
A dissertation submitted to Cardiff University in fulfilment of the requirements for the degree of Doctor of Philosophy

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2010
DECLARATION

This thesis is the result of my own independent work, except where otherwise stated. Other sources are acknowledged by explicit references.

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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 Vastusāstras, 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 Vastusāstras may have played in the practices of early temple architects. Vastusāstric 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 Dipārava 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

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 ‘lata’ 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 Samarāṅgana Sūtradhāra, written in the 11th century AD, the
Aparājitapraccā, written in the 13th century AD, and the Dīpārṇava written at some point after the 15th century
AD: M. A. Dhaky, ‘The Vastuśāstras of Western India’, eds V M Kulkarni, Devaṅgana Desai, Journal of the
Asian Society of Bombay Vol 71, (India: Asiatic Society of Bombay, 1997), pp. 65 – 84; Lal Mani Dubey,
Apparajitapraccā – a critical study (Encyclopaedic Manual on Art and Architecture) (Allahabad: Lakshmi
Publications: 1987); Stella Kramrisch, The Hindu Temple, (Calcutta: 1946); R P Kulkarni, Prāśāda – Śikhara
of ‘The Indian Temple: Production, Place and Patronage’ project (2006 – 2009); Sudarshan Kumar Sharma,
Samarāṅgana Sūtradhāra of Bhojadeva: (An introduction, Sanskrit text, English Translation and Notes, (New
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. 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, and Sandrine Gill discussed the style of a few of the fragments in her appraisal of Sanchi's sculptures. 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, 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 Vastuśāstrās. The fact that the reading of these texts has not offered up clear and uncontested explanations of Latina

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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 Bijā 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

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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 Bijā 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, and Sandrine Gill's doctoral thesis on the site's architecture and sculpture.

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.

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10 Sandrine Gill, op. cit., Part II, A & B
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 Dāhaladeśa, to the south west lay the region of Avanti, and above it, in the area around present-day Gwalior, lay the region known as Gopakṣetra. Madhyadeśa cut across present-day Uttar Pradesh to Gopakṣetra’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

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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.](image)

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 7\(^{th}\) –
11\(^{th}\) century temples or temple complexes from Central India.

\(^{13}\) [http://dsal.uchicago.edu/images/aiis/](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 types 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

\[15 \text{ For explanation of 'mainstream' temple types, see Chapter 2, 'Introduction'.} \]
east of Sanchi, was set at the cross-roads of trade routes that ran down across Central India from Madhyadesa (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. 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. The sites visited are as follows (See also the maps in the Appendix, Figure 181 & Figure 182):


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)
Kanakāli-Dēvi Temple, Tīgawa, Madhya Pradesh (5th century AD)
Viṣṇu Temple, Deogarh, Uttar Pradesh (c 500 AD)
Muṇḍesvari 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)
Caturbhuja Temple, Gwalior, Madhya Pradesh
Śūrya Temple, Umri, Madhya Pradesh (825 – 850 AD)
Śūrya 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 Bir Temple, Kuchdon, Madhya Pradesh (750 – 775 AD)
Unidentified Śiva temple remains, Marhia, Madhya pradesh (6th century)
Kālī Temple, Mahua, Madhya Pradesh (c. 800 AD)
‘Maṇḍapikā’ Śiva Temple, Mahua, Madhya Pradesh, (650 – 675 AD)
Mālādvī Temple, Gyarspur, Madhya Pradesh, (850 – 875 AD)
Bājra Maṭh, Gyarspur, Madhya Pradesh, (10th century)
Mōhajamāṭā Temple, Terahi, Madhya Pradesh (10th century AD)
Viṣṇu Temple, Gyarspur, Madhya Pradesh (900 – 925 AD)
Śiva Temple, Gyarspur, Madhya Pradesh, (c 982 AD)
Śiva Temples and monastery, Survaya, Madhya Pradesh (10th century)
Udayesvara 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).
Bija Mandal, Vidisha, Madhya Pradesh (11\textsuperscript{th} century)

Six temple sites at Chandpur, Madhya Pradesh, (9\textsuperscript{th} - 11\textsuperscript{th} 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 \textit{Encyclopaedia of Indian Temple Architecture}.

\textbf{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 \textit{Vastus\=astras}. The way these were tested was by creating a series of Latina elevations from descriptions of spires from translations of the \textit{Apar\=ajitap\=rcch\=a}, the \textit{Samar\=anga S\=utradh\=ara} and the \textit{Dip\=arnava} (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 \textit{Dip\=arnava} 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 Vastuśātra called the Dīpārṇava as translated by R P Kulkarni in Prāśāda – Śikhara
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

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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, Phāṁśanā temples have stepped, pyramidal superstructures, and Latina temples have elegant, curving spires (Figure 5).
Figure 5: a) a Valabhi temple: the Teli-kā-mandir, Gwalior (c. 750 AD) (Photograph courtesy A.I.I.S), b) a Phanisanā temple: the Cqḍāl 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.’ 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 (vēḍībandha) continuing up through the temple’s inset walls, stepping out again at the temple’s varāṇḍikā and coursing up through the spire (sikhara) 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, and has also relied upon photographs from, in particular, the Encyclopaedia of North Indian Temple Architecture volumes, 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, 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 Śekharī temple in the 10th century AD and the Bhūmiya 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.'

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. 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. 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

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6 Mitter, p.105.
contents chapter by chapter, bolstering the data through comparative analysis of the different *silpa* 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

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9 James Fergusson, p x – xi.
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 Dravidian (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, Śekharī 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 sikhara 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.


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.’ 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’ viewpoint, 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.’

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

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). In addition, he countered Fergusson and others’ continual classification of temples in terms of their religious affiliations rather than their architectural types. 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 śūtras 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.

Coomarsamy’s mantle was taken up in the mid-20th century by Stella Kramrisch in The Hindu Temple, 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, Purānic, 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 garbhagṛha], 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 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 20\(^{\text{th}}\) 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.

from the šāstras 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 brahmins, 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 20\textsuperscript{th} 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 \textit{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:

\begin{quote}
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.\(^{25}\)
\end{quote}

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:

\begin{quote}
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
\end{quote}


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.  

Michael Meister’s articles about North Indian temple architecture should also be noted here. 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 Vastusāstric 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, 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.

26 M A Dhaky, p.149.
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.\textsuperscript{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 Valabhi 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 11\textsuperscript{th} 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.\textsuperscript{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-facted 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 \textit{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.\textsuperscript{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.\textsuperscript{33} In addition to this there have been several projects that have involved multidisciplinary analyses of areas, such as


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

\textsuperscript{33} Anne Casile, \textit{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 Udayesvara 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 Dravidian 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 Bharut, 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 tōranas (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.’

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

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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 Valabhi 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).

[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 Valabhi 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 Valabhi patterns have been gestating in a Phāṃsanā matrix, an inconspicuous but unmistakable Phāṃsanā background of curved or triangular eaves is nearly always given to Valabhi aedicules.38

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

Figure 8: a) Valabhi shrine, Nalanda, Bihar (Late 6th century AD), (Photograph courtesy A.I.I.S), b) phāṇīśana/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 Nāgar 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 lata’s unfolding gavākṣa forms. 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. 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 Nāgar 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

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39 Adam Hardy, Temple Architecture, p.69.
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 prāśāda. These range from more literal shrine types adorning the temple wall, housing emanations of the primary god or related deities, to the ‘abbreviated aedicules’ or gavākṣas adorning the Latina sikhara whose stylised forms imply the possibility of a heavenly resident.

From shrine to temple

Figure 9: a) Four diminutive Phāṁsanā 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 Phāṁsanā 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). Phāṁsanā 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.
As Valabhi shrines developed into full-scale Valabhi Temples they maintained their barrelroofed 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 Valabhi cousins. The Lomas 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 2rd century BC - 5th century AD become increasingly stylised. By the time of the Teli-kā-mandir’s construction at Gwalior in the 8th century AD, the Valabhi 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 Valabhi temple did not gain the same popularity as the Latina, it lives on in the form of the fronton or sukanāsa 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 Valabhi shrine superstructures press out from the eaves of Phāṃsanā shrines, and little āmalaka shrines not only crown the Phāṃsanā 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).

As the Nāgara urge to proliferate continues to work on these diminutive superstructures, the Valabhi 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 sikhara 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

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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 bālapaṃjaras (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 karnakūṭas, pushing the Latina’s lata and pratilata 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) Udayēśvara Temple, Udayapur (c. 1059 AD).](image)

**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’,

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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.43

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 *vēdibandhas* the temples multi-occupancy is shown literally, by the 10th century the walls becoming decidedly crowded (Figure 14b), whereas in the *bālapañjaras* (stylised Valabhi shrine) or *gavākṣyas* 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).

