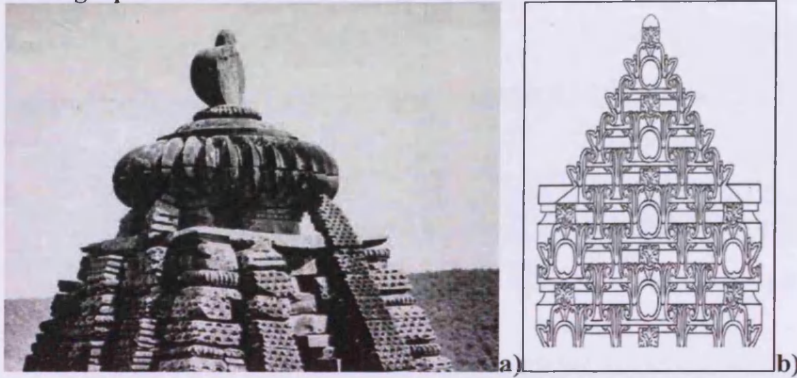


Figure 134: The summit of the Mālādēvi Temple, Gyarpur (850 – 875AD), showing *pratilatā udgamas* slotting over the top of the *skandha* and reaching down to join the *pratilatā* proper (Photograph courtesy of A.I.I.S.) b) impression of the *udgama* joining up with the final complete *latā* course.

Four of the *udgamas* that topped the *pratilatās* also survive, although they are more fragmentary than the *latā* tops (Figure 135). The height of the largest fragment, SAN 195, is 50cm in total, just a little shorter than the *latā*. Since the *udgama* points of the *pratilatā* would not exceed those of the *latā* it may be assumed that this fragment represents the complete *udgama* form. It also has a small section of stone cut away from its back allowing the lower part of its eaves and *gavākṣas* to hang down in front of the *skandha*. The width of the two more complete *pratilatā* points at their base are about 36.5cm, therefore although the highest *pratilatā* fragments no longer remain, their widths can be inferred from the *udgamas*' measurements.

As is the case with the *udgamas* from the *latās*, the *gavākṣas* from the *pratilatās*' *udgamas* get successively shorter the higher they appear. The *gavākṣas* are larger than those of the *latā* because the change in width of the *pratilatā* at the base of the *śikhara* and at its peak is less dramatic than that of the *latā*. Because they are bigger than the *udgamas* from the *latās*, the *gavākṣas* from the *pratilatā udgamas* are made up of two rows of *gavākṣa* pattern rather

than the *latā*'s three rows. Although the piled courses of the *pratilatā* slant more than the *latā*, the *pratilatā udgamas* remain more or less vertical.

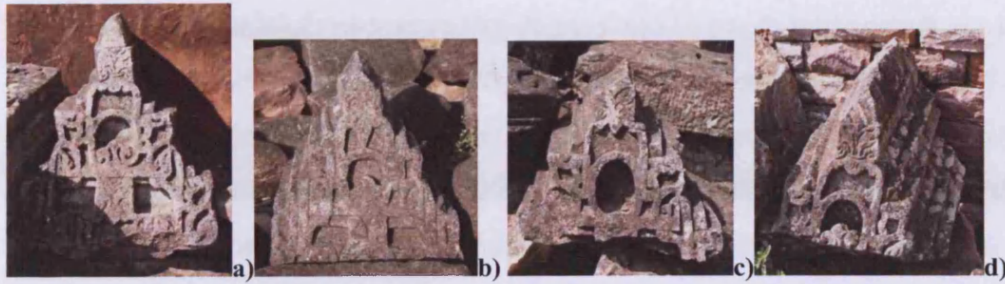


Figure 135: *Pratilatā udgamas* a) SAN 195 b) Photograph 1391 c) Photograph 1185 d) Photograph 1198.

In addition to this, two *pratilatā* fragments from the very base of the spire survive (Figure 97). These are about 60cm in width. These *pratilatā* fragments, the slimmest *latā* course and the *pratilatā* and *latā udgamas* therefore offer firm measurements that can be utilised in the redesign of the spire.

There are no pieces from the *karṇakūṭas* that can be proven at this juncture to be either the lowest and widest or the highest and narrowest. The widest, however, is just over a metre wide.

Anomalies



Figure 136: a) SAN 135 b) SAN 135 from above (the two indents that are close together and also at the front of the fragments are the indents on either side of the flourish at the base of the top *gavākṣa* base's inner circle rather than staples), c) SAN 134 d) SAN 134 from above, e) SAN 302. The estimated total widths of their *gavākṣas* are about 37.5 - 8cm.

From a preliminary identification of fragments there are a few pieces that appear at first as if they belong in the *latā* group, but on closer inspection break the rules of form and proportion set out above. Three fragments, SAN 134, 135 and 302 (Figure 136) display *gavākṣas* on the edge of a course, with one low-arm at the extremity and one high-arm reaching towards the centre of the fragment, in the manner of the *latā* courses. They are the same height and shape as the *latā gavākṣas*, and show the base of another identical *gavākṣa* above them like the *latā* does, indicating that there would have been further courses and

gavākṣas above them. Unlike typical *latā* courses, however, the vertical aspect of the outer *gavākṣas* are complete and rather than just being a ‘top half’, which means that there is a third projecting eave at the base of the course covered up by the *gavākṣa*’s feet. Perhaps these are the neatly finished *gavākṣas* of the lowest *latā* courses, in the manner of the base *pratilatā* eaves? The expected continuation of the *gavākṣa* pattern stops abruptly after about $\frac{3}{4}$ of the first *gavākṣa*, however, and the rest of the front faces of the fragments are left plain. When viewed from the top, the holes left by the metal staples that clinch fragments together show that there would have been another architectural piece covering the plain areas, projecting forward at 90 degrees to the *gavākṣa* face (Figure 136b& d). Could these be parts of the *latā* over which the *śukanāsa* crosses? This is unlikely since there would be no reason to change the plan of the *latā* courses’ vertical patterns in this case. Could these be from the lowest *latā* course of the front face of the spire, crossed over by the *śukanāsa*? This is untenable because, firstly, there are three of these pieces rather than two, and secondly this would make the *śukanāsa* unnaturally slim. Possibly these fragments could indeed be from the lowest *latā* courses from the sides and backs of the temple spire, and the plain area of stone could indicate that the niches pressing from the *garbhagrha* walls were topped by extensive superstructure formations that carried on up past the *varaṇḍikā* and crossed over the *latā* in a way similar to the niche superstructures at the Sūrya temple from Madhkedha. This will be considered in more detail later in the chapter.

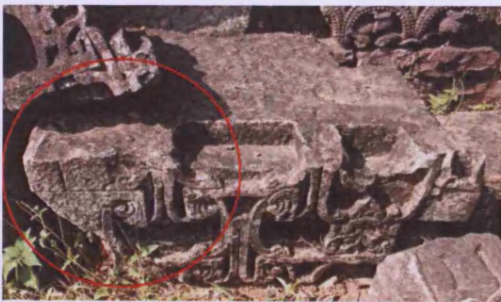


Figure 137: *Latā* fragment SAN 350 showing an uncarved area of stone.

There is also a wider stretch of *latā* course, SAN 350, that follows the *latā* format except for the fact that the *gavākṣa* pattern is discontinued after what would be the first quarter of the course’s length, and the rest is left bare. In this instance the plain area could indicate a part of the *latā* which was covered over by the *śukanāsa* since it follows the correct vertical *latā* arrangement. This fragment will be considered in more detail in Chapter 6.

There are also anomalies within the *karṇakūṭa* fragments. Two fragments, SAN 80 and 192, show the same ‘d()O()b’ *gavākṣa* pattern as the *karṇakūṭas*’ middle courses, and the foundational eaves from which they press follow exactly the same form and proportions. What does not fit with the *karṇa* pattern is the way the eaves finish, or, more to the point, do not finish. In these fragments the eaves continue onwards past what would be the final half *gavākṣa* and the *karṇa* edge, breaking off before revealing how they are resolved and a plain, triangular area of stone coming down to cut diagonally across the face of the full *gavākṣa* (Figure 138). In fragment 192, the front face of the course with the *gavākṣa* pattern makes an abrupt 90 degree turn forwards rather than backwards, as would be expected from the middle *karṇa* eaves.

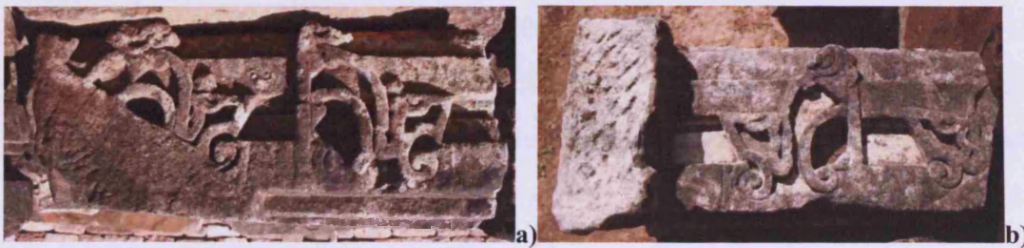


Figure 138: *karṇakūṭa* anomalies, a) SAN 80, b) SAN 192.

The crowning elements from the spire: *grīva*, *āmalaka*, *kalaśa*

On top of the *skandha* from a Latina spire stands the temple’s final flourish: the skyward-pointing sequence of *grīva* (neck), large crowning *āmalaka* or *āmalasāra*, and *kalaśa* (pot finial). Other smaller pieces are usually involved in this line up including a disc-shaped course with a flaring lip (*candrika*) that sits above the *āmalaka* and a more diminutive *āmalaka* (*āmalasāraka*) that sits between the *candrika* and *kalaśa*, and multiple smaller finial pieces that sit on top of the *kalaśa* (Figure 35).



Figure 139: Fragments from the *āmalasāra* a) Photograph 1727, b) Photograph 531, c) SAN 72.

Only fragments from the *āmalaka* and *kalaśa* of Temple 45 survive still. The *āmalaka* was carved in segments and clipped together, as indicated by the ‘staple’ holes on top of the pieces (Figure 139), leaving a small circular hole at their centre. This hole may have lessened some of the weight of the *āmalaka* or could have helped the *āmalaka* join to the *grīva*. One of these *āmalaka* wedges has a rectangular indented scored through its base (Figure 139c), could this also be some means of linking the pieces to the *grīva*? Five of these pieces remain, each about 55cm in height and 90cm in length, suggesting, taking into account the hole in their centre, that the *āmalaka* would have been around 250cm in width when assembled.

The *kalaśa* is not quite spherical, swelling slightly at one end. At its widest point it is about 75cm, and it is approximately 65cm tall (Figure 139a). Similar shaped *kalaśas* are familiar from the Mālādēvi Temple at Gyaspur (Figure 34b) and the Sūrya Temple at Umri (Figure 35a), for example, and in these cases the narrower end points downwards to meet the *āmalasāraka* and *candrika*, and the broader, heavier side points upwards to lift up the finial.

The *grīva* that would have held the *āmalaka* aloft is no longer present. Two cylindrical stone supports that approximate the kind of forms needed for a *grīva* are too small and their forms are not entirely convincing (Photographs 522 – 523). Although there are several stone discs amongst the fragments that on first glance could act as the *candrika* for Temple 45, they are too wide, have ‘up-turned’ rather than ‘out-turned’ lips, and some are probably broken parasols from above the *stūpas* rather than parts of Temple 45 (Photographs 540 – 550). No slim, circular *āmalakas* remain that could be the *āmalasāraka* from Temple 45, and none of the final finial shapes were found. In the reconstructive drawings, therefore, Temple 45 will be given a hypothetical *grīva*, *candrika* and *āmalasāraka*.

Varaṇḍikā

Varaṇḍikās are conceptually linked to the temple’s spire because their upper eaves act as the base eaves for lowest set of *karṇakūṭas*, and for this reason they are included in this discussion. *Varaṇḍikās* are the cornice mouldings that separate and mark the transition between the temple walls and the spire. The *varaṇḍikā* plan follows that of the *vēḍibandha* rather than that of the *śikhara* if the two are different as shown in the way the *varaṇḍikā* cuts straight across the spires’ salilantarās in pre-9th century Latina temples, acting as the

base eave for the spire's *karṇakutas* and the foundation for the *salilāntaras*' *bālapañjaras*. The *varaṇḍikā* will continue along the *kapilī* wall, acting as the *varaṇḍikā* for the shukanasa also. In searching for *varaṇḍikā* fragments from Temple 45 therefore it is key that they match the proportions of the minimalist *vēdibandha* from the temple (Figure 140).

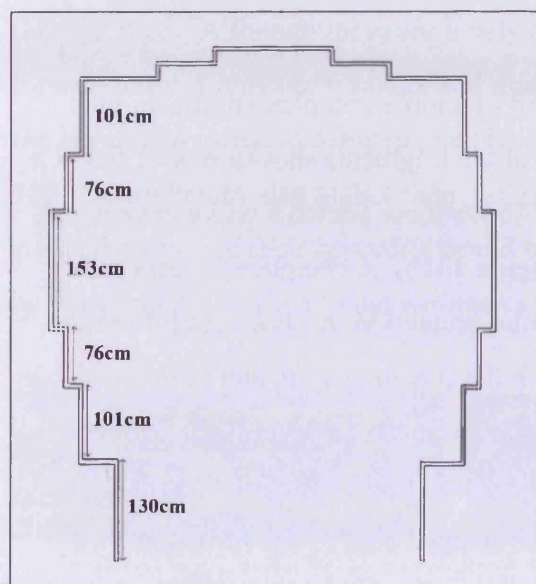


Figure 140: *Vēdibandha* plan from Temple 45.

In Chapter 2 typical Latina *varaṇḍikā* designs were described, noting the prevalence of the *kapotālī-tulā-kapotālī* formula in 8th – 9th century Central Indian temples. The two types of *tulā* fragments found at Sanchi were shown in Figure 131 above, and four different eave types were discussed in conjunction with the *karṇa kutas* (Figure 119). The solitary example of a course of *kīrttimukha tulā*, SAN 1270, is made up of four kirtimukhas, each 20 x 20 cm and separated by 3cm gaps, and has an overall width of 92 cm (Figure 131a). One side of it is left plain, and the other is decorated with one *kīrttimukha tulā* and then a stretch of bare stone. Although *tulā* of this sort could perhaps be used in a *varaṇḍikā*, its dimensions prevent it from fulfilling that function on Temple 45. The *pratiratha* from the *vēdibandha* is 76cm, making the course too wide for the *pratiratha* from the *varaṇḍikā*, the *karṇa* from the *vēdibandha* is 101cm and its *bhadra* is 153cm, making the fragment too short for the *varaṇḍikā* equivalents. Adding an extra *tulā* or two to the course, attaching the extra pieces to the plain side of the course, will make it either 135cm or 158cm in total width, which leaves the course too wide for the *karṇa* and either too wide or too narrow for the *bhadra*. Adding further *kīrttimukhas* to the *tulā* would also disrupt the symmetry of the pattern of faces.

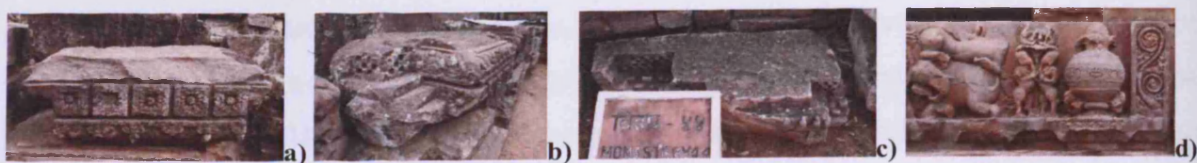


Figure 141: a) SAN 179, b) SAN 125, c) Photograph 1770, d) Pot motif on the doorstep of the Jarāi-kā-maṭh Temple at Barwasagar (c 900 AD).

There are seven other fragments that bear *tulā* as part of a more complex architectural arrangement (Figure 141a-c). The more substantial of the fragments show a row of five 8 x 8 cm lotus *tulā* beneath which hang a row of buds. Above these stretch a wider eave which in some are held up at the sides by stone 'joists' (Figure 131b). A chequered recess runs under the eaves on either side of the lotus *tulā* and bud projection. A photograph from the British library shows a more complete fragment with the five lotus *tulā*, and beside which is a spherical vase of the sort seen on the doorstep of Barwasagar's Jarāi-kā-maṭh Temple (Figure 141d). The stepped shapes and pretty detail of these fragments make them intriguing pieces, but leaving them unsuitable for the stepped plan of the *varaṇḍikā*.



Figure 142: a) Śiva Temple in Gadhi Village, Kadwaha (10th century), b) close up of part of the *varaṇḍikā* from the Śiva Temple, Gadhi, c) Temple 3, Roda (c. 775 – 800 AD) (Photograph courtesy A.I.I.S)

Several 9th century temples from Western India and 10th century temples from Central India have *varaṇḍikās* that are made up of or include two *kapotālīs* separated by a recessed course of diamond lotuses alternated with little, stylised, square pillars, the pillars divided in half by palmette, vase-of-plenty, *kīrttimukha* or lotus patterns (Figure 142). There are three types of courses of this sort among the Sanchi fragments that are akin in terms of their design but differ in terms of their sizes and their *kapotālī*.

There are five remaining examples of the largest of these types of fragments (Figure 143a). These have *kapotālīs* above and beneath the recessed fillets, their edges stepping in and out

with the inset diamond lotus and pillar forms. The diamond lotuses are 16cm wide, the pillars are 17cm wide, and both are about 16cm tall. The largest surviving courses have a total width of about 84cm, and a total height of about 30cm, and one shows the pillar and lotus pattern continuing along one side of the course for about 24cm. In two of these fragments the diamond lotuses are ‘cut out’ from the stone courses so that light can shine through them. Although these are nicely carved courses, their measurements, sticking as they do to the 17cm/16cm pillars and diamond lotuses, will not allow them to fit neatly with the *varaṇḍikā* measurements implied by the proportions of the *vēdībādhā* from Temple 45. Their 30cm height also makes them rather short for the *varaṇḍikā*. On top of this, the stepped outline of their *kapotālīs* would be most unusual and their ‘cut out’ lotuses would be unnecessary, backed as the *varaṇḍikā* is against the rough stone of the temple core.

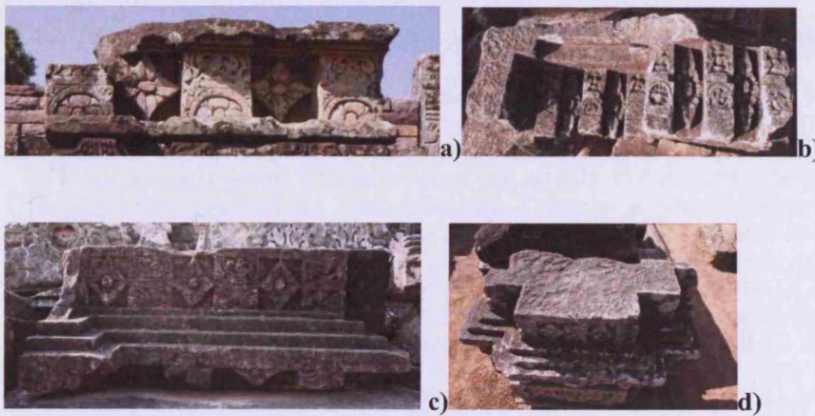


Figure 143: Three types of courses sharing the same diamond lotus and pillar design, a) SAN 80, b) SAN 172, c) SAN 180, d) SAN 173.

In the second type of courses, slimmer, delicate little rows of diamond lotus and pillar patterns are set between eaves showing rounded half *gavākṣa* – *gavākṣa* – half *gavākṣa* patterns in the manner of ‘Type D’ eave discussed earlier. The lotus sections of these fragments are about 9cm wide, the pillars are about 7 cm wide, and these both, set in their recessed course beneath the eave are about 10.5cm tall. These are immediately unsuitable for the *varaṇḍikā* from Temple 45 because of their narrow, stepped shapes. SAN 173, for example, has three ‘tiers’ of steps which would not fit with the *varaṇḍikā* plan. These fragments fit more closely with the more complicated, stepped plan of the *maṇḍapa*, a the similarity of shapes shown neatly as SAN 173 stands on top of two fragments from the *maṇḍapa* base.

There are two of the slimmest of the diamond lotus and pillar courses remaining (Figure 143b). These lotus and pillar designs are respectively 6cm and 7cm wide and about 20cm tall. They are not topped by *kapotālīs*, but instead lead on to plain areas of stone both above and beside the patterns. This roughness in the way they are finished and also the details of their measurements rule them out as pieces of the *varaṇḍikā* from Temple 45. These pieces will be considered further in the Appendix regarding their congruence with the *maṇḍapa* dimensions.



Figure 144: a) Photograph 1021, b) & c) SAN 105.

The solution to Temple 45's *varaṇḍikā* appears lies in three fragmentary remains of eaves supported by strips of chequered stone. SAN 105 is the most intact of these fragments. The capping eave of its main face is damaged however it shows a small half *gavākṣa* - *gavākṣa* – half *gavākṣa* pattern identical to those of the 'Type D' eaves discussed earlier in the chapter (Figure 119d). The total width of the capping eave is estimated to be about 100cm. Two little recessed fillets step down from the *kapotālī* to the chequered panel indented beneath it, which measures about 80+ cm in width. One side of this fragment is ruined, whereas the other shows the *kapotālī* and chequered stone inset continuing along its side for about 54cm before being broken off. The width of this fragment and the fact that the design continues along its side face indicates that this could well be the *karṇa* part of the *varaṇḍikā*. The little *gavākṣas* on its projecting rim are slightly off centre, and this could have been an aesthetic device so that they are not swallowed and overshadowed by the *pratilatā* projection following them. Seven other fragments show plain chequered stone courses, one of which have the remains of a *kapotālī* above them. One of the chequered pieces rests on top of the wall behind Temple 45 but the *kapotālī* part has broken off: the fact that it appears there, as if it has fallen from high up the central body of the temple, could confirm its original location on the *varaṇḍikā*. The other five chequered stone fragments do not have *kapotālīs* attached.

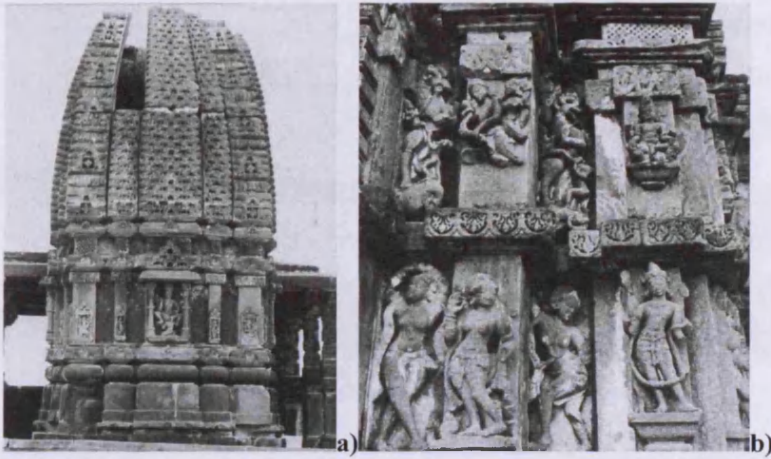


Figure 145: a) Viṣṇu Temple 2, Osian (c 850 AD), b) Śiva Temple, Kodal, Madhya Pradesh (10th century), see the chequered *varaṇḍikā* in the upper right-hand corner of the image (Photographs courtesy A.I.I.S.)

Varaṇḍikās made up of simple, recessed, chequered fillets of stone set in between two *kapotālīs* were used in Latina temples during the 9th – 10th centuries in Central India and Western India, as shown by the Viṣṇu Temple 2 at Osian (c. 850 AD) and the Śiva Temple at Kodal in Central India (10th century) (Figure 145). The *varaṇḍikās* of the Surya temple at Umri (c 850 AD) and the Jarāi-kā-maṭh Temple at Barwasagar (c 900AD) also include chequered fillets as part of more complex arrangements, followed by another complete set of *kapotālī – tulā – kapotālī* courses at Barwasagar and including a row of *tulā* at Umri.

Kiṅkiṇikājālas

Around the top of the *jaṅghā* from a Latina temple, just beneath the *varaṇḍikā*, a festoon or *kiṅkiṇikājāla* is usually carved, a little hanging bell or tassle hanging in each loop. The walls of Temple 45 are particularly plain, and a *kiṅkiṇikājāla* would relieve its bare faces, however the two types of festoon courses from amongst the fragments are not typically used in this context.



Figure 146: a) SAN 70, b) SAN 204, c) SAN 238.

The first type are delicately carved and charming, showing double strands of beads and pouring out of the mouths of cheerful and energetic kirtimukhas and vyalas. There is a slim

chance these could have supplanted the more typical *kinḱiṇikājālas* since 10th century temples from Kadwaha show aberrations and use differently styled *kīrttimukha jālas* in place of the usual bell festoons, but the shapes and sizes of the Sanchi examples preclude them being used here. Four of the five fragments have front faces that are about 70cm wide, with the design continuing down one of its sides for about 36cm and the other for about 20 cm. These then are too narrow for all of the wall's *karṇa*, *pratilatā* and *latā*. Given that the pieces are decorated on both their sides, neither could they have been clipped together to make up the extra widths.

The second type of *jāla* shows slightly less detailed foliate designs with single beaded strands hanging down from abstracted flower heads, feathery leaves carved within their loops. The leaf festoons come in two different sizes, one narrower and more deeply carved, and the other wider and more abstract. The dimensions and fragment shapes of the two fragments with the more carefully carved, slimmer leaf designs are too small to fit with the proportions of the *garbhagrha* walls from Temple 45. The wider, plainer leaf festoons, however, could fit with the proportions of the temple wall. There are six of these fragments remaining, each about 16cm high with widths that range between 38 – 65cm. Each loop of the design is about 20 cm in breadth. In some of these fragments the leaf and festoon design appears only on the front of the block, and its sides are left plain, whereas on others the design continues for one loop along one of the sides. The courses with the plain sides could have been placed next to other *kinḱiṇikājāla* blocks, their combined breadths making up the widths of the walls projections, using either whole loops or a half leaf and loop to create the required measurement. The blocks with a single loop along one of their sides would have decorated the 20cm projections of the *bhadra* from the *pratiratha*, and the *pratiratha* from the *karṇa*.³

³ One of these *kinḱiṇikājāla* fragments, SAN 153, is a good example of architectural recycling at Sanchi. This cuboid piece is curious in that one broad face shows a lotus medallion, whilst its sides are carved with leaf festoons. The two designs cannot have been intended to cohabit this block for if the lotus design was facing downwards, as its form logically ensures, then the loops of the leaf *jālas* would be upside down. If the *jālas* were facing the right way, then the lotus would point upwards and be invisible to the eye. This, therefore, must have been an architectural fragment from an earlier building taken and re-carved so it could be used in Temple 45.



Figure 147: Wall from a Śiva Temple at Gadhi, Kadwaha (10th century).

These courses probably do come from the walls of Temple 45, but instead of sitting directly underneath the *varaṇḍikā* as the typical *kin̐kin̐kājālas* would, run parallel to the top of the wall niche. Leaf festoons are used in this way on a number of Central Indian temples from the 10th century onwards (Figure 147).

It is impossible to say whether, as would be expected, Temple 45 once had a proper *kin̐kin̐kājāla* beneath its *varandika* which is now lost, or whether, in keeping with anomaly shown in its design, it just never had one.

Conclusion

The analysis of the *śikhara* fragments set out in this chapter and the details of their measurements shown in the Appendix (pp. 8 – 43) provide enough information to begin the investigation into the design of the spire from Temple 45 in the next chapter. Before doing so, however, one question has yet to be asked, a query on which the validity of all these measurements in their regard to Temple 45 rests: is it certain that all of the fragments discussed here and detailed in the Appendix actually belong to Temple 45? This discussion will lead to a consideration of how Latina spires were carved and constructed, following which the key measurements from the spire will be briefly noted once more.

Are all the spire fragments from Temple 45?

Whilst all of the fragments within the *latā*, *pratilatā* and *karṇakūṭa* groups have the same *gavākṣa* patterns, foundational eaves and vertical measurements, the treatment of some of

could they come from entirely different Latina temples?

If there were two clearly identifiable, specific ways of treating the *gavākṣas*, then the idea that they come from two separate temples would be appealing. It would fit neatly with John Marshall's story of Temple 45's earlier Latina avatar, similar in both size and style. The problem with this argument, however, is that there are manifold ways in which details from the *gavākṣas* are carved and then combined together: the points beneath the *gavākṣas*' sashes, for example, are sometimes thin, sometimes thick, sometimes of different width, some are feathery, some are foliate, some are trilobate, some are scored with lines, some are smooth, and so on and so forth. All, however, are the same height, the same width, and push out from the same sets of eaves. If each different treatment of *gavākṣa* details is representative of a different spire, then Sanchi somehow has to find the space and the foundational evidence for at least six different Latina temples, each with identically proportioned spires, built in approximately the same time period as Temple 45. Alternatively, if a selection of the *gavākṣa* types is apportioned to Marshall's earlier temple and the remainder is allocated to Temple 45, then using *gavākṣas* with differently treated details in one spire has to be accepted, in which case there should be no problem allocating them all to Temple 45.

The hypothesis that each differently styled *gavākṣa* comes from a different but identically proportioned Latina temple is much more untenable than the suggestion that occasionally the different craftsmen that worked on the spire of Temple 45 treated the details of the *gavākṣas* differently. These small variations seem relatively minor in the face of the mismatched combination of door lintels, prematurely truncated pillars, articulated capitals, and the stepped temple body that form the rest of Temple 45. The possibility of the variety of *gavākṣas* from Temple 45 makes more sense when the way the fragments were carved and assembled on the spire is also considered.



Figure 148: Temple builders constructing a Jain temple at Delwara in Rajasthan (Photograph courtesy James Buckee).

Earlier in this chapter the consistency of the *latā* and *pratilatā* courses vertical measurements and their horizontal proportions were discussed. The fact that *latā* and *pratilatās*' *gavākṣa* patterns and eaves abide by a tidy system of proportions would have enabled their patterns to be mapped onto the blocks of stone from which they were carved; plain but carefully dimensioned stone courses, proportioned using the methods discussed in Chapter 3, that once erect would have created the Latina spire's curved projections. Because of the proportioning grid used in carving the patterns, the *gavākṣas* and their patterns would remain in proportion regardless of the widths of the courses or how much they slanted. I suggest that this proportional grid was used to cut the basic insets and indents that would create the rough, foundational shapes of the *gavākṣas* whilst at ground-level. The regular shapes cut from the bases of the *latā* and *pratilatā* fragments, following simple regular proportions, illustrate this: the smooth, plain tops of the courses compared to the courses bases with geometric chunks cut from them show that they would have been carved from 'the bottom up', also cutting the foundational shapes of the *gavākṣas* from the front of the courses and the eaves from their sides or offsets. These regular sections would always be the same height, and although the widths would change, they would stay regular and simple fractions of the overall width of the course, as shown in the regular proportions of the *gavākṣa* patterns (Figure 99).

After the basic shapes of the *gavākṣa* patterns were carved from the courses, the courses would be lifted up onto the spire, each layer at a time. As will be discussed in the next chapter, each layer would have made use of metal 'staples' to link the pieces together initially (Figure 149c & c), and then alternative 'breaks' between the courses and projecting slabs from the rough inner core of the spire would have bonded each level successively. It seems likely that it is at this stage when the courses are erected on the spire that the details

of the *gavākṣas* were carved, making sure that the patterns from the courses joined up and created a graceful, unfolding mesh of *gavākṣas*. If this is the case, as seems likely, then it is not too hard to imagine that different craftsmen, sitting on scaffolding and working away on the details of *gavākṣas* on different parts of the spire, may simply carve the *gavākṣas* 'dagger points' and the base of their inner circles slightly differently. The proportions of the *gavākṣas* have been regulated and chiselled out on the ground according to the dimensioning system, but the way the details are treated up on the spire is not so closely monitored. As such, perhaps the variety shown in the *gavākṣas* from Temple 45 is perfectly acceptable.



Figure 149: a) SAN 249, *pratilatā* course b) *latā* course c) SAN 359, *pratilatā* course d) Blocks of stone 'stapled' together in front of the doorway of the Jarāi-kā-maṭh at Barwasagar.

***Latā, pratilatā and karṇakūṭa* measurements from Temple 45**

Unusually for a Latina temple, all of the *latā*, *pratilatā* and *karṇakūṭa* courses from Temple 45 remain approximately the same height regardless of their changing widths (this is with the exception of the very narrowest *latā* course, and therefore could also have been the case for the highest, slimmest *pratilatā* courses): the height of a *latā* or *pratilatā* course is between 28 – 30cm, the height of the *karṇakūṭa*'s middle eaves is also about 28 – 29cm, and the *karṇa āmalaka* and base eaves are 14-15 cm each – their combined height therefore also reaching 28 - 29cm. The measurements of the eaves along the courses' sides and offsets also remain constant: the straight stretch of eaves on the outer sides of the *latā*, *pratilatā* and *karṇa* is about 35 – 36cm in length, whereas the eaves on the inner sides of the *pratilatā* and *karṇa* stretch backwards for 17 – 18 cm before turning outwards into an offset for about 7 – 8cm. The depths of the courses are irregular allowing stones from the temple's rough *śikhara* core to overlay the outer sheath's courses intermittently, thereby providing greater stability to the piled spire. The widths of the courses vary and can be summarised as follows.

Latā:

None of the widest *latā* courses survive, confirmed by the fact that all of the *latā* fragments have disembodied topknots hanging from their central *gavākṣas* waiting to connect to a lower, wider course. Although only about one third of the course remains, the total width of the largest remaining *latā* course fragment would have been about 144cm, estimated from the width of its remains and its *gavākṣas*. The slimmest *latā* course is between 65 – 66.5cm. The fact that its *gavākṣa* design changes to receive the *latā*'s crowning *udgama* and that the widths of the two pieces correlate shows that it comes from the very summit of the *śikhara*.

Pratilatā:

The widths discussed here for the *pratilatā* and *karṇa* will refer to that of their projecting faces, excluding their offsets. Happily, two of the pieces from the very base of the *pratilatā* survive, conclusively showing that the first, widest *pratilatā* fragments were about 60cm in width. Although the slimmest *pratilatā* fragments from the summit of the spire no longer survive, four of the *udgamas* that would have connected with these do. Since the base of the complete *udgama* examples are about 36.5cm then it can be assumed that the narrowest *pratilatā* courses were of a similar size.

Karṇa:

There are fewer remaining *karṇakūṭa* fragments than there are *latā* and *pratilatā* fragments. The widest of the *karṇakūṭa*'s middle eaves is just over a metre and the slimmest courses are about 61cm. There are four eaves that follow the same format as the other middle *karṇakūṭa* eaves but carved in a different style, see Figure 126, and these are even slimmer, measuring from 61 – 54cm in width. The widths of the surviving *karṇa āmalakas* and the *karṇa* base eaves range from 60 – 76 and 93 – 70cm respectively.

The measurements of the spire courses from Temple 45 as summarised above may now be compared to the proportions of the spire elevations discussed in Chapter 3.

Chapter 6: Reconstructing the Śikhara from Temple 45

In this chapter the amassed data concerning the shapes and measurements of the multifarious *śikhara* fragments from Temple 45 discussed in Chapter 5 (see also Appendix pp.8 – 43) will be used in conjunction with the descriptions of Latina spire design from the *Dīpāṇava* translated by R P Kulkarni ¹, as tested and ratified in Chapter 3, to create detailed, hypothetical elevations for Temple 45.