The downwards and outwards movement of manifestation by which Nāgara temple forms proliferate, and the way gavākṣas cascade down lataī 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 vēṭibandhas 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 focusing in on the parts that make them up.
a)
b)
c)
d)
Figure 15: Central Indian Latina Temples through the ages: a) Mahua, Śiva Temple, c 675 AD b) Naresara, Prtesvara 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, Khirnivāla 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 *vedibandha* 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 *vedibandha* 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 *vedibandha* 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 *sikhara* high above it and, as will be discussed in Chapter 5, are crucial in determining the spire’s height and curvature.
Latina temple plans are quadrangular in essence. The sacred core of the temple, the *garbhagriha*, 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 *vedibandha*, step out a little bit further, and the *vedibandhas* 'hoof moulding' or *khura* and the plinth on which it may stand, its *pitha*, 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 *divi-anta* (with two planes of offsets, meaning with three projections in total, see Figure 16a & b and Figure 15a – c) or *tri-anta* (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 kapillī, 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 Mahādeva 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). 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 karna projections, whereas bhadas proper will be wider than the karna 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)
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 karnas, 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 karna shrines. Whilst temple bodies are stepped, the spire has a recess occupied by bālapaṇjaras between the karna and the latā in dvi-āṅga temples, and between the karna and the vēnukōsa in tri-āṅga temples, meaning that the plans of the vēdībandha and the base of the sikhara do not match exactly. In these instances the width of the sikhara’s karna is less than that of the temple body and the recess that follows it sits above the inner side of the body’s karna such that the edge of the sikhara’s vēnukōsa/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 karna, pratiratha and bhadra of Latina temples in Central India emerge further from the temple body and become fully articulated projections, creating recesses or salīnantaras between the different planes of the walls (see Figure 16c and d). The most popular temple plans in this era are tri-āṅga, the clearly defined projections eliminating the dvi-āṅga/tri-āṅga/upabhadra confusion of the earlier offset temples (although the Sūrya temple at Umri is still called tri-āṅga by the Encyclopaedia). At this point, in conjunction with the replacement of the spire’s second vēnukōsa with pratilatās of knitted gavākṣas, the plans of Latina sikharas also become fully
articulated and lose their bālapaṇjara (this is with the exception of the Śiva temple at Terahi, 800 – 25AD, which is articulated but keeps a double vēnukōsa, and the Śāntinātha Temple at Deogarh, 775 - 850 AD which keeps its bālapaṇjara but has a pratilata instead of a double vēnukōsa). The sikhara plan now follows that of the vē dibandha, 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 kapili (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 mandapa 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 sikhara, in the manner of the Jarāi-kā-māth temple at Barwasagar (c 900AD). The Mālādēvi Temple at Gyaraspur (850-875AD) is sāndhāra and has a closed mandapa, 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 Šēkharī temple. Interestingly, the remains from Temple 45 show that it also had an open mandapa 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 Bājrā 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 Brhat Saṁhitā has in the proportioning them. In ‘Māṇḍala and Practice in Nāgara Architecture in North India’, for example, Meister states that ‘The almost universally appropriate plan for the Hindu temple

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.\textsuperscript{48} The square plan with a square sanctum is neither ‘universal’ nor ‘almost universal’ for all Hindu temples across North India from the 5\textsuperscript{th} – 10\textsuperscript{th} 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 Gaḍārmal Temple at Badoh (825 – 800 AD), the Jarāi-kā-maṭh Temple at Barwasagar (c 900 AD), Temple 2 from the Kadwaha Kirnivala Group (10\textsuperscript{th} Century and the Bājrā Maṭh Temple at Gyaraspur (10\textsuperscript{th} C), and more besides.

\textit{Vāstupuruṣamaṇḍalas} are square, sacred diagrams (\textit{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 \textit{maṇḍala}. Both Kramrisch and Meister have argued that this \textit{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 \textit{Vāstupuruṣamaṇḍala} had become an architectural rite without necessarily coinciding with the laying out of the ground plan of the \textit{Prāśāda}.\textsuperscript{49} Several of Meister’s publications, on the other hand, try to prove the practical efficacy of an 8x8 \textit{Vāstupuruṣamaṇḍala} from the \textit{Brhat Samhītā}, an early \textit{vastuśāstra} from the 6\textsuperscript{th} 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 \textit{karna} to \textit{karna} are 2:1:2:1:2. . Meister argues:

\begin{quote}
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.\textsuperscript{50}
\end{quote}

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

\begin{footnotesize}
\textsuperscript{48} Michael Meister, \textit{‘Maṇḍala and Practice’}, p. 205.
\textsuperscript{49} Stella Kramrisch, p.228.
\textsuperscript{50} Michael Meister, \textit{‘Measurement and Proportion in Hindu Temple Architecture’}, p.253.
\end{footnotesize}
discussed above, however, firstly, there is no guarantee that these proportions were created under the orders of the Brhat Samhitā vāstumanḍala, 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 vēdībandha (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 vēdībandha (Figure 16b), as is the case in the later Jarāi-kā-māth from Barwasagar. At Umri half the sanctum width leads to the end of the pitha (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 Vāstupurusaṇaṇḍala 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.’

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’ vēdībandhas, 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.

Basal mouldings, wall and cornice

Vedibandhas

Vedibandhas are temples' basal mouldings, made up of selections of piled courses. Like the varanḍikā, 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 sikhara as the latā, pratilatā and karna'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'. The basic format for the vedibandhas 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 vedibandhas.

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

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52 Adam Hardy, Temple Architecture, p. 144.
Vēdībandhas 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 vēdībandha may be raised up on a pītha or pedestal which, in its simplest form, is a plain slab of stone (Figure 19).

This vēdībandha 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, pīthas 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 jagatis 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).
Above the vedibandha, 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,\textsuperscript{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 karnas, 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 vedibandha.

\textsuperscript{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.
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 *kinkinikājāla*, adorns the top of the *jaṅghā* just beneath the *varanḍikā*. During this period shrines typically emerge from the *karna*, *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 *varanḍikā* (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 *karna* shrines too, are now protected from the sun by a ribbed awning, a *chādyā*, projecting out from under the *kapotālī*. Occasionally square shrine pillars are still used, particularly for the lesser wall shrines on the *karna*, 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 kiññikājāla 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.

![Image of Siva Temple, Terahi (800 – 825 AD), Surya Temple, Madhkedha (850 – 875 AD).](image)

**Figure 22:** a) Śiva Temple, Terahi (800 – 825 AD), b) Śūrya Temple, Madhkedha (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 Śūrya Temple at Madhkheda the bhadra shrines’ pediments, although straight rather than curved, are made up of the elements of a little dvipaṅga Latina śikhara, with a tall, slim latā and a karna of piled karnaṅgas, the whole spire crossing up over the varaṅḍikā 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 kiññikājālas become split because of the projecting facets of the walls, the pattern sometimes becoming more complicated with two overlaid kiññikājālas 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 vēdibandha, 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).

Varanḍikā

Varanḍikā 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 kapotālis decorated by little gavākṣa motifs. The top eave of the varanḍikā underscores the śikhara and acts as the base eave of its initial karna kūṭas, 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 varanḍikā follows the plan of the vēdibandha beneath it even as 7th – 8th century śikhara plans deviate from that of the vēdibandha in order to incorporate their recesses with bālapaṇjaras between the two sets of vēṇukōśa. The varanḍikā cuts straight across the salilāntaras, just as the base eaves of the karna kūṭas above them also do at this stage, creating the platform on which the first bālapaṇjara stands.

Varanḍikās 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 varanḍikā 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 kṛttimukhas (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 varāṇḍikā 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 kapotālis apart, and between them, in their recesses, press little arched doorways in the manner of the Deogarh temple (Figure 24d).

From the beginning of the 8th century the colonnades disappear from most varāṇḍikās, and a typical pattern emerges of kapotāli-tulā-kapotāli: an eave topped by a row of joist ends, decorated by kṛttimukha 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 kapotāli-tulā-kapotāli 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 varāṇḍikās begin to incorporate chequered recessed panels into their kapotāli
and *tulā* patterns (Figure 25). Small shrines and their celestial occupants sometimes stand out from the *varanḍikā* path (Figure 25b).

Like their *vēdibandhas*, Latina *varanḍikās* 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 *vēdibandhas*, *varanḍikās* 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) Gaṅgānātha Temple, Pattadakal, Karnataka (685 – 696 AD), b) Śūrya 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 Śūtradhāra, and, as highlighted by Dhaky, 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**

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

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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 karnakūṭas are thick and heavy, and the āmalakas that crown them
are fat and inflated, their sizes combine into sizable karna kūṭas that lend the spire enough
height to achieve a graceful Latina curve. From the middle eaves of the karnakūṭa 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 karnakūṭa
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-āṅga temples the śikhara’s second projections are usually made up of another
pile of little āmalaka shrines similar in form to the karnakūṭas 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-āṅga
temple, the spire’s outer vēṇukōśa and lata) are separated by wide recesses or salilāntaras.
The karnakūṭas’ base eaves tend to cut straight across this recess and meet the second
vēṇukōśa or lata, acting as the floor-levels for each new bhumi or storey, the varāṇḍikā
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 karna kūṭas, and also, in the recesses, little
Valabhī shrines or bālapaṇjara, standing as tall as the karnakūja’s capping āmalaka beside them, the foundational eave of the next storey resting just above their heads (Figure 27b). A Latina spire and varanda’s plan are closely related to that of the temple’s vēdibandha 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 sikhara’s karna stops short of the vēdibandha’s karna to leave room for the salilāntara, and following this little recess the second vēṇukōṣa or pratilatā steps out again in unison with the vēdibandha’s pratiratha.

There are exceptions to the typical, pre-9th century double venukosha and salilāntara with bālapaṇjara Latina spire combinations. The Rameshvar Temple at Amrol, for example, a tri-āṅga Latina built in the early part of the 8th century, does not have a second venukosha but instead follows its spire’s karnakūṭas and recess with piled courses of large 2/3 gavākṣas, each straddling two fat eaves; neither a vēṇukōṣa nor quite the knitted gavākṣas of a 9th century pratilatā. The Rāmeśvara 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 varandikā and forestalling the lata piling that continues above it (Figure 28b).

Like the karnakūṭas, the base structure of the lata is also more clearly defined in these early Latina sikhara. The substratum of eaves from which the gavākṣas press are much more hefty and visible, and the ‘abbreviated Valabhis’ themselves are larger and come in less complex patterns. This simplicity and weightiness is particularly noticeable in the lataś of the Naresar temples, their unconnected gavākṣa patterns in keeping with the short stockiness of the temples’ overall forms.
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 bālapaṇjara, 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 sikharas (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.

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 karna kūța’s eaves and āmalaka s have become squashed down and slimmer. The śikhara’s recesses with bālapañjaraś still separate the karnas from the spire’s next projection, but the karna kūțas’ 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, karna 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 bālapañjaraś, 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-āṅga and seven bhūmis high, and the Madhkedha temple is tri-āṅga and nine bhūmis high. Their projections are now fully articulated, without salilāntaras and bālapaṇjjaras, and with gavākṣa-laden pratilatās rather than vēnukōśa. The eaves and āmalakas of the karna kūṭas have become wider and flatter, and the earlier ‘whole-over-two-halves’ gavākṣa format has become more elaborate. At Umri the basic karna 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).

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 karna kūṭas to the vēnukōśa 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-math 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-āṅga Latina faces,
the eastern and western faces are made up of two *lata*, each flanked by a set of *pratilata*, with the usual *karna kūtas* at the spire’s corners, the reconstructed eastern face showing the double *lata* poking out from behind the *sukanāsa* (Figure 33a). Analysing the remains of the Gaḍarmal Temple at Badoh Pathari (c. 850 AD) show that in all probability its *sikhara* would have followed a similar format to the Jarāi-kā-māṭh’s spire. An even more energetic attempt to innovate and expand the Latina comes in the form of the Mālādevī Temple at Gyaraspur (850 – 875 AD), a *sāndhāra* temple with a dominant central Latina spire at the corners of four sets of two *kūta stambhas* with Latina superstructures step down (Figure 33b).

Figure 33: a) Mālādevī Temple, Gyaraspur (850 – 875 AD), b) Jarāi-kā-māṭh, Barwasagar (c. 900 AD), c) Śiva Temple, Kadwaha (late 10th century).

In response to the type of architectural experimentation shown at Gyaraspur, the Śēkharī 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 *lata* 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 *lata* 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 *lata*’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 Šekhari 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 vēdi’. 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-aṅga temples continue up and resolve in a point just below the skandha, and in tri-aṅga temples a wide whole-over-two-halves style udgama or large gavākṣa might straddle the tops of the second vēṇukōsa 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 vēṇukōsas are replaced by pratilatās, and the Mālādevī Temple at Gyaraspur 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 Mālādevī Temple, Gyaraspur (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-maṭ Temple at Barwasagar’s sikhara (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, Gyaraspur (early 10th century) c) ornate āmalasāra from a Śiva Temple at Kadwaha (c 10th century AD).](image)

Śukanāśa

A temple’s fronton, set above the vestibule that leads to the temple’s inner sanctum, is figuratively titled the śukanāśa, meaning ‘nose’ or ‘parrots beak’. The śukanāśa with its kapili base takes the form of a Valabhi shrine with a façade made up of caitya arches and a barrel roof leading backwards to meet the temple’s main Latina sikhara.

The dimensions of a śukanāśa’s base are determined by the length and width of the outer walls of the temple’s vestibule, its kapili, and its height usually reaches between ½ - ¾ of the way up the sikhara. The set of architectural elements used in śukanāsas accord with its Valabhi identity. In its simplest forms the śukanāśa may consist of just the shrine type’s key elements and be made up of a single monumental gavaskha or Valabhi arch form (see for example the Krakotakeśvara 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 Valabhi temple’s inner hall, with perhaps a smaller Valabhi 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 śukanāśa 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, kirtimukkhas 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, Nareshar (700 – 725 AD), b) Temple No. 3, Batesara (775 – 800 AD).](image1)

In accordance with the mix of different shrine types involved in the multi-aedicular proliferation of shrine superstructures, Valabhi 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 Valabhi temple’s crowning *cāitya* arches, as shown in the most famous of Valabhi temples, the Tēlī-kā-mandir at Gwalior (c. 750 AD, figure Figure 37b). This Valabhi trend translates to the fronton forms and *śukanāsas* crowning *cāitya* arches are propped up at either end by āmalaka shrines, usually appearing in the same form as the *karna kūṭas* from the Latina spire behind it.
Figure 37: a) relief carving of an elaborate Valabhi shrine outside Cave 10, Ellora (c. 650 AD), b) Telekā-mandir, Gwalior, (c. 750 AD).

How these basic sukanaśa 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 gavākaśas smaller Valabhi shrines often push forward. Sometimes the proliferated Valabhi 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 Valabhi shrines are given awnings, proper pillared doorways and are occupied by deities(Figure 38a). The sides of a temple’s sukanaśa represent the barrel-sides of a Valabhi temple, supported by a base of āmalaka shrines and often with Valabhi shrines projecting out of their curved roofs (Figure 38b)

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

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

**Gavāksas**

Gavāksas are described by Ananda Coomaraswamy as 'One of the commonest and most
distinctive motifs recognizable in Indian architecture from first to last'. The term gavāksa
means literally 'cow's eye'. These delightful little arched forms appear all over Indian
temples and are an integral part of a Latina's make up, punctuating vēdibandha and
varanḍikā eaves, interlinking to create wall and vēdibandha shrines' udgama pediments,
forming the proud, monumental śukanāśa, clustering on the front of the spire's karna kūṭa
eaves and climbing enmeshed down its lata and pratilata, giving the lata its name. In each
of these contexts the gavāksas act as Valabhi superstructures or dormer windows, more or
less literally rendered.

Gavāksas are much more than incidental surface ornament. Firstly, in terms of their style,
gavāksas 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'.

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.

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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
lata's gavākṣas - these related elements are variously termed, translated or envisaged as, caitya arches,
candraśāla (dormer windows), 'cow’s eyes', sunray windows, ray-eyes and sun-arches, each name carrying
with it a symbolic or functional resonance.
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

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 Ši Cave in Bihar (3rd century BC) faithfully replicates its timber counterparts: its gable arches are topped by a finial 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 Valabhi
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, Valabhi 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).
Caitiya doorways, dormer windows and Valabhi 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 caitiya 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 Lomas Ṛṣi 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 Valabhi. This fluid, circular form of the caitiya arch continues in experimental composite Valabhi 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).

From the Gupta period therefore, whilst maintaining clear formalistic connections to their original forms, dormer window and caitiya 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).](image)

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.*

In parts of Gujarat and Rajasthan from the 8th – 10th century, for example, the ‘virile and handsome’ 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.