To begin with, the basic shape of the plan of the spire will be addressed, first looking at the way the *latā*, *pratīlatā* and *karna kūṭa* courses connect together and analysing what this means for the widths of the recesses between the projections rather than the exact dimensions of the base of the spire. As discussed in the preceding chapter, the three-dimensional shapes of the spire courses, the eaves, offsets and cut out sections on their sides and backs, indicate that there are two ways in which they fit together, pairings confirmed by the arrangement of the 'staple holes' that mark the top of some of the fragments. This not only establishes the shape of the spire plan but also brings further insight into the way in which the *śikhara* was constructed and its stability fortified.

Knowing how the courses of the spire fit together, the dimensions of the spire plan will then be determined by comparing the measurements of the widest *śikhara* courses with the *vēdībādhā* plan. This crucial measurement will be used to create two Latina elevations using the processes and proportions set out in Chapter 3. The two elevations will be assessed for suitability by comparing the measurements of the diagrams' individual *śikhara* courses with those of the spire fragments from Temple 45. The elevations will then be considered from the point of view of how they look when set above the standing remains of Temple 45 and what they imply for the dimensions of the *śukanāsa*. The end result of these reasoning processes, and indeed of the thesis itself, is a convincing elevation of Temple 45 with its spire set above it. The completed form of Temple 45, in accordance with the conclusions drawn about Latina temple design in Chapter 2 and the nature of the *Vastuśāstras* in Chapter 3, shows that the spire weaves together both convention and

¹ R P Kulkarni, *Prāsāda – Śikhara* (Temple – Roof), (Maharashtra: Itithas Patrika Prakashan Publishers, 2000).

anomaly, both in terms of how it compares to other Central Indian Latina temples and how closely it fits with textual descriptions of spire design.

The Śikhara Plan

Connecting the *latā*, *pratilatā* and *karṇa kūṭa* courses

The *pratilatā* courses' offsets point towards the *latā*, creating the recesses between them, whilst the *pratilatās*' flat sides are met by the *karṇa kūṭas*' offsets, these creating the outer set of recesses of the spire. The *latā* sides and the offsets from the *pratilatās* are each resolved in two different ways, as discussed in Chapter 4 (Figure 111 & Figure 114),² creating two ways in which these course types fit together. Only the parts of the courses' sides and offsets that are neatly carved with eaves would have been visible to the viewer when in place on the spire, the plain areas of stone hidden away. In accordance with this, the *pratilatās* with offsets distinguished by carefully finished eaves followed by sections of plain stone would have been paired with *latā* types with insets cut into their backs, the plain patch of stone tucking behind and hidden by the inset (Figure 150 & Figure 151). Type A *pratilatā*, therefore, goes with Type A *latā*. The *pratilatās* with abruptly ending eaves are placed up against and cover the stretch of plain stone that follows the neatly finished eaves of Type B *latās*: Type B *pratilatā* goes with Type B *latā*. The positions of the staple holes on the fragments endorse this reading of the forms. Both combinations only leave the lines of the carved eaves from the *latā* and *pratilatā* visible, which, given that they share the same vertical proportions, run smoothly together and create elegant recesses between the two courses.

² For the sake of simplicity, each complete *latā* course will be drawn with ends that are resolved in the same way, although this may not have always been the case.

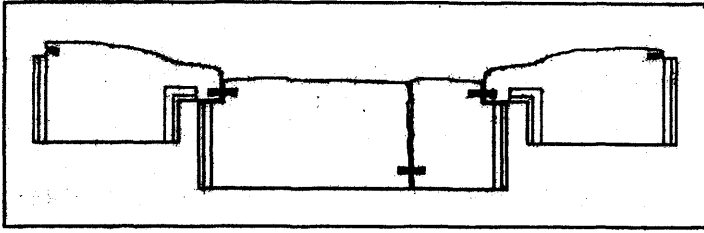


Figure 150: Type A *latā* and Type A *pratilatā* fitting together.

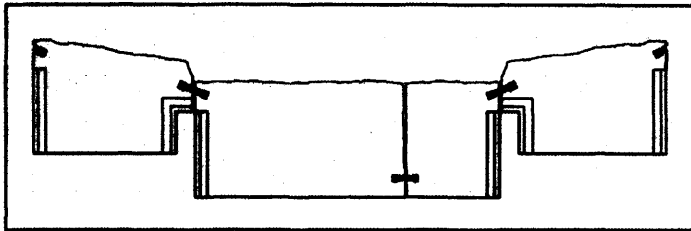


Figure 151: Type B *latā* and Type B *pratilatā* fitting together.

The way that the *karṇa kūṭa* and *pratilatā* courses connect together is slightly more complicated, and, making things more difficult, there are less surviving *karṇa kūṭa* fragments from which to draw conclusions. Each *karṇa kūṭa* is made up of several different elements: a base eave, two or three *karṇa* eaves with *gavākṣa* patterns (the number of which will be discussed later in this chapter), and the crowning *āmalaka*. The form and dimensions of their eaves do not correlate exactly with those of the *pratilatā* and *latā* courses.

The different *karṇa kūṭa* eaves and the *pratilatā* join together in the same two ways as the *latā* and *pratilatā* do, as indicated by the two ways the outer side of the *pratilatās* are finished. As discussed above, most of the 25 remaining *karṇa kūṭa* middle courses are substantial and show a decorated front face, a side carved with another incomplete section of the same *gavākṣa* pattern, and another side carved with plain eaves that then turn out into an offset. This offset is carved with eaves for about 7 – 8cm before breaking off suddenly. These would have been paired up with Type B *pratilatās* whose sides are made up of a 35 - 36cm stretch of eaves followed by a smooth patch of stone against which the *karṇa* eaves' projections would be placed (Figure 152a). Again, the marks for the staples on *bhūmi* and *pratilatā* pieces attest to this matching.

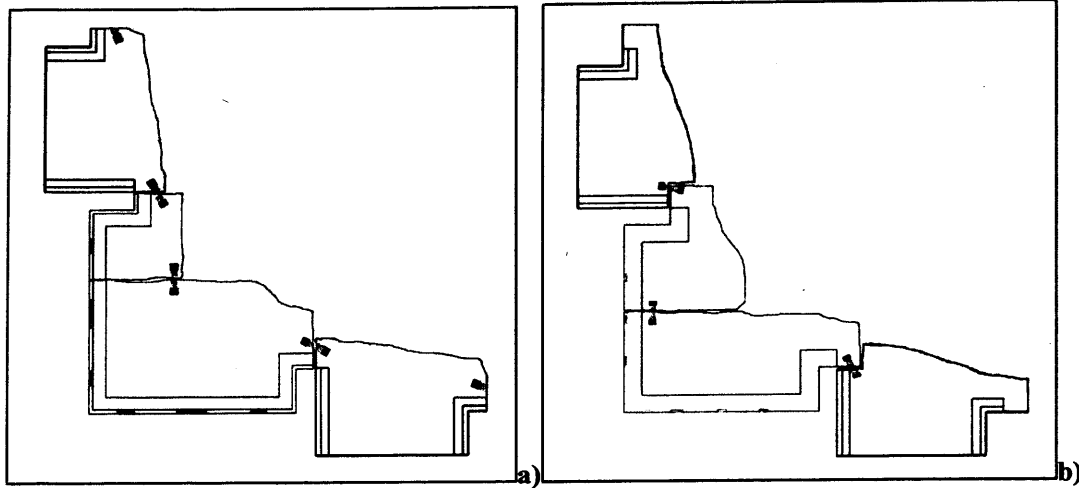


Figure 152: a) middle eaves from the *karṇa kūṭa* fitting with Type B *pratilatās*, b) base eaves from the *karṇa kūṭa* fitting with Type A *pratilatā*.

There are 20 *karṇa āmalaka* fragments and 11 base eave fragments left from the *karṇa kūṭas* of Temple 45. Only six of the base eaves remain intact enough to show how their offsets were treated, and the information obtainable from even these few is not always conclusive. Four of these, in the manner of *pratilatā* Type B, have a 7 - 8cm part of the offset that would have been on view, and a further stretch of uncarved stone which was intended to be hidden. These fragments would be paired with the Type A *pratilatās* so that the plain parts of their offsets could slot into the insets cut behind the *pratilatā*'s side eaves (Figure 152b). In the other two examples it is not clear if the fragments have abruptly ending offsets, in the manner of Type A *pratilatā*, or whether their offsets are simply damaged. Given the lack of data about the *karṇa kūṭas* it is possible that both ways of finishing the offsets occurred on all of the different *karṇa* elements, including the middle eaves, rather than applying exclusively to specific different parts of the *karṇa kūṭa*.

The vertical alignment of *pratilatā* and *karṇa kūṭa* courses.

On Latina temple spires, it is common for the horizontal lines of the *karṇa kūṭa* eaves not to align with those of the *latā* and *pratilatā* courses. This is true for Temple 45 because, firstly, the forms of the *karṇa*'s foundational eaves are quite different from those of the *latā* and *pratilatā* (see Figure 103 & Figure 128), and, secondly, although the height of the *karṇa* middle eaves and that of a base eave and *karṇa āmalaka* combined are roughly the same as a *latā* or *pratilatā* course (i.e. about 28 cm), the fact that the lowest, 'finished' *latā* and *pratilatā* courses are slightly taller than usual means that the courses are put out of sync. This has ramifications for the way the offsets' eaves are treated because there will be no

neat correlation such that one *kārṇa* eave applies to one *pratilatā* eave, instead the *kārṇa* eaves might well cross over the intersection of two different *pratilatā* courses. Perhaps it is for this reason that the offsets from the *kārṇa kūṭas*' middle eaves all seem to finish abruptly. Offsets with a further stretch of plain stone would have had to have been paired with a *pratilatā* with an inset, whereas those that are cut off suddenly could appear to adjoin the *pratilatā* courses regardless of the type of *pratilatā* sides they met, for any empty inset that they did not quite reach would be hidden out of sight. If this was the case, then it is strange that in the most of the remaining examples of *kārṇa āmalakas* and base eaves with offsets intact have eaves lengthened by the plain stretch of stone. These would have had to be level with a Type A *pratilatā* with an inset cut into its back or the extended, plain part of the offset would have been visible and pushed the course too far away from the *pratilatā*. Again, it is useful to remember that there are only four of the *āmalaka* and eave examples that are complete enough to show conclusively how they were finished. Perhaps some of them had a shorter offset that could have adjoined any part of the *pratilatā* side and, as such, what seems to be a problem could be due to a limited data set.

Given the lack of conformity between *kārṇa kūṭa* and *pratilatā* heights, it is also surprising that most of the remaining middle eaves of the *kārṇa kūṭa* have staple holes on the top of their offsets and a number of the *pratilatās* have holes to receive the other side of the *kārṇa/pratilatā* staple, for this implies that the middle *kārṇa* eaves and the top of the *pratilatā* would have usually been aligned. Perhaps the notches for the staples were carved before the pieces were placed side by side, and if the holes were not needed then they would simply be covered over by the next course layer. Or, given the scarcity of *kārṇa* fragments, maybe the pieces that have staple holes did actually align with the *pratilatā*. These issues will become clearer when discussing the elevation of the piled *śikhara* courses towards the end of this chapter.

Interconnecting *śikhara* courses

Determining the exact dimensions of the front faces of the *latā*, *pratilatā* and *kārṇa kūṭa* courses on the plan of the spire is not straightforward, therefore, for the moment, the 'shape' of the plan will be drawn up, enabling its measurements to be worked out in the following section. The alternative ways of fitting together complete sides of the *śikhara* are illustrated in Figure 153 and Figure 154, and a complete *śikhara* plan using one of these ways of

pairing the elements is depicted in Figure 155. The recesses between the *latā* and the *pratilatā*, and the *pratilatā* and the *bhūmis*, remain the same size and proportion: their outer sides are 17 – 18cm, they are 7 – 8 cm wide, and their inner sides are 35 – 36 cm. The remainder of the 17 – 18 cm side against the 35 – 36cm side mean that when viewing the *śikhara* in three-dimensions, the *pratilatā* will step away from the *bhūmi*, and the *latā* from the *pratilatā*, by a maximum of 19cm.

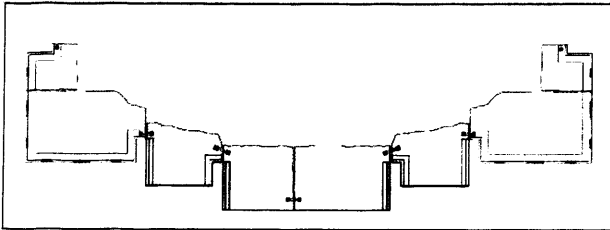


Figure 153: The way the courses connect on a side of the *śikhara*.

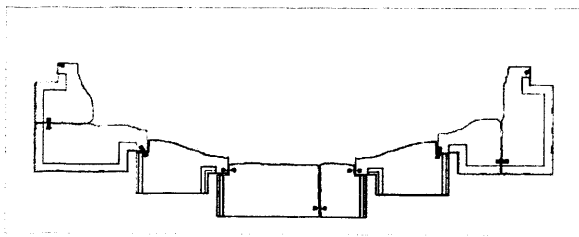


Figure 154: Alternative way in which the courses connect on one side of the *śikhara*.

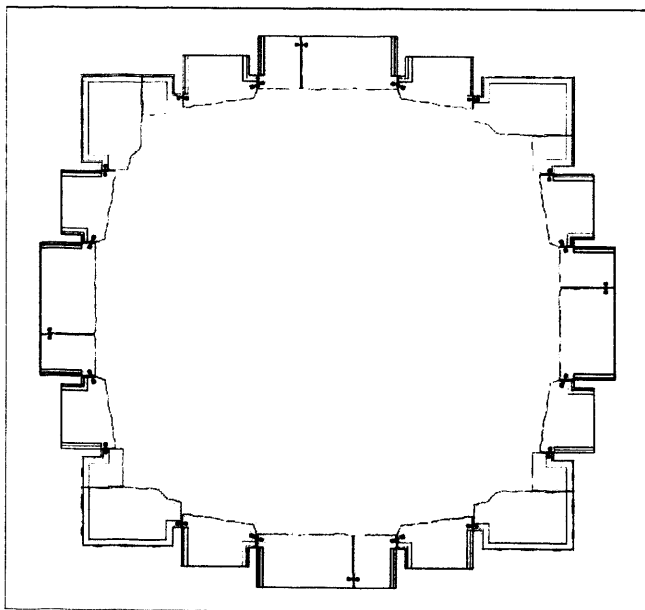


Figure 155: One way in which the *śikhara* courses from Temple 45 fit together.

The backs of the spire courses are roughly carved. The courses are usually 45 – 50cm deep, although this measurement is not consistent. Although the carved ‘casing’ of the spire seems relatively thin and fragile, its stability would have been fortified in two ways. Firstly, the reason the courses are carved in the two ‘Type A’ and ‘Type B’ ways described here, and therefore fit together in two different ways, is so that the ‘break points’ overlie each other and bond. Secondly, the irregular projections of stone from the core of the spire would also have bonded with the *śikhara* courses. Building a Latina *śikhara* is not like building a sandcastle, meaning the inner core of the spire is not built up and then encased in beautifully carved *latā*, *pratilatā* and *karṇa* courses. Instead each layer of the spire would have been laid one at a time so that the irregular lengths of stone from the rough interior (Figure 156) can lie across the backs of some of the sheath courses and further secure them.



Figure 156: a) & b) Temple 45, views of the rough core of the *śikhara*.

Determining the *śikhara* plan dimensions

The information about the shape of the *śikhara* plan can now be combined with the measurements of its course fragments and temple body so as to determine the dimensions of the base of the *śikhara*. In this discussion the widths of the ornate, projecting faces of the courses are used as key modules of measurement and the recesses treated separately, rather than using the projections and their offsets combined. This is because the offsets are more frequently damaged and therefore were not the prime measurements taken as detailed in the Appendix. Also, how the plans of an articulated *śikhara* with recesses and a *vēdībādhā* with offsets are to be overlaid and where the spires recesses should be positioned in this situation is not immediately obvious, as becomes clear below.

The edges of a Latina *śikhara* at its base are usually level with the edge of the *vēdībādhā* beneath it, and for the fully articulated spires from the 9th century onwards each offset and projection of the *karṇa*, *pratiratha* and *bhadra* projections from the *vēdībādhā* of the

temple should line up with and be the same width as the projections of the *karna*, *pratilatā* and *latā* respectively on the bottom courses of the *śikhara*. The *varaṇḍikā* should also parallel these proportions. If Temple 45 were an exemplary Latina temple, therefore, the measurements of its *vēdībādhā* would tell of the width of its *śikhara* base, but, as becomes increasingly apparent, Temple 45 is an awkward monument that refuses to conform to Latina norms. The easy equation of the plan of the *vēdībādhā* with the *śikhara* base is thwarted by the peculiarity of the '*vēdībādhā*' from Temple 45, the ill-matched combination of a stepped temple body and an articulated *śikhara*, and the jarring measurements of the two. In the conclusion of Chapter 4 it was stated that the unhappy marriage of the spire and the temple body in terms of both their proportions and their style strongly suggests that the two parts of Temple 45 were constructed at different times by different sets of craftsmen. For the moment the reasons behind the oddities of this design will be set aside.

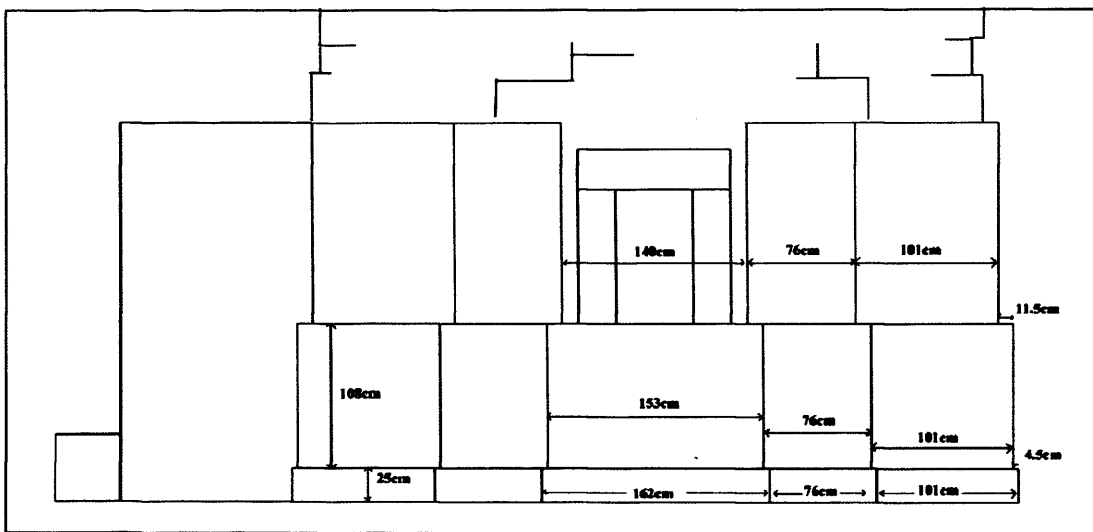


Figure 157: Measurements from the southern wall of Temple 45.

It is strange that a post-8th century temple like Temple 45 has a stepped plan made up of offsets with no recesses between them, and stranger still if it was planned this way in the knowledge that it would be paired up with an articulated spire. There are no exact comparative examples of *tri-aṅga* temples with stepped temple bodies and fully articulated *śikharas* to provide models for how the mismatched base and spire should work together. The starkness of the outer walls from Temple 45 and the lack of a proper *vēdībādhā* beneath them are also highly unusual for a North Indian temple. Underneath the *jaṅghā* a 108 cm high course juts out from the wall by about 11.5cm. Below this, at the base of the

temple, a smaller, approximately 25cm high course steps out by about 4.5cm. These two lower courses must be half-hearted attempts to provide the temple with a *vēḍibandha*. If so, is the lowest course a token *khura*, and the middle course a stand-in for the *kapotālī*, *kalaśa* and *khumba* of a normal *vēḍibandha*, or is the lowest course a *pīṭha*, and the higher course a substitute for all the elements of the *vēḍibandha* combined?

As discussed in Chapter 2, the base of Latina spires usually align with the edge of the *vēḍibandha*'s *kapotālī*, *kalaśa* and *kumbha* rather than the *khura* beneath them, therefore regardless of how exactly the different projections beneath the *jaṅghā* from Temple 45 are understood, ideally the proportions of its spire plan should match those of the first, taller projection. Whilst the widths of the temple body are a product of simple stepped projections, the dimensions of the *śikhara* involve recesses that are 7 – 8cm wide. Therefore, the widths of the rough *vēḍibandha* course will not equate exactly to the widths of the projecting face of the lowest *karṇa* eaves, *pratilatās* and *latās*, but will incorporate the 7 – 8cm widths of the recesses too.

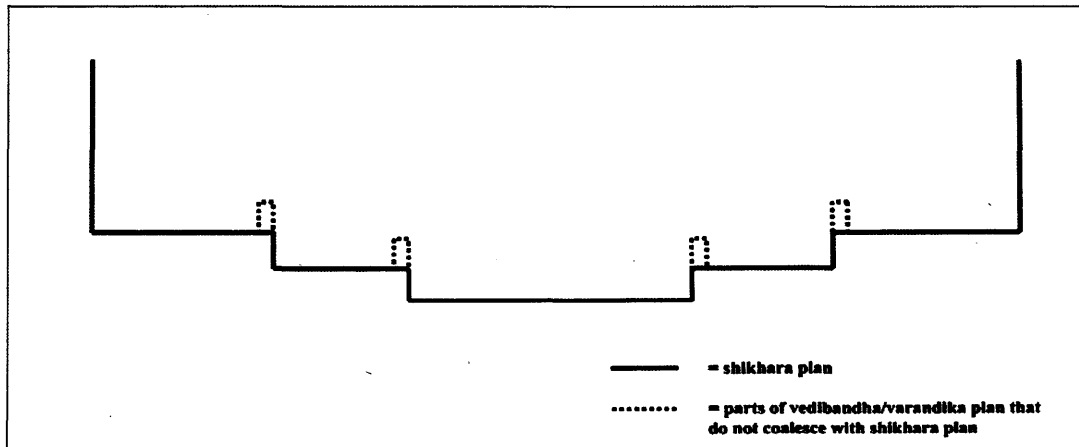


Figure 158: An ideal pairing of a stepped temple body and articulated *śikhara*.

The ideal way for the articulated *śikhara* and stepped *vēḍibandha* and temple body to line up is shown in Figure 158. This follows architectural precedents set by 8th century temples with stepped temple plans and spires with colonnaded recesses or *salilāntaras* separating their double *vēṇukōśa*. In these examples the *salilāntara* recesses are taken up by the inner part of the temple body's *karṇa*, and then the next part of the *śikhara*, its second *vēṇukōśa* (or *latā* in a *dvi-aṅga* temple), steps out in unison with the *pratiratha* walls (or *bhadra* walls) beneath it. Following this logic, therefore, the *karṇakūṭa*–*pratilatā* recesses from Temple 45 should fall at the inner edge of the *karṇa*, and the *pratilatā*–*latā* recesses should

fall at the inner edge of the *pratiratha*. This is the most elegant way of combining the base with the articulated spire because the outer lines of the *śikhara* projections would then coalesce with those of the temple body, and the recessed part would be tucked in neatly as the wall of the temple body abuts the next projection, giving the *śikhara* and body a smooth outline.

The problem with this arrangement is that whilst it is the most legitimate plan in terms of Latina protocol and smoothness of form, the proportions and measurements it offers do not fit with the measurements from the fragments found around the site. Using this arrangement, the following equations apply ('*karṇa kūṭa* width', '*pratilatā* width' and '*latā* width' referring to the widths of their projecting, *gavākṣa*-decorated eaves):

Vēdibandha karṇa width - recess = *bhūmi* width

Vēdibandha pratiratha width - recess = *pratilatā* width

Vēdibandha bhadra width = *latā* width

Using the measurements from the *vēdibandha* therefore:

Karṇakūṭa width = 101cm - 8cm = 93cm

Pratilatā width = 76 - 8 cm = 68cm

Latā width = 153cm

This can be broken down to determine the *gavākṣa* sizes from the *latā* and *pratilatā*:

Latā :

Latā width = 153cm

Latā width = 4(*Gavākṣa* width)

Gavākṣa width = 153cm/4 = 38.25 cm

Pratilatā:

Pratilatā width = 68cm

Pratilatā width = 1.666667(*Gavākṣa* width)

Gavākṣa width = 68cm/1.666667 = 40.8cm

These results do not make sense. The *latā* and *pratilatā* courses are from the same ‘family’, sharing the same foundational eave structure, and bear the same style and range of sizes of *gavākṣas*. In other Latina temple spires the *gavākṣas* on the base *latā* and *pratilatā* courses are of about the same size, or perhaps the *gavākṣas* from the *pratilatā* are a little smaller than those of the *latā*.³ The above measurements, however, would mean that the *gavākṣas* on the *pratilatās* are almost 3 cm wider than those on the *latā*, which goes against Latina norms and creates an ugly *śikhara* design. In addition, the measurements are wider than those recorded from the *śikhara* fragments. The Appendix (pp. 8 – 43) shows the data recorded from the fragments, and the widest *latā* and *pratilatā* courses have 36cm *gavākṣas*. Finally, and most decisively, two of the *pratilatā* fragments from the base of the spire remain, and these are 60cm, 8cm less than the width suggested above. The mismatch between fragments and hypothetical measurements is true also for the *śikhara*’s *karṇa* eaves. Using this hypothesis the widest, base *karṇa* eave would be 93cm, whereas of the two widest *karṇa* eaves found on site, one is 96cm and the other is just over a metre.

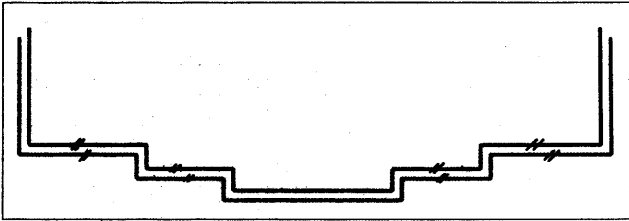


Figure 159: Changing the dimensions of the *vēdibandha* plan affects only the width of the *latā*.

Clearly the above proposal, with its neat alignment of *śikhara* and *vēdibandha* does not work for Temple 45. Efforts to maintain the ideal plan pairing by arguing for a different understanding of where the temple’s *vēdibandha* was conceived of as lying, changing the overall width of the *vēdibandha*, will not work either: the measurements from the *vēdibandha* must be made to fit with those of the two *pratilatā* fragments from the base of the spire, however making the overall width of the *vēdibandha* larger or smaller will only affect the size of the *latā*, not that of the *pratiratha* or *karṇa* (Figure 159). In the face of these irreconcilable measurements, the ideal alignment of the *śikhara* and body plans must be jettisoned. Whilst Latina temple norms can be adapted according to a particular situation, there is no arguing with the solid evidence of the stone pieces themselves.

³ Except for the Rāmēśvara Temple at Amrol, see Chapter 2, ‘The developing form of the Latina *Śikhara*’.

Concerning the base dimensions of the *śikhara*, three incontrovertible pieces of evidence are available. Firstly, as noted previously, two of the *pratilatās*' widest, base courses survive and they are 60cm in width with 36cm wide *gavākṣas*. Secondly, the recesses between the *śikhara* projections are always about 7–8cm. Thirdly, the *vēḍibandha*'s *pratiratha* remains 76cm regardless of changes to the overall width of the *vēḍibandha*. Using these figures, the equation that explains the plan is fairly simple: $60\text{cm} + 8\text{cm} + 8\text{cm} = 76\text{cm}$, therefore the *pratilatā* with both its own attached recess and that of the *karṇa kūṭa* must lie across the *pratiratha* on the plan of the *vēḍibandha*. This conclusion is ratified by the fact that the width of the widest *karṇa kūṭa* fragment (minus offset) seems to have been just over a metre, which equates with the 101cm wide *karṇa* from the *vēḍibandha*. The *śikhara*'s *karṇa* is therefore free to donate its recess width to the *pratilatā*.

The *latā* courses at the base of the *śikhara* should equate to the *vēḍibandha*'s *bhadra*, and whilst different arguments can be made for wider or smaller *vēḍibandha bhadras*, the neat and logical option is that it should correlate with the first projection beneath the *jaṅghā*, and be 153cm. The widest estimated total width of a remaining fragment that is incontrovertibly part of a *latā* course is 144cm, meaning that a number of the widest *latā* courses are missing from amongst the fragments as will be discussed later in the chapter. There are, however, the three intriguing fragments whose patterns fit with the vertical format of a 'finished' *latā* course, but whose *latā* patterns stop short after the first $\frac{3}{4}$ of the initial *gavākṣa* and are followed by plain stone. The partial *gavākṣas* have estimated total widths of about 37.5 – 38.5cm, therefore, if imagined as *latā* courses, this would give them total course widths of somewhere between 150 – 154cm, which would fit with the suggested spire plan. If these really are from the *latā* at the base of the spire, the plain area of stone signifies that something projected out from these lowest courses. Could the wall niches have had dramatic superstructures that continued up past the *varaṇḍikā* and into the *latā* as occurs at the Surya Temple at Madhkedha? Or is this explanation too far fetched given, firstly, the dour plainness of the *garbhagrha* walls and the fact that the niches have not even been given awnings, making do with plain capping eaves instead, and, secondly, that towering niche tops that cross over *latā* are not usual in Central Indian Latina temples. These pieces will be considered later in the chapter.

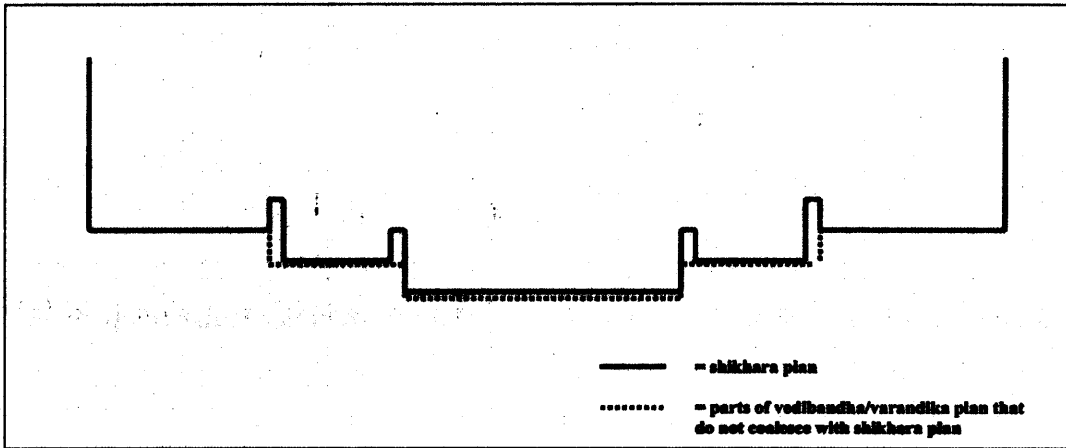


Figure 160: The *vėdībāndha* plan from Temple 45 overlaid with its hypothetical *śikhara* plan.

The *śikhara* and *vėdībāndha* from Temple 45 therefore fit together as shown in Figure 160. This way of combining an articulated spire and offset body is not ideal in aesthetic terms, for although the sides of the *latā* match those of the *varaṇḍikā*, a 7 – 8cm wide patch of uncovered *varaṇḍikā* will show where the *pratilatā* steps in over the edge of the *pratiratha*. Note that there is also a minor mismatch in the distance by which the offsets project in the *vėdībāndha* plan compared to the *śikhara* plan. The *vėdībāndha*'s offsets step outwards by 20cm, whilst each of the projections of the spire steps beyond the horizontal face of the last by a minimum of 19cm, therefore the *pratilatā* and *latā* projections will fall short of the plan of the *vėdībāndha* by 1cm and 2cm respectively. Although not ideal, the dimensions and shapes of the *śikhara* fragments, how their proportions fit with the *vėdībāndha*, and how this correlates with dimensions cited in the *Diparnava*, as discussed next, make it convincing.

The dimensions of the base of the *śikhara* from Temple 45 are therefore as follows:

$$\begin{aligned} &Karna + \text{recess} + pratilatā + \text{recess} + latā + \text{recess} + pratilatā + \text{recess} + karna = \\ &101 + 8 + 60 + 8 + 153 + 8 + 60 + 8 + 101 = \\ &507\text{cm} \end{aligned}$$

Like the *vėdībāndha* and the *varaṇḍikā*, the overall width of the base of the *śikhara* is 507cm.

Creating hypothetical śikhara elevations for Temple 45

In Chapter 3 methods of Latina spire design were considered, and four descriptions from the Diparnava, translated by Dr R P Kulkarni, were drawn up and ratified in terms of how the elevations compare to extant Latina spires, how one spire diagram in particular fits with an engraving of a half Latina spire from the Harihara Temple 1 at Osian, and by the internal geometry shown in their dimensions. As part of this investigation a way of creating the curves of the elevations' *pratilatā* and *latā* outlines was proposed. Having ascertained the dimensions of the spire plan from Temple 45, these descriptions of spire design, the methods and proportions used to create the *pratilatā* and *latā* offered here, can be used to create detailed, hypothetical elevations that represent Temple 45. The courses drawn up in the elevations can then be multiplied out to represent Temple 45, and tested against the measurements of its standing remains and the 215 fragments from the main body of its *śikhara*.

What is particularly useful in assessing the propriety of the different diagrams is that included amongst the fragments are two pyramidal *udgamas* (pediments of intertwined *gavākṣas*) that would have crowned the spire's *latās*, one of the final, narrowest *latā* courses (the top of its *gavākṣa* pattern changing form so that it can receive its *udgama*) and three *udgama* fragments that would have topped the *pratilatas* (Figure 132, Figure 133 & Figure 135). These fragments conclusively give the widths of the *pratilata* and *latā* at the summit of the spire. In addition to these, making use of the two fragments from the base of the *pratilata* base (Figure 95), the *karṇa*, *pratilata* and *latā* dimensions at the bottom of the *śikhara* have been established. These measurements, therefore, can be directly compared against the *Dīpārṇava* Latina diagrams and their *karṇa*, *pratilata* and *latā* width ratios at the top and bottom of the spire. Surprisingly, and itself acting as a further support for the authenticity of the Diparnava proportions, Temple 45 fits remarkably well with these measurements.

Initial comparison of *Dīpārṇava* proportions with spire fragments

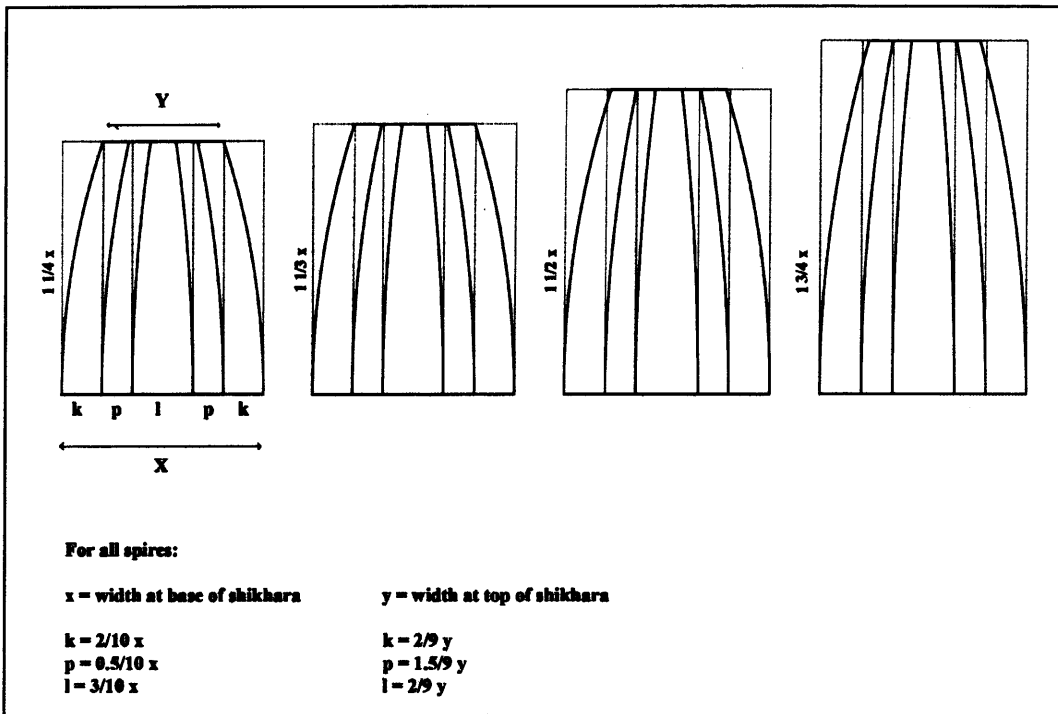


Figure 161: *Dīpārṇava* spires with *latā*, *pratilatā* and *karṇa kūṣa* curves included (see Chapter 3, pp. 87 – 97).

The *Dīpārṇava* ratio for the *karṇa*, *pratilatā* and *latā* widths at the base of the *śikhara* remains 2:1.5:3 for all four of the hypothetical spires, as detailed in Chapter 3 and illustrated again in Figure 161. The proportions of the *vēdibandha* from Temple 45 fit exactly with this ratio, as do the widths of its *śikhara* projections at the base of the spire providing both recesses are included in the width of the *pratilatā*: the *karṇa* width is 101cm, the *pratilatā* width is 76cm and the *latā* width is 153 cm, which leads to a ratio of 2: 1.5 :3 (accurate to one decimal place).

The width of the top of the spire is 0.6X for both the two shortest of the four *śikharas*, the third spire is 0.56X wide, and the tallest is 0.54X wide (Figure 13). The ratio from the *Dīpārṇava* of 2: 1.5: 2 for *karṇa:pratilatā:latā* widths at this level will therefore lead to three different sets of measurements. The fragments from Temple 45 do not work with the two taller spires with 0.56X and 0.54X widths at their spire summits, but they fit neatly with the shorter spires with top widths of 0.6X. If the width of the *śikhara* from Temple 45 at its apex is, at 0.6 times its base width, 304.2cm (507cm x 0.6), and the *pratilatās* and *latā* are 51cm and 67cm wide respectively as shown by the narrowest fragments and *udgamas*, then the *karṇas* would be 67.6cm. The ratio of the *karṇa*, *pratilatā* and *latā* measurements from

Temple 45 are 2:1.5:2, accurate to one decimal place, which, again, is exactly that prescribed by the *Dīpārṇava*.

From the information gathered so far the courses from the spire of Temple 45 could fit equally well with any spire that has a top width of 0.6X and follows the *Dīpārṇava* proportions for the *latā*, *pratilatā* and *karṇa kūṭa* widths, whether it be the $1\frac{1}{4}X$ or $1\frac{1}{3}X$ tall *Dīpārṇava* spires or indeed any other spire height or shape that followed the *Dīpārṇava*'s key dimensions. If either of these differently proportioned *śikharas* are representative of the spire from Temple 45 depends primarily on how the measurements of each individual course indicated by the diagrams correlate with the measurements of the spire fragments.

It is interesting to note a neat little geometric outcome arising from the unusual arrangement of both the spire's recesses over the *pratiratha* that occurs in Temple 45. If any of the spires with *Dīpārṇava* *karṇa:pratilatā:latā* dimensions are drawn up as hypothetical Temple 45s then the recess between the *pratilatā* and *latā* at the base of the spire is in exact vertical alignment with the recess between the *karṇa kūṭas* and *pratilatā* at the top of the spire, or, to put it another way, the width of the *latā* course at the base of the spire is the same as the combined widths of the *pratilatās*, their offsets/recesses, and the *latā* (Figure 162a). This corollary does not occur if the recesses are arranged in a more typical Latina fashion (Figure 75b).

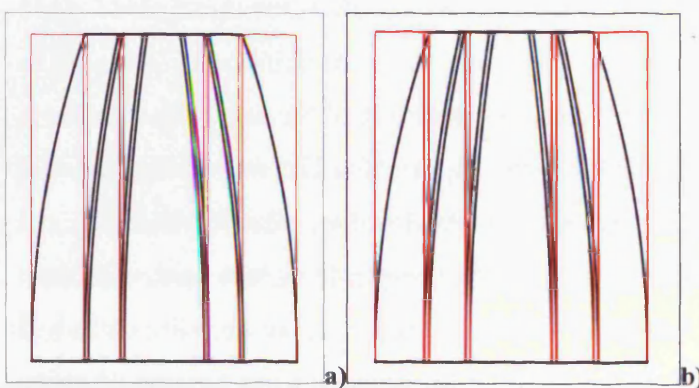


Figure 162: a) Geometric corollaries occurring in the spire plan from Temple 45 being used in conjunction with *Dīpārṇava* proportions, b) lack of equivalent corollary in spire elevation with a more typical plan.

Before creating detailed hypothetical spire elevations for Temple 45 proportioned according to *Dīpārṇava* descriptions, a few methodological points and explanations pertaining to the drawings should be made.

Notes on the hypothetical spire elevations created for the Temple 45

The elevations were created using a mixture of hand drawings and Photoshop. Photoshop allowed each facet of the tower drawings in all their detail to be laid over simpler elevation outlines shown above and in Chapter 5, moulding or altering the drawings to fit the exact shape and proportions of the eave course. The drawings can be created with accuracy and easily checked since the pattern of interlocking *gavākṣas* and *gavākṣa* halves on the *latā* and *pratilatā* courses follow a grid that regulates their proportions regardless of how wide or narrow the total *latā* and *pratilatā* course widths are or how much they slant. In addition, unusually, apart from the very highest courses, the heights of the *śikhara* courses from Temple 45 remain the same size no matter where they appear on the spire making the proportioning of the hypothetical courses a simpler exercise than would normally be the case with the heights diminishing as well as the widths. The measurements of the different courses necessary to create a spire of this form can then be taken from the picture, multiplied out so as to reflect actual sizes, and compared to the course fragments. The closer the sizes of the drawn *śikhara* elements correlate with those of the fragments themselves, the closer the diagram reflects the reality of how the *śikhara* from Temple 45 looked.

Several factors will necessarily affect the accuracy of the equation. Firstly, the measurements taken from the fragments themselves may not be accurate down to a fraction of a centimetre. The measurements of the overall widths of the courses may depend on exactly where they were measured, particularly given the fact that some fragments get significantly narrower towards the top, and whether the pieces were complete or fragmentary, in which case an estimate is made for the overall width. In the case of the *latā* courses, almost all of the full widths are informed estimates due to the fact that all apart from the narrowest are carved in two pieces. Added to this, over time the fragments have been abraded, therefore the fragments in their original, pristine form may have been just slightly wider than they appear now.

Secondly, whilst the overall proportions of the *śikhara* may have been derived from drawings of the elevations as described in Chapter 5, the reality of the *śikhara* made from hand-carved courses and piled pieces will always diverge slightly from the ideal. In a similar vein, in the drawings include here each course is drawn as having exactly the same height, whereas there is sometimes a centimetre difference here or there in the actual fragments. Whilst this is acknowledged, it is impossible to incorporate natural, random variations into a hypothetical diagram in a way that will more accurately reflect reality than keeping the fragments the same height as they were clearly intended. Lastly, particularly at the base of the spire, the differences between the diagrams' course widths that are above or below each other often come down to a few millimetres. As such, and taking into account the points made above, it is plausible that on occasion, at the base of the spire where the course widths narrow very gradually, a fragment may could fall into either one or another layer. To put this in perspective, however, all these possible inaccuracies come down to very small measurements and whether a fragment fits on a certain layer or the one above it. Manifold different elevations were tried out, tested against the fragments and subsequently rejected during the course of this research, many not created according to textually given proportions. In these unsuitable designs the fact that the diagrams' courses do not fit with the real pieces was readily apparent and did not come down to a matter of 0.5cm.

Regarding the format of the drawings, Figure 163 – Figure 166 show four hypothetical spires, proportioned according to *Dīpārṇava* details for spires with heights that are 1 ¼ and 1 1/3 times the width of the *śikhara* base, see Table 1 and Figure 70. Two options are given for each spire size, the first using *karṇa kūṭas* that are made up of a base eave, two middle *karṇa* eaves and a *karṇa āmalaka*, and the second using *karṇa kūṭas* that incorporate three middle *karṇa* eaves.

Different colours have been used to indicate when a certain course on the diagram matches the dimensions and form of a *śikhara* fragments. If the area is left blank then there are no equivalent pieces amongst the stone fragments, if the area is yellow there is one correlating piece, if orange there are two pieces, red there are three, brown there are four, and violet there are five. Fragments from the *latā* courses vary in size, therefore on the diagram the longer highlighted lines on the right of the *latā* signify remaining *latā* course fragments that are half or over half the total width, whereas the shorter lines on the left side of the *latā* in the diagram represent fragments that are less than half the total *latā* width. Where possible

the *karṇa kūṭas* fragments have been assigned to the side of the spire face to which their surviving remains belong (although, as corner elements, their totality of their courses are both left and right hand side fragments). A few but not all of the *karṇa kūṭas*' base eaves and *āmalakas* indicate whether they are left or right-hand pieces, and in the pieces where this is not clear they have been arbitrarily placed on the left side of the spire images. The *udgamas* forming the points above the *pratīlata* may have come from either side of the spire therefore they have been shared between the two to add to the symmetry of the images.

Since a Latina spire has four faces, for the majority of the upper half of the *śikhara* a complete set of fragments would consist of four whole *latā* courses (four or more small fragments and four large fragments), four left-hand *pratīlatā*, four right-hand *pratīlatā*, and four *karṇa kūṭas*. The *śukanāsa* would be expected to take up at least half of the front face of the spire, and therefore at this level a full set would be made up of three *latā* and *pratīlatā* courses. A brief table of results has been included beneath each hypothetical image to summarise how the fragments work with each.

Four hypothetical *śikharas* drawn to *Dīpārṇava* proportions

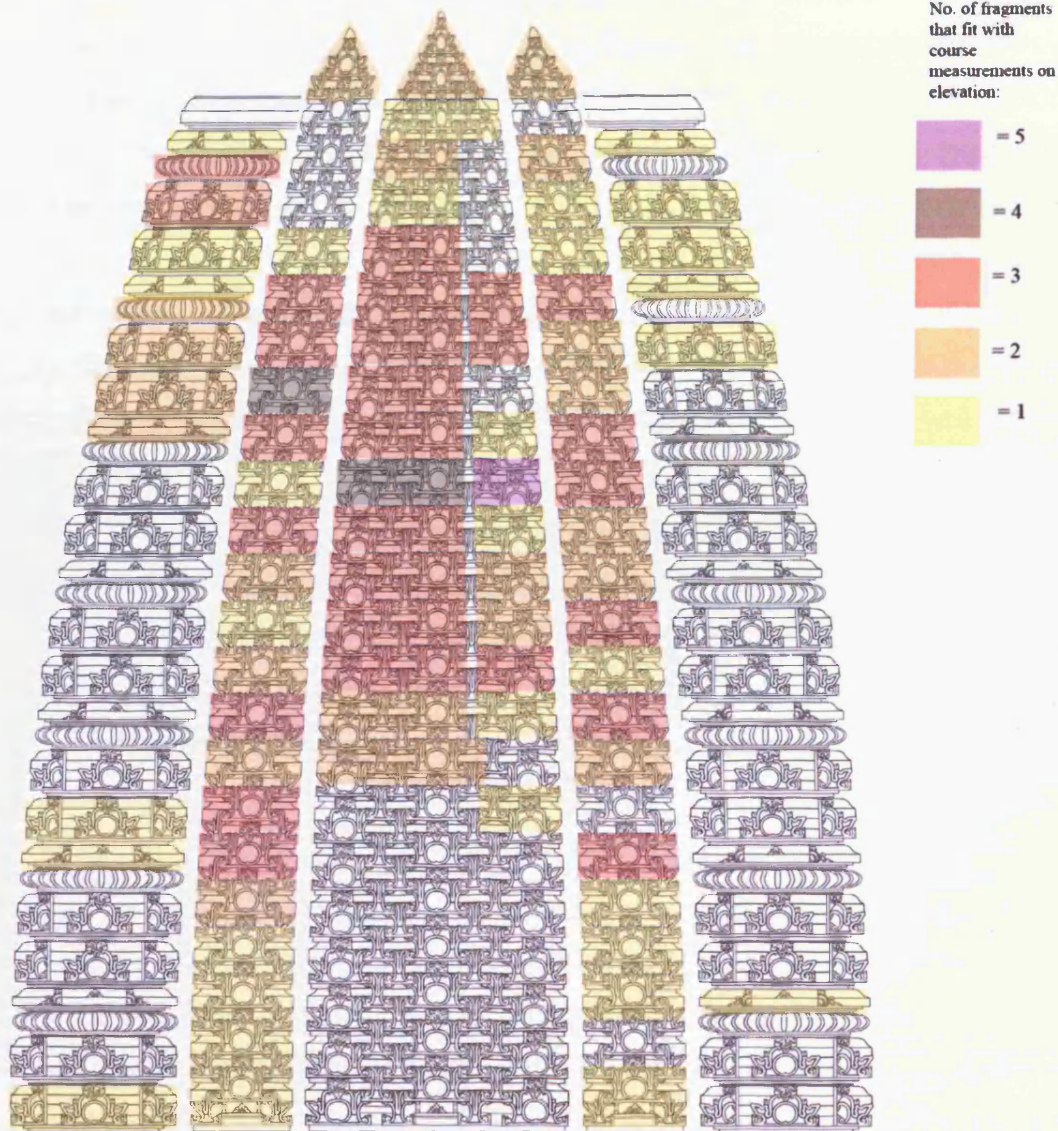


Figure 163: Elevation of the spire from Temple 45 using *karṇa kūṭas* that have two middle *karṇa* eaves each, proportioned according to *Dīpārṇava* instructions: Width of spire base= X, height = $1 \frac{1}{4}X$, curvature radius = 4X

Fragment type:	<i>Latā</i>	<i>Pratīlatā</i>	<i>Karṇa kūṭa</i> middle eaves	<i>Karṇa kūṭa</i> base eave	<i>Karṇa āmalaka</i>
No. of fragments that give concrete measurements:	61	78	21	8	10
No. of these that fit in diagram:	61	78	13	8	6
No. of these that do not fit in diagram:	0	0	8	0	4
Range of widths for fragments that do not fit:	n/a	n/a	69 – 61cm	n/a	65–58cm

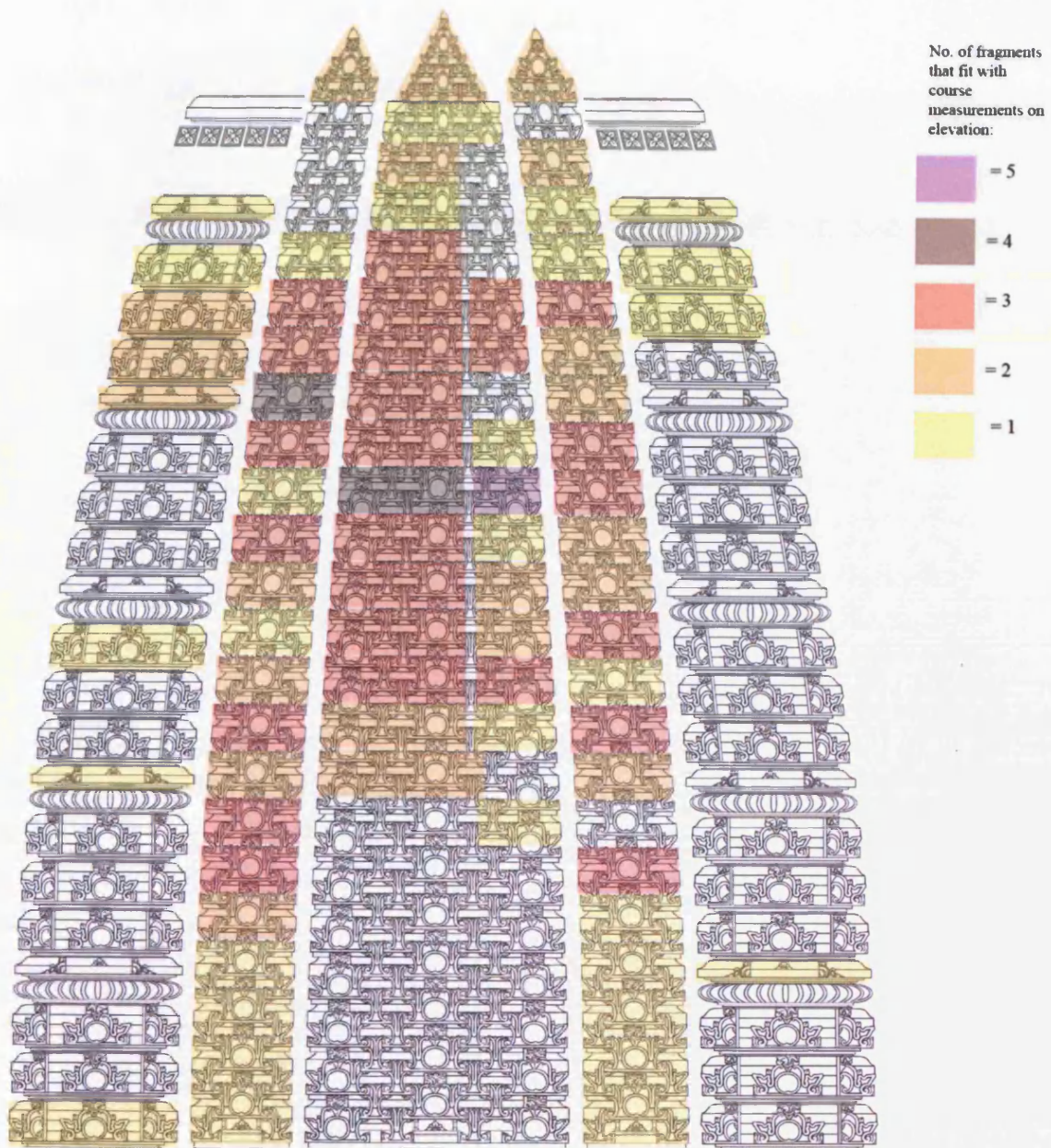


Figure 164: Elevation of the spire from Temple 45 using *karṇa kūṭas* that have three middle *karṇa* eaves each, proportioned according to *Dīpārṇava* instructions: Width of spire base= X, height = $1 \frac{1}{4}X$, curvature radius = $4X$

Fragment type:	<i>Latā</i>	<i>Pratilatā</i>	<i>Karṇa kūṭa</i> middle eaves	<i>Karṇa kūṭa</i> base eave	<i>Karṇa āmalaka</i>
No. of fragments that give concrete measurements:	61	78	21	8	10
No. of these that fit in diagram:	61	78	9	6	2
No. of these that do not fit in diagram:	0	0	12	2	8
Range of widths for fragments that do not fit:	n/a	n/a	72 – 61cm	77cm & 76cm	70–58cm

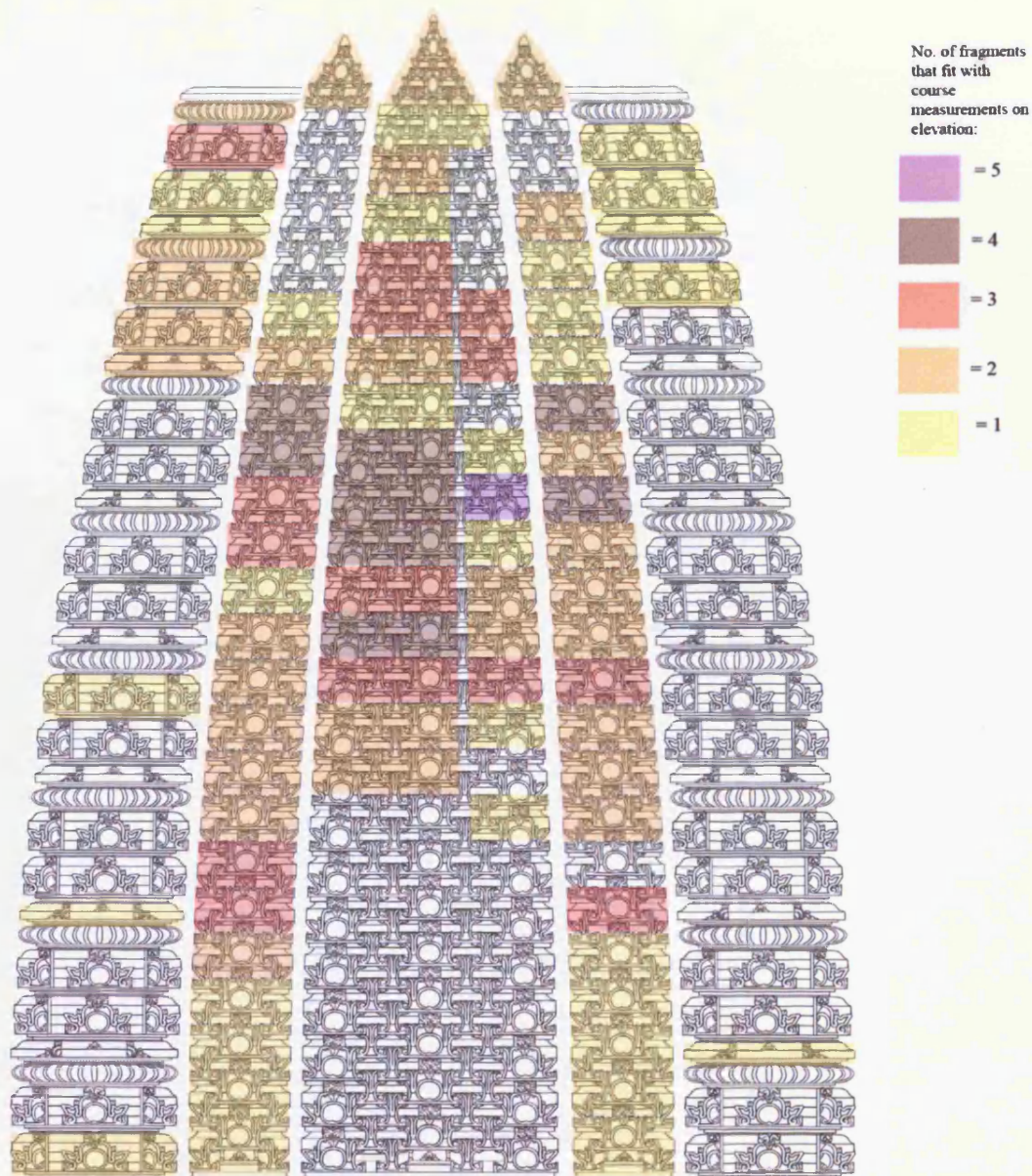


Figure 165: Elevation of the spire from Temple 45 using *karṇa kūṭas* that have two middle *karṇa* eaves each, proportioned according to *Dīpārṇava* instructions: Width of spire base= X, height = $1 \frac{1}{3}X$, curvature radius = $4 \frac{1}{2}X$

Fragment type:	<i>Latā</i>	<i>Pratilatā</i>	<i>Karṇa kūṭa</i> middle eaves	<i>Karṇa kūṭa</i> base eave	<i>Karṇa āmalaka</i>
No. of fragments that give concrete measurements:	61	78	21	8	10
No. of these that fit in diagram:	61	78	13	6	4
No. of these that do not fit in diagram:	0	0	8	2	6
Range of widths for fragments that do not fit:	n/a	n/a	69–61cm	72cm – 70cm.	69–58cm

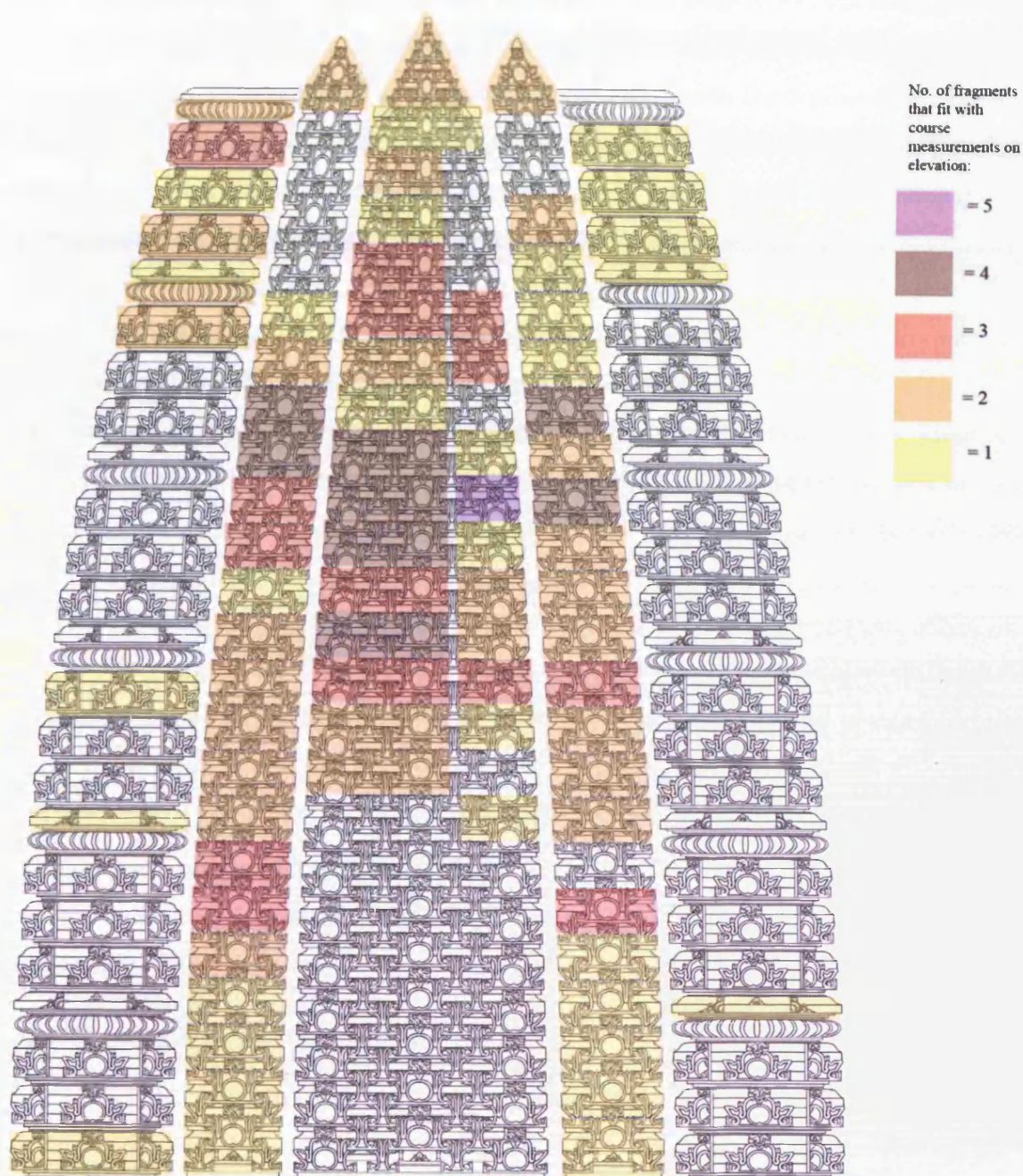


Figure 166: Elevation of the spire from Temple 45 using *karṇa kūṭas* that have three middle *karṇa* eaves each, proportioned according to *Dīpārṇava* instructions: Width of spire base= X, height = $1 \frac{1}{3}X$, curvature radius = $4 \frac{1}{2}X$

Fragment type:	<i>Latā</i>	<i>Pratilatā</i>	<i>Karṇa kūṭa</i> middle eaves	<i>Karṇa kūṭa</i> base eave	<i>Karṇa āmalaka</i>
No. of fragments that give concrete measurements:	61	78	21	8	10
No. of these that fit in diagram:	61	78	13	4	4
No. of these that do not fit in diagram:	0	0	8	4	6
Range of widths for fragments that do not fit:	n/a	n/a	69–61cm	84cm, 82cm, 72cm, 70cm	69-58

Analysis of the hypothetical *śikhara* elevations

The four drawings, created according to two *Dīpārṇava* spire proportions and the method of creating the *pratilatā* and *latā* curvatures suggested here, all lead to elegant-looking, Latina elevations. All of the remaining *latā* and *pratilatā* course fragments from Temple 45 fit within each of the diagrams, a correlation that is helped from the outset by the fact that the *Dīpārṇava* ratio for *karṇa:pratilatā:latā* widths at the top and the base of the spire match Temple 45's fragments and temple body proportions. The distribution of the *latā* and *pratilatā* pieces on each of the spire images is validated by the fact that at no point do more than four *pratilatā* or large *latā* fragments vie for the same position on the spire, an impossible outcome given the four faces of the spire.

In all of the diagrams the lowest six or seven *latā* courses, those that range between 153 – 147cm in total width, are missing. Given that the width of the lowest *pratilatā* and the carved recesses in between the projections are fixed, any attempt to narrow the *latā*, breaking with the *Dīpārṇava* proportions, pulls the recesses and projections out of sync with the *vēdībāndha* and requires a wider base eave for the *karṇa* (Figure 167). The ungainliness of this design makes it seem an unlikely way to resolve the problem.

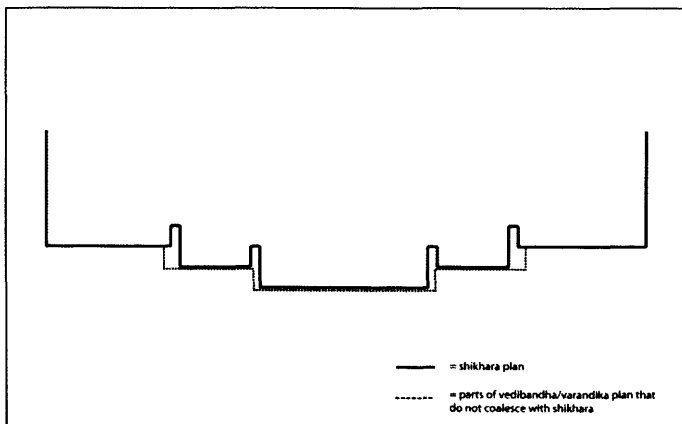


Figure 167: *Śikhara* plan over *vēdībāndha* plan if the *latā* is made slimmer.

An alternative and slightly less ugly solution in design terms would be to suggest that the *vēdībāndha* lined up with the edge of the *varaṇḍikā*'s *kapotālī* rather than the *śikhara* base, and the projections from the *śikhara* stepped back from the *varaṇḍikā* edge by a little way, thereby narrowing the *latā* width whilst maintaining *karṇa*, *pratilatā* and recess

measurements (Figure 159). This manoeuvre is not usual in Latina terms, but then neither is the pairing in Temple 45 of a stepped temple body without recesses and an articulated spire. In these alternative hypothetical instances however, breaking with *Dīpārṇava* dimensions, the same problem still applies. Given the shape of the *latā*'s curvature and the fact that for the first third of the spire its width diminishes only very gradually, even creating a spire with a narrower *latā* leaves a number of the lowest *latā* courses missing. Given that this problem occurs even when spires with invented ratios and proportions are used, maybe the absence of the lowest *latā* courses is simply a matter of circumstance.

Perhaps the answer lies, as suggested earlier in the chapter, with the three unusual *latā*-style fragments (Figure 136). If these do represent the lowest *latā* courses, and their measurements fit with the lowest *latā* courses in the four elevations, then the plain areas of stone that follow their initial *gavākṣas* indicate that something was covering over the lower *latā* courses, perhaps the peaks of towering superstructures from the niches beneath them. This would then explain the lack of lower *latā* courses, for the niche tops would take the place of those from the side of the spire, and the *śukanāsa* would block the lower courses on the front of the spire.

In light of these considerations, the textually ratified spire elevations shown in Figure 163 – Figure 166 are validated and can be assessed for suitability with regards to the course fragments from Temple 45.

Alternative *karṇakūṭas*

The overall appearance of the different *karṇakūṭa* arrangements in the hypothetical spires and the way in which the measurements of the surviving fragments compare with the scaled-up measurements of the courses created in the diagrams provide the first and easiest way to whittle down the spire options for Temple 45. Even at first glance the height of the *karṇakūṭas* made with two middle eaves are more in keeping with Latina *karṇakūṭa* norms than the overly tall versions with three middle eaves. A small gap is left between the final *karṇakūṭa* and the *skandha* on the 1 ¼X tall spire with two *karṇa* middle eaves. Although the most common way of filling this space in Latina temples is with a row of lotus *tulā*, sometimes this space is filled by another eave (Figure 168a). In the absence of any appropriate *tulā* fragments amongst the remains at Sanchi, and given the number of slimmer

‘base eaves’ that are available, an eave has been used here. In the $1\frac{1}{4}X$ tall spire with three *karṇa* middle eaves, however, there is a yawning gap between the final *karṇakūṭa* and the *skandha* that will need an excessive number of extra eaves and *tulā* rows to fill it up. The final *bhūmis* of both hypothetical spires with heights that are $1\frac{1}{3}X$ tall finish just underneath the *skandha*, a tidy arrangement that is validated by the same formula being used in other Latina temples (Figure 168b).



Figure 168: a) Harihara Temple 1, Osian (725 – 750 AD) (Photograph courtesy Adam Hardy), b) Mahādēva Temple, Batesara (775 – 800 AD) (Photograph courtesy A.I.I.S.)

The majority of the eaves from the *vēṇukōśa* are missing, and not all those that are present and accounted for work with the diagrams’ *karṇakūṭa* proportions. The fact that some of the smallest of the *karṇakūṭa* courses will not be used in the spire is a given from the outset since the Diparnava proportions confirm that the spire’s karna projection will be about 68cm at its summit, and there are slimmer pieces than these amongst the fragments. These and some of the other smaller *karṇa kūṭas* courses will have been used at the base of the *śukanāsa* fronting the spire, and having firm measurements for these pieces will actually help with its reconstruction.

In the $1\frac{1}{4}X$ high elevation with two middle eaves all of the *karṇakūṭa* base eaves fragments find homes (probably helped by the fact that a small eave has been included to top the final *karṇakūṭa*), and the eight middle eaves and four *āmalakas* that do not fit with the elevation are all the smallest examples, and therefore can be used in the *śukanāsa*. In the $1\frac{1}{3}X$ elevation with two middle eaves slightly fewer fragments find their places, the same number of middle eaves are used as in the shorter spire, but only two *karṇa āmalaka* fragments and six base eaves fit with the diagram. These mismatched pieces could still possibly be used in the *śukanāsa*, however, since they are a collection of the smallest pieces.

The *karnakūṭa* proportions of the elevations that use three middle eaves in their *karnas* jar significantly with the fragments from Temple 45 however. The majority of the *karnakūṭa* fragments do not fit with the shorter elevation, and in the case of the base eaves these are from amongst the wider fragments that appear in the middle of the continuum of sizes. Although more of the *karnakūṭa* fragments fit in the taller elevation drawn with three middle *karna* eaves, those that do not fit are also from amongst the base eaves are also from amongst the wider of the fragments.

Given the fact that the size of the *karnakūṭa* forms with three middle eaves is unlikely, the fact that they do not reach high enough up the 1 ¼X spire, and the mismatch between the course measurements of the fragments and those from the elevations with three middle eaves, these two hypothetical elevations will be rejected. The two will be considered afresh in light of other factors. How the *latā* fragments are arranged on the diagrams' spires varies in the two pictures, and these provide different delimitations for how high the *śukanāsa* can extend up the spire. This will be looked at next to see if it promotes one spire above the other. Following this the hypothetical spires will be placed above an elevation of the outer walls of the eastern side of Temple 45, and their overall appearances considered.