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62 Adam Hardy, *Temple Architecture*, p.161
During the same time period just north and north east of the Mahā-Gurjara regions the ‘ornate and bewitchingly beautiful’ 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.

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 śukanāsas 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 Valabhi interiors (Figure 46). Like Mahā-Māru examples, the smaller, less showy gavakhas

used in the shikahra’s lātā 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 Rāmeśvara 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 Jarāī-kā-maṭ 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,
squerer gavāksas 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 gavāksas seems partly to do with, as Dhaky puts it, ‘slow gradational changes which the inescapable law of decay imposes on everything’\textsuperscript{65}, but also probably depend on the care that is taken at a particular temple or by particular craftsmen, and gavāka quality varies even on the same temple.

Figure 48: a) Bhadra niche from Sūrya Temple, Madhkedha (850 – 875 AD) b) wall niche from Śiva Temple, Kadwaha, Khirnāvā Group (10th century AD), c) niche udgama from Mālādēvi Temple, Gyaraspur (850 – 875 AD) (Photograph courtesy Adam Hardy), c) gavāka fragments from outside the Yogini Temple near Padhaoli.

From the late 9th – 10th century fat little oniony gavāksa types evolved alongside the balanced curves of the mainstream Nāgara gavāka. This was used as a sort of secondary gavāka form, punctuating vēdibandha and varanḍikā kapotālis 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 gavāka 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) gavāksas from the vēdibandha of Śiva temple at Kadwaha (10th century AD).

\textsuperscript{65} M A Dhaky, ‘The Genesis and Development of Māru-Gurjara temple architecture’, P 114
Unfolding Valabhis

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’ vėṇukōsa 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 sūkanāsas 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) Krakotakēśvara 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, Madhkedha (850 – 875 AD), a) Śiva Temple, Kadwaha, Khirnivāḷā Group (10th century AD) (see Figure 107a for close up of Madhkedha).

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 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

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 Valabhi shrine (see Figure 36a & b, and Figure 54). The antarāla’s outer walls or kapili are treated in the same manner as the temple’s jaṅgha, with a vēdibandha 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 (mukhamanḍapas) 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 hall ed Śekharī 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.
The porch roofs are made up of flat courses run at about the same height as the varāṇḍikā on the temple body, with stone awnings (chādyā) 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, kirttimukha 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 vedibandha. 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 Madhkedha 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 kirttimukha 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 Madhkedha Sūrya temples for example the base and capital of the pillars are square ghaṭapallavas, the pillars’ central shafts are polygonal with 16 facets, kirttimukhas 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 Madhkedha’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 misraka 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.

*Garbhagṛha* 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*.

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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).

*Garbhagṛha* 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

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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 tribhanga 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 stambhasākhās 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) Gaḍārmaḷ, 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 sākhās, the type of sākhā used chosen from a standard set of decorative jamb forms, but combined, ordered, embellished or styled in different ways (Figure 57). The number of sākhās and the complexity of their forms tend to increase over time. The innermost sākhās are usually carved with leafy scrolls or patravalli. 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 sākhā 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 sākhās: affectionate mithuna couples or triplets, or sometimes prancing ganas, 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 ganas 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 Śūrya Temple at Umri triplets stand on little pillared compartments housing ganas, some of which play instruments for the dancing groups above them (Figure 57c). On top of each of these crowded mithunasākhās usually stand a god, demi-god or saint associated with the temple’s main deity. The doorway may have a penultimate sākhā 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).](image)

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 patravalli and nāgasākhās 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 vidyādevis, and the stambhasākhā often connects to a lintel of deities related to the temple’s god of perhaps the Navagrahas and Saptamātrkās. 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 Valabhi and eaves form dominates the doorway, the shrine forms correlating with the initial courses of its sikhara, at Terahi the architrave is topped by five little Valabhi aedicules separated by further little
recessed Valabhi 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 apsarás, 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 kirttimukha 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).

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, *Dvārapālās* gain a greater prominence on the door, perhaps covered by what look like arched *rōranas* 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) Jārāi-kā-māṭh Temple, Barwasagar (c. 900 AD).

**Garbhagṛha**

The ground plan of the temple in *vāṣṭumāṇḍala* or *vāṣṭupuruṣamāṇḍala* 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 *garbha-grha*, 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 santum’s walls are made of plain masonry with square ‘*rucaka*’ pillars with *kirttimukha* 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

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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-āṅga Latina spires built during the 7th – 8th centuries AD have double vēnuṅkōśa with salilāntaras between them bearing bālapaṇjaras, except, that is, for the spire of the Rāmēśvara Temple at Amrol (c. 750 AD), which has salilāntaras and bālapaṇjaras that are followed by, instead of a second vēnuṅkōśa, an unusual pratilatā made up of large 2/3 gavākṣa forms pressing from thick eaves. Double vēnuṅkōśa are always separated by a wide recess with bālapaṇjaras 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 vēnuṅkōśa but no salilāntaras or bālapaṇjaras, 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 vēnuṅkōśas with pratilatās made up of eaves covered in intertwined gavākṣas, they lose their salilāntaras and bālapaṇjaras. This is usually true, but the Śāntinātha Temple at Deogarh (c. 800 AD) has both bālapaṇjaras following its outer vēnuṅkōśa 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-āṅga vēdībandha plan and a tri-āṅga spire.\footnote{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 garbhagṛha 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) Bājārā Māṭh, Gyaraspur (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 Vastusāstraic ‘rules’ of design. There is maybe no such thing as an ‘ordinary temple mechanically built on Vastushasra dictums’ as described by Devanangana Desai in reference to the exceptional

800 AD dating by the Encyclopaedia (reference). The vēdi-bandha 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. The Vastuśaśāstras 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.

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 Valabhi and Phāṃsānā 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

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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-Bhûmijas, 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.  

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 pratilatas proposed.

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 *mandapa* seat back from the Harihara Temple 1 in Osian. In Chapter 6 the *Dīpārnava* elevations ratified in this chapter will be cross-referenced with the dimensions of Temple 45’s garbhgrha 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**

Śāstraś, meaning ‘rules’, are encyclopaedic treatises containing ‘authentic knowledge’ 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’, 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. Bruno Dagens concurs with this widening of the Vastusāstric 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 āstric 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.

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

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4 Pollock, p.18.
5 Pollock, p.17.
pretension of adoption) as widely accepted by normative models. 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". 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 Śūtradhāra, 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 Śūtradhāra, ascribed (or perhaps, more literally, dedicated) to the Paramara king Bhoja (11th century AD), and the Aparājitapṛcchā (13th century AD). Dhaky explains how even these formidable texts may be manifestly derivative of their śāstric predecessors: the Aparājitapṛcchā, 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 Śūtradhāra, as well as the lesser known Jayapṛcchā and Rekhārṇava texts.

7 Pollock, p.19.
9 M. A. Dhaky, p. 69.
There are several reasons why these texts have not offered up any easy answers to the question of how a Latina šikhara was designed and built. For one thing, both scholars and contemporary Indian architects\(^\text{10}\) have had trouble understanding exactly to what the Sanskrit architectural terminology applies. The Vastusāstras 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 \textit{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.\(^\text{11}\) 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:

\ldots 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.\(^\text{12}\)

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

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\(^{10}\) 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 šēkhari 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, \textit{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 Kulkami’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-Vidya* (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 Dallapicolla 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 Kulkami, p. x.
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),
20 A Dallapiccola, p. xvi.
In the same publication John Mosteller discusses whether the Śāstras dealing with iconometry should be identified as theory of practice, 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.  

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.

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 practices 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


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
11\(^{th}\) 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:

\(\ldots\) 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: ‘\ldots built by the Candella King
Dhaṅgadeva in A.D. 1002, records the name of its architect (Śūtradhāra) Chiccha, who is described as well-
versed in Viśvakarmā Śāstra.’ Devangana Desai, ‘The location of sculptures in the architectural scheme of the
Kandariya Mahādeva Temple of Khajuraho Śāstra and practice.’, Anna L Dallapiccola (ed), (Stuttgart: Steiner
\(^{24}\) 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!)

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

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25 Bruno Dagens, p152.
their message. This chapter will begin by giving a précis of the theories of Latina sikhara design proposed by Stella Kranrisch, 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.’ She states that the height and the width of the spire are ‘givens’ and therefore not included in the text, and mentions a Samarânga Sûtradhâra 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 Agnipurâna and Samarânga Sûtradhâra 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 sikhara is created by connecting the points of intersection of these lines.

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One of the problems with Kramrisch’s interpretation of the texts is that they are too limited and imprecise to result in the sikhara 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 ‘triguna sūtra’ sikhara’s outline only cuts through one intersection exactly, rather than connecting all of them as she seems to suggest, and in the ‘sadguna 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 ‘triguna 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 methods, therefore dispensing with the need for a diagram altogether. Contrary to Dagens observation that the Vastuśāstras are 'written transcriptions of graphic representations' and the multiple injunctions to 'draw' in Mattia Salvini's translation of the Samarāṅgaṇa Śūtradhāra, 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.' 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. 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 śūtradhāra or stringholder. The śūtradhāra, 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.

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. Like Kramrisch, he has to play the explanatorily useless 'now forgotten, but previously well known' card:

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30 Patrick George, p 132.
31 Bruno Dagens, p. 152.
32 Patrick George, p. 132.
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 Prasada – Śikhara (Temple – Roof) in 2000,37 gathering together and translating references to śikhara design from numerous Vastuśāstras, conferring with present-day sthapatis 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, Vāstuvidyā, modified at places and mixed with excerpts from the Vastuśāstra, the Aparājitapṛcchā, the Kṣetraṇava, and even the Vṛksāṇava.’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 Aparājitapṛcchā draws significantly from the Samarāṅgana 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.
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 *Aparājitaprocchā* 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. 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**

![Diagram showing how a Latina spire elevation is created, using one set of proportions from the *Dīpārṇava*.](image)

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

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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.\footnote{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.}

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 śikhaṃa kārṇa kūṭas, will stretch backwards as well as inwards and form an ellipse rather than a circular curve like the one that helped create it.

Kulkarni’s translations of parts of the Dipārnava, Aparājītaprccchā and Samarāṅgana Sūtradhāra that refer to Latina spire design can be summarised as follows. The Dipārnava and Aparājītaprccchā both contain instruction for Latina spire design in which the height of the Latina spire is a multiple of the width of the śikhaṃa at its base (the width of the śikhaṃa at its base will henceforth be referred to as ‘X’ for simplicity’s sake). The Dipārnava 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.\footnote{Dipārnava, 9.41 – 42 (from R P Kulkarni, Prāsāda – Śikhaṃa, p.10)
states that the height of a sikhara could be $X, \sqrt{2}X, \frac{1}{4}X$, or, if the width of the sikhara at its base is divided into four parts, its height could be $\frac{4}{4}$ of these parts (which works out as $\frac{1}{16}X$). In this latter case the padmakōśa should be formed using a circle of radius $4X$. The Samarāṅgaṇa Sūtradhāra mentions that the curve of the Latina spire comes from a circle with radius $3X$. The Dipārṇava advises that the ideal top width of the sikhara should be between $0.6X - 0.5X$, and in accordance with this Kramrisch cites a rule from the Samarāṅgaṇa Sūtradhāra and Brhacchilpaśāstra that states that the top width of the sikhara should be $0.6$ that of its base. The Dipārṇava continues by detailing that the base sikhara width should be divided into 10 parts, and the karna : pratilata : lata widths should equal 2 parts : 1.5 parts : 3 parts. Similarly, the width of the top of the sikhara should be divided into 9 parts, and the relationship between karna:pratilata:latā widths should be 2 parts : 1.5 parts : 2 parts.

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

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

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43 Aparājitapṛcchā, 141.1 (from R P Kulkarni, Prāṣāda – Śikhara, p.9)
44 Aparājitapṛcchā, 158.9 – 14 (from R P Kulkarni, Prāṣāda – Śikhara, p.34)
45 Samarāṅgaṇa Sūtradhāra, 56.45 – 50 (from R P Kulkarni, Prāṣāda – Śikhara, p.35)
46 Samarāṅgaṇa Sūtradhāra, 57.664b, Brhacchilpaśāstra, 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 Dipārṇava, 9.22 – 24a, 0.24 – 26a (from R P Kulkarni, Prāṣāda – 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 Śekharī temple, the proliferating Latinas down its sides fleshing out its overall shape. The different parameters taken from the Dipārṇava 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 ¼ X and 1 1/3 X using curvatures based on circles with radii of 4X and 4.5X respectively will lead to the top width of the sikhara being exactly 0.6X. The 1 ½X height paired with circle of 5X radius will have a top width of 0.56X, and the spire with a 1 ¾X height and 6X radius curvature will have a top width of 0.54X, both of which are within the desired 0.5X – 0.6X Dipārṇava limits for top sikhara width.

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

The Aparājitapṛcchā 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 Dipārṇava 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 ¼ times a quarter of the spire’s base width: 4 ¼(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(¼X) + ¼X. This would come to 1 ¼ X and mean that
this set of Aparājitaprccchā 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 Aparājitaprccchā, 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 Samarāṅgana 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 Samarāṅgana 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. For the sake of simplicity all the spires will be referred to as Latinas here.

**Samarāṅgana Sūtradhāra descriptions of Latina spire design**

Two different Samarāṅgana Sūtradhāra translations were considered here: Sudarshan Kumar Sharma’s translation and Mattias Salvini’s translation. Viewing these versions in tandem highlights the interpretive dimension of Vastusastric 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 vēṇukōsa 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 Samarāṅgana Sūtradhāra underscores many of the observations made in the discussion of the nature of the Vastusāstras from the start of the chapter. It highlights the

48 Kulkarni, p 34
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 ṣikharas, starting from the Rucaka.’\(^5\)\(^1\) 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 ṣīkhara 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*.\(^2\)

‘*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 *ṣīkhara* 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 *ṣīkhara* 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 jalaniγamas.

137. With śūtras made into four, he should draw the padmakōta. A beautiful *mahjarī* should be constructed, with the shape of blue-lotus’ petals.\(^3\)

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\(^1\) Adam Hardy, op. cit.
\(^2\)  
| **śabdābhāgā viṣṭrām kārayaṁ ṣīkharaṁ saptaṁocchritam** |
| **śabdēhir dasābhīr bhāgāṁ syāṁ mūlājā skandhaṁvistṛtīṁ** |

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According to śloka 135, therefore, if the base width of the sikhara is six parts wide, then its height is seven parts: if the sikhara width is ‘X’, then the height is 1 1/6X. 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 venukosa, six anśas wide, six and a half anśas high, with a sūtra made into four parts.54

‘Anśa’ 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 1/12 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 pūtha, the jaṅghā should be two bhāgas. the patra should be half bhāga (...) and the varaṇḍikā, one pāda.

48. The height of the sikhara is known as four bhāgas plus one pāda.
With a sūtra in three guṇas, one should draw the padmakosa.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 sikhara height is 2.25 Y. More information is needed from the Rucaka description to create a Latina spire design,
either the width of the spire base or the width of the \textit{skandha} in order to indicate how far apart its curving sides should be. Perhaps it rests on the fact that the \textit{śikhara} base will be the same width as the \textit{vēdībandha} base. In order to translate these instructions into an image the height of Temple 45’s \textit{jāṅghā} and the width of its spire base are used here.

![Diagram of spires](image)

\textbf{Figure 67: Diagrams of spires described in Chapter 56 of the \textit{Samarāṅgaṇa Śūtradhāra}: 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 \textit{Aparājitapṛcchā} diagram referenced by Kulkarni and drawn up in Figure 66, it appears as if the temple spires are shorter and therefore their \textit{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 \textit{sūtra} that creates the spire’s \textit{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 \textit{Samarāṅgaṇa Śūtradhāra} that use the Sarvatobhadra as the basis of their forms, i.e. the Nandīśāla (Chapter 56.150 – 153, see also section ), in the \textit{Aparājitapṛcchā} spire mentioned by Kulkarni and shown in Figure 66, and also in the \textit{Dīpārṇava}. All that changes is how high the spires are. Perhaps the squatness of the \textit{Samarāṅgaṇa} and \textit{Aparājitapṛcchā} 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 \textit{skandha} is 0.65 times that of the base of the spire which is only a little off the \textit{Dīpārṇava} proportions for a beautiful spire (and the \textit{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 Dipārnava spires, and none of the Samarāṅgaṇa Śūtradhāra instructions are as detailed. Kulkarni’s translations of Diparvana instructions will therefore be returned to, and further aspects of their descriptions explored and tested.