***Śukanāsa* delimitations**

Most *śukanāsas* from Latina temples are well over half the total height of the spire, and in the elevations presented in Figure 170 the spires' halfway points have been indicated by a dotted blue line. The *latā* fragments are distributed differently on the two spires. The *śukanāsa* cannot extend past the height of the first course in which four of the more substantial *latā* fragments from Temple 45 (those more than half the total width of the course) converge, for these signify that at these points the *latā* would be complete on all faces of the spire. Note that the *śukanāsa* will definitely not be higher than this point but it may well be shorter, for other complete *latā* sets could have existed originally at a lower level. In the diagrams below the point beyond which the *śukanāsa* cannot extend is shown by a green line.

There are two other clues that delimit where the *śukanāsa* lies on the spires. The first is its base width. *Śukanāsas* lie over and cover the top of the porch that leads to the sanctum, and therefore their base dimensions fit with the plan of this chamber. The porch from Temple 45

is about 405cm wide and 137 cm deep. Neatly, this width, and therefore the width of the base of the *śukanāsa*, falls exactly in the middle of the lowest *karna kūṭa* eaves' central *gavākṣas* (a correlation that ratifies the measurements of the hypothetical *śikhara* plans). This dimension is shown by a red line in each of the elevations.



Figure 169: SAN 350, an unusual *latā* fragment with the stone left plain after the initial third of *gavākṣa* pattern.

A section of *latā* course, SAN 350, could possibly also delimit the temple's *śukanāsa*, and, since it appears at different points on the two spires, add credence to either one or the other hypothetical elevations. The *gavākṣa* pattern from this piece ends after the first third of the course and is followed by a patch of stone that has not been carved. Possibly, this could signal a part of the *latā* from the front of the spire that is covered over by the *śukanāsa*. The *gavākṣa* from this course is about 34cm wide, suggesting that the total course would be about 136cm in width. In the diagrams shown in Figure 170, the edges of the plain stretches on the courses as they would appear on the 136cm wide *latā* courses are shown using purple lines.

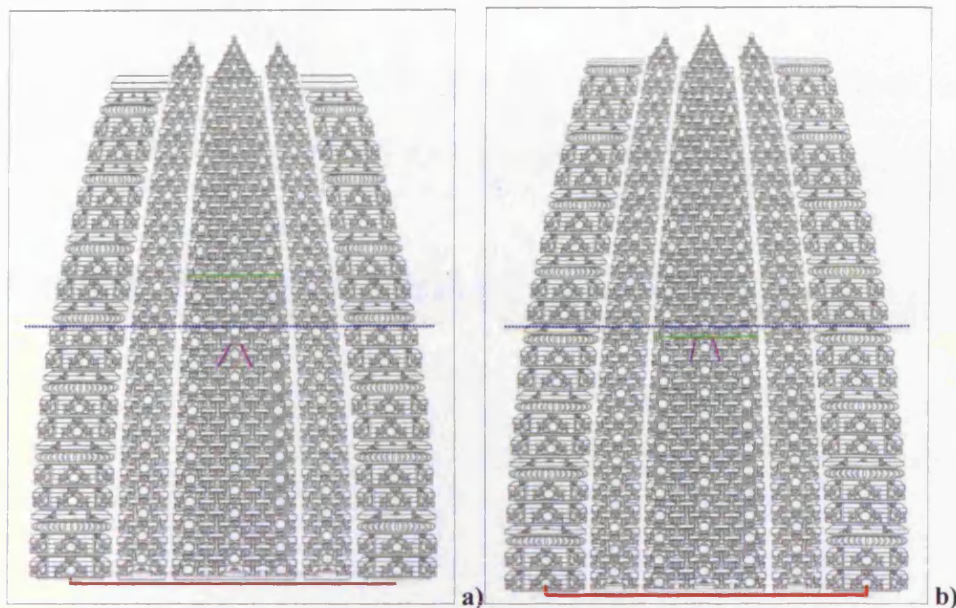


Figure 170: How the correlation of the *latā* fragments from Temple 45 and the measurements of the diagrams delimit the space for the temple's *śukanāsa*, a) spire with height 1.25 times the width of the base of the *śikhara*, b) spire with height 1 1/3 times the width of the base of the *śikhara*.

The distribution of the *latā* fragments on the shorter spire allow the height of the *śikhara* to be well over half the height of the spire, whereas the first set of four larger *latā* fragments on the taller spire curtails the *śukanāsa* at just under half the spire height. The advantage of the shorter spire in this respect is nullified however when the position of the unusual *latā* course that may have been covered by the *śukanāsa* is considered. In both the shorter spire and the longer spire, the plain area of stone suggests that the final point of the *śukanāsa* would occur less than halfway up the spire. Perhaps SAN 350 was not part of a *latā* course that joined up with the *śukanāsa* but was rather a course that was never properly finished. If this is the case, then the shorter spire would be able to have a typically monumental *śukanāsa*. Or, perhaps one of the many unusual aspects of the design of Temple 45 was its unusually short *śukanāsa*. Whichever the case may be, exploring the constraints to the *śukanāsa* on the spire does not conclusively favour either spire over the other.

Viewing the hypothetical *śikharas* over the *garbhagṛha*

A final manoeuvre is to place the spires above images of the temple body. The diagrams in Figure 171 and Figure 172 show the eastern face of Temple 45, incorporating the *varaṇḍikā* as discussed in Chapter 5, the lines of the eaves that would have run across the recesses between the courses of the spire, and the projecting sides of the *bhadra*, *latā*, *pratiratha* and *pratilatā* from the temples northern and southern sides.

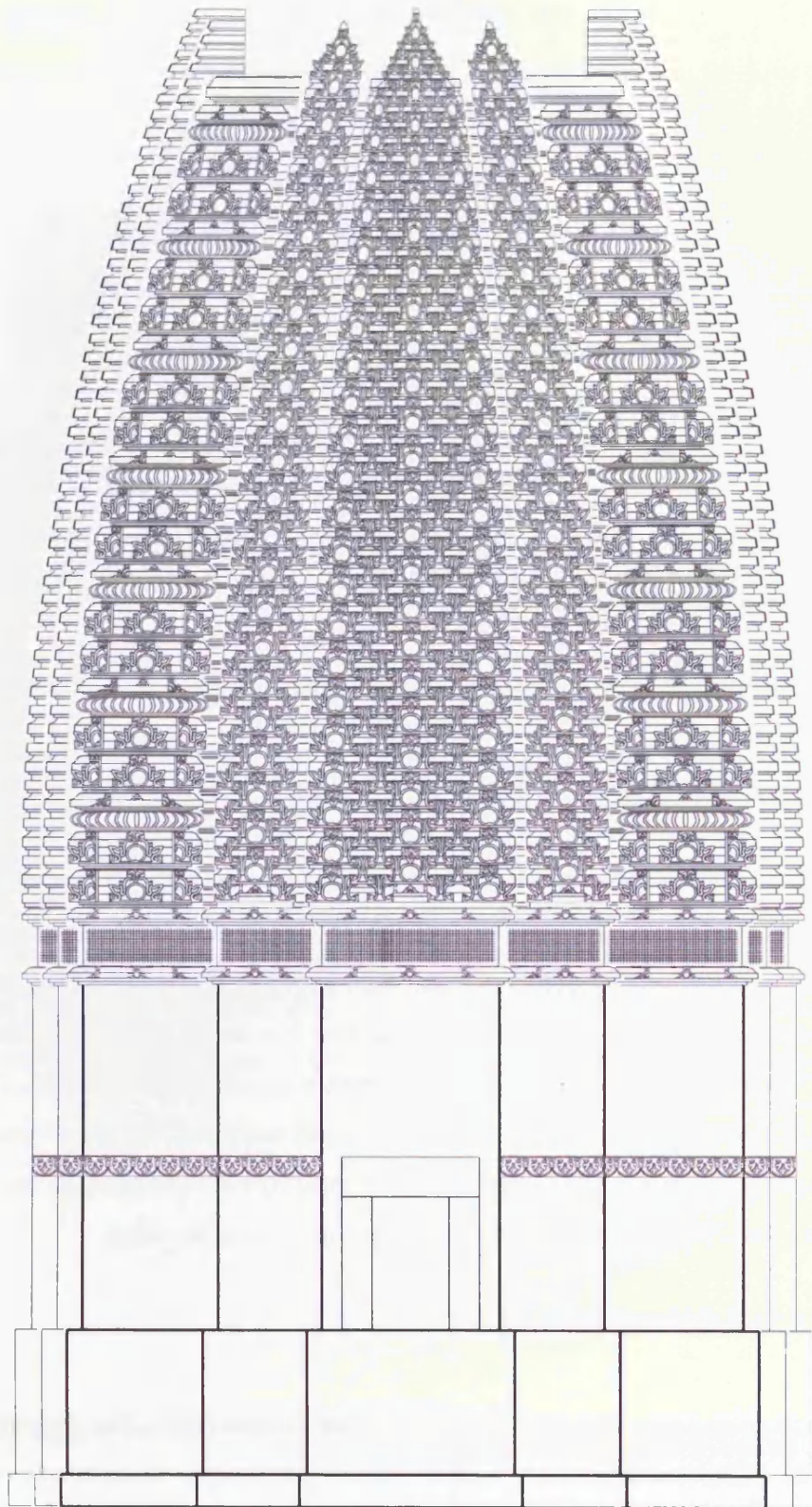


Figure 171: The eastern face of Temple 45, drawn to *Dīpārṇava* proportions for a spire with a height that is $1\frac{1}{4}$ times the width of the *śikhara* base.

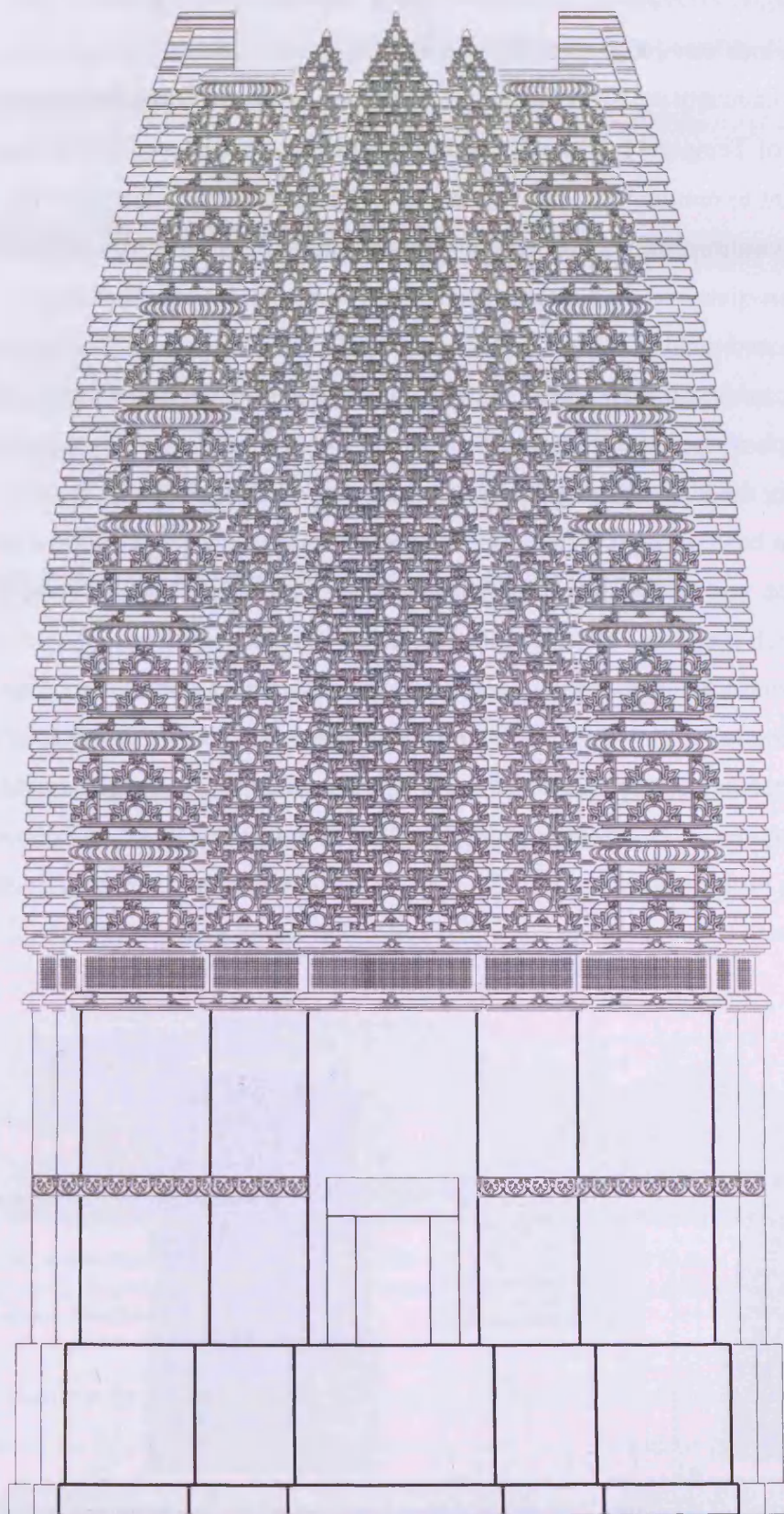


Figure 172: The eastern face of Temple 45, drawn to *Dīpārṇava* proportions for a spire with a height that is $1\frac{1}{3}$ times the width of the *śikhara* base.

Judging these elevations according to which creates a more credible Latina temple form is not entirely straight forward. At first glance, the shorter spire seems a more comfortable match for the body of Temple 45, whereas the taller spire makes the monument seem top heavy. It is important to remember, however, that as elevations the diagrams show the temple viewed from an impossibly egalitarian viewpoint: in reality, bringing a single viewpoint and perspective into play, the top of the spire would appear much shorter, narrower at the top, and most of the projecting sides would be hidden away. To illustrate the difference between an elevation of a spire and how a spire looks when viewed from the ground, a photograph of the spire from the Sūrya Temple at Umri taken from ground level has been placed over the elevation created by the spire with a height that is $1\frac{1}{4}$ times the width of the *śikhara* base – the shortest of the *Dīpārṇava* spire examples given by Kulkarni. Even in this instance, and the height of the Umri spire is clearly taller than its width, the elevation seems much larger and taller than the three-dimensional actuality of the spire, viewed from the ground. In another image a photograph of Harihara 1 temple at Osian has been stood next to the taller hypothetical elevation for Temple 45. Taking into account the diminishing effect perspective and a ground-level standpoint has on the appearance of three-dimensional spires, in comparison to the Harihara Temple, the taller hypothetical spire for Temple 45 no longer seems unfeasible; if anything, rather than bringing the height of the spire into question, it makes the *varaṇḍikā* seem thin and plain.

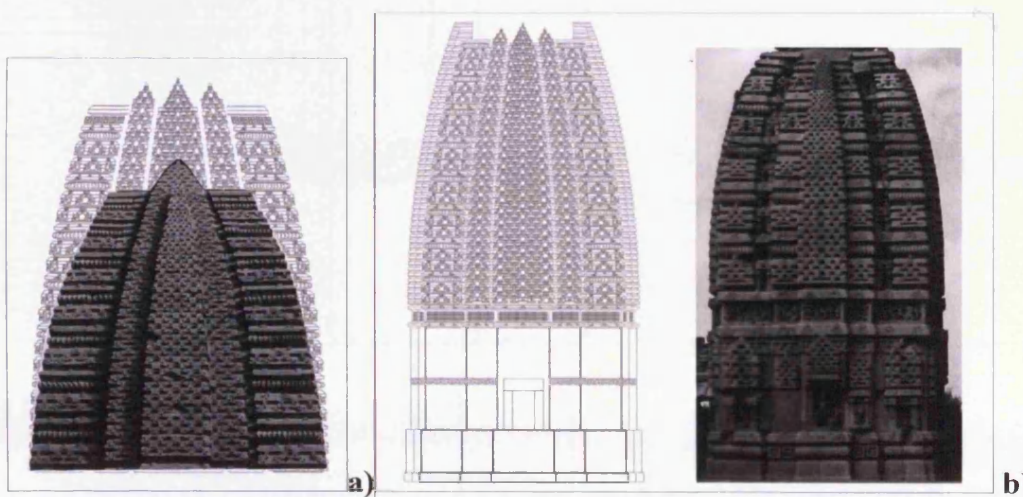


Figure 173: a) Photograph of the Sūrya Temple spire from Umri (minus its *āmalasāra* etc), laid over an elevation drawn according to a *Dīpārṇava* elevation, b) Hypothetical elevation of Temple 45 with a *Dīpārṇava* spire $1\frac{1}{3}$ tall as it is wide at the base standing next to a photograph of Harihara 1 at Osian.

Another thing that will cause the taller spire elevation to seem overly large for Temple 45 is the fact that the temple has a diminutive token *vēdībāndha* and possibly *pīṭha*. The more elaborate *vēdībāndhas* and *pīthas* from most 9th century Latina temples lengthen the appearance of the temple body.

Given the differences between the elevation of a spire and its three-dimensional form, judging which hypothetical spire to be more suitable is not immediately intuitive. Instead all of the pros and cons of the different spires must be assessed in light of each other. Before doing this, however, the hypothetical elevations for Temple 45 should be completed with their crowning *grīva*, *āmalaka* and *kalaśa*, the addition of these important final pieces perhaps even helping with the task of picking the most appropriate spire elevation.

The *grīva*, *āmalasāra* and *kalaśa* crowning Temple 45

The *āmalaka* and *kalaśa* that crowned the spire from Temple 45 still survive amongst the architectural fragments, however the *grīva*, *candrasika*, and little *āmalasāraka* are now lost. How these elements would have looked on Temple 45, their proportions and style, can only be guessed at, drawing from the evidence of any fragmentary evidence remaining at Sanchi, the appearance of those that still survive on other Central Indian temples, and mention of these pieces in the *Vastuśāstras*.



Figure 174: A selection of differently shaped and proportioned Central Indian *āmalasāras*, from a) Jarai-ka-math, Barwasagar, b) Mālādēvi Temple, Gyaraspur (Photograph courtesy of A.I.I.S.), c) Sūrya Temple, Madhkedha.

The *āmalasāras*, *grīvas*, *candrikas* and *kalaśas* that survive on temples across Central India do not seem to follow the strict rules regarding how they should be proportioned, styled or combined: compare, for example, the different forms of the *āmalasāras* from the Mālādēvi temple at Gyaraspur (850-875 AD), the Sūrya Temple at Madkhedha (850 – 875 AD) and the Jarai-kā-maṭh at Barwasagar (c. 900 AD, Figure 174). Despite this, references to the proportions of the *āmalaka*, *grīva* etc on top of Nāgara spires appear frequently in the

Samarāṅgaṇa Sūtradhāra, and Kulkarni translates parts of the *Dīpārṇava* and *Aparājitapṛcchā* that refer to this. According to these textual sources there seem to be two ways of establishing *āmalaka* proportions; the first using the top width of the spire or *skandha* as a proportioning device, and the second using a continuation of the circular curve used to draw the *vēṇukōśa* of the spire.

Kulkarni's translations of the two *Dīpārṇava* descriptions use the former method.¹ As with the instructions for Latina spire design taken from the *Dīpārṇava*, the descriptions concerning the *grīva*, *āmalasāra*, *candrika* and *āmalasāraka* are fairly detailed and explicit. Unlike the spire instructions, however, the drawings they lead to are rather distorted versions of these elements, particularly when proportioned according to Temple 45's measurements and placed over its shorter hypothetical elevation.

The illustrations that accompany Kulkarni's descriptions of the *Dīpārṇava* proportions are not drawn to scale, therefore they misrepresent the instructions. The first translation of *Dīpārṇava* instructions for the design of the *grīva*, *āmalasāra*, *candrika* and *āmalasāraka* creates the image shown in Figure 175a.² Kulkarni's translation of a second set of instructions that appear in both the *Dīpārṇava* and the *Aparājitapṛcchā* is ambiguous, for it begins with the statement 'The diameter of the *āmalasāra* is such that its circumference is just in contact with the vertical divisions of the *pratiratha*.'³ This would suggest the *āmalaka* stretches to the point where the *pratiratha* joins the *karṇa* at the *vēḍibandha* or *varaṇḍikā* level. In Kulkarni's drawing however the *āmalaka* lines up with the edge of the *latā* at the tip of the spire. Two versions of this description have therefore been drawn up, the first following Kulkarni's reading and lining up the *āmalasāra* with the edge of the *latā*

¹ *Dīpārṇava* 9.63 – 65 and *Dīpārṇava* 9.66 – 67 with *Aparājitapṛcchā* 142.1- 3a, from R P Kulkarni, *Prāsāda – Śikhara*, p 30 - 31.

² *Dīpārṇava* 9.63 – 65 from R P Kulkarni, *Prāsāda – Śikhara*, p.30: 'The width of the top of the tower is divided in six parts then the width of the *āmalasāra* is seven parts. The width of the *āmalasāra* is divided in 28 parts. The height of the *dado* is three parts, that of the *āmalasāra* five parts, that of a *candrika* and *āmalasāraka* three parts each. The offset of the *āmalasāra* on both sides, beyond *candrika* is five parts. The width of *candrika* is, therefore, 18 parts. The offset of the *candrika*, on both sides beyond *āmalasāraka* is 2 ½ parts, the width of the *āmalasāraka* being 13 parts. Although not clearly stated the offset of the *āmalasāra* beyond the *dado*, on both sides is five parts the width of *dado* being 18 parts.'

³ *Dīpārṇava* 9.66 – 67 & A P 142.1- 3a, from R P Kulkarni, *Prāsāda – Śikhara*, p 31. The description goes on to say: The width of the *āmalasāra* is divided in eight parts. Then the height of the *dado* is ¾ part and that of the *āmalasāra* 1 ¼ parts. The *candrika* and *āmalasāraka*, each, are one part in height. The width of *grīva*, *candrika* and *āmalasāraka* are not given, but probably are as given for the first kind of *āmalasāra* (in *Dīpārṇava* 9.63 – 65).

tip (Figure 175b), and the second allowing the *āmalasāra* to cross over the point where the *pratiratha* meets the *karna* at *vēdibandha* level (Figure 175c).

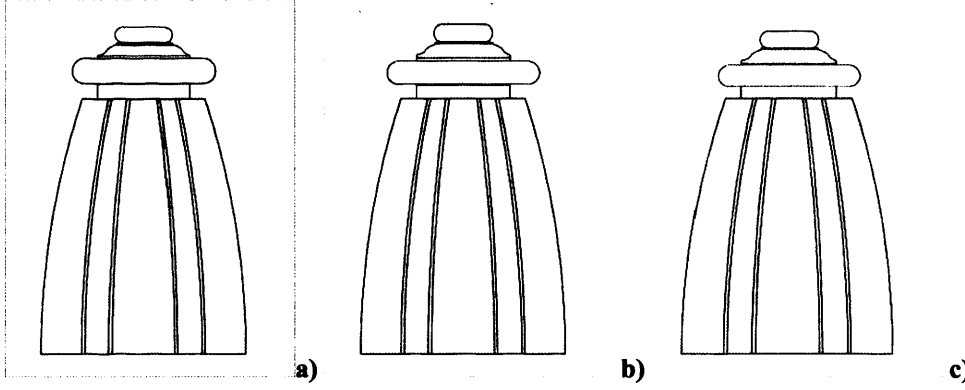


Figure 175: Grīvas, āmalasāras, candrikas and āmalasārakas placed above and drawn according to the proportions of the 1 1/4X tall hypothetical spire for Temple 45.

None of these images create convincing *āmalasāra* sequences that look like those from Central Indian Latina temples (see Chapter 2). The *āmalakas* appear too wide and too flat, the *grīva* seems too wide and too short, and the *candrika* and *āmalasāraka*, the latter in particular, seem much too chunky. Since the probable dimensions of the *skandha* from Temple 45 have been ascertained, and the full measurements of its *āmalasāra* may be estimated from its remains, the impropriety of these proportions for Temple 45 can be proven conclusively since neither fit with how the *skandha* width relates to its *āmalasāra* width, nor how the *āmalasāra* width relates to the *āmalasāra* height.

The process described in another part of the *Aparājitapṛcchā*, as translated by Kulkarni, is much more in keeping with the system of Latina spire design advocated in this thesis. This reference to *āmalasāra*, *grīva* and *kalaśa* design comes at the end of the *Aparājitapṛcchā* description used to create the rather stocky spire elevation shown in Figure 66. Here the circular curves, created using radii that are four times the base width of the *śikhara*, continue upwards past the spire's *vēṇukōśa* until they cross over each other, thus creating the '*skandhakōśa*' of the temple (Figure 176a). The distance from the tip of the *skandhakōśa* to the *skandha* is then divided up so as to give the heights of the *grīva*, *āmalasāra*, *kalaśa*: 'the height of the *dado* (*grīva*) is one part, that of *āmalasāra* 1 1/2 parts, that of *padmacchatra* 1 1/2 parts and the finial is three parts in height.'⁴ Unlike the *Dīpārṇava* descriptions, the widths of the different crowning elements are not referenced, although maybe these are also

⁴ *Aparājitapṛcchā* 158.15 – 16, from R P Kulkarni, *Prāsāda – Śikhara*, p. 34.

meant to be determined by the outline of the *skandhakōśa*. This method of proportioning the *grīva*, *āmalaka*, *kalaśa* etc also appears in the *Samarāṅgaṇa Sūtradhāra*. An example taken from the description of a Rucaka temple type, the rather squat little spire of which was drawn up in Chapter 3 (Figure 67), and also appearing in *Samarāṅgaṇa Sūtradhāra*'s descriptions of Nandīśālaḥ temple type in Chapter 56, is as follows:

48. The height of the *śikhara* is known as four *bhāgas* plus one *pāda*.
With a *sūtra* in three *guṇas*, one should draw the *padmakōśa*.
49. Contiguously to the *skandhakōśa* one should subdivide three *bhāgas*.
The *grīvā* should be half *bhāga*, the *āmalasāraka* should be one *bhāga*.
50. The *padmaśīrṣa* is half *bhāga* and the *kalaśa* is known as one *bhāga*.
Thus, the one called *Rucaka* has been explained.⁵

The *āmalasāra* descriptions for Mandira and Sarvatobhadra temple types from Chapter 56 of the *Samarāṅgaṇa Sūtradhāra* do not explicitly mention the term *skandhakōśa*, but here it is assumed that same proportioning method is implied.

137. With *sūtras* made into four, he should draw the *padmakōśa*.
A beautiful *mañjarī* should be constructed, with the shape of blue-lotus' petals.
138. The *grīva* should be one and a half *bhāgas*, and the *āmalasāraka* one *bhāga*,
While the wise should construct the *padmaśīrṣa* according to the measure of the *grīvā*.
139. The *kumbhaka* should be on top of the *padya*, being one and half *bhāga*, and endowed with an *uṣṇīṣa*.⁶

These temple spires are drawn using curvatures with radii that are four times the width of the base of the spire. As was the case for the Rucaka spire, and the *Aparājitapṛcchā* spire, the drawn up images of these Mandira and Sarvatobhadra spires in Figure 67 seem rather short and stocky Latina elevations. For this reason, and because the *Aparājitapṛcchā* spire, and the Mandira and Sarvatobhadra spires discussed above are created using the same

⁵ *Sapādāṁś caturo bhāgān śikharasyocchrayaḥ smṛtaḥ|*
triguṇena ca sūtreṇa padmakōśaṁ samālikhet||48||
skandhakōśāntaraṁ cāsyā bhāgaiḥ pravibhajet tribhiḥ|
bhaved grīvārdhabhāgena bhāgenāmalasārakam||49||
padmaśīrṣaṁ ca bhāgārdhād bhāgena smṛtaḥ|
ity ukto rucakākhyo'yaṁ
rucakaḥ||50||

Translated by Mattias Salvini, op. cit.

⁶ *(caturguṇaiḥ pṛthakasūtraṁ (traiḥ) padmakōśaṁ samālikhet|*
mañjarī lalitā kāryā nīlotpaladalākṛtiḥ||137||
grīvā caikārdhabhāgena (bhāgenā) malasārakam|
padmaśīrṣaṁ ca kartavyaṁ grīvāmānena dhīmatā||138||
sardhabhāgena soṣṇīṣaḥ padyasyoparikumbhakaḥ|
sarvatobhadra ityukto reṣānānām eṣa śekharaḥ||139||)

curvature as that used in the shorter hypothetical elevation (with a radius that is 4 times the width of the *sikhara* base) they will be adapted to fit above the hypothetical elevation for Temple 45 rather than the unnaturally short ones that are described for them in the texts, for this, after all, is the spire which must be crowned. The *āmalasāra* for the Rucaka temple spire will be placed over its own body since it is created by a ‘three *guṇa*’ rather than four *guṇa sūtra*.

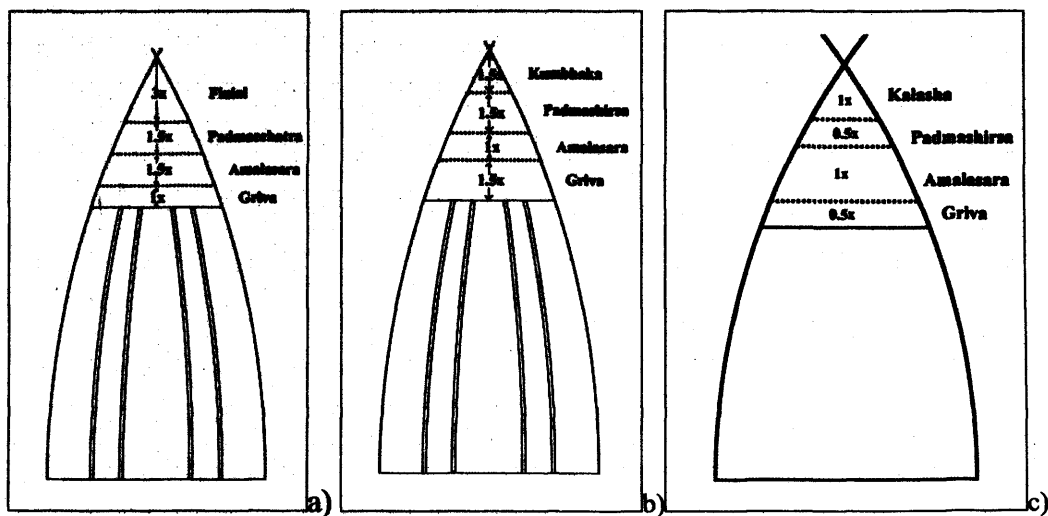


Figure 176: *Latina grīva*, *āmalasāra*, *padmaśīrṣa* and *kalaśa* proportioned using the *skandhakośa* from a) Kulkarni's translation of *Aparājitaṭṭhā* spire Chapter 158: 15 – 16 (Kulkarni, p. 34) b) *Samarāṅgaṇa Sūtradhāra* descriptions of Mandira and Sarvatobhadra temple types, Chapter 56:161 – 162 & 137 – 139, c) *Samarāṅgaṇa Sūtradhāra* descriptions of Rucaka and Nandiśālaḥ temple types, Chapter 56:48 – 50 & 153–154.

Of these three diagrams the *Aparājitaṭṭhā* description seems most accurately proportioned. In the first *Samarāṅgaṇa Sūtradhāra* spire shown in Figure 176b the *grīva* seems disproportionately tall, as does the *padmaśīrṣa* or *candrika*, whereas the *āmalasāra* seems rather thin. In contrast to this, in the *Rucaka* temple from the *Samarāṅgaṇa Sūtradhāra* (Figure 176c) the *grīva* seems too short and the *āmalaka* disproportionately fat. The *Aparājitaṭṭhā* spire shown in Figure 176a seems the most plausible, but even here the space left between the *āmalasāra* and the *kalaśa* seems fairly wide, although perhaps this ‘*padmacchatra*’ space is to be filled with *candrika* and *āmalasāraka*.

Thoughts on the *grīva*, *āmalasāra* and *kalaśa* from Temple 45

How then is the variety shown in the form of the surviving *āmalasāra*, *kalaśa* and finials from Central Indian Latina temples and the questionable and diverse results achieved from following *Vastuśāstric* descriptions to be used to create a realistic set of final elements for Temple 45? Further, whilst some of the *Vastuśāstric* stipulations can be made to apply to the shorter hypothetical spire, created using a ‘four *guṇa sūtra*’, none of the descriptions mention the use of a ‘4.5 *guṇa sūtra*’ as used to create the outline of the taller hypothetical spire.

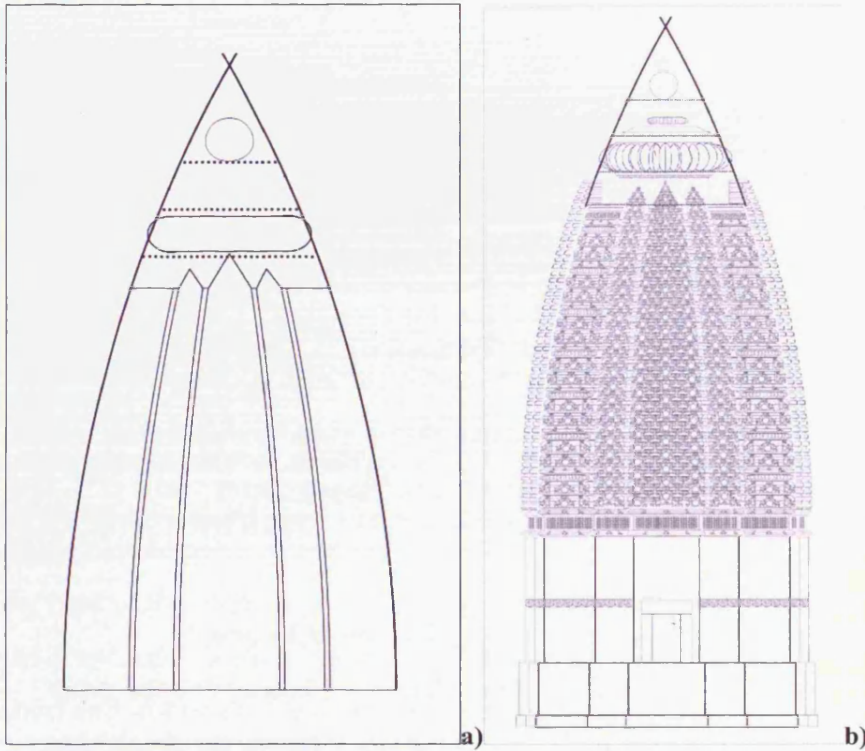


Figure 177: Description of *āmalasāra* etc design from Kulkarni's translation of an *Aparājitaṭṭhā* spire Chapter 158: 15 – 16, including Temple 45's *latā* and *pratilatā udgamas*, *āmalasāra* and *kalaśa*.

From looking at Central Indian Latina temple forms, one broad rule of proportion that does appear to have held is that the *udgamas* that top the spire's *latā* and *pratilatā* tend to reach up to just below the base of the *āmalasāra*. Since the *latā* and *pratilatā udgamas* from Temple 45 survive, these can be used to estimate the height of its *grīva*. Interestingly, following this logic, the proportions of the *āmalasāra* and *grīva* now appear to fit rather well with the *Aparājitaṭṭhā* proportions when used above the shorter hypothetical spire created for Temple 45 (Figure 176a, Chapter 158: 15 – 16), although the *kalaśa* still appears

as if positioned too far beyond it, see Figure 177. Given these clues and the lack thereof concerning the rest of the spire's final elements, a hypothetical *candrika* and *āmalasāraka* will be approximated according to the shapes and sizes of those that still survive, placed above the *grīva* and *āmalasāra* positioned according to the *Aparājitapṛcchā* measurements, and topped with a representation of the surviving *kalāśa* from Temple 45.

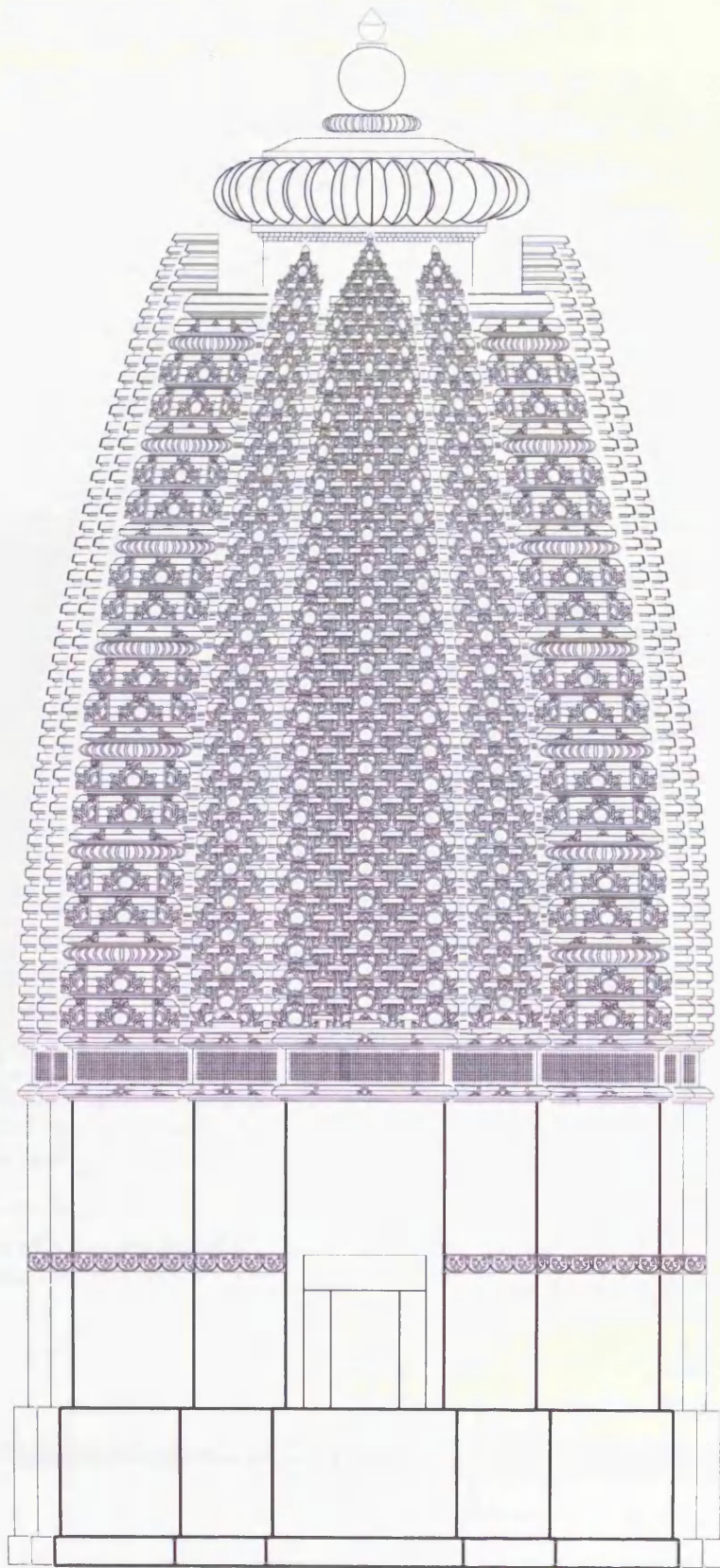


Figure 178: Hypothetical elevation of Temple 45 with a $1\frac{1}{4} \times$ tall spire with *grīva*, *āmalasāra*, *candrika*, *āmalasāraka* and *kalaśa* added.

Conclusion: final analysis of the two possible elevations for Temple 45

In Chapter 3 four sets of proportions for Latina spire elevations given in the *Dīpārṇava* were shown to lead to convincing Latina spire elevations, and in this chapter it was demonstrated that two of these fit with the proportions of Temple 45. Detailed alternative elevations of the spire from Temple 45 were then created and the measurements taken from the diagrams compared with those of the fragments from the spire courses. One of the two possible hypothetical elevations suggested for Temple 45 must now be picked in favour of the other. These make use of different curvatures to create their *karṇa*, *pratilatā* and *latā* projections, and their spires are different heights, but to the eye their forms are relatively close: if multiplied out to reflect reality the $1\frac{1}{3}X$ spire would be 676cm, and the $1\frac{1}{4}X$ spire would be 634cm, leading to a difference of 42cm. All the *latā* fragments and *pratilatā* fragments find homes within the two diagrams, and the *karṇakūṭa* courses that do not fit in the main body of the spires are probably part of the *śukanāsa*. To decide which of these most accurately represents the original design of Temple 45 rests on a final consideration of the pros and cons discussed above.

Regarding the overall appearance of the two spires set above the body of Temple 45, the shorter spire, its height $1\frac{1}{4}$ times the width of its base ($1\frac{1}{4}X$), is more immediately plausible, although the difficulties in comparing elevations with three-dimensional spires were acknowledged. The shorter spire also uses more of the *karṇa kūṭa* fragments than the taller spire does, another point in its favour. In addition to this, the distribution of *latā* fragments on the shorter elevation allow the *śukanāsa* to reach more than half way up the front of the spire, which is in keeping with Latina norms, whereas the arrangement of *latā* fragments on the taller hypothetical spire curtails the Valabhī projection just less than half way up the spire, making it appear unusually short. If, on the other hand, the *latā* course fragment with the plain patch of stone following its initial *gavākṣas* (SAN 350) is one of the courses covered over by the *śukanāsa* as suggested earlier, then this indicates that both spires will have an unusually short *śukanāsa* of less than half the total height of the spire, which favours neither one elevation nor the other.

An indication in favour of the shorter spire has yet to be mentioned. Most Central Indian Latina temples seem to favour odd numbers of *bhūmis*: five, seven or nine. Seven *bhūmis*

are used in the *vēṇukōśa* of the 1 ¼X tall spire, the same number of *bhūmis* as the Sūrya Temple at Umri, for example. The taller elevation, however, is made up of eight *bhūmis*. This project has not found a comparable Latina spire with eight *bhūmis* to justify this design. All of these arguments, therefore, advocate the greater legitimacy of the 1 ¼ X tall *Dīpārṇava* spire.

The final point that favours the shorter spire regards the fact that its curvature is created using a *sūtra* or radius that is four times the width of the base of the *śikhara*. Spire elevations created using a four *guṇa sūtra* appear not just in the *Dīpārṇava*, but several times in the *Samarāṅgaṇa Sūtradhāra* and in the *Aparājitaṭṭhā*. Although the descriptions of the heights of these spires vary, the fact that this was a common way of creating the Latina curvature (and its *āmalasāra* proportions too) is surely attested to by its ubiquity in the texts, and as such must reinforce the 1 ¼ X tall *Dīpārṇava* spire's credentials. The curvature of the *vēṇukōśa* from the 1 1/3 X tall elevation is created using a four and a half *guṇa sūtra*. Reading through descriptions of Nāgara spire design from the *Samarāṅgaṇa Sūtradhāra*, at no point is a four and a half *guṇa sūtra* described, nor is this proportion referenced in Kramrisch and Kulkarni's translations of alternative *śāstric* Latina prescriptions or in L M Dubey's study of the *Aparājitaṭṭhā*.⁷ This then, seems a final nail in the coffin for the taller *Dīpārṇava*-based hypothetical spire and whether it fits with Temple 45.

The shorter *Dīpārṇava* spire – its height 1 ¼ times the width of the *śikhara* base, its curvature created using a four *guṇa sūtra*, and its *latā* and *pratilatā* curves created using *sūtras* as suggested by this thesis (Chapter 3, Table 1) – should therefore be embraced as indicative of the elevation of the original spire from Temple 45. This elevation is ratified by the proportions of the *vēḍibandha* from Temple 45, and the surviving architectural fragments that indicate the course measurements at the top and the base of the spire: the *pratilatās*' and *latās*' *udgamas*, the *latā*'s thinnest, highest course, and two *pratilatā* eaves from the base of the spire. In addition, all the fragments that remain on site, bar the smallest '*karṇakūṭa*' courses that are most likely part of the *śukanāsa*, fit with the measurements shown in the elevation. Piled up with the diminishing lengths of the connecting courses

⁷ Lal Mani Dubey, *Aparājitaṭṭhā – a critical study (Encyclopaedic Manual on Art and Architecture)* (Allahabad: Lakṣmī Publications: 1987)

pulling the spire successively inwards and perspective playing its part, the temples side projections would be hidden, the spire would appear shorter, its top would slim down and the curve become more pronounced, creating an elegant Latina spire that would have pierced Sanchi's eastern skyline, looking out across Sanchi's busy monastic community towards the Great Stupa.

Chapter 7: Conclusion

The research undertaken in this project started with the particular, namely the measurement and analysis of about 500 architectural fragments from Sanchi with a view to isolating the pieces that once made up the spire from Temple 45. From this focussed study, it radiated outwards to the general, surveying 7th – 11th century temples across Central India and interrogating scholarly theories and descriptions from the *Vastusaśāstras* concerning Latina spire design, seeking the method and set of proportions that would allow the fragments to be virtually reassembled back into their original Latina form.

In pursuit of this goal, this thesis examined the origin and development of the Latina temple form in Central India in Chapter 2. The discussion brought to light not just the structural and stylistic norms that are followed by these temples, but also the variety and innovation shown in Nāgara temple design. In the conclusion of this chapter it was suggested that the originality shown in Central Indian temple design, whether it be on a small scale, expressing individuality in the details and style of the temple's composition, or on a large scale, bringing about structural adaptations to 'mainstream' Nāgara temple types, discourages the idea that architectural practice was characterised by a conservatism brought about by strict obedience of *Vastusaśāstric* design prescriptions.

Chapter 3 was concerned with finding an authentic method of Latina spire design and a set of proportions that would reflect the spire that crowned Temple 45. To contextualise this search, and building on thoughts that arose in Chapter 2, the nature of the *Vastusaśāstras* were discussed. Having interrogated different contemporary theories of Latina spire design, each resulting from different interpretations of *Vastusaśāstric* descriptions, the logic and feasibility of the account offered by Dr R P Kulkarni in *Prāsāda-Śikhara* (Temple-Roof)¹ was argued, drawing up elevations according to the method he describes, using proportions detailed in his textual translations and those from Mattia Salvini's translation of the *Samarāṅgaṇa Sūtradhāra*.² The elevations created validated a set of spire proportions detailed in the *Dīpārṇava*, and the elegance of their forms and the geometric patterns and corollaries hidden in their forms were highlighted. This thesis proposed a way in which the

¹ R P Kulkarni, *Prāsāda – Śikhara* (Temple – Roof), (Maharashtra: Itithas Patrika Prakashan Publishers, 2000)

² Mattia Salvini, *Samarāṅgaṇa Sūtradhāra*, (Unpublished: part of 'The Indian Temple: Production, Place and Patronage' project, 2006-2009)

pratilatā and *latā* curves were created in these diagrams and a more detailed set of elevations were drawn up, indicating the *sūtra* dimensions that would enable the curves to conform to *Dīpārṇava* proportions at the base and the summit of the spire. In the conclusion of Chapter 3 the implications of this method of Latina spire design were discussed and justified, and some of the *Dīpārṇava* proportions at the base of the spire were shown to match those of surviving Central Indian Latina temples. In addition to this, one of the more detailed Latina elevations was shown to fit with the enigmatic engraving of a half-Latina elevation on the entrance hall to the Harihara 2 Temple in Osian, and later, in Chapter 6, another of the elevations is shown to fit with Temple 45 itself. Whilst this chapter began by questioning the practical function of the *Vastuśāstras*, therefore, and the inaccuracy of some of the texts' descriptions were made clear in the unlikely elevations drawn here, in light of the *Dīpārṇava* elevations it concluded by acknowledging that at least some of the texts reflect spire proportions used in Latina temple design.

Chapter 4 introduced the Buddhist site of Sanchi and described Monastery and Temple 45. Having discussed John Marshall's explanation of how Temple 45 came to be constructed, an alternative reading of the temple's history was proposed that accounted for the idiosyncratic aspects of its composition. Chapter 5 looked more closely at the material remains of Temple 45, identifying and analysing fragments from the *śikhara* courses from Temple 45 and pieces that may have formed its *varaṇḍikā* and wall festoons. In the conclusion of this chapter the fact that they can be legitimately attributed to Temple 45 was justified, and the measurements of the key fragments that enable the virtual reconstruction to proceed were summarised.

Chapter 6 turned back to the initial question around which the broader research questions have revolved: what did the spire from Temple 45 look like? In this chapter the measurements from the widest spire courses and the plan of the *vēḍibandha* were used to establish the dimensions of the *śikhara* base. This crucial measurement then enabled the system of Latina spire design and sets of proportions from the *Dīpārṇava* that were identified in Chapter 3 to be used to create elevations for Temple 45. The correlation between the measurements from Temple 45 and the *Dīpārṇava* spire proportions acted as a validation of these textual descriptions, and, specifically, showed that they could represent the original elevation of Temple 45. Detailed diagrams of different hypothetical elevations were then drawn up, and the measurements of each individual spire course compared with

those of the spire fragments. Having discussed the implications of how the diagrams relate to the fragments, assessed the overall appearance of the imagined spires over an elevation of the sanctum from Temple 45, and tested different *Vastusaśāstric* descriptions of *āmalasāra*, *grīva* and *kalāśa* proportions, the most convincing elevation of the spire from Temple 45 was selected. This project proposed that this elevation, validated by text, surviving Latina spire forms, and the way its dimensions fit with Temple 45 and the courses from its spire, represents the original elevation of the spire from Temple 45.

A more complete picture of the form of Temple 45 and a better understanding of the story behind its construction will come about through further analysis of the fragments at Sanchi combined with continued research into the developing forms of Central Indian Latina temples. Along with the shape and dimensions of the spire from Temple 45 presented in Chapter 6 of the thesis, measured fragments from other parts of the temple and some initial thoughts on what they might imply for the entrance hall, niche pediments and *śukanāsa* have been included in the Appendix as a starting point for further research. Scholars are only just beginning to gain an understanding of the design methods of early Nāgara temple architects, and how these related to and were reflected in the *Vastusaśāstras*. Hardly any North Indian Latina temple spires or the surviving fragments of ruined temples have been subjected to sustained formalistic analysis. Perhaps further research into questions of Latina design and construction should begin by creating a database of comprehensive, measured studies of the Latina temples, investigating both the fragments that have fallen from ruined examples and those that still stand in splendour across Madhya Pradesh, Uttar Pradesh, Rajasthan, Gujarat, and Karnataka.

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Glossary of Sanskrit terms

<i>āmalaka:</i>	‘myrobolan fruit’, ribbed crowning member of North Indian shrines
<i>āmalasāra:</i>	<i>āmalaka</i> . This term is used in particular to reference the fat, crowning <i>āmalaka</i> that sits above the Latina spire
<i>āmalasāraka:</i>	compressed <i>āmalaka</i> . It usually sits above a disc (<i>candrikā</i>) that covers the larger <i>āmalasāra</i> in the final sequence of elements that crown Latina temples
<i>aṅga:</i>	‘limbs’ or ‘members’, used in reference to the projections in a temple plan: a <i>dvi-aṅga</i> temple is ‘two-limbed’ or has two plains of offsets, therefore it has three stepped or articulated projections per side; a <i>tri-aṅga</i> temple is ‘three-limbed’ and has five stepped or articulated projections per side
<i>antarāla:</i>	antechamber in front of the sanctum
<i>apsarā:</i>	celestial nymph
<i>aṁśa:</i>	‘part’, used as a proportioning measure in <i>Vastuśāstric</i> descriptions of temple design
<i>ardhapadma:</i>	half-lotus decorative motif
<i>bālapañjara:</i>	miniature Valabhi aedicule, set in the recesses between Latina spire projections
<i>bhadra:</i>	central wall projection, normally on a cardinal axis
<i>bhāga:</i>	‘part’, used as a proportioning measure in <i>Vastuśāstric</i> descriptions of temple design (see also <i>aṁśa</i>)
<i>bhīṭa:</i>	a plinth course.
<i>bhūmi:</i>	tier or storey in a North Indian temple
<i>Bhūmija:</i>	North Indian temple type characterized by the vertical chains of <i>kūṭastambhas</i> making up the spire’s corner and intermediate projections
<i>bhūta:</i>	goblin
<i>bhūtaśākhā:</i>	door-jamb carved with goblins
<i>caitya:</i>	a barrel-vaulted worship hall
<i>cakra:</i>	wheel, discus

<i>candraśālā:</i>	dormer windows
<i>candrikā:</i>	disc with a flared lip that sits on top of a North Indian temple's crowning <i>āmalasa</i>
<i>chāḍya:</i>	stone canopy, awning
<i>catuḥśākha:</i>	with four door-jambs
<i>caturmukha:</i>	four-faced, four-doored
<i>Dikpālas:</i>	the guardians of the directions
<i>Drāviḍa:</i>	generic name for South Indian temple types
<i>dvāra:</i>	door
<i>dvārapāla:</i>	door guardian
<i>dvi-aṅga:</i>	'two-limbed' or with two plains of offsets, leading to three projections in total
<i>gajapīṭha:</i>	basal moulding bearing a series of elephants
<i>gaṇa:</i>	dwarf, sprite
<i>gaṇaśākhā:</i>	door-jamb carved with sprites
<i>gandharva:</i>	celestial minstrel
<i>garbhagrha:</i>	womb-house; the inner sanctum of a temple.
<i>garuḍa:</i>	mythical eagle or kite.
<i>gavākṣa:</i>	'cow eye', stylized horse-shoe arch.
<i>ghaṇṭā:</i>	bell
<i>ghaṭapallava:</i>	vase-and-foliage design. Used in a popular pillar type.
<i>grāsamukha:</i>	gorgon face
<i>grāsapaṭṭi:</i>	moulding made up of a row of gorgon faces
<i>grīva:</i>	'neck', cylindrical shaped architectural element that stands on the shoulder course that tops a North Indian temple spire, holding aloft the crowning <i>āmalaka</i> and final sequence of elements.

<i>gūḍhamanḍapa:</i>	closed entrance hall
<i>jagatī:</i>	plinth, platform
<i>jāla:</i>	mesh design, grill
<i>jaṅghā:</i>	wall frieze
<i>kakṣāsana:</i>	seat back
<i>kalaśa:</i>	vase; ‘vase’ or ‘pot’ moulding, a <i>vēḍibandha</i> basal mouldings; pot finial
<i>kaṇṭha:</i>	neck, recess between mouldings
<i>kapilī:</i>	walls of the vestibule in front of the temple sanctum
<i>kapōta:</i>	roll cornice; overhanging cornice
<i>kapotālī/ kapotapālī:</i>	<i>cyma</i> -eave cornice moulding
<i>karṇa:</i>	angle; corner wall-division, corner
<i>karṇakūṭa:</i>	square, corner aedicules
<i>karṇika :</i>	<i>a moulding cornice</i>
<i>khura:</i>	<i>vēḍibandha</i> basal moulding
<i>kiṅkiṇikā:</i>	festoon
<i>kiṅkiṇikājāla:</i>	bell festoon
<i>kīrttimukha:</i>	‘face of glory’; demon face
<i>kumbha:</i>	‘pot’; <i>vēḍibandha</i> basal moulding with a curved shoulder
<i>kumbhaka:</i>	pillar base
<i>kūṭa:</i>	square aedicule
<i>kūṭastambha:</i>	<i>kūṭa</i> -topped pillar
<i>laṭā:</i>	creeper; central vertical band of a temple spire made up of a ‘creeper’ of interlocking <i>gavākṣas</i> projecting from piled eaves
<i>lalāṭabimba:</i>	central symbol or figure on door lintel;
<i>Latina:</i>	North Indian temple type with a curving superstructure

<i>liṅga:</i>	phallic representation of Śiva
<i>mahāmaṇḍapa:</i>	great hall
<i>makara:</i>	aquatic mythical creature
<i>maṇḍapa:</i>	pavilion, hall
<i>mālā:</i>	garland; decorative band
<i>maṇḍala:</i>	sacred diagram; geometric representation of the cosmos
<i>maṇḍapikā:</i>	temple type with pillared walls, often with flat roof
<i>maṇḍōvara:</i>	wall of the temple above any base or plinth and below the eave
<i>mukha:</i>	face
<i>mukhamāṇḍapa:</i>	entrance hall
<i>miśraka:</i>	'mixed' pillar type, combining square, polygonal and circular forms
<i>mithuna:</i>	affectionate couple
<i>mithunaśākhā:</i>	door jamb bearing affectionate couples
<i>mūlaprāsāda:</i>	main temple
<i>nāga:</i>	serpent
<i>nāgapāśa:</i>	intertwined serpents
<i>Nāgara:</i>	generic name for North Indian temple types
<i>Nandī:</i>	Śiva's bull mount
<i>Navagrahas:</i>	the nine planets
<i>nirandhāra:</i>	without ambulatory
<i>padma:</i>	lotus
<i>padmapaṭṭikā</i>	lotus frieze
<i>patravallī:</i>	leafy scroll
<i>patraśākhā:</i>	door jamb carved with foliage
<i>paṭṭikā:</i>	rectangular fillet

<i>pēdyā:</i>	lower section of door jamb
Phāṁsanā:	North Indian temple type with tiered, pyramidal superstructure
<i>pīṭha:</i>	moulded base
<i>pradakṣiṇā:</i>	circumambulatory passage
<i>prāggrīva:</i>	projection in front of the sanctum
<i>prāsāda:</i>	palace, mansion; temple
<i>pratihāra:</i>	attendant, door guardian
<i>pratilatā:</i>	vertical band flanking central projection of the spire
<i>pratiratha:</i>	offset flanking the central projection of the wall
<i>raṅgamaṇḍapa:</i>	open pillared hall
<i>rēkhā:</i>	the curvature of spire
<i>rucaka:</i>	square pillar type
<i>śākhā:</i>	door jamb
<i>salilāntara:</i>	recess between wall and spire projections
<i>sāndhāra:</i>	with ambulatory
<i>sarvatōbhadra:</i>	temple type with four entrances
Śēkhari:	North Indian temple type with superstructure made from multiple, cascading Latina spires
<i>śikhara:</i>	spire
<i>skandha:</i>	shoulder; ‘shoulder’ moulding that caps the main body of a spire
<i>skandhakōśa:</i>	circular curves that determine the proportions of the temple’s final sequence of <i>grīva</i> , <i>āmalasāra</i> and pot finial
<i>stambhaśākhā:</i>	door jamb in the form of a pillar
<i>stūpa:</i>	hemispherical memorial mound
<i>śukanāsa:</i>	antefix that crowns the vestibule in front of the temple
<i>śūrasēna:</i>	pediment made up of a trifoliate <i>gavākṣa</i> pattern

<i>sūtra:</i>	cord, string; philosophical, doctrinal or technical text
<i>tala:</i>	storey
<i>tōraṇa:</i>	gateway
<i>tri-aṅga:</i>	'three-limbed' or with three plains of offsets, leading to five projections in total
<i>tribhaṅga:</i>	standing pose with three bends in the body
<i>tulā:</i>	joist, joist end
<i>tulāpīṭha:</i>	row of joist ends
<i>udgama:</i>	pediment of interconnecting <i>gavākṣas</i>
<i>upabhadra:</i>	minor offset flanking but forming a part of the central offset
<i>vāhana:</i>	mount
<i>Valabhī:</i>	North Indian temple type with barrel-vaulted superstructure
<i>vāsantapaṭṭikā:</i>	broad band carved with floral scroll
<i>varaṇḍikā:</i>	moulded parapet; mouldings separating wall frieze from superstructure
<i>Vāstumaṇḍala:</i>	sacred diagram involved in the planning of towns, habitations and temples
<i>vēdī:</i>	altar
<i>vēḍibandha:</i>	basal mouldings, usually involving <i>khura</i> , <i>khumba</i> and <i>kalaśa</i> mouldings
<i>vēḍikā:</i>	railing, balustrade
<i>vēṇukōśa:</i>	corner bands of a curvilinear spire
<i>vidyādhara:</i>	flying celestial figure
<i>vyāla:</i>	mythical, composite creature; griffin
<i>vyālaśākhā:</i>	door jamb decorated with <i>vyālas</i>
<i>yakṣa:</i>	male nature spirit, associated with trees, mountains, streams and forests
<i>yakṣi:</i>	female nature spirit, associated with fertility.

yōginī:

female practitioner of yōga, endowed with supernatural power

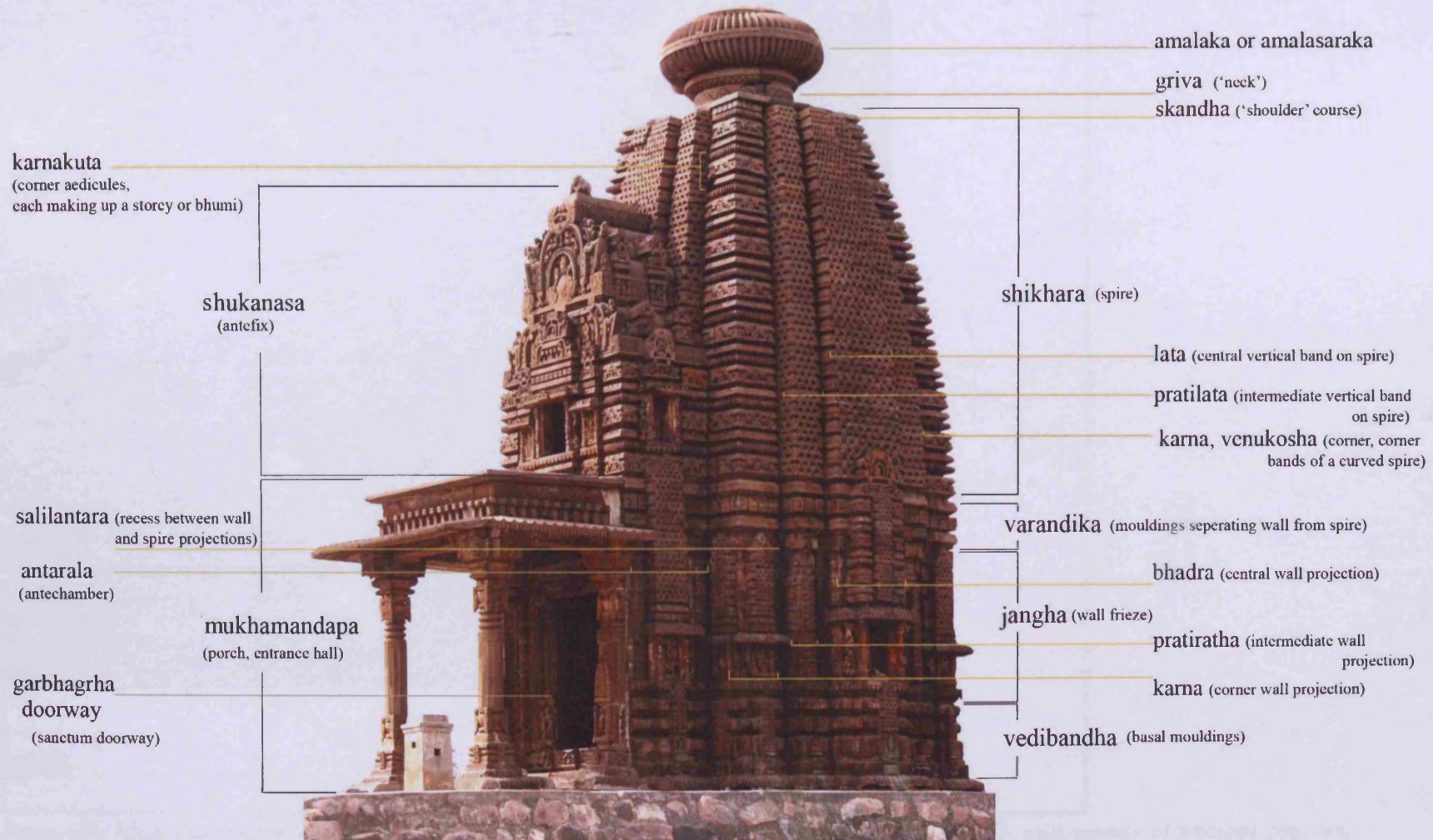


Figure 179: Sanskrit architectural terms marked on to an image of the Sūrya Temple at Madkheda (850 – 875 AD).

Maps

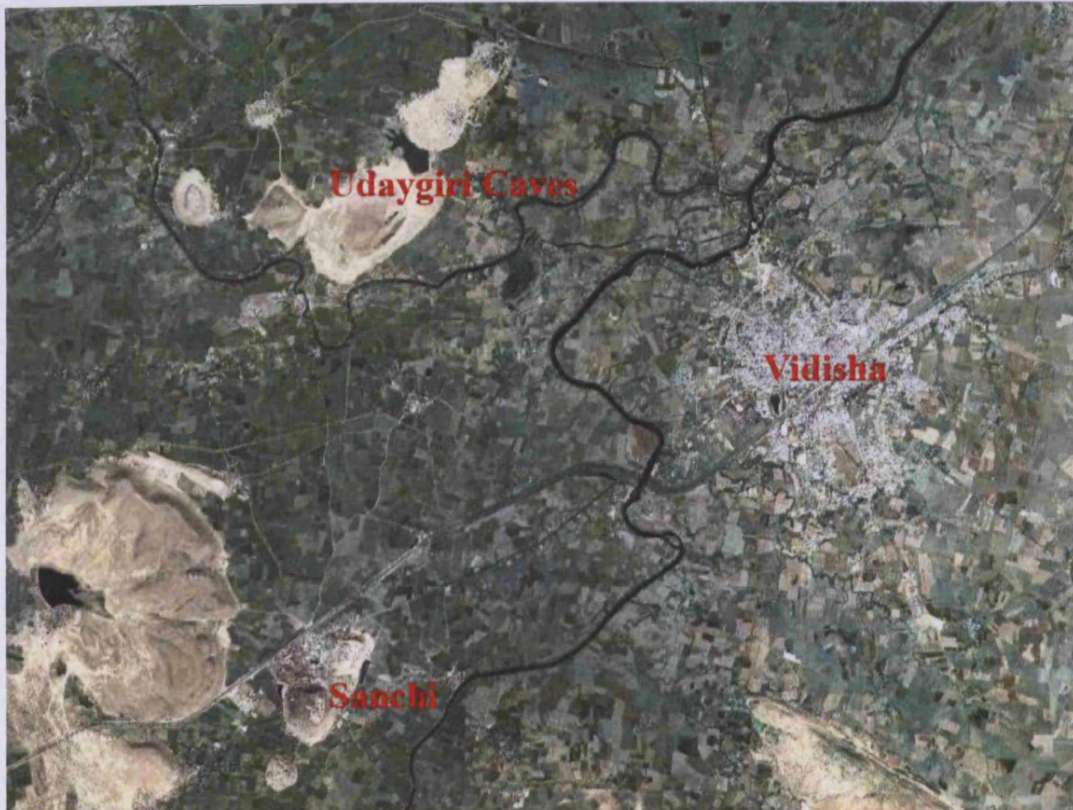


Figure 180: Bird's eye view of Sanchi, Vidisha, the Udaygiri Caves and surrounding terrain. (Image from Google maps)

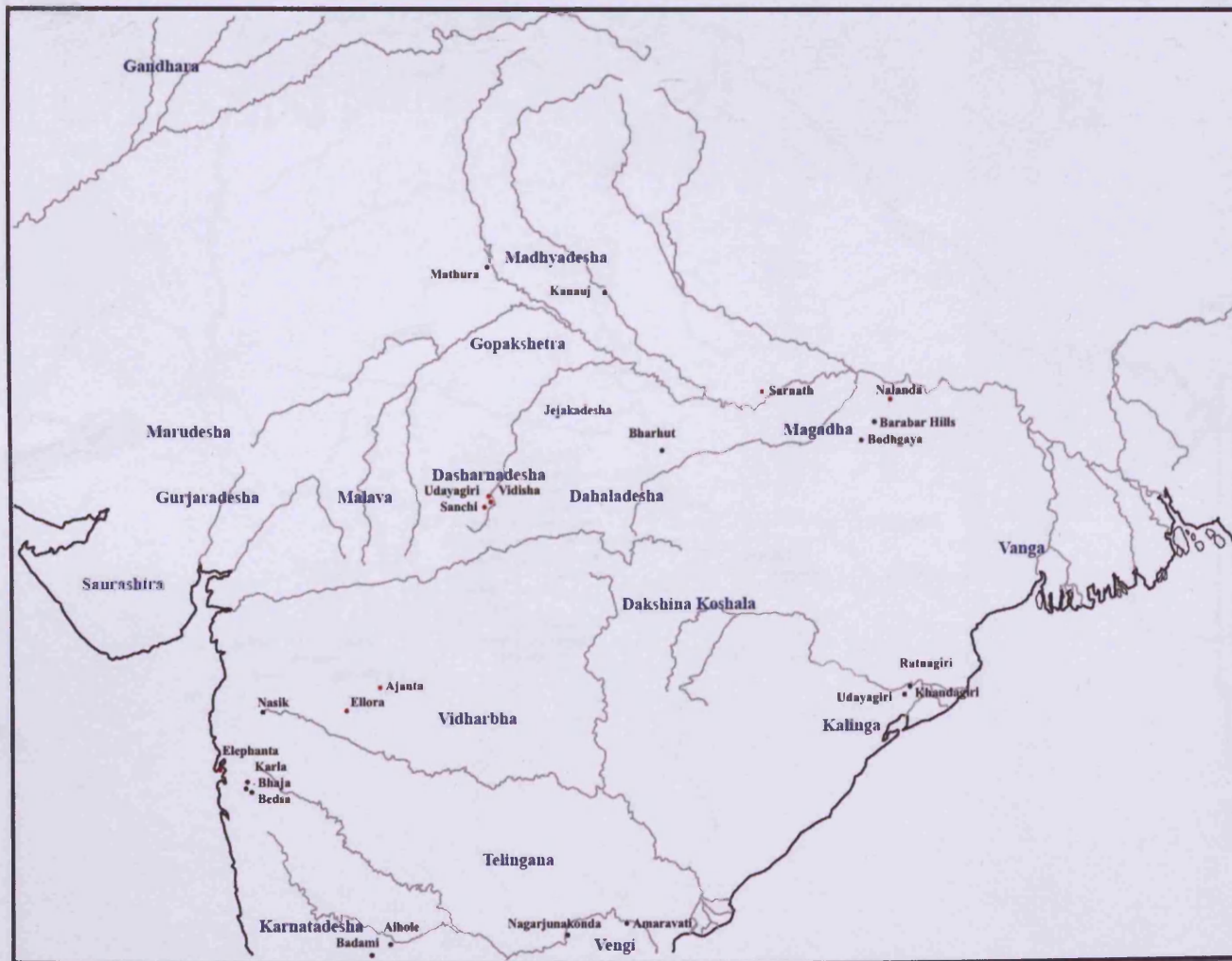


Figure 181: Map showing select Buddhist sites and rock cut cave temples, c. 300 BC – 800 AD, and names of ancient regions.

• = Sites visited during fieldtrips.