**Dipārnava descriptions of Latā, pratilatā and karna kūta dimensions**

The rewarding thing about the Dipārnava 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 karna widths at the base of the spire according to the Dipārnava’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 karna and outer edge of the pratilata 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 Dipārnava’s ratio for the projections at the base of the śikhara: 1.5/10 + 3/10 + 1.5/10 = 6/10.
Michael Meister also briefly mentions a similar method of Latina spire design using circular curves whose radii are multiples of the \( \textit{sikhara} \) 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 \textit{skandha} acting as the ‘upper \textit{vēdi}’ \(^{56}\). 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 \textit{Dīpārṇava} ratio for \textit{lata}:\textit{pratilatā}:\textit{karna} \( kūṭa \) widths at the \textit{sikhara} base do not follow the \textit{Brhat Sanhitā vāstumanḍala} proportions that Meister believes regulated the dimensions of the sanctum and its walls at \textit{vēdībandha} level: using the \textit{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 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 \textit{sikhara}, see the Terahi Śiva

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

The Dipārṇava’s references to the karna, pratilata 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 karna, pratilata 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.

![Diagram](image)

Figure 69: Diagram showing a pratilata 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 shikharas that still stand, and in keeping with consistency of practise, I would argue that latā and pratilata curves are also made from sections of circles with radii that are multiples of the width of the base of the śikhara (‘X’). The pratilata curve is more obtuse than the karna’s outer curve and therefore the pratilata’s radius will be a larger multiple of X than the karna’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 pratilata. These curves would begin at the preordained points where the pratilatas and latā start at the base of the śikhara, points determined in the Dipārṇava 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 pratilata 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 *karna, pratilata* and *latā* at the top of the summit fit with the 2:1.5:2 ratio works out as follows:

<table>
<thead>
<tr>
<th>Height of <em>Sikhara</em></th>
<th>Radius for outer <em>karna</em> curvature</th>
<th>Radius for outer <em>pratilata</em> curvature</th>
<th>Radius for <em>latā</em> curvature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ¼ X</td>
<td>4X</td>
<td>6X</td>
<td>9X</td>
</tr>
<tr>
<td>1 1/3 X</td>
<td>4 ½ X</td>
<td>6 ½ X</td>
<td>10X</td>
</tr>
<tr>
<td>1 ½ X</td>
<td>5 X</td>
<td>8X</td>
<td>13X</td>
</tr>
<tr>
<td>1 ¾ X</td>
<td>6 ¾ X</td>
<td>10 ½ X</td>
<td>17 ¼ X</td>
</tr>
</tbody>
</table>

Table 1: Radii used to create *latā, pratilata* and *karna* 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 *karna* meets the *pratilata* at the base of the *sikhara* (as is the case with the other two spires with 0.6X wide summits), the point at which the *karna* meets the *pratilata* at the top of the spire aligns with the point where the *pratilata* meets the *latā* at its base, see Figure 70.
For all spires:

\[ x = \text{width at base of shikhara} \]
\[ y = \text{width at top of shikhara} \]

\[ k = \frac{2}{9} y \]
\[ p = \frac{1.5}{9} y \]
\[ l = \frac{2}{9} y \]

\[ k = \frac{2}{10} x \]
\[ p = \frac{0.5}{10} x \]
\[ l = \frac{3}{10} x \]

Figure 70 Dipārṇava spires with latā, pratilatā and karna kūta 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 bālapaṅjaras that follow the karna kūtas, 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 bālapaṅjaras appear in Gujarat, where the Dipārṇava 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 karna will follow that of pratilata, and inner curve of pratilata 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 bālapaṅjaras, the karna and the pratilata projections each ‘take’ a recess into their width dimensions, and the recesses fall over temple body’s karna and pratiratha.
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 Samarâñgana Sûtradhâra appears to establish the height and vertical proportions of Drâviḍian temples by following a simple system of numerical progression. 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 lata, pratilata and karna's courses maintain the same overall proportions despite changing widths, perhaps there was a simple proportional system such that the height of a lata 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 lata course is 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 = 391/3cm, etc. This is just speculation, but it would fit with the proportionate way in which other measurements are ascertained.

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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 VastuŚātric references to śikhara design, the diagrams created by the Dīpārṇava’s instructions, and the ways suggested here in which the pratilata 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:pratilata:latā at the base and summit of the spire is testable however, particularly given the corollary between spire and vēdībandha 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, Khirnīvāla Group (late 10th century).

In addition to the evidence of temples and texts, an engraved diagram on one of the mandapa 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 Phāṃsāṇā roof of the sort that might crown a mandapa. 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 karna 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, 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 vēnuṅkōśa. 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 sikhara on a seat back from the maṇḍapa of Harīhara 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 Harīhara 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 karna’s outlines are circular curves that could have been created in the manner described in previous sections. Overlaying the latā, pratilatā and karna curves with circular curves indicates that this is indeed the case; the latā and karna 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 Śūtradhāra’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 *Dīpārnava* spires and relate to each other in the same manner as the *Dīpārnava* 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 *lata* curvature, c) the *pratilata* curvature, d) the *latā* curvature.

The proposed proportions and manner in which the *Dīpārnava* spires *pratilata* 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:
Because in the Harihara diagram the base width of the complete sikhara 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 karna radius to pratilata radius (KR/PR), the ratio of pratilata radius to lata radius (PR/LR), and the ratio of karna radius to lata radius (KR/LR):

<table>
<thead>
<tr>
<th>Height of Śikhara</th>
<th>Radius for outer karna curvature</th>
<th>Radius for outer pratilata curvature</th>
<th>Radius for lata curvature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ¼ X</td>
<td>4X</td>
<td>6X</td>
<td>9X</td>
</tr>
<tr>
<td>1 1/3 X</td>
<td>4 ½ X</td>
<td>6 ½ X</td>
<td>10X</td>
</tr>
<tr>
<td>1 ½ X</td>
<td>5 X</td>
<td>8X</td>
<td>13X</td>
</tr>
<tr>
<td>1 ¾ X</td>
<td>6 ¼ X</td>
<td>10 ½ X</td>
<td>17 ½ X</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Śikhara</th>
<th>KR/PR</th>
<th>PR/LR</th>
<th>KR/LR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harihara diagram</td>
<td>0.633</td>
<td>0.608</td>
<td>0.385</td>
</tr>
</tbody>
</table>

These fit very closely with the proportions of a tower of 1.5X height (1.5 times the width of the sikhara 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 Dipārnava 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 Dipārnava 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, focusing 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. 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

history of the religion in India, from its initial imperial endorsement by the Mauryan Emporer 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 Huien Tsang whilst on pilgrimage across Northern India in 630 – 631 AD despite being well established at this time. 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. 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.

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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 *Mahāvamsa*, a Sri Lankan text, describes how she came from nearby Vidisha and oversaw the building of a ‘sumptuous vihāra (monastery) ’ at Chetiya-giri, 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.\(^8\)

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\(^8\) 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

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 tōrānas (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

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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).

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 Daśāṅgadvēśa 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

of the god Viṣṇu, thus illustrating another stage in the age-old Indian mythological process of assimilating-to-kill.'

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. 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’, 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

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13 B N Puri, p.205.
The first report on the Sanchi stūpas was published the following year, followed by a series of monographs on the beautiful Satavahana tōrana carvings.

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). 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. 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.  
... [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).

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

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18 James Fergusson, p.112.
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 tōrānas. 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.

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, and in 1940 published a second version augmented by more photographs and accompanied by the commentary of archaeologist Albert Foucher.

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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 tōrāna 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 Archeological 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.

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*, 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, and the bedrock from which more specific studies of the ruins have departed. 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:

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25 Mohammad Hamid, op. cit.
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. 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. Marshall compared the large, cruciform plan of Building 43 to the monumental Kushan period stūpa from Peshawar in present day Pakistan, but he

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

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

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 mandapa 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 vēṭibandha contrast sharply with the articulated plans and walls, busy with happy celestial hordes, niches and uḍgamas 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 vēṭibandha, most unusually, is equally plain, the typical sweeps and curves of a North Indian vēṭibandha’s piled courses and their plinths abbreviated to two basic masonry courses that jut out successively beneath the jāṅghā, the first stepping out by about 11.5cm and standing about 108 cm tall, the

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 kinkinikājālas 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) Pradaksinā aisle on Temple 45’s south side.](image)

The pillars and fragmented kapotālis 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 kirttimukha 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 gavāksas, 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, c) eastern niche pillar.](image)

The walls of the cells that flank Temple 45 create a slim pradaksinā around the sanctum, a passage for ritual circumambulation that measures 54 – 58 cm at its narrowest points between the bhadras and pradaksinā 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 Gaḍārmal Temple at Badoh (825 – 850),
and the Sūrya Temples at Umri (825 – 850 AD) and Madhekdra (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 ganas prancing on the backs of leogryphs who balance on the shoulders of kneeling elephants. Following this is a śākḥā 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.
An ornate threshold supports the doorjambs, occupied by pairs of Kubēra, lion, diminutive female devotee and half-\textit{kirttimukha} 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 that the door jambs and show 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 \textit{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.