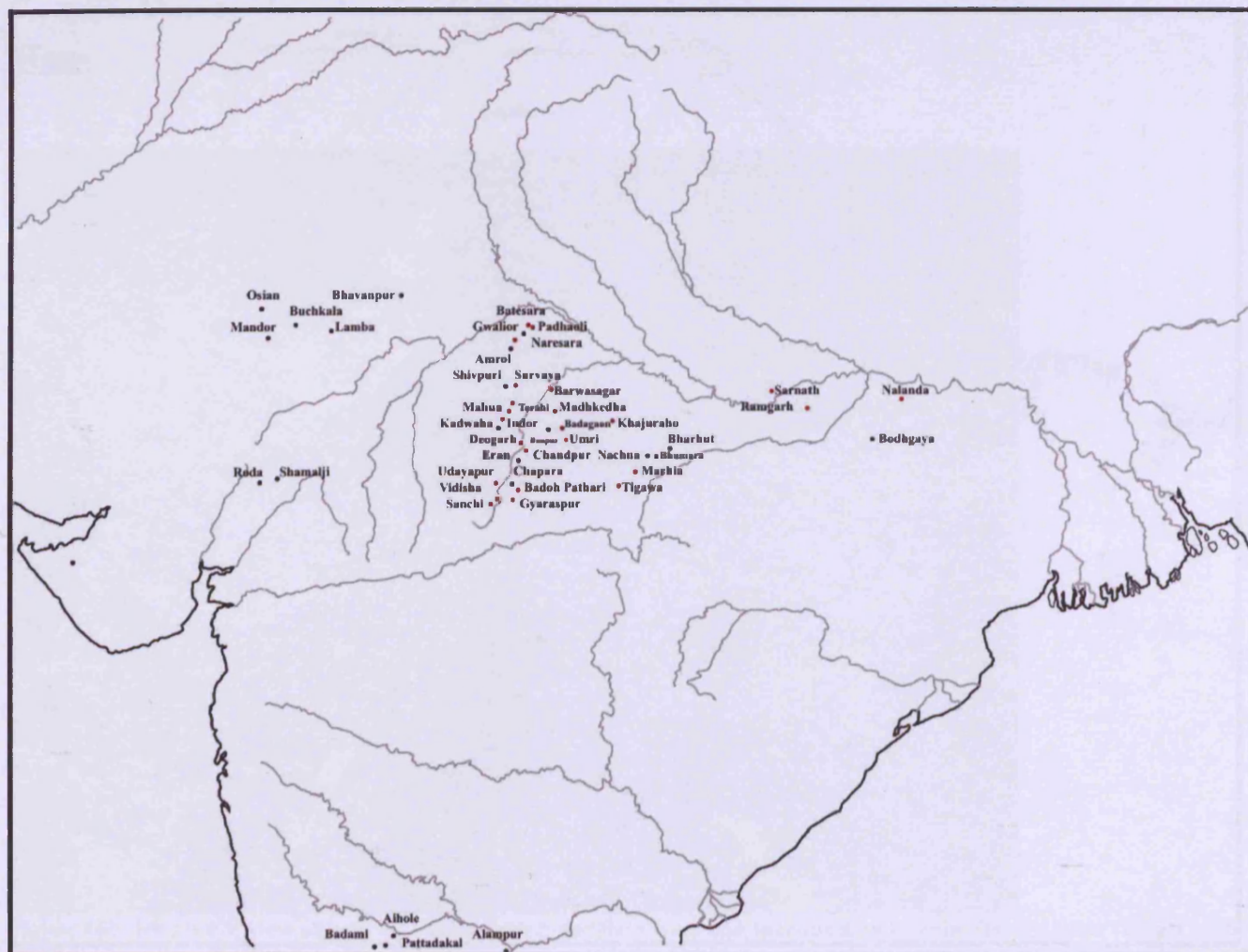
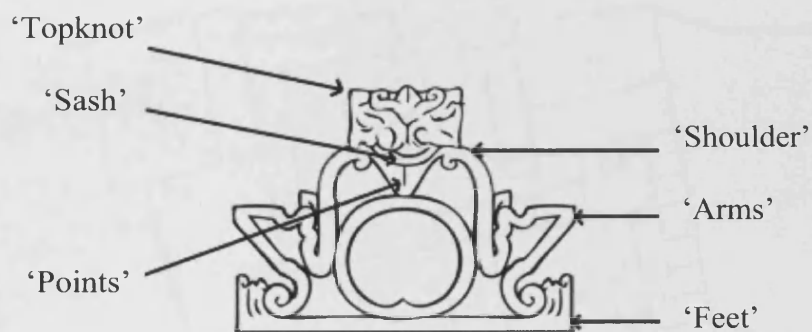


Figure 182: Map showing selection of temple sites referenced in the thesis.

• = Sites visited during fieldtrips.

Terminology and notation used in *gavākṣa* descriptions.



= 'low-arm' *gavākṣa* = dOb



= 'high-arm' *gavākṣa* =)O(



= dO(



=)(

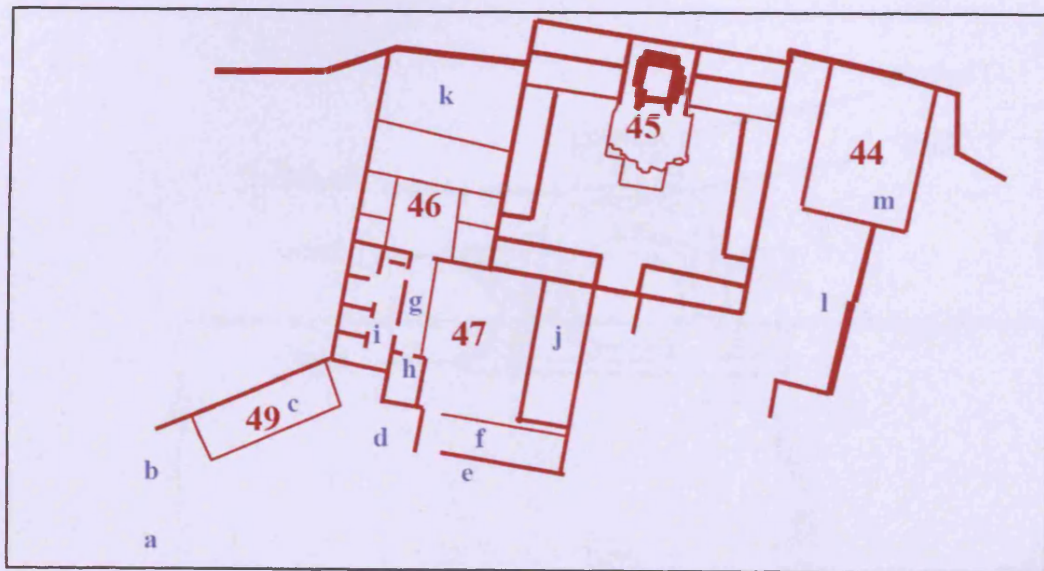


=)b

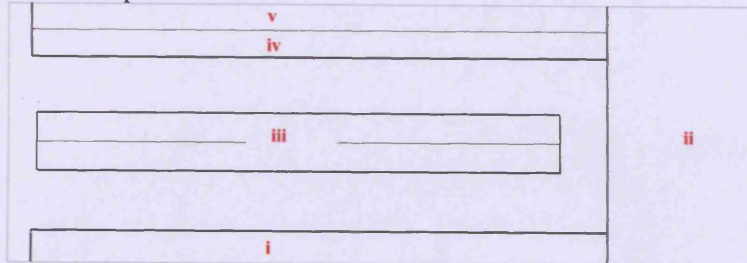


= d(

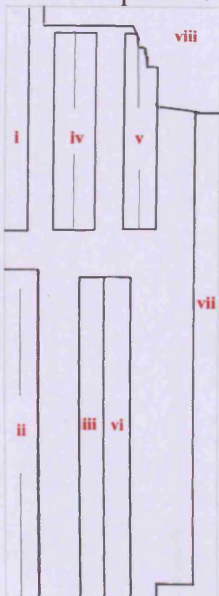
Site plan: fragment locations referenced in the tables of measurements.



Detailed plan of area 'f':

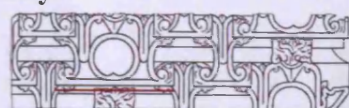


Detailed plan of area 'j':



Laṭā course measurements, arranged in descending size order.

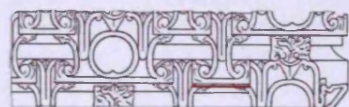
Key:



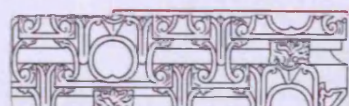
= GW = *Gavākṣa* width



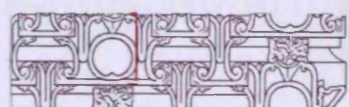
= 1/2GW = ½ *Gavākṣa* width



= XW = 'X' width



= 1/2TW = ½ Total course width

















= SH = *Gavākṣa* height to 'shoulder'























= TH = Total course height











ETW = Estimated total width











I.D. and location	Measurements in cm.	Fragments
SAN 367 Photo 1359 Location: j-vii	Measure again GW: 36 ETW: 144 SH: 21.5	 
SAN 97 Photo 106 Location: f-v	GW:35 ETW: 140 XW: 17.5 SH: 22	 
SAN 290 Photo 1465 Location: j-iv	GW: 35 ETW: 140 XW:17.5 SH: 22.5	

SAN 396 Photo 1376 Location: j-vii	GW: 34 ETW: 136 XW: 17 SH: 22	
SAN 350 Photo 1189 Location: j-vii	GW: 34 ETW: 136 XW: 16.75 SH: 22	
SAN 401 Photo 1377 Location: j-vii	GW: 34 ETW: 136 SH: 22	
SAN 391 Photo 1373 Location: j-vii	GW: 33.25 1/2TW: 67 ETW: 134 XW: 16.75 SH: 22	
SAN 373 Photo 1361 Location: j-vii	GW: 33.25 1/2TW: 66.5 ETW: 133 SH: 22	
SAN 240 Photo 1431 Location: j-iii	GW: 33.25 ETW: 133	
Photo 129 Location: f-iii	GW: 33.25 ETW: 133	
SAN 415 Photo 1384 Location: j-vii	GW: 33.25 ETW: 133	
SAN 92 Photo 102 Location: f-v	GW: 33 1/2TW: 66.5 ETW: 133 SH: 22	

SAN 98 Photo 106 Location: f-v	GW: 33 1/2TW: 66 ETW: 132 SH: 22	
SAN 78 Photo 87 Location: f-v	GW:33 1/2TW: 66 ETW: 132 SH: 22 TH: 29	
SAN 75 Photo 85 Location: f-v	GW:33 1/2TW: 66 ETW: 132 XW: 16.5 SH: 22 TH: 29 More detail	
SAN 364 Photo 1352 Location: j-vii	GW: 33 ETW: 132	
SAN 74 Photo 85 Location: fv	GW:33 1/2TW: 64.5 ETW: 129 XW: 16.5 SH: 22	 
Photo 80 Location: f-ii	1/2GW: 16 EGW: 32 ETW: 128	
Photo 073 Location: f-iii	GW: 32 ETW: 128	
SAN 352 Photo 1177 Location: j-vii	GW: 32 1/2TW: 64 ETW: 128 XW: 16 SH: 22	

SAN 381 Photo 1367 Location: j-vii	GW:31.5 1/2TW: 63.5 ETW: 127 SH: 22 TH: 29	
Photo 53 Location: f-iii	GW: 31.5 1/2TW: 62 ETW: 124 XW: 15.75 SH: 21.5	
SAN 400 Photo 1377 Location: j-vii	GW: 31 ETW: 124	
SAN 89 Photo 100 Location: f-v	GW:31 1/2TW: 61.5 ETW: 123 SH: 22 TH: 28.5	  
SAN 380 Photo1367 Location: j-v	GW:31 1/2TW: 61.5 ETW: 123 XW: 15.5 SH: 22	
SAN: 283 Photo 1457 Location: j-iii	GW: 31 1/2TW: 61 ETW: 122 XW: 15.5 SH: 22	
SAN 393 Photo 1373 Location: j-vii	GW: 30 1/2TW: 60 ETW: 120 XW: 15 SH: 21.5	
SAN 405 Photo 1380 Location: j-vii	GW: 30 ETW: 120 XW: 15	
SAN 375 Photo 1364 Location: j-vii	XW: 15 ETW: 120 SH: 22	

SAN: 416 Photo 1384 Location: j-vii	GW: 30 ETW: 120	
SAN 359 Photo 1350 Location: j-vii	XW: 15 ETW: 120	
SAN 95 Photo 104 Location: f-v	XW: 15 ETW: 120 SH: 22	
SAN 221 Photo 1315 Location: j-ii	GW: 30 ETW: 120 XW: 15	
SAN 404 Photo 1380 Location: j-vii	GW: 30 ETW: 120 XW: 15	
SAN 131 Photo 1038 Location: f-iv	GW: 29.5 1/2TW: 58.5 ETW: 117 XW: 14.75 SH: 22 TH: 29	 
SAN 93 Photo 102 Location: f-v	GW: 29 1/2TW: 58 ETW: 116 XW: 14.5 SH: 22 TH: 28.5	
SAN 419 Photo 1384 Location: j-vii	XW: 14.5 ETW: 116	
SAN 417 Photo 1384 Location: j-vii	GW: 28.5 ETW: 114	

SAN 164 Photo 63 Location: f-iii	GW:28 1/2TW: 56.5 ETW: 113 SH: 21.5	 
SAN 260	Unmeasured	
SAN 365 Photo 1351 Location: j-vii	GW: 28.5 1/2TW: 56.5 ETW: 113	
SAN 203 Photo 0724 Location: f-i	GW: 28 1/2TW: 56 ETW: 112 SH: 21.5	
SAN 90 Photo 100 Location: f-v	GW:28 1/2TW: 55.5 ETW: 111 XW: 14 SH: 21	
SAN 392 Photo 1373 Location: j-vii	GW: 28 1/2TW: 55.5 ETW: 111 SH: 21	
SAN 366 Location: j-vii	GW: 26.5 1/2TW: 52.5 ETW: 105 XW: 13.25	
Photo 079 Location: f-ii	1/2GW: 13 ETW: 104	
SAN: 399 Photo 1377 Location: j-vii	XW: 13 ETW: 104	














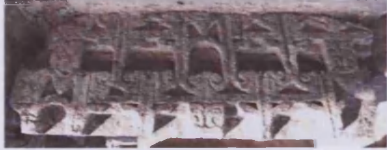




SAN 96 Photo 104 Location: f-v	GW: 25.5 1/2TW: 51.5 ETW: 103 XW: 12.75 SH: 21	
SAN 402 Photo 1377 Location: j-vii	GW: 25 1/2TW: 51.5 ETW: 103 SH: 22	
SAN 182 Photo 129 Location: f-iii	GW: 25.5 ETW: 102	
SAN 372 Photo 1361 Location: j-vii	GW:24.5 1/2TW: 48.5 ETW: 97 SH:22	
SAN 481 Photo 1382 Location: j-vii	1/2GW: 12 ETW: 96	
Photo 1116 Location: g	Unmeasured	
SAN 418 Photo 1384 Location: j-vii	1/2GW: 12 ETW: 96	
Photo 108 Location: f-v	GW:23.5 1/2TW: 48 ETW: 96 SH:22	
SAN 124 Photo 0744 Location: f-ii	GW:23.5 ETW: 96	
SAN 119 Photo 757 Location: f-iv	GW:23 1/2TW: 46.5 ETW: 93	




Photo 43 Location: f-iii	GW:23 1/2TW: 46.5 ETW: 93 SH: 22	
SAN 88 Photo 100 Location: f-v	GW:22.5 1/2TW: 45 ETW: 90 XW: 11.5 SH: 22	
SAN 358 Photo 1175 Location: j-vii	GW:21 ETW: 84	
SAN 185 Photo 136 Location: f-iii	GW: 20 TW: 80 SH: 22	
SAN 109 Photo 771 Location: f-iv	GW:18.5 TW: 76 SH: 21	
SAN 363 Photo 1353 Location: j-vii	GW:16.5 TW: 65 - 66.5 SH: 18	

Measurements of fragments relating to the *laṭā* courses:

I.D. and location	Measurements in cm.	Fragments
SAN 134 ? Photo 1037 Location: f-iv	1/2GW:19 SH: 19.5	
SAN 135 Photo 1037 Location: f-iv	½GW:20 SH: 19.5	

SAN 302 ? Photo 1477 Location: j-iv	1/2GW: 19		
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Measurements of *laṭā udgamas*:

I.D. and location	Measurements in cm.	Fragments	
Photo 131 Location: f-iii	Width at base: 54 Height: 53 Depth: 36		
Photo 1393 Location: j-viii	Width at base: 55 Height: 54 Depth: 35		

Pratilatā course measurements, arranged in descending order.

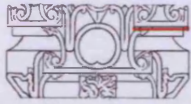
Key:



GW = Gavākṣa width



TW = Total course width



1/2GW = ½ Gavākṣa width



TH = Total course height



SH = Gavākṣa height to 'shoulder'


































































I.D. and location	Left or right <i>pratilatā</i> , measurements in cm.	Fragments
SAN 122 Photo 751 Location: f-iv	Right GW: 36 TW: 60	
SAN 13* Photo 1040 Location: f-ii	Left GW: 36 TW: 60 SH: 22 E: 17	
SAN 361 Photo 1351 Location: j-vii	Right GW: 35 TW: 59 SH: 22.5	
SAN 271 Location: j-i	Left GW: 35.5 TW: 59 SH: 22	
SAN 198 Photo 702 Location: f-i	Right GW: 35.25 TW: 59 SH: 23 EW: 18	 
SAN 410 Photo 1382 (Stack 12) Location: j-vii	Left GW: 35.25 TW: 59 SH: 23 TH: 29 EW: 17.5	














Photo 732 Location: f-iv	Left GW: 35 TW: 58.5 SH: 22 TH: 29		
SAN 163 Photo 069 Location: f-iii	Right GW: 34.5 TW: 58.5 SH: 22.5		
SAN 411 Photo 1383 Location: j-vii	Left GW: 35 TW: 58.5 SH: 22	 	
SAN 412 Photo 1383 Location: j-vii	Left GW: 35 TW: 58.5 SH: 23		
SAN 291 Location: j-iii	Right GW: 35 TW: 58.5	 	
SAN 117 Photo 0762 Location: f-iv	Left GW: 35 TW: 58 SH: 22		
SAN 338 Photo 1202 Location: j-vi	Left GW: 35 TW: 58 SH: 22 TH: 28.5 EW: 17.5		
SAN 341 Photo 1208 Location: j-vi	Left GW: 34 TW: 58		
SAN 171 Photo 042 Location: f-iii	Right TW: 58		
SAN 246 Location j-ii	Right GW: 35 TW: 58 SH: 22		










SAN 342 Photo 1211 Location: j-vi	Right GW: 35 TW: 58	  
SAN 118 Photo 0756 Location: f-iv	Left GW: 33 TW: 57.5 SH: 22 TH: 28	   
SAN 355 Photo 1176 Location: j-vii	Left GW: 34.5 TW: 57.5	
Photo 107 Location: f-v	Left GW: 34.5 TW: 57.5 SH: 22	
SAN 142 Photo 1028 Location: f-ii	Left GW: 34 TW: 57 SH: 22.5	
Photo 128 Location: f-iii	Left GW: 34 TW: 57 SH: 22 E: 17	
SAN 113 Photo 0764 Location: f-iv	Right GW: 34 TW: 57 SH: 22.5	
SAN 138 Photo 1037 Location: f-ii	Right GW: 34 TW: 57	















SAN 406 Photo 1380 Location: j-vii	Left GW: 33.5 TW: 56.5	
SAN 282 Photo 1457 Location: j-iii	Right GW: 34 TW: 56.5 SH: 22 TH: 28	
SAN 217 Photo 1297 Location: j-ii	Left GW: 34.5 TW: 56 SH: 22 TH: 29	
SAN 160 Photo 070 Location: f-iii	Right GW: 34.5 TW: 56 EW: 17	
SAN 101 Photo 107 Location: f-v	Right GW: 33.5 TW: 55.5 SH: 22	
SAN 360 Photo 1351 Location: j-vii	Left GW: 35.5 TW: 55.5 SH: 22	
SAN 161 Photo 071 Location: f-iii	Left GW: 33 TW: 55 SH: 22	
SAN 397 Photo 1376 Location: j-vii	Right GW: 33 TW: 55	   
SAN 368 Photo 1359 Location: j-vii	Left GW: 32.5 TW: 54.5	 




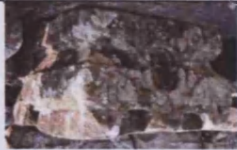


SAN 136 (or 137) Photo 1035 Location: f-ii	Left GW: 33 TW: 54 SH: 23	
SAN 114 Photo 0766 Location: f-iv	Right GW: 32 TW: 54 SH: 22	
Photo 1459 Location: j-vi	Right GW: 33.5 TW: 54	
Photo 1459 Area 15 Location: j-iii	Left GW: 35 TW: 54	
Photo 700 Location: f-i	Right $\frac{1}{2}$ GW: 16.5 ETW: 54	
SAN 168 Photo 052 Location: f-iii	Left GW: 32 TW: 53 SH: 22	   
SAN 395 Photo 1376 Location: j-vii	Left GW: 32 TW: 53 SH: 22	
SAN 238 Photo 1428 Location: j-iii	Right GW: 32 TW: 53 SH: 22 TH: 29	
SAN 269 Location: j- i	Right GW: 32 TW: 53 SH: 21 Eave 17.5	

<p>SAN 374 Photo 1364 Location: j-vii</p>	<p>Left GW: 31.5 TW: 52.5 SH: 22 TH: 29</p>	
<p>SAN 265 Location: j-i</p>	<p>Right GW: 31.5 TW: 52.5 SH: 22</p>	
<p>SAN 379 Photo 1367 Location: j-vii</p>	<p>Right GW: 31.5 TW: 52.5 SH: 22</p>	
<p>SAN 408 Photo 1382 Location: j-vii</p>	<p>Left GW: 30.75 TW: 51.5 SH: 21.5</p>	
<p>SAN 390 Photo 1370 Location: j-vii</p>	<p>Left GW: 31 TW: 51</p>	
<p>SAN 292 Photo 1468 Area 15 Location: iv</p>	<p>Left GW: 30.5 TW: 51 SH: 22 TH: 29</p>	
<p>SAN 108 Photo 0779 Location: f-iv</p>	<p>Right GW: 31 TW: 50.5 SH: 22</p>	
<p>SAN 126 Photo 739 Location: f-iv</p>	<p>Right GW: 30 TW: 50.5</p>	

SAN 176 Photo 122 Location: f-iii	Right GW: 30 TW: 50.5 SH: 22		
SAN 200 Photo 712 Location: f-i	Right GW: 30 TW: 50 EW: 15	 	
SAN 388 Stack 7 Photo 1370 Location: j-vii	Right GW: 29 TW: 50 SH: 22.5		
SAN 227 Photo 1327 Location: j-i	Right GW: 29.5 TW: 50		
Photo 1298 Location: j-ii	Right GW: 29.5 TW: 50		
SAN 385 Photo 1384 Location: j-vii	Left GW: 29.5 TW: 49.5 SH: 21.5 TH: 28.5		
SAN 293 Photo 1468 Location: j-ii	Left GW: 29.5 TW: 49.5 SH: 22 Eave 17.5		
Photo 1367 Location: j-vii	GW: 29.5 TW: 49.5		
SAN 207	Right GW: 29 TW : 49 SH: 21.5	   	

SAN 357 Photo 1175 Location: j-vii	Right GW: 29 TW: 49	
SAN 280 Location: j- i	Left GW: 29.5 TW: 48.5	
Photo 141 Location: f-iii	Left ETW:48	
SAN 103 Photo 109 Location: f-v	Left GW: 28 TW: 48 SH: 23 TH: 30	
SAN 369 Photo 1359 Location: j-vii	Left TW: 48 SH: 22 TH:29	
SAN 378 Photo 1367 Location: j-vii	Left GW: 28.5 TW: 47.5 SH: 22	
SAN 409 Photo 1382 Location: j-vii	Left GW: 29 TW: 47.5 SH: 22	
SAN 112 Photo 0767 Location: f-iv	Right GW: 28 TW: 47.5 SH: 22.5 EW: 17	
SAN 106 Photo 0784 Location: f-iv	Left GW: 28.5 TW: 47 SH: 23	

SAN 281 Photo 1457 Location: j-iii (?)	Right GW: 28 TW: 47 SH: 22 TH: 29	
SAN 253 Photo 1435 Location: j-iii	Right GW: 27.5 TW: 46 SH: 23	
SAN 387 Photo 1370 Location: j-vii	Left GW: 27.5 TW: 46 SH: 22	
SAN 343 Photo 1213 Location: j-vi	Right GW: 28 TW: 46 SH: 22 TH: 29	   
SAN 258 Photo 1454 Location: j-ii	Left GW: 28 TW: 45.5	
SAN 287 Photo 1461 Location: j-iii	Right GW: 27.5 TW: 45.5 SH: 22	   
SAN 339 Photo 1204 Location: j-vi	Left GW: 27 TW: 45 Eave info	
SAN 420 j-ii	Left GW: 26 TW: 44 SH: 22	

SAN 255 Photo 1451 Location: j-iii	Right GW: 26 TW: 44 SH: 22 Eave 17.5	
SAN 249 Photo 1436 Location: j-iii	Right GW: 24 TW: 40	 
SAN 222 Photo 1317 Location: j-ii	Right GW: 24 TW: 40	
Photo 1740 Location: k	Unmeasured	
Photo 1466 Area 15 Location: iv	Left Unmeasured	

Measurements for the *pratilatā udgamas*:





I.D. and location	Measurements in cm.	Fragments
Photo 1185	Width at base: 36 Height: 34 Depth: 25	
SAN 195 Photo 686	Width at base: 36.5 Height: 50 Depth: 28	

Photo 1198 Location: j-vii	Width at base: 31 Height: 23 Depth: 23		
Photo 1391	Width at base: 36.5 Height: 48 Depth: 20		

Karnakūta middle eave measurements, arranged in descending order.

Key:



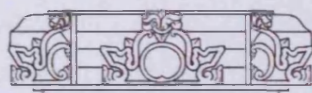
= GW = *Gavākṣa* width



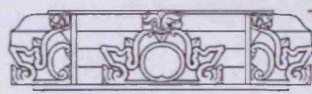
= 1/2GW = 1/2 *Gavākṣa* width




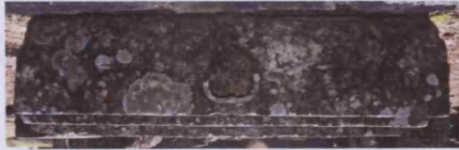



= TW = Total course width






















= SH = *Gavākṣa* height to shoulder

















= TH = Total course height

I.D. and location	Left or right and measurements in cm.	
SAN 289 Photo 1462 Location: j-vi	Left GW: 35 1/2GW: 26 ETW: 101 SH: 18 TH: 27	
Photo 0483 Location: c	Left GW: 35 TW: 96 SH: 18 TH: 27	 
SAN 376 Photo 1365 Location: j-vii	Left GW: 33 TW: 81 1/2GW: 19 SH: 16.5	
SAN 211 Location: f i	Left TW: 81 SH: 18	





SAN 432 Photo 1118 Location: g	Right GW: 34 1/2GW: 17.5 TW: 79 SH: 17 TH: 27	
SAN 433 Photo 1121 Location: g	Left GW: 34 1/2GW: 15 TW: 79 SH: 17 TH: 26	
SAN 125 Photo 0742 Location: f-iv	Left GW: 29 1/2GW: 19 TW: 79 SH: 18	
SAN 413	Left GW: 30 1/2GW: 18 TW: 75 SH: 17.5 TH: 27	
Photo 1037 Location: f-ii	Right ETW: 75 SH: 16.5 TH: 27	
SAN 167 Photo 058 Location: f-iii	Left GW: 30 1/2GW: 16 TW: 72 SH: 17 TH: 27.5	
SAN 431 Location: j-ii	Right TW: 72	
SAN 141 Location: f-ii	Left 1/2GW: 11 1/2TW: 35 ETW: 72 SH: 17	
SAN 288 Photo 1462 Location: j-iii	Left GW: 31 1/2GW: 14 TW: 71 SH: 18	

		
SAN 162 Photo 068 Location: f-iii	Left GW: 30 TW: 69 1/2GW: 14.5 SH: 16.5	 
SAN 386	Right GW: 30 1/2GW: 15 TW: 68 SH: 17 TH: 26.5	 
SAN 128 Photo 0738 Location: f-iv	Left GW: 30 TW: 66 SH: 17 TH: 27	 
SAN 301 Photo 1475 Location: j-vi	Left GW: 30 1/2GW: 16 TW: 66 SH: 17.5 TH: 28	 
Photo 1432 Location: j-iii	Left GW: 25 ETW: 66 SH: 17	



SAN 398 Photo 1377 Location: j-vii	Left GW: 28 1/2GW: 15 TW: 65 SH: 17.5 TH: 27	  
Photo 1035 Location: f-ii	Right GW: 26.5 1/2GW: 14 TW: 61 SH: 17	
SAN 414 Photo 1400 Location: j-vii	Right GW: 26 1/2GW: 14 TW: 61 SH: 17 TH: 27	  
(SAN 387 or 388 Stack 7)	Photo 1370 Location: j-vii ??	
Fragmentary remains		
Photo 1478 Location: j-iv		
SAN 213	1/2GW: 15 SH: 17	
Photo 1448 Location: j-iii		

SAN 105 Photo 0785 Location: f-iv	1/2GW: 20 SH: 18 TH: 23	
SAN 348 Photo 1233 Location: j-iv	TH: 29	
Photo Location: j-ii	1/2GW: 14 TH: 27	

Karṇakūṭas of a different style:

I.D. and location	Left or right and measurements in cm.	
SAN 155	Right GW: 27 1/2TW: 31 ETW: 62 SH: 17	
Photo 0752 Location: f-iv	Left GW: 24 1/2GW: 12 TW: 55 SH: 17 TH: 27.5	
SAN 116 Photo 0759 Location: f-iv	Right GW: 23.5 TW: 55 SH: 17.5 TH: 27.5	
Photo 1448 Location: j-iiia	Left GW: 24 1/2GW: 13 TW: 55.5 SH: 17	

Measurements of fragments that break from typical *karṇakūṭa* form:

I.D. and location	Measurements in cm.	
SAN 80 Photo 048 Location: f-iii	1/2GW: 19 SH: 17	
SAN 192 Photo 0689 Location: f-i	1/2GW: 17.5 SH: 17.5 TH: 27	

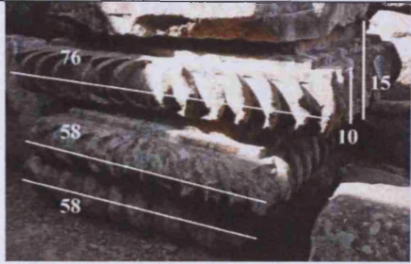





Karna āmalaka measurements.







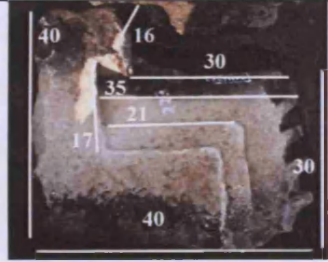
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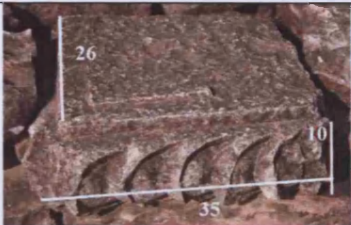



ETW = Estimated total width

ETH = Estimated total height

(Note that the fragmentary nature of the āmalaka fragments means that all 'total widths' are estimates.)

I.D. and location	Measurements in cm.	
SAN 145 – 147 Photo 1022 Location: f-ii	ETW: 76+ 58+ 58+ ETH: 14-15	
SAN 87 Photo 98 Location: f-v	ETW: 75+ ETH: 15	
SAN 247 Photo 1442 Location: j-iii	ETW: 70+	
Photo 1503(1) Location: j-viii	ETW: 70+ ETH: 14	
SAN 83 Photo 92 Location: f-v	ETW: 69+	
SAN 425 Photo 1239 Location: j-viii	ETW: 68	

SAN 235 Photo 1303 Location: j-ii	ETW: 65+ ETH: 15	
SAN 234 Photo 1303 Location: j-ii	ETW: 63++ ETH: 15	
Photo 1503 Location: j-viii	ETW: 60+	
Photo 1043 Location: f-iii		
SAN 326 Photo 1242 Location: j-iv		
SAN 219 Photo 1312 Location: j-ii		
SAN 223 Photo 1320 Location: j-ii		

<p>Photo 1325 Location: j-iv</p>			
<p>Photo 1389 Location: j-viii</p>			
<p>Photo 1503 Location: j-viii</p>			
<p>Photo 1503 Location: j-viii</p>			
<p>Photo 077 Location: f-ii</p>			


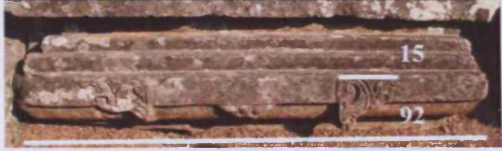
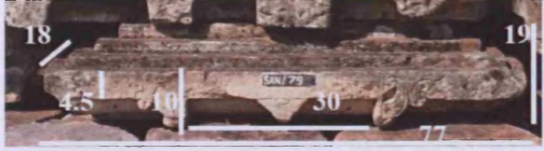




Karnakūta eave measurements:



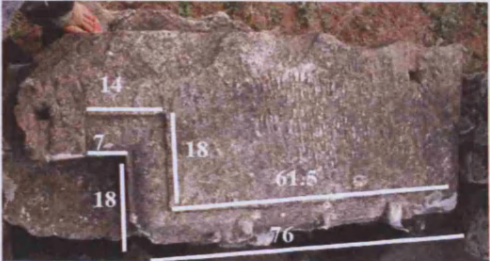

Key:

1/2TW = Half total width




ETW = Estimated total width

ETH = Estimated total height

I.D. and location	Measurements in cm.	Fragments
Photo 0730 Location: f-i	1/2TW: 50 ETW: 100	
Photo 0782 Location: f-iv	ETW: 98	
SAN 79 Photo 088 Location: f-v	ETW: 77+	
SAN 86 Photo 097 Location: f-v	ETW: 70+	
SAN 94 Photo 102 Location: f-v	1/2TW: 42 ETW: 84	
Photo 104 Location: f-v	1/2TW: 36 ETW: 72	
Photo 126 Location: f-iii	ETW: 70+?	

SAN 237 ? Photo 1425 Location jiia	1/2TW: 41 ETW: 82	
SAN 270 Photo Area: j-ii	TW: 76cm	 
Photo 1031 Location: f-ii	M.I.A	

Alternative eave types:

I.D. and location	Measurements in cm.	Fragments
Photo 1502 Location: j-iv	ETW: 74	
Photo 1027 Location: f-ii		
SAN 65 (?) Photo 0684 Location: f-i		

Spreadsheets of śikhara course measurements.

Key:

% = % of course surviving

L or R = left-hand or right-hand fragment

GW = *gavākṣa* width

1/2TW = ½ total width

ETW = estimated total width

XW = 'X' width

SH = height to *gavākṣa* 'shoulder'

TH = total height

All measurements in cm.

Laṭā courses:

Photo	Location	%	GW	1/2TW	ETW	XW	SH	TH
1359	j-vii	1/3	36		144		21.5	
106	f-v	2/3	35	69	140	17.5	22	
1465	j-iv	2/3	35		140		22.5	
1376	j-vii	1/3	34		136	17	22	
1189	j-vii	1/2	34		136	16.75	22	
1377	j-vii	2/3	34		136	16.75	22	
1373	j-vii	2/3	33.25	67	134	16.75	22	
1361	j-vii	3/4	33.25	66.5	133		22	
1431	j-iii	1/4	33.25		133			
129	f-iii	1/4	33.25		133			
1384	j-vii	1/4	33.25		133			
102	f-v	2/3	33	66.5	133		22	
106	f-v	2/3	33	66	132		22	
87	f-v	3/4	33	66	132		22	29
85	f-v	2/3	33	66	132	16.5	22	29
1352	j - vii	2/5	33		132			
85	f-v	2/3	33	64.5	129	16.5	22	
80	f-ii	1/5	EGW: 32		128	16		
73	f-iii	1/4	32		128			
1177	j-vii	2/3	32	64	128	16	22	
1367	j-vii	7/8	31.5	63.5	127		22	29
53	f-iii	3/4	31.5	62	124	15.75	21.5	28
1377	j-vii	1/4	31		124			
100	f-v	2/3	31	61.5	123	15.5	22	
1367	j-vii	7/8	31	61.5	123	15.5	22	
1457	j-iii	3/5	31	61	122	15.5	22	
1373	j-vii	2/3	30	60	120	15	21.5	
1380	j-vii	2/5	30		120	15	22	
1364	j-vii	1/2	30		120	15	22	
1384	j-vii	1/4	30		120			

1350	j-vii	1/3			120	15		
104	f-v	1/2			120	15	22	
1315	j-ii	1/3	30		120	15		
1380	j-vii	2/5	30		120	15		
1038	f-iv	2/3	29.5	58.5	117	14.75	22	29
102	f-v	3/4	29	58	116	14.5	22	28.5
1384	j-vii	1/4			116	14.5		
1384	j-vii	1/4	28.5		114			
63	f-iii	3/5	28.5	56.5	113		21.5	
1351	j-vii	2/3	28.5	56.5	113			
724	f-i	2/3	28	56	112		21.5	
100	f-v	2/3	28	55.5	111	14	21	
1373	j-vii	2/3	28	55.5	111		21	
	j-vii	2/3	26.5	52.5	105	13.25		
79	f-ii	1/5			104	13		
1377	j-vii	1/4	26		104	13		
104	f-v	2/3	25.5	51.5	103	12.75	21	
1377	j-vii	2/3	25	51.5	103		22	
129	f-iii	1/4	25.5		102			
1361	j-vii	2/3	24.5	48.5	97		22	
1382	j-vii	1/4			96	12		
1384	j-vii	1/4			96	12		
108	f-v	2/3	24	48	96		22	
744	f-ii	1/3	23.5		96			
757	f-vi	2/3	23	46.5	93			
43	f-iii	2/3	23	46.5	93		22	
100	f-v	2/3	22.5	45	90		22	
1175	j-vii	3/5	21		84			
136	f-iii	1	20		80		22	
	f-iv	1	18.5		76		21	
1353	j-vii	1	16.5		65 - 66.5		18	

Pratilatā courses:

SAN No.	Photo	Location	L or R	TW/ETW	GW	SH	TH
122	751	f-iv	R	60	36		
13*	1040	f-ii	L	60	36	22	
198	702	f-i	R	59	35.25	23	29
361	1351	j-vii	R	59	35	22.5	
271		j-i	L	59	35.5	22	
410	1382	j-vii	L	59	35.25	23	29
	732	f-iv	L	58.5	35	22	29
411	1383	j-vii	L	58.5	35	22	28
412	1383	j-vii	L	58.5	35	23	
163	69	f-iii	R	58.5	34.5	22.5	
291		j-iii	R	58.5	35	23	
117	762	f-iv	L	58	35	22	
338	1202	j-vi	L	58	35	22	28.5

341	1208	j-vi	L	58	34		
171	42	f-iii	R	58			
246		jia	R	58	35	22	
342	1211	j-vi	R	58	35		
118	756	f-iv	L	57.5	33	22	28
355	1176	j-vii	L	57.5	34.5		
	107	f-v	L	57.5	34.5	22	28.5
142	1028	f-ii	L	57	34	22	
	128	f-iii	L	57	34	22	
113	764	f-iv	R	57	34	22.5	
138	1037	f-ii	R	57	34		
406	1380	j-vii	L	56.5	33.5		
282	1457	j-iii	R	56.5	34	22	28
217	1297	j-ii	L	56	34.5	22	29
160	70	f-iii	R	56	34.5	22	
360	1351	j-vii	L	55.5	34.5	22	
101	107	f-v	R	55.5	33.5	22	
161	71	f-iii	L	55	33	22	
397	1376	j-vii	R	55	33		
368	1359	j-vii	L	54.5	32.5		
136/7?	1035	f-ii	L	54	33	23	
114	766	f-iv	R	54	32	22	
	1459	j-iii	R	54	35		
	700	f-i	R	54	33		28
168	52	f-iii	L	53	32	22	
395	1376	j-vii	L	53	32	22	
238	1428	j-ia	R	53	32	22	29
269		j-i	R	53	32	21	
374	1364	j-vii	L	52.5	31.5	22	29
265		j-i	R	52.5	31.5	22	
379	1367	j-vii	R	52.2	31.5	22	
408	1382	j-vii	L	51.5	30.75	21.5	
390	1370	j-vii	L	51	31	22	
292		j-iii	L	51	30.5	22	29
108		f-iv	R	50.5	31		
176	122	f-iii	R	50.5	30	22	
200	712	f-i	R	50	30		
388	1370	j-vii	R	50	29	22.5	
227	1327	j-i	R	50	29.5		
	1298	j-ii	R	50	29.5		
	1384	j-vii	L	49.5	30	21.5	28.5
	1367	j-vii	L	49.5	29.5		
293	1468	j-iii	L	49.5	29.5	22	
207			R	49	29	21.5	
357	1175	j-vii	R	49	29	22	
280		j-i	L	48.5	29.5		
	141		L	48.5	29		
103	109	f-v	L	48	28	23	30
369	1359	j-vii	L	48		22	29
378	1367	j-vii	L	47.5	28.5	22	
409	1382	j-vii	L	47.5	29	22	
112	767	f-iv	R	47.5	28	22.5	

106	784	f-iv	L	47	28.5	23	
281	1457	j-iii	R	47	28	22	29
253	1435	j-iii	R	46	27.5	23	
387	1370	j-vii	L	46	27.5	22	
343	1213	j-vi	R	46	28	22	29
258	1454	j-iii	L	45.5	28		
287	1461	j-iii	R	45.5	27.5	22	
339	1204	j-vi	L	45	27		
420		jia	L	44	26	22	
255	1451	j-iii	R	44	26	22	
356		j-vii	R (?)	42	23	22	
249	1436	j-iii	R	40	24	21.5	
222	1317	j-ii	R	40	24		
	1466		L		?		
	1740	f-i	R		?		

Karṇakūṭa middle eaves:

SAN No.	Photo	Location	L or R	TW/ETW	GW	1/2GW	SH	TH
289	1426	j-vi	L	101	35	26	18	27
	483	c	L	96	35		18	27
211			L	82				
376	1365	j-vii	L	81	33		16.5	
432	1118	g	R	79	34	17.5	17	27
433	1121	g	L	79	34		17	26
125	742	f-iv	L	79	29	19	18	
413			L	75	30			
	1037	f-iii	R	75			16.5	27
167	58	f-iii	L	72	30	16	17	27.5
431			R	72				
141		f-ii	L	72		11	17	
288	1462	j-iii	L	71	31	14	18	
162	68	f-iii	L	69	30	14.5	16.5	
386			R	68	30	15	17	27
128	66	f-iv	L	66	30		17	27
301	1475	j-vi	L	66	30	16	17.5	28
	1432	j-iii	L	66	25		17	
398	1377	j-vii	L	65	28	15	17.5	27
	1035	f-ii	R	61	26.5	14	17	
414	1400	j-vii	R	61	26	14	17	27
388		j-vii	L	?				
Different	style	courses:						
155			R	62	27		17	
	752	f-iv	L	55	24	12	17	27.5
116	759	f-iv	R	55	23.5		17.5	27.5
	1448	j-ii	L	55.5	24	13	17	

Fragments								
213						15	17	
348	1233	j-iv		frag				29
105	785	f-iv		frag		20	18	28
	1448	j-iii		frag				
		j-iii		frag			14	27

Karṇa āmalakas:

SAN No.	Photo	Location	L or R	ETW	ETH
145	1022	f-ii	L	76+	15
87	98	f-v	L	75+	15
247	1442	j-iii	L	70+	
	1503(1)	j-viii	L	70+	
83	92	f-v	L	69+	15
425	1239	j-viii	L	68	
235	1303	j-ii	L	65+	15
234	1303	j-ii	L	63++	15+
146	1022	f-ii	L	58+	14
147	1022	f-ii		58+	15
	1043	f-iii		frag	
326	1242	j-viii	R	frag	
219	1312	j-ii	L	frag	
233	1320	j-ii	R	frag	
	1325	j-iv	L	frag	
	1389	j-viii		frag	
	1503	j-viii		frag	
	1503(2)	j-viii		frag	
	77	f-ii		frag	



Karṇakūṣa base eaves:


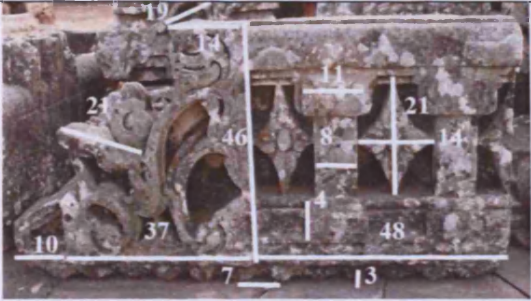

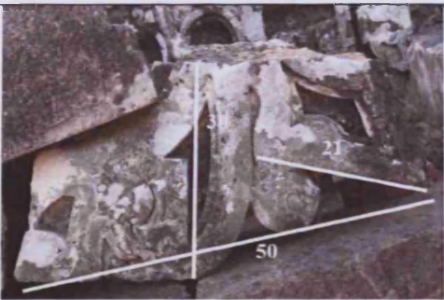

SAN No.	Photo	Location	L or R	1/2TW	ETW
	730	f-i	R	50	100
	782	f-iv			98
94	102	f-v		42	84
237	1425	j-ii	L	41	82
79	88		L		77+
270		j-ii	R		76
	104	f-v		36	72
	126	f-iii	R		70+?
	1031	f-iii	?	?	?
86	97	f-v	R		frag

Āmalasāra and kalaśa measurements:

I.D. and location	Fragments, measurements in cm.
Photo 1725 Location: k	
SAN 76 Photograph 532 Location: d	
Photograph 531 Location: d	

Śukanāsa-style, monumental gavākṣas.

I.D. and location	Fragments, measurements in cm.
SAN 436 Photo 607 Location: e	
Photo 0614 Location: d	

<p>SAN 337 Photo 1248</p>	
<p>SAN 231 Photo 1346 Location: j-i</p>	
<p>Photo 1251 Location: j-iv</p>	
<p>Photo 1335 Location: j-i</p>	
<p>Photo 1270 Location: j-iv</p>	

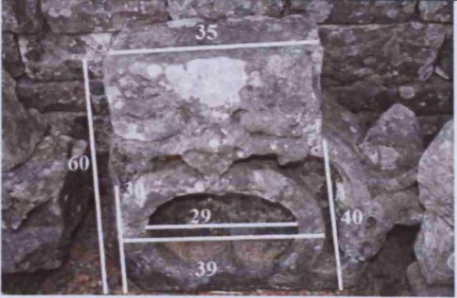




<p>Photo 1032 Location: f-ii</p>		
<p>Photo 1259 Location: j-viii</p>		
<p>Photo 1246 Location: j-iii</p>		
<p>Photo 1265 Location: j-iii</p>		
<p>Photo 1340 Location: j-i</p>		

Photo 1247 Location: j-iv	
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Udgamas;

Pratilatā type

SAN 340 Photo 1206 Location: j-vi	
SAN 216 Photo 1300 Location: j-ii	
SAN 427 Photo 1276 Location: j-iv	







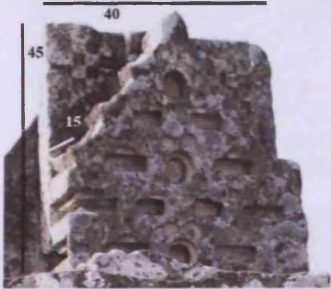

<p>SAN 224 Photo 1321 Location: j-ii</p>	
<p>Photo 1460 Location: j-vi</p>	
<p>SAN 382? Photo 1368 Location: j-vii</p>	
<p>Photo 1488 Location: j-vi</p>	
<p>SAN 331 Photo 1507 Location: j-v</p>	





Photo 1509 Location: J-v	
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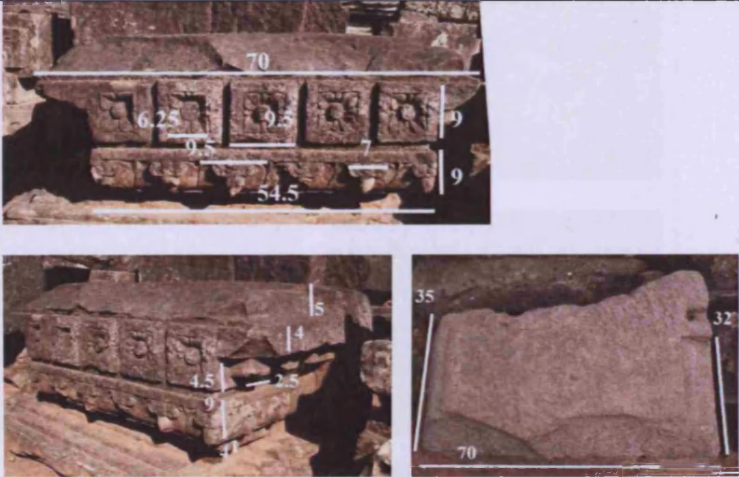
***Latā* type:**

SAN 348? Photo 1230 Location: j-v	
SAN 274 Photo 1342 Location: j-iii	
SAN 320 Photo 1496 Location: j-v	

***Tulā* measurements:**

I.D. and location	Fragments, measurements in cm.
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<p>SAN 125 Photo 1041 Location: f-ii</p>	
<p>Photo 1737 Location: k</p>	
<p>Photo 1770 Location: k</p>	
<p>Photo 076 Location: f-iii</p>	



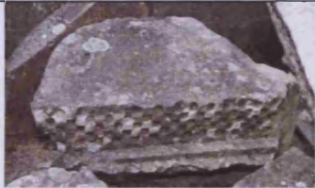


<p>Photo 0570 Location: d</p>	
<p>SAN 179 Photo 125 Location: f-iii</p>	

Kīrttimukha tūla:

<p>SAN 1270 Photo 0736 Location: f-iv</p>	
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Measurements of chequered panels:

<p>Photo 0788 Location: f-iv</p>	
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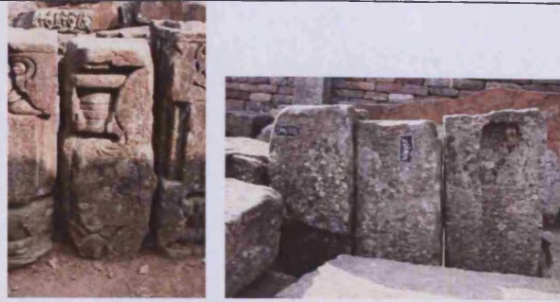
<p>SAN 157 Photo 0642 Location: d</p>	
<p>Photo 0746 Location: f-iv</p>	
<p>Photo 1021 Location: f-ii</p>	
<p>Photo 1048 Location: f-ii</p>	
<p>Photo 1494 Location: j-v</p>	

Measurements from *mandapa* fragments:

Pilasters beneath *mandapa* seats:

I.D. and location	Fragments, measurements in cm.
Photo 0621 Location: d	
Photo 0553 Location: d	
Photo 0535 Location: d	
SAN 186 Photo 137 Location f-iii	

SAN 187
Photo 138
Location: f-iii



SAN 188
Photo 139
Location: j-iii



SAN 336
Photo 1282
Location: j-viii

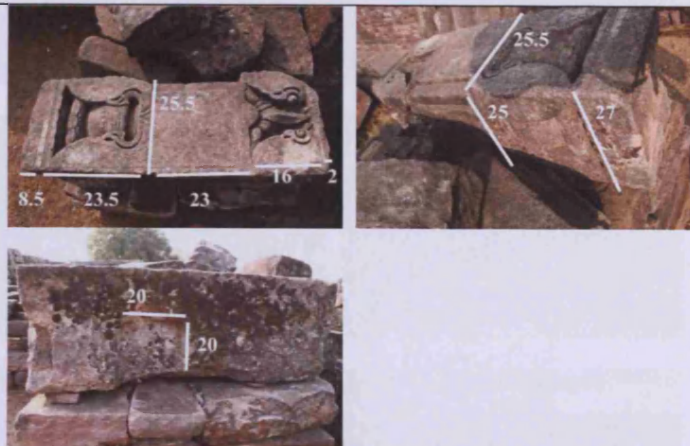








Photo 1288
SAN 339
Location: j-viii




SAN 197 Photo 0693 Location f-i	
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Maṇḍapa seats:

I.D. and location	Fragments, measurements in cm.
Photo(2.5) 90 Location: l	
Photo(2.5) 89 Location: l	
Photo(2.5) 88 Location: l	 
SAN 177 Photo 120 Location: f-i	

<p>Photo(2.5) 10 Location: d</p>	
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Maṇḍapa seat backs:

I.D. and location	Fragments, measurements in cm.
<p>Photo(2.5) 01 Location: c</p>	
<p>Photo(2.5) 024 Location: f-ii</p>	
<p>Photo(2.5) 68 Location: j-i</p>	
<p>SAN 349 Photo(2.5) 70 Location: j-vii</p>	

<p>Photo(2.5) 74 Location: j-iv</p>	
<p>SAN 349 Photo(2.5) 64 Location: j-vii</p>	
<p>SAN 229 Photo(2.5) 57 Location: j-i</p>	
<p>Photo(2.5) 61 Location: j-i</p>	

Measurements of diamond lotus/pilaster courses from *maṇḍapa* roof:

Wide diamond lotus/pillar courses:

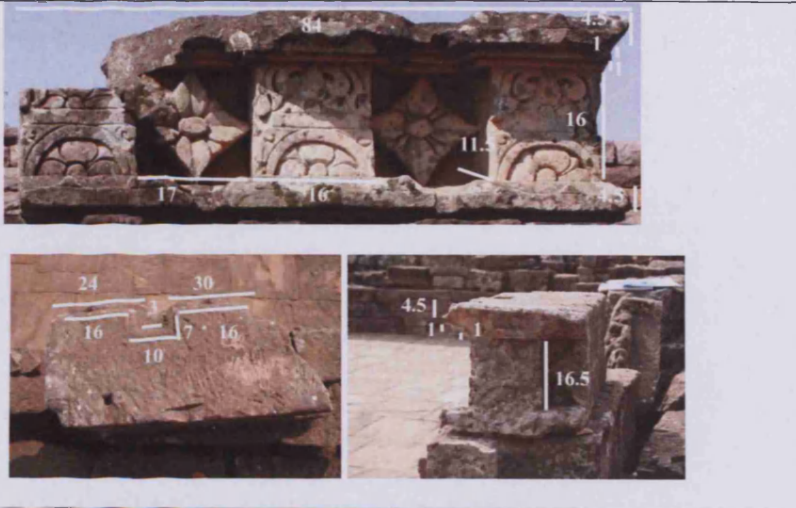
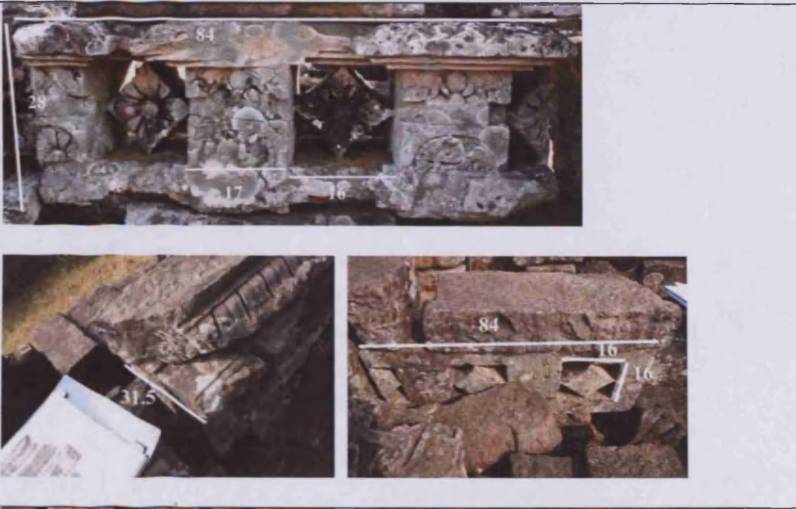






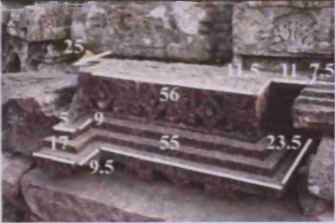

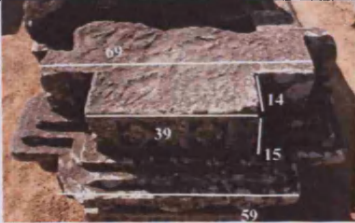

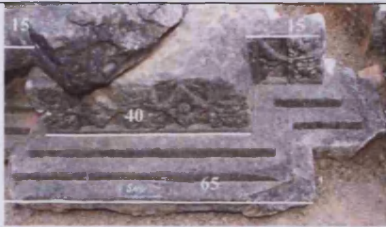





I.D. and location	Fragments, measurements in cm.
<p>SAN 80 Photo 090 Location: f-v</p>	
<p>SAN 299 Photo 1471 Location: j-vi</p>	
<p>SAN 180? Photo 046 Location: f-iii</p>	
<p>Photo 754 Location: f-iv</p>	




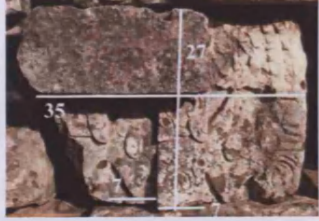
Photo 1036 Location: f-ii		
SAN 428 Photo 169 Location: j-iv		
Photo 1013 Location: f-ii		

Medium-sized *kapotapālī* and diamond lotus/pilaster courses:

SAN 180 Photo 1307 Location: j-ii	  	
SAN 173 Photo 034 Location: f-iv		

<p>Photo 102 Location: f-v</p>		
<p>SAN 180 (or 189?) Photo 148 Location: f-iii</p>		
<p>SAN 300 Photo 1473 Location: j-vi</p>		
<p>SAN 202 Photo 751</p>		
<p>SAN 454 Photo 1181 Location: j-vii</p>		
<p>Photo 1774 Location: l</p>		
<p>Photo 142 Location: f-iii</p>		

Narrow diamond lotus/pilaster courses:

<p>SAN 172 Photo 037 Location: f-iv</p>	
<p>SAN 144 Photo 1026 Location: f-ii</p>	 
<p>Photo 772 Location: f-iv</p>	

Chādyā measurements: awnings, pillar tops, composite structures.

Pillar tops:

<p>Photo 0560 Location: d</p>	
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SAN 125
Photo 1323
Location: j ii



Photo 082
Location: f iii






Awnings and composite pieces:

SAN 76
Photo 085
Location: f v



SAN 166
Photo 062
Location: f ii



Ph 1449 Location: j iii		
SAN 427 Photo 1267 Location: j iv		
Photo 1181 Location: j- vii		

Udgamas, small composite shrine formations:

Three composite shrine arrangements:

I.D. and location	Fragments, measurements in cm.
SAN 85 Photo 96 Location: f-v	

Museum!	
Photo 90 Location: f v	

Large beaded *udgamas* in *pratilatā* style:



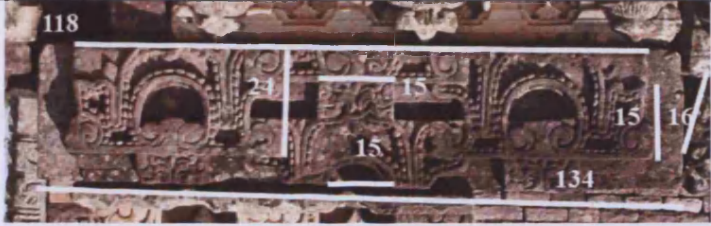




SAN 64 Photo 408 Location: c	
Photo 565 Location: e	
SAN 81 Photo 093 Location: f-v	

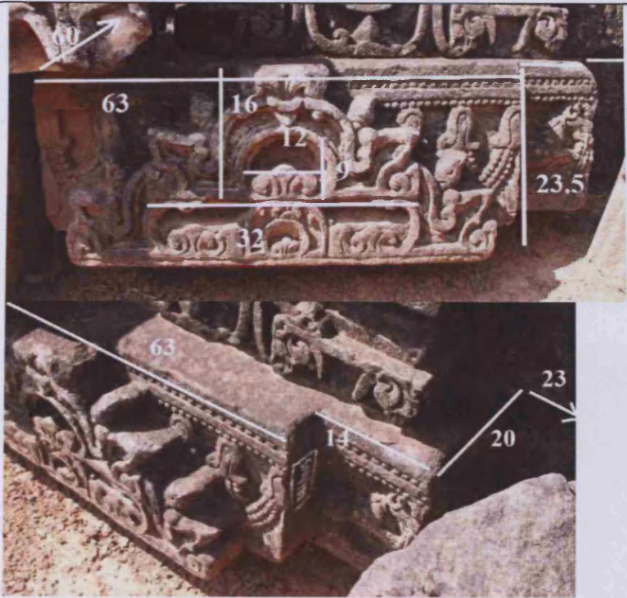
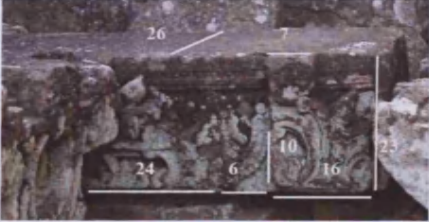


Photo 0753 Location: f-iv	
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Beaded *udgamas*:

SAN 205 Photo 0726 Location: f i	
Photo 089 Location: f-v	
Photo 1179 Location: j-vii	
SAN 273 Photo 1249 Location: j-iv	



Udgamas projecting from courses with *vyāla* festoons:

<p>SAN 199 Photo 0709 Location: f-i</p>	
<p>SAN 142 Photo 1028 Location: f-ii</p>	
<p>Ph 1489 j-v</p>	
<p>Photo 1739</p>	

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Udgamas from maṇḍapa niches:

<p>SAN 218 Photo 1195 Location: j vii</p>	
<p>SAN 344 Photo 1221 Location: j vi</p>	
<p>Photo 1227 Location: j vi</p>	

Other udgamas:

<p>SAN 331 Photo 1501 Location: j v</p>	
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SAN 84
Photo 094
Location: fv



Further research into the design of Temple 45.

Some of the architectural fragments from Temple 45 that do not pertain specifically to the *śikhara* will be introduced here. Firstly, the pieces that may have formed the *śukanāsa* from Temple 45 will be described and a few pictures included showing the initial experiments I made into how the *śukanāsa* could have looked. Following this the three aberrant *laṭā* fragments mentioned in Chapters 5 and 6 that may have come from the base of the *śikhara* will be considered, discussing what they could mean for the superstructures of the niches beneath them. Fragments from the *maṇḍapa* leading up to Temple 45 will then be noted along with the implications they hold for the structure of the entrance hall. Parts of the pillars that would have stood on either side of the *garbhagrha* doorway will then be identified along with a photograph from the British Museum of one of the *Dvārapālas* that would have fronted them. The analyses offered here will not be as detailed as those in the main body of the thesis, intending to provide just some initial ideas to aid further investigations rather than give concrete answers.

Śukanāsa

All *śukanāsas* are conceived of and structured as the roofs of miniature Valabhī shrines, joining up to the temple's *kapilī*, which forms the Valabhī's body, backing into the main spire of the temple. Aspects of the *śukanāsa*'s form and proportions are restricted by its Valabhī identity, and, related to this, there are certain types of architectural elements that the designers use within them. Despite these loose commonalities of form, no two Latina *śukanāsas* are the same and the way they are put together allow the architect and craftsmen to showcase their individual talents and creativity.

Śukanāsas are topped by an ornate and beautifully detailed, monumental *gavākṣa*, usually set above two half *gavākṣas* separated by pilasters, referencing *caitya* façades with side aisles from which these trilobate *gavākṣa* formations derive. These may stand on further layers of half *gavākṣas* separated by pillars. The *caitya* arches are held up at each corner little *āmalaka* shrines, either a singular shrine or a 'two *bhūmi*' piling. The *āmalaka* shrines are similar in form but slightly smaller than the temple spire's *karnakūṭas*, each eave diminishing in size a little bit so that they curve inwards. The space in between the shrines, underneath the monumental *gavākṣas*, is usually filled by little Valabhī shrines, sometimes shown literally, with pillars beside them and *chādyas* protecting them housing celestial beings or deities related to the temple (Śāntinātha Temple, Deogarh) and sometimes represented in a more abstract or stylised way, or abbreviated to lone panels of *udgamas* (Śiva Temple, Terahi). Curving courses that emulate the barrel-roofs of Valabhī shrines stretch backwards from the *śukanāsa*'s crowning *gavākṣas* to meet the Latina spire, further little Valabhī shrines perhaps projecting from these too, and extra *āmalaka* shrines may be set beneath them along the *kapilī* walls.

The elaborate spire that is the *śukanāsa* sits, like the main Latina spire of the temple, just above the level of the *varaṇḍikā*. The *varaṇḍikā* courses often continue on from the walls of the sanctum along the walls of the *kapilī*, underscoring the *śukanāsa* spire as well as the central spire. The base proportions of the *śukanāsa* accord with the dimensions of the temple's vestibule that forms the Valabhī base, and it is usually more than half the height of the main spire of the temple.

Regarding the fragments from Sanchi, there are too many rather than too few pieces that could fit in the *śukanāsa*, and even with this surplus of pieces (and, in some ways, because of it) trying to piece the *śukanāsa* back together, the details of which can be realised in any number of ways, is an inconclusive and problematic operation.

***Caitya* arches**

The monumental *gavākṣas* that may have been used in the *śukanāsa* are shown in Figure 183, the photographs sized so that they reflect their relative proportions (see also the table of measurements above, p 337). The numbers they are given here will be used to differentiate between them in the following discussion. *Caitya* arch '1' is the top half of a monumental *gavākṣa* from Sanchi Museum, carved with beaded edges and a garland-bearing *apsarā* leaping on each of its shoulders. Its top knot is parted to reveal a *kīrttimukha* with chains of beads hanging down from its mouth. The half-*gavākṣa* '2' is similar in form to '1', with a beaded outline and an *apsarā* dancing on its shoulder. This is the right-hand arch of a 'side aisle', separated from its mirror image by a course of stylised pillars that would fit the proportions of the pillars separated by diamond-lotuses of fragment '11'. The base of a substantial beaded half-*gavākṣa*, fragment '3' also survives. Whilst this group of *gavākṣa* fragments could be linked on stylistic terms the proportions of the *gavākṣa* parts do not fit comfortably together. The top half of the ornate *gavākṣa*, fragment '1' could be the *śukanāsa*'s crowning *gavākṣa* sitting on top of the side aisles and pillared hall of a completed fragment '2', except that it is smaller the '2' *gavākṣa*, which makes the pairing unlikely. Could there have once been a crowning *gavākṣa* that was similar to '1' but larger, ready to top the course that includes fragment '2'? A short, wide *udgama* with *apsarās* standing on its arms, SAN 84 (Table of measurements, p.359), fits stylistically with these fragments but seems too small to have a role in the *śukanāsa*.



Figure 183: Monumental *gavākṣas* or *caitya* arches that could have been used in the *śukanāsa* of Temple 45, showing relative sizes.

Fragments '4' and '5' are two left-hand, half-*gavākṣas* that are the same style and size, each fronted by a chequered panel. There is no indication what these would have been followed by, but presumably matching right-hand *gavākṣas* would have once existed.

diamond lotus motifs underscores the line of pilasters, and a frill of half lotus flowers carries along the bottom of the entire course. Three fragmentary *gavākṣa* pieces are carved in the same style and fit with the proportions of '6'. Fragment '7' is the top of a half, left-hand *gavākṣa* with a shell motif between its arms and shoulder, and the foot of another *gavākṣa* or *gavākṣa*-half above. Fragment '8' is the base of a half, right-hand *gavākṣa* with a diamond lotus between the *gavākṣa*'s foot and inner circle, and it shows a frill of lotus flowers beneath the course. This piece could well be the right hand side of fragment '6'. The monumental *gavākṣa*, fragment '10', may well fit with this group also, since it is similar in style and appears to have the remains of a shell between its shoulder and arms. These fragments could all be part of a pyramidal unfurling of *gavākṣas* appropriate for the *śukanāsa*.

Fragment 13 shows part of a large *gavākṣa* that is attached to a solid slab of stone with rough outer edges. Its inner circle has little 'spokes' in the manner of fragment '9', which is the lower, left-hand part of a *gavākṣa* half or whole with a diamond lotus sitting beneath its elbow crook. The lotus links it to fragments '6', '7' and '10', but it has a plain fillet of stone rather than a lotus frill beneath the *gavākṣa* base. Fragment '12' shows the arms and feet of a right hand *gavākṣa* with the legs of an *apsarā* leaping on its shoulder, and this too is part of a larger slab of stone.

Other possible *śukanāsa* elements.

Āmalaka shrines stand at the lower edges of the Valabhī arches. These follow the same form as the spire's *karṇakūṭas*, therefore the narrowest pieces that did not fit into the elevation of the spire from Temple 45 are likely to have been part of the *śukanāsa*. Of these there are eight middle '*karṇakūṭa*' eaves ranging from 69 – 61cm in width, no remaining base eaves, and four *karṇa āmalakas* ranging from 65 – 58cm in width. This suggests that there are at least four *āmalaka* shrines involved in the *śukanāsa*, perhaps two piled shrines at either edge, 69cm wide at their base and 58 cm wide at their top.

Additional elements that might belong to the *śukanāsa* are further Valabhī shrines, either literal in their representation or heavily stylised, perhaps *udgamas* set above proper niches seen at the Śāntinātha Temple at Deogarh, or lone *udgamas* as shown at the Śiva Temple at Terahi. There are eleven fragments of *udgamas* with plain panels of stone behind them. They come in two patterns. One type follows a piled, whole-over-two-halves format that matches the entwined *gavākṣas* from the *pratilatā*. There are three types of this sort of *udgama*: three fragments that end in points from the top of the *udgamas*, three fragments from the base of the *udgamas*, and four fragments from the middle of these elements remain (see table of measured fragments, p. 340). Because there are four middle fragments there may have been three tall *udgamas*, or four slightly shorter *udgamas*. There are also three fragments with a

wider *gavākṣa* pattern that emulates that of the *latā*, both of these pieces from the middle of the *udgama* (see table of measured fragments, p 342). These seem to get narrower towards the top, like a proper *latā*. There is a crowning *udgama* fragment which may have fitted with these with a chequered panel behind it.

The side of the *śukanāsa* would have been styled as a barrel roof, with heavy curved eaves punctuated by little shrines. The fragments shown in Figure 184 could have been a part of this.



Figure 184: Heavy eaves with niches projecting from them, a) Photo 1048 b) Photo 1244.

Reconstructing hypothetical *śukanāsas*.

Attempting to determine the *śukanāsa* for Temple 45 is necessarily a matter of speculation, and will not lead to any certain answers. This is partly because, beyond the formal requirements of its Valabhī identity and the broad rules of proportions that it should follow, all Latina *śukanāsas* are different, and therefore whilst the fragments that could have been part of the *śukanāsa* from Temple 45 are an intriguing collection of pieces, they do not necessitate a particular form.