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 *kirttimukha* faces, vase-and-foliage and diamond lotus designs, and topped by more gilled 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.](image)

Of the *mandapa*, only the base remains (Figure 87). The *vedibandha* rests on an elegant lotus-petal base which stands on top of a plain plinth course. The *vedibandha* is of a typical *khura – khumba – kalaśa – kapotālī* format topped by a *vāsatapaṭṭikā* (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 *gavaksha* pediments, blossoming outswards 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 *vedibandha* 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 *pradaksinā* 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 that 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, karṇākūṭa eaves and broken karṇa āmalaka fragments, knitted gavākṣa udgamas, monumental sūkanāśa-style gavākṣas, festoons width 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.
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.\(^\text{32}\)

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.

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from monastic cells to chapels for worship, and, as such, given their ornate doorways.\textsuperscript{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 10\textsuperscript{th} century from analysis of the style of the script, the lion throne he ascribed to an earlier temple, likening it to a 7\textsuperscript{th} century equivalent from Ellora. The roughly stacked bricks behind the Buddha image were placed there in order to steady this awkward pairing.\textsuperscript{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.’\textsuperscript{35} The surprising Hindu style of the garbhagrha doorway, Marshall, writing in the tones of his time, put down to the: \[ ... \text{the rapidly declining purity both of the Buddhist religion and of Buddhist art ... in Temple 45, which is by far the most pretentious monument of its epoch, ... the visitor will most quickly recognise the overwhelming influence which Hinduism, and particularly the Tantric cult, had exercised on Buddhism before the 11\textsuperscript{th} century AD.}\textsuperscript{36}\]

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 9\textsuperscript{th} century rather than the 10\textsuperscript{th} 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 9\textsuperscript{th} century, arguing that the pillars at the entrance to and in the corners of the garbhagrha, and the seated

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 Gyaraspur (850 – 875 AD). 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.
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). 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 varanādikā 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, b) Śāntinātha Temple, Deogarh (775 – 800 AD).

With regards to the sikhara 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 Nakṣīmātā 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 Daśāṃadēśa/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 bhāmīs 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 pradaksīṇā. 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 pradaksīṇā 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 pradaksīṇā, 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

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 mandapa remains to indicate what Marshall was referring to when he talks of finding foundations from an earlier mandapa 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.
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 *sikhara* 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 doorjamb. 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 Śūrya temples at Umri and Madhkedha. 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 Śūrya temples at Madhkedha and Umri, the Mālādēvi Temple at Gyaraspur (850 – 875 AD) and the Jarāi-kā-maṭh at Barwasagar (c 900 AD), rather than the late 10th – 12th century temple remains from Dudhahi, Chandpur and Ashapuri that it is grouped with at present.

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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, mandapa, 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 karna courses from the spire, and

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fragments from its crowning āmalaka and kalaśa. The fragments that constituted the temple’s varandikā 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 karṇākīṭa. Kīṅkinikājālas 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.

Lata and Pratilata 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 spire 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 karnakūtas indicate that, in accordance with its body, Temple 45 was a tri-āṅga 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 karnakūtas 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 karnakūta 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 
\textit{latā} are the widest courses in the \textit{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 \textit{latā} courses have also left them more prone to breaking than the \textit{pratilatā} and \textit{karna} fragments, therefore the fragments show different horizontal segments of the \textit{latā}'s \textit{gavākṣa} pattern.

There are 65 \textit{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 \textit{latā} course and therefore can be used to extrapolate the \textit{gavākṣa} pattern of a complete \textit{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:

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\begin{tabular}{|c|c|c|c|}
\hline
\text{dO} & ( & O & )
\hline
\end{tabular}
\end{center}

or a wider version:

\begin{center}
\begin{tabular}{|c|c|c|c|c|c|}
\hline
\text{dO} & ( & O & ) & ( & O
\hline
\end{tabular}
\end{center}

From just a cursory consideration the second option is clearly much too wide, for \textit{latās} of this width do not appear on even the most grandiose of Latina temples. Furthermore, a hypothetical \textit{latā} course following this pattern made up of \textit{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 \textit{bhadra} from Temple 45 is 162 - 163 cm at its widest point at the lowest projection beneath its \textit{vēdībandha '}. Therefore, the pattern of a whole \textit{latā} course must be the narrower, first option shown above. When piled, the \textit{latā} courses would, therefore, have appeared as depicted in Figure 93.
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.

<table>
<thead>
<tr>
<th>Figure 93: The piled latā pattern from Temple 45.</th>
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Pratilatā pattern.

<table>
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<tr>
<th>Figure 94: The two slimmest latā fragments a) SAN 109, total width 65 – 66.5cm, b) SAN 185, total width 80cm.</th>
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<tr>
<th>Figure 95: Pratilatā fragments SAN 112 (left) total width 47.5 cm, SAN 113 (top right) total width 57cm, &amp; SAN 114 total width 54cm.</th>
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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 lata 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 60 cm, b) pratilatā fragment SAN 13*, total width 60 cm.

Comparative analysis of the gavākṣa patterns from the lata and pratilatā

The gavākṣa patterns shown on the lata 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 lata has a wide, interknitted, complex gavākṣa pattern, both lata 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 lata and pratilata designs (in keeping with the individuality shown in temple design discussed in Chapter 2), gavākṣa patterns on the pratilata and lata 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-āṅga Latina temple, the back of the temple has two slimmer lata, each flanked by two pratilata, with a karna on either extremity. The top of two lata and their attendant pratilatas poke out from behind the sukanasha on the front of the temple (Figure 98). The wider, singular lata on the sides of the temple have the same gavākṣa configuration as the lata from Temple 45, whilst the pratilataś that stand beside the two slimmer latāś on the back of the temple śikhara are the same as the pratilata 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) Lata from the side faces of the spire from Jarāi-kā-maṭh b) two pratilatāś from the inner sides of the two latāś from the front and back of the spire.](image)

**Proportions and foundational eaves**

Having worked out the gavākṣa patterns of the pratilata and lata courses, the smaller, more damaged fragments that are not immediately obvious as lata or pratilata 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 lata’s and pratilata’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 partilata width works out as 1 2/3 x *gavākṣa* width (Figure 100).
Hori/antal lata proportions:
width of lata course = gavaksha width x 4

Figure 99: Horizontal lata proportions.

Horizantal pratilata proportions:
width of pratilata course = 1 2/3 x gavaksha width

Figure 100: Horizantal pratilata proportions.

Because of this fixed system of proportions the measurements of a particular lata or pratilata course in its entirety can be worked out from just a fragment of gavākṣa. The lata fragment that involves the widest gavākṣas from amongst the surviving lata 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 lata its total width can be estimated at about 144cm (36cm x 4).

Typically the height of Latina sikhara 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 sikhara courses from Temple 45 is that, whilst their widths change, all except the very narrowest lata course remain the same height.
The *lata* and *pratilata* *gavāksas'* vertical proportions are mapped on to the shapes of the eaves from which they spring. Both *lata* and *pratilata* 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).

The *lata* and *pratilata* *gavāksas* 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 *lata*’s outer *gavākṣas* and the *pratilata*’s outer half *gavākṣas* (Figure 102b&c).

With the exception of the slimmest *lata* 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 *lata* and *pratilata* gavakahas are between 21 – 22.5 cm, the height of a full *gavākṣa*, which coincides with the complete height of the *lata* and *pratilata* courses, is between 28 – 29.5 cm. 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 karna 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 karna 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 karpukūta 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 *sikhara* 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 *lata* from the Sūrya Temple Madkheda (c 850 – 875AD), b) a lively ‘italicised’ *gavākṣa* from SAN 101 *lata* fragment, Temple 45.

The majority of the *gavākṣas* from the *lata* 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 *lata* 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 *lata* 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 gavakasha 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, fleshiest 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 sikhara from Temple 45. In addition to this the shapes of the bases of the sikhara 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 lata courses are carved in two parts due to their width, a lata 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 lata are concluded (Figure 111). On some, called here ‘Type A’ lata fragments, the eave goes back 35 – 36 cm and is broken off by an indent roughly carved into the back of the lata. On others, ‘Type B’ lata 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 lata and pratilata 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.

![Diagram of lata types A and B](image)

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

![Images of lata fragments](image)

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

The sides of the pratilata courses are carved with eaves, like the lata, but on one side of the pratilata 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 pratilata’s front face: since two pratilata columns flank the central lata, 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 lata, there are two different ways in which the eaves along their sides and offsets are realised. In Type A pratilata, 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 lata. On the side leading to the offset the eaves continue backwards perpendicular to the front face of the...
pratilātā 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 pratilātā 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 pratilātā 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: Pratilātā types A and B viewed from the front.