I have begun exploring the possible arrangement of the *śukanāsa* from Temple 45 by drawing all the pieces to scale and then trying out different possible arrangements of them on an elevation of the front view of Temple 45. The results of some of the different hypothetical arrangements tried for this are set out below, but none of them are entirely satisfactory. One of the problems encountered whilst creating these images was that, if the *śukanāsa* is as wide as the *kapilī*, as would be expected, the monumental *gavākṣas* are not wide enough to create a simple two-tier or three-tier cascading Valabhi arrangement. Instead multiple layers of arches had to be used to create a pyramidal *gavākṣa* formats wide enough to join the *āmalaka* shrines at the base of the *śukanāsa*. This, in turn, left a lot of space to fill beneath the outer valabhi arches. This could either be done by using as many of the different possible *śukanāsa* pieces as possible or by replicating the outer pattern again and again, but both these solutions create *śukanāsas* that, comparative to the rest of the temple, seem too ornate (Figure 185 - Figure 188). Creating a convincing *śukanāsa* to front Temple 45 will therefore have to be left for further research. Making the *śukanāsa* narrower than the *kapilī* led to neater results but this would be extremely unlikely (Figure 189). The images included below are working drawings rather than conclusive results.

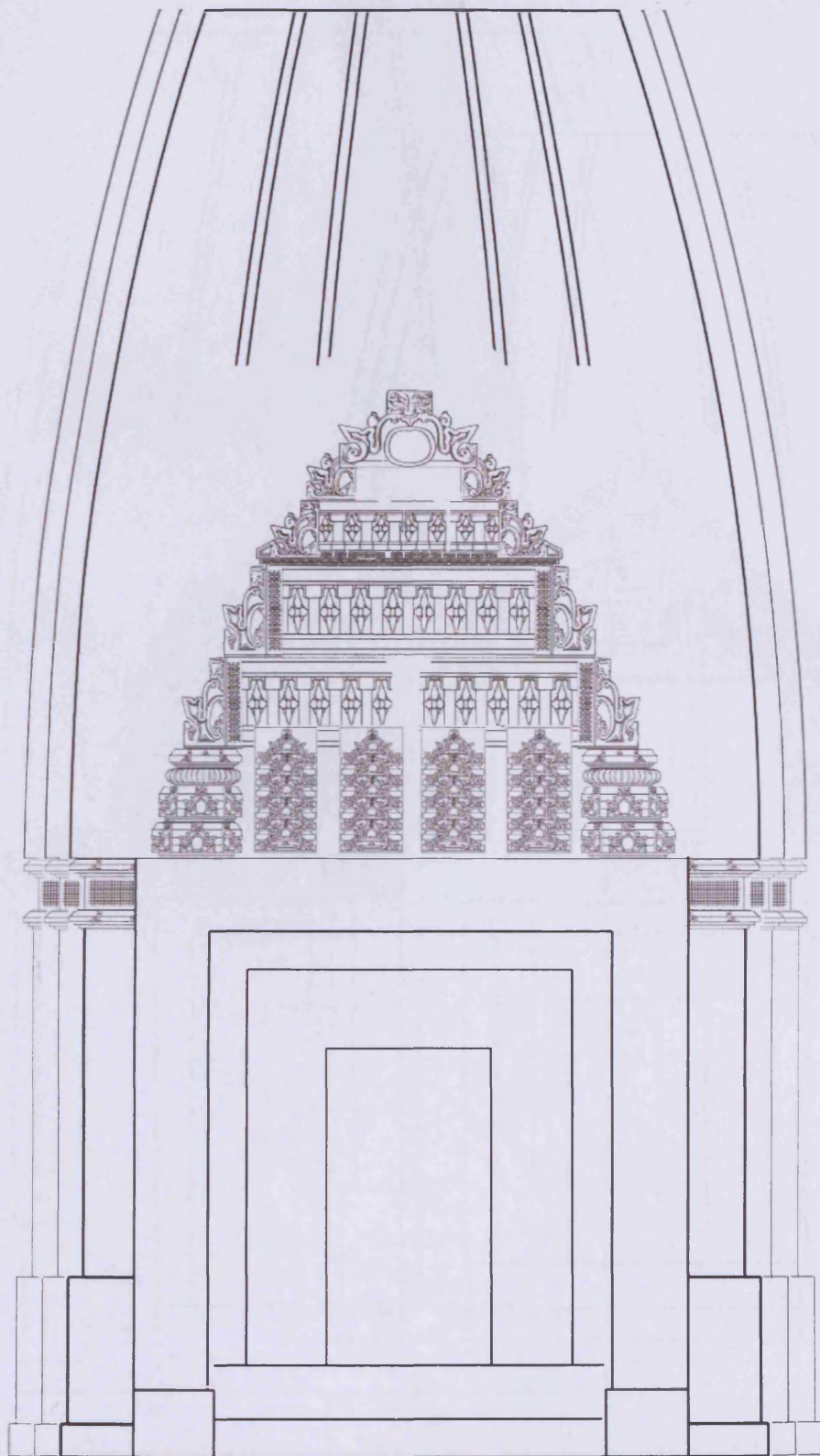


Figure 185: Exploring *sukanāsa* arrangements 1.

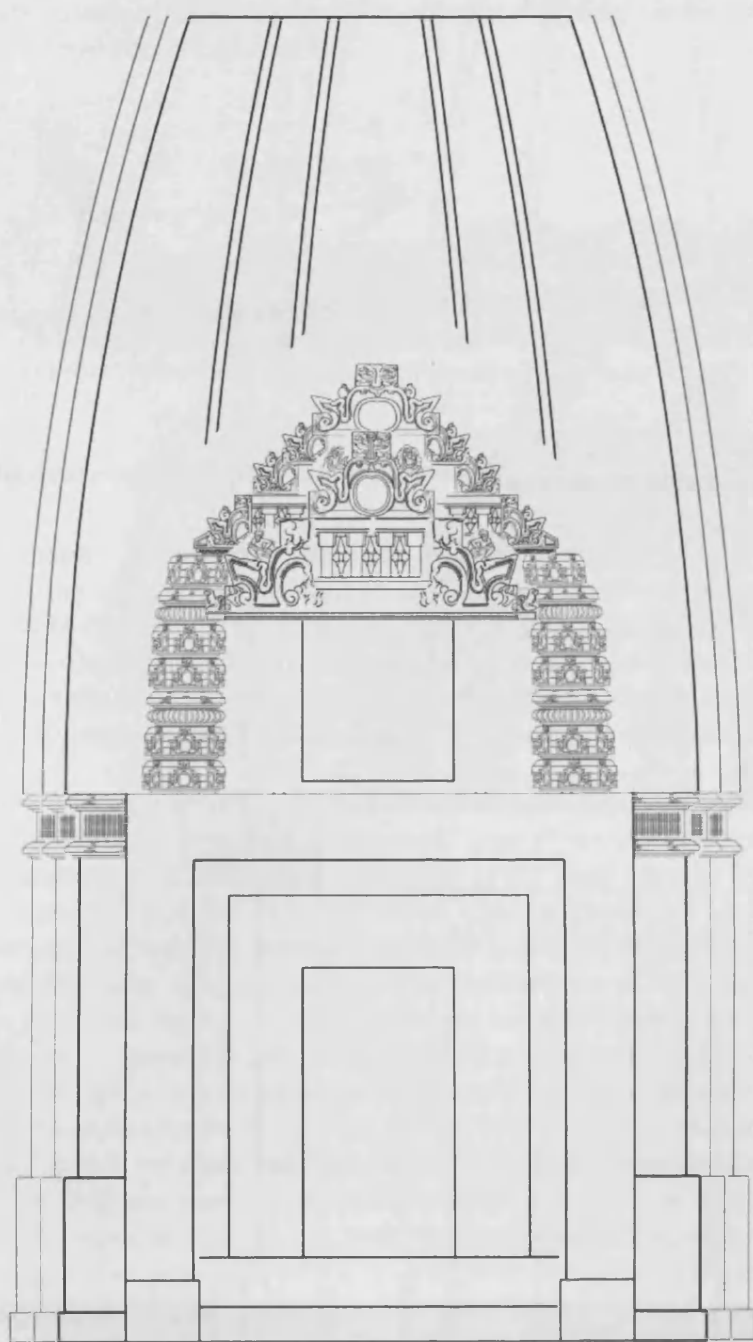


Figure 186: Exploring *sukanāsa* arrangements 2.

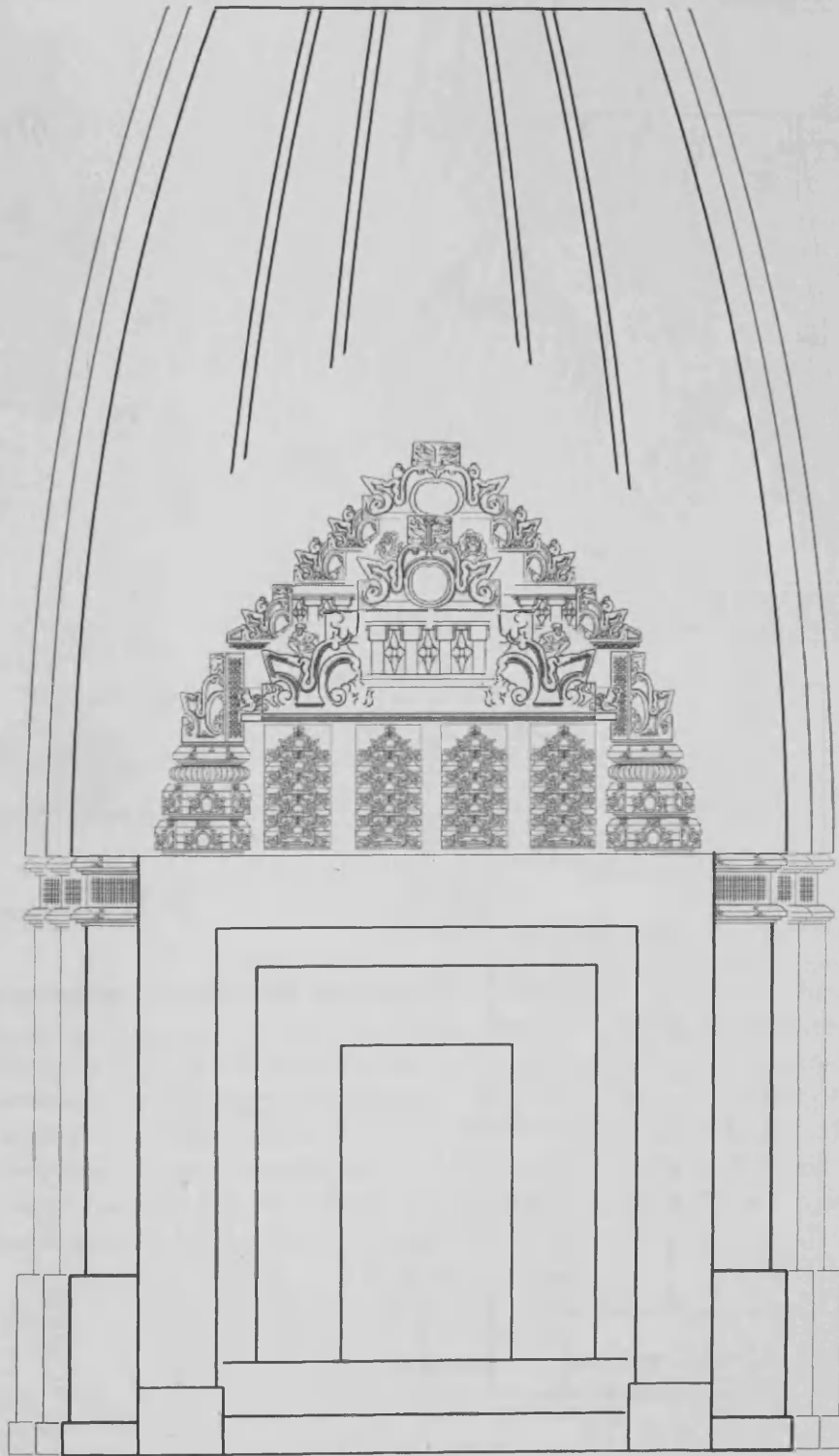


Figure 187: Exploring śukanāsa arrangements 3.

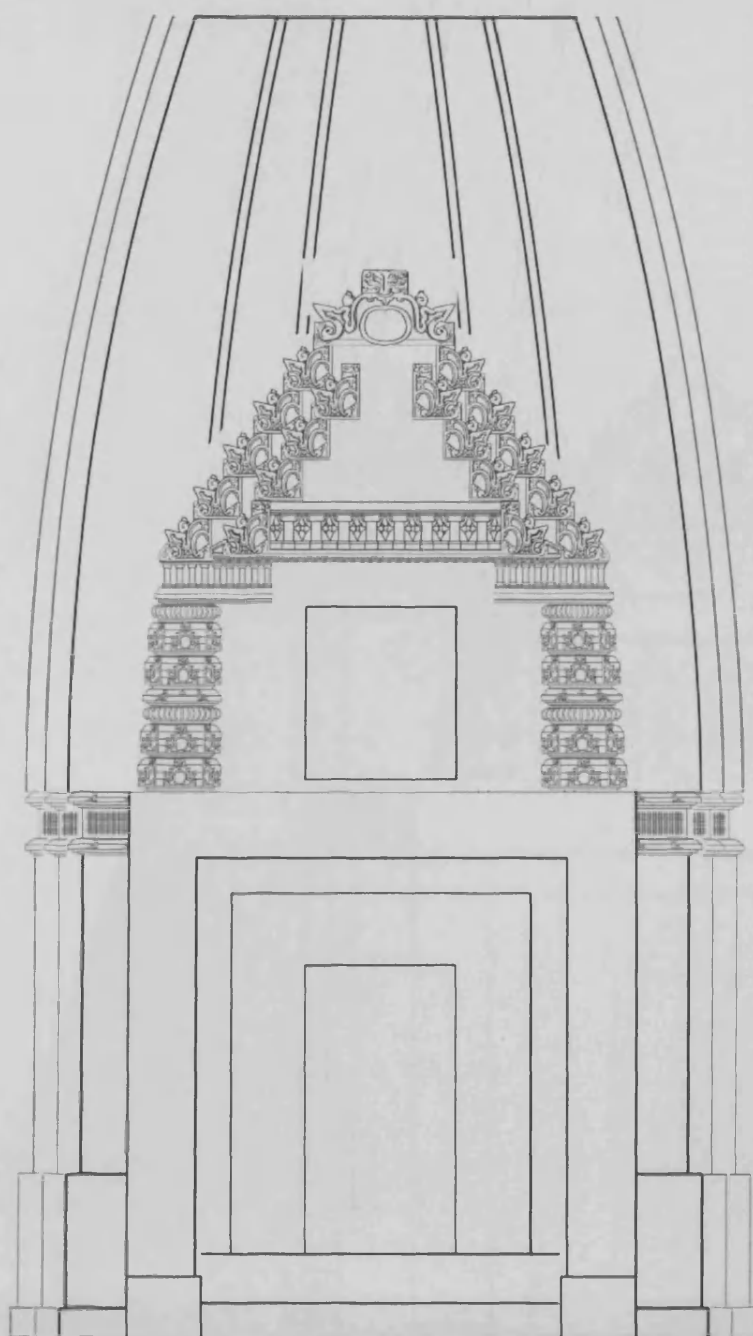


Figure 188: Part of a *śukanāsa* arrangement 4.

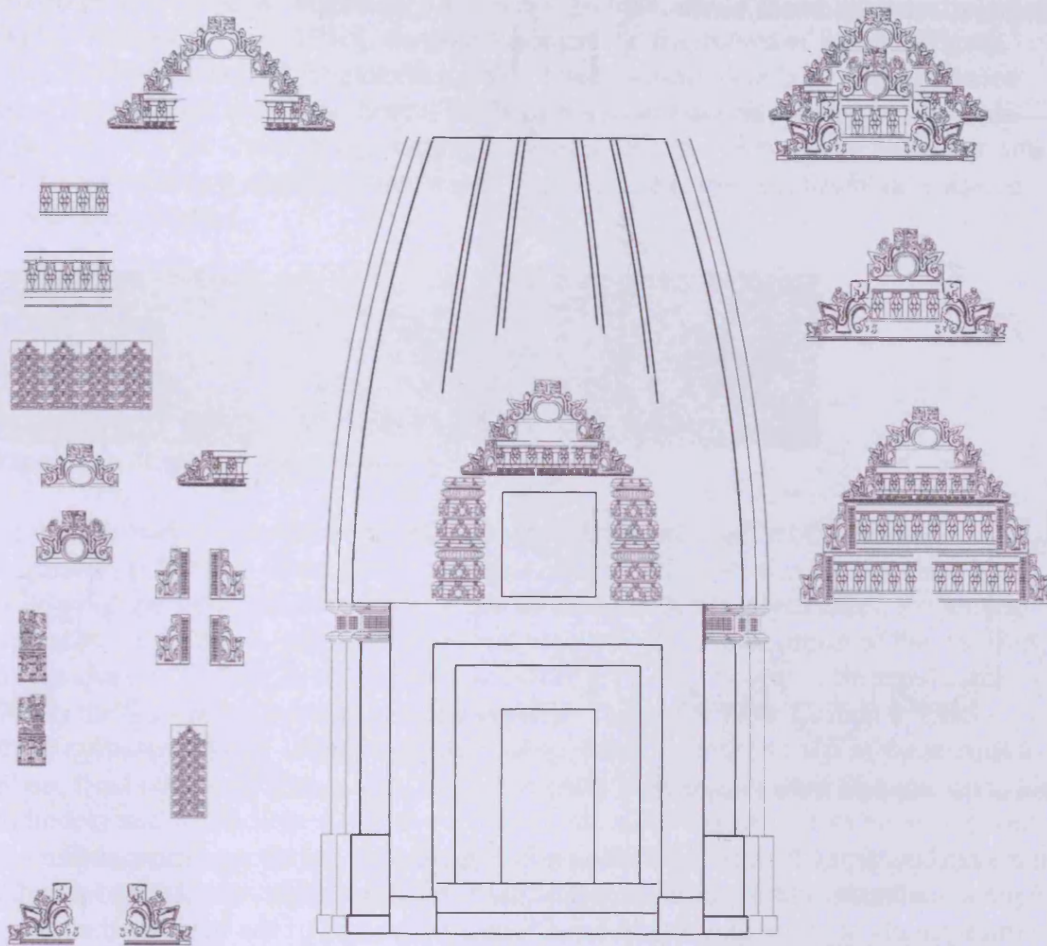


Figure 189: Exploring śukanāsa arrangements 5.

Mandapa

Central Indian Latina temples are usually preceded by simple porches rather than the elaborate *maṇḍapas* of later Śēkharī and Bhūmija temples. Of the temples considered in this project, only the ‘split-Latina’ Gaḍarmal Temple at Badoh has a *maṇḍapa*. Temple 45 is therefore unusual, because the *maṇḍapa* base that stretches in front of it, following a typical medieval *vēḍibandha* format of *khura-khumba-kalaśa-kapotapālī* and boasting pretty *udgama*-topped niches housing playful little triplets and couples, and numerous architectural fragments, indicate that, in contrast to its Spartan *garbhagrha* walls, it had an ornate open *maṇḍapa* with benches along its inner, lateral walls.

***Maṇḍapa* pilasters, seats and seat backs.**

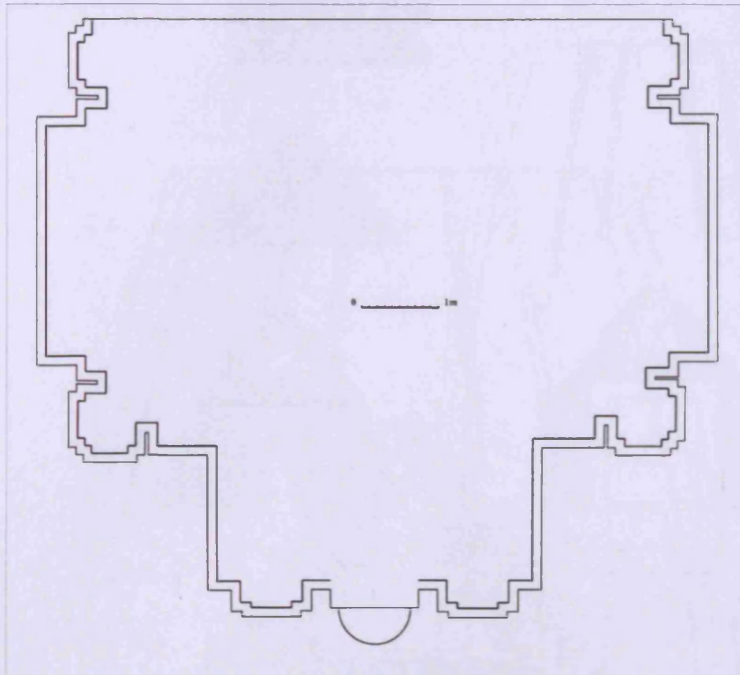


Figure 190: Plan of the *maṇḍapa* from Temple 45.

The plan of the *maṇḍapa* from Temple 45 is shown in Figure 190. Surviving amongst the fragments are pilasters that would have sat on top of the final fillet of the *maṇḍapa* base and supported the thick panels of stone that would have formed the seats of the benches that ran along the interior walls of the entrance hall (Figure 191a, table of measured fragments, p.346). These are rectangular, about 72cm tall, between 27 – 36cm wide, and about 27 cm deep. Their front faces are decorated with a vase-of-plenty design at the base of the pilasters, followed by a plain panel of stone, followed by a large half lotus motif. On the pilasters that would have appeared in the middle of the *maṇḍapa* wall only one face is decorated, and on the pieces from the *maṇḍapa* corners two perpendicular sides bear the pattern. Shallower panels of stone would be expected to appear in between these, perhaps also decoratively carved, but none of these were identified from amongst the fragments at Sanchi. Figure 191c shows slightly different pilasters with panels in between them holding up the seat bases at Temple 2 at Badoh Pathari (10th century).



Figure 191: a) & b) *Maṇḍapa* pilasters from Temple 45, c) similar pillars holding up the seat base from the *maṇḍapa* at Temple 2, Badoh Pathari (10th century) (Photograph courtesy A.I.I.S.)

Broad panels of stone, edged by a lotus design identical to those from Temple 2 at Badoh Pathari (Figure 191c), survive amongst the fragments at Sanchi (Figure 192, table of measured fragments p.348). These would have been the seat bases from the benches along the lateral walls of the *maṇḍapa*, supported by the little pilasters with the lotus design facing outwards. Into the rectangular holes cut into their tops, slanting slightly downwards into the stone, the seat backs or *kakṣāna* would have slotted.



Figure 192: *Maṇḍapa* 'bench' bases.

Eight fragments from the *kakṣāna* survive (Figure 193, table of measured fragments p.349). A chain of lotuses runs along a horizontal course at their base, following the same pattern as the edges of the benches beneath them. Projecting upwards out of these, slanting backwards slightly in consideration of the comfort of the sitter, is a plain fillet of stone followed by a succession of little cylinders. When the fragments were connected together they may have formed a 'fillet – three cylinder – fillet – three cylinder' succession. Across the top of these runs a plain, final course of stone, also angled slightly outwards in line with the cylinders and fillets beneath them. Little rectangular tongues of stone project out from the base course of lotus petals directly underneath the rectangular fillet of the seat back, ready to be fitted into the holes carved into the seat bases.



Figure 193: *Maṇḍapa* seat backs.

***Maṇḍapa* roof.**

The courses of stone with diamond lotus and pillar designs discussed in Chapter 5 with reference to the *varaṇḍikā* from Temple 45 are likely to have come from the roof of the *maṇḍapa*. These courses come in three sizes. The medium-sized courses with a recessed fillet decorated with lotus and pillar designs set under a substantial eave may well have appeared at the corners of the *maṇḍapa*, as indicated by their 'three-tiered' stepped outlines that fit with the corner projections from the *maṇḍapa* base (Figure 190, table of measured fragments p.352). Conveniently, one piece is currently situated above two corner fragments from the *maṇḍapa* base, showing just how closely their shapes parallel each other (Figure 194b).

The courses with the widest diamond lotus and pillar patterns have eaves have both top and bottom eaves, eaves stepping in and out in conjunction with the designs in between them (Figure 194c, table of measured fragments p.351). The lotus designs of some of these fragments are pierced through. These appear to have been straight courses without the stepped plans of the medium-sized forms. Could they have run along the straight, lateral sides of the *maṇḍapa* roof, directly above the benches, their pierced lotus designs silhouetted as the sun shone through them?

Given the fact that the slimmest of these types of courses have rough edges rather than decorative eaves, perhaps these sections of stone were used on the inside of the roof of the entrance hall (Figure 194a, table of measured fragments p.354).



Figure 194: a) SAN 144, b) SAN 173, c) SAN 299.

Three remaining faceted pillars that survive amongst the fragments could have stood on the *maṇḍapa* seats at the hallway's corners, helping to hold the roof aloft (Figure 195). An early photograph from the British Library shows two of them standing in front of the *maṇḍapa* along with other fragments from Temple 45.²¹²

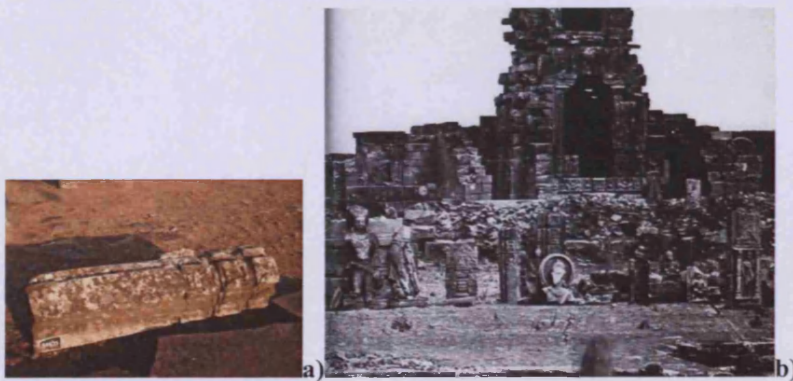


Figure 195: a) SAN 71, b) Early photograph of Temple 45 from the British Library, published in John Irwin, 'The Sanchi Torso', *Victoria and Albert Museum Year Book*, Vol 3, (London: Phaidon, 1973).

²¹² Photograph 1000/15 (256) from the British Library shows about six of these types pillars lined up in front of Temple 45.

Door-side pillars and second *Dvārapālas*.

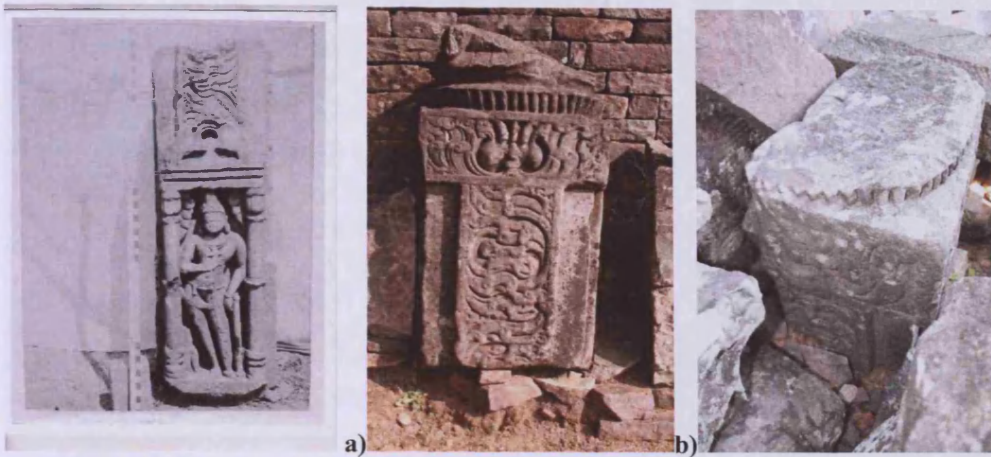


Figure 196: a) Photograph from the British Library showing door guardian from Temple 45, b) SAN 212, c) Photograph 1055.

In the right-hand of the photograph in Figure 195 a small figure in a pillared niche can just be made out. Figure 196 shows a close up of this fragment. I think this was one of two door guardians who would have joined the celestial congregation on Temple 45's sanctum doorway, standing at the edges of the entrance above the square pillar base, covering the plain stonework from the front of the *kapilī* walls that is visible today. The door sentry stands in a shrine made from cylindrical pillars topped by an *udgama*, and above this rises a column of aquatic swirls, set in from the edges of the pillar. The design and proportions of this fit with two pillar fragments found amongst the remains of Temple 45 bearing *kīrttimukha* faces spouting forth a 'T-shape' of aquatic swirls. A ribbed disc is set above the *kīrttimukha*, which would have probably been followed by a few further sections of pillar design. These could well have been completed by brackets which would have held up a portion of the *maṇḍapa* roof.

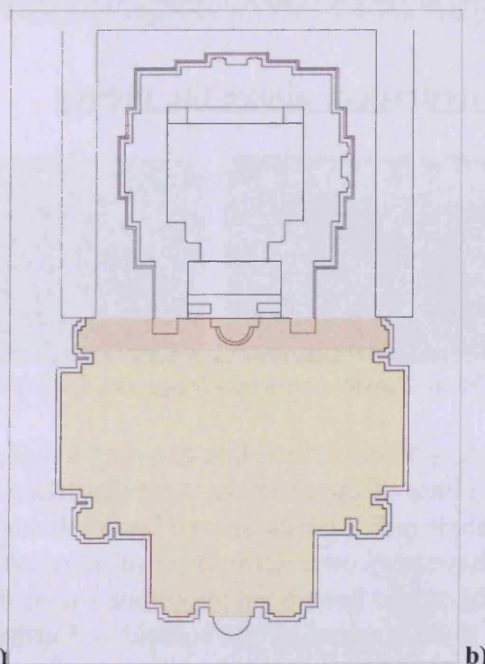


Figure 197: a) Temple 45, b) The shaded part of the plan represents the *maṇḍapa*/area covered by *maṇḍapa* roof. The orange-shaded section of this shows where one of the roof beams would have crossed, connecting the pillars from the corners of the *maṇḍapa* to the pillars on either side of the sanctum doorway.

The circumambulatory passage around the temple would have remained uncovered since the *varaṇḍikā* is too high above the side cells' walls to allow them to be joined by a flat roof, and it is highly unlikely that a steeply angled, sloping roof would have been used to cover the walkway (Figure 197). I think it likely, therefore, that the *maṇḍapa* was probably set in front of the temple but only connected to it by the pillars on either side of the sanctum's doorway as discussed above (Figure 196). These run parallel to the eastern corners of the *maṇḍapa*, therefore one of the roof beams would probably have run across the front of the temple, supported by the pillars on either side of the sanctum doorway and those from the edge of the *maṇḍapa* too. The *maṇḍapa* would have followed a similar 'open' format to, say, the Vishnu Temple 2 and Harihara Temple 2 from Osian (Figure 198).

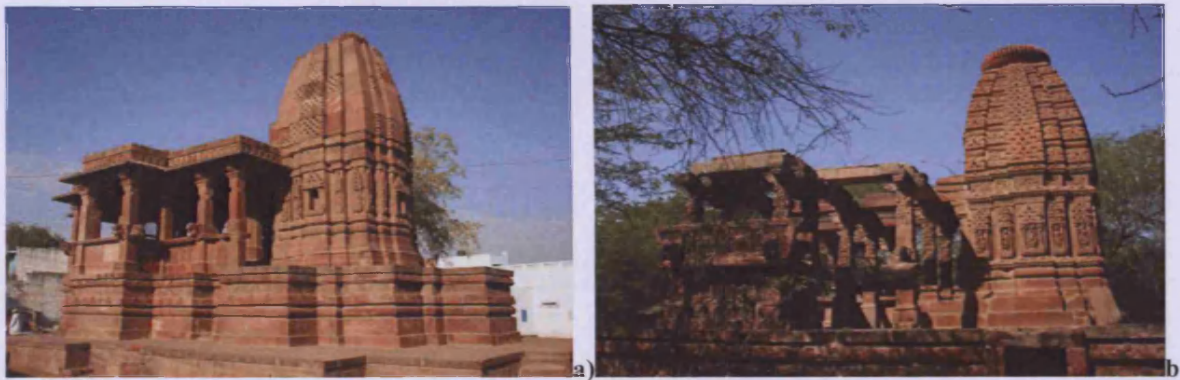


Figure 198: a) Vishnu Temple 2, Osian, b) Harihara Temple 2, Osian. (Osian photographs courtesy Adam Hardy).

Superstructures above the niches



Figure 199: a) Possible base lata fragment, SAN 135, b) SAN 340, c) Photo 089.

In Chapters 5 and 6 three lata fragments that appear to be 'completed' courses from the base of the shikhara were identified (Figure 199a). Plain areas of stone follow their initial *gavākṣas* and 'staple holes' on their tops show that something would have projected out in front of these areas. The section of the *laṭā* course left uncarved would have been about one metre wide in total, and therefore too narrow to be covered by the *śukanāsa*. Furthermore there are three of these

anomalous *laṭā*-base fragments rather than two. I would suggest that these fragments indicate that the top of the niches from Temple 45's *garbhagrha* walls had a towering superstructure in the manner of the Sūrya Temple at Madhkedha or the Śiva Temple at Kodal pictured in Figure 200. The tips of these niche spires would have crossed over the *laṭā*, covering the plain areas of stone shown in the three *laṭā* fragments. These niche superstructures would contrast dramatically with the plain walls of Temple 45, and it would be unusual that these course pilings would not have an awning beneath them, but perhaps this is to do with the two-part history of Temple 45 suggested in the conclusion of Chapter 4. Perhaps the *udgamas* discussed in the context of the *śukanāsa* were a part of this (Figure 199b), crowned by the beaded *udgamas* shown in Figure 199c. This explanation would also account for the fact that the widest, first few rows of *laṭā* courses are missing from amongst the fragments, as is clearly indicated by the elevations shown in Figures 161 – 164 of the thesis. The reason that they are missing is because most of the lower courses never existed: where they would have been was either covered over by the *śukanāsa*, or by the three niche superstructures.

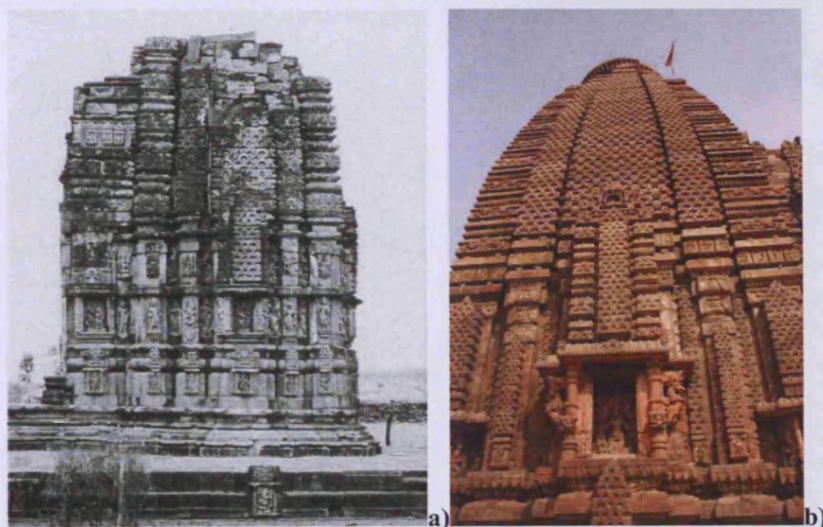


Figure 200: Śiva Temple, Kodal (10th century AD), (Photograph courtesy A.I.I.S.)b) Sūrya Temple, Madhkedha (850 – 875 AD).