Figure 114: Pratilātā 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 karna elements discussed below) create recesses between the different projections of the spire, meaning that the sikhara from Temple 45 had articulated projections with recesses between them rather than the stepped offsets of its jaṅghā and vedi bandha. The unlikely combination of stepped base and articulated spire and the way they work together will be discussed in Chapter 6.

**Karnakūta fragments**

**The make up of the karṇakūtas**

Karṇakūtas 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 karṇakūtas act as a little, compressed āmalaka shrine (Figure 7). To differentiate between the two types of eaves involved in the karṇakūtas 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 karṇakūta. As corner elements, karṇakūtas 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 karna from Temple 45 to be identified.
The middle eaves of the *karnakūtas* from Temple 45 are heavy, carved courses from which press *gavākṣas* arranged in an unconnected ‘d( dōb )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 *karnakūta* middle eaves survive, 25 of which offer utilisable measurements.

![Image 117](image1)

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

The slim, square *āmalakas* that top the *karnakūtas* 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 *karna* eaves. There are 14 *karna āmalaka* fragments remaining, but only five of them sufficiently undamaged to be able to extrapolate their full widths from their forms.

![Image 118](image2)

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

There are four different slim eave forms that could have been feasibly been used as the base eaves in the *karnakūtas*. They are all *cyma* eaves (*kapotāli*) 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 karnakūṭa 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 karnakūṭa pieces and offer up measurements showing them to be congruent with those of the other karnakūṭa elements. Two of these have offsets projecting from their sides to create the recess between the spire’s karna and pratilata (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 karnakūṭa. 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 karnakūṭa base eaves from Temple 45.

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

Figure 121: Two hypothetical karnakūtas from Temple 45.

Figure 121 shows the two different possible ways in which the karna eaves could be combined to create the karnakūtas 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 karna eaves that are joined together by interlaced gavākṣa patterns (Chapter 2). Unusually, the half gavākṣa - full gavākṣa - half gavākṣa, or 'd( dOb )b' pattern that springs from the solid, heavy body of the middle eaves of the karnakūtas 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( dOb )b' pattern shown in the Temple 45 fragments is used on the middle karna eaves of other temples it appears with intermediate ')( or 'd( and )b' elements that connect it to a second 'd( dOb )b' patterned eave above it, as is the case at the Deogarh Śāntinātha Temple (Figure 122a) and the Barwasagar Jarāi-kā-маṭh Temple, for example.
A few temples show related karnakūta middle eave forms that indicate that Temple 45 may not be completely anomalous. The lowest two karnakūtas on the sikhara 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 karnakūtas 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 sikhara over an unusual garbhagrha with four covered entrances facing in the cardinal directions. The two lowest karnakūtas on this sikhara 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 karna 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 karna 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).
Another unusual thing about the middle *karna* eaves from Temple 45 is that each one is autonomous, carved separately and then literally piled one upon the other. Typically, if the *karnakūṭa* 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.

Perhaps the *śikhara* eaves that are most similar to the middle *karnakūṭa* 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-āṅga śikhara* have *lata* 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 *karnakūṭa* middle eaves from
Temple 45 (Figure 127). Temple No. 2 of the Mahādeva complex at Batesara also has unusual karnakūṭas involving single, heavy middle eaves from which push large, single gavākṣas.

**Style**

The middle karnakūṭa 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 lātā 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 lātā and pratilatā gavākṣas. For this reason, whilst the karnakūṭa 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) Karnakūṭa from the Jarāi-kā-maṭh Temple at Barwasagar, b) one of the karnakūṭa middle eaves from Temple 45, SAN 162.](image)

As was the case for the lātā and pratilatā courses, not all the gavākṣas from the middle karna eaves are carved in exactly the same style. Four middle karna 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.
The style of the simple base eaves and crowning āmalakas from the karnakūṭas 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 karnakūṭas do not follow an exact set of proportions in the manner of the latā and pratilatā 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 karnakūṭa are not linked together and therefore do not have or need as clear a matrix in terms of their carving: unlike the latā and pratilatā 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 karnakūṭas, 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 karnakūṭas’ 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 karna 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 karna 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 karna 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 sikhara of Temple 45, their heights stay the same regardless of changing widths.

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 *karnakūṭa* 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 *karnakūṭa* 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) Karnakūṭa middle eave SAN 398, b) diagram of paired Karnakūṭa eaves, c) SAN 345.](image)

A couple of the *karna āmalakas* and *karnakūṭa* 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.

**Veṇukōṣa courses between the final karnakūṭa 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 *lata* 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 *karnakūṭa*, 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 karna 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 karnakūṭa from the spire of Temple 45 and the skandha depends on the height and curvature of the spire and how the karnakūṭa 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 kṛttimukha 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 vēnuḵōṣa 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.](image)

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 Gyaraspur 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 Malādēvi Temple, Gyaraspur (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 sikhara 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.](image)

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 karnakūṭas 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.](image)

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 lata 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 lata courses, in the manner of the base pratilata eaves? The expected continuation of the gavākṣa pattern stops abruptly after about ⅓ 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 lata over which the šukanāsa crosses? This is unlikely since there would be no reason to change the plan of the lata courses’ vertical patterns in this case. Could these be from the lowest lata course of the front face of the spire, crossed over by the šukanāsa? This is untenable because, firstly, there are three of these pieces rather than two, and secondly this would make the šukanāsa unnaturally slim. Possibly these fragments could indeed be from the lowest lata 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 varanḍikā and crossed over the lata 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: Lata fragment SAN 350 showing an uncarved area of stone.

There is also a wider stretch of lata course, SAN 350, that follows the lata 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 lata which was covered over by the šukanāsa since it follows the correct vertical lata arrangement. This fragment will be considered in more detail in Chapter 6.
There are also anomalies within the *karnakūṭa* fragments. Two fragments, SAN 80 and 192, show the same ‘d( )O( )b’ *gavākṣa* pattern as the *karnakūṭas*’ middle courses, and the foundational eaves from which they press follow exactly the same form and proportions. What does not fit with the *karna* 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 *karna* 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 *karna* eaves.

![Figure 138: karnakūṭa anomalies, a) SAN 80, b) SAN 192.](image)

**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* (*āmalasaraka*) 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.](image)
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 Gyaraspur (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, heaver 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.

Varanḍikā

Varanḍikās are conceptually linked to the temple’s spire because their upper eaves act as the base eaves for lowest set of karnakūtas, and for this reason they are included in this discussion. Varanḍikās are the cornice mouldings that separate and mark the transition between the temple walls and the spire. The varanḍikā plan follows that of the vēdibandha rather than that of the śikhara if the two are different as shown in the way the varanḍikā cuts straight across the spires’ salilantaras in pre-9th century Latina temples, acting as the
base eave for the spire’s karna kutas and the foundation for the salilântaras’ bâlapaṅjaras. The varanḍikā will continue along the kapîlî wall, acting as the varanḍikā for the shukanasa also. In searching for varanḍikā fragments from Temple 45 therefore it is key that they match the proportions of the minimalist vedibandha from the temple (Figure 140).

![Figure 140: Vedibandha plan from Temple 45.](image)

In Chapter 2 typical Latina varanḍikā designs were described, noting the prevalence of the kapotâlî-tulâ-kapotâlî formula in 8th – 9th century Central Indian temples. The two types of tulâ fragments found at at Sanchi were shown in Figure 131 above, and four different eave types were discussed in conjunction with the karna kutas (Figure 119). The solitary example of a course of kirttimukha tulâ, 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 kirttimukha tulâ and then a stretch of bare stone. Although tulâ of this sort could perhaps be used in a varanḍikā, its dimensions prevent it from fulfilling that function on Temple 45. The pratiratha from the vedibandha is 76cm, making the course too wide for the pratiratha from the varanḍikā, the karna from the vedibandha is 101cm and its bhadra is 153cm, making the fragment too short for the varanḍikā equivalents. Adding an extra tulâ 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 karna and either too wide or too narrow for the bhadra. Adding further kirttimukhas to the tulâ would also disrupt the symmetry of the pattern of faces.
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 *varāṇḍikā*.

Several 9th century temples from Western India and 10th century temples from Central India have *varāṇḍikās* that are made up of or include two *kapotāḷīs* 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 *kapotāḷī*.

There are five remaining examples of the largest of these types of fragments (Figure 143a). These have *kapotāḷīs* 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 varāndikā measurements implied by the proportions of the vēdibandha from Temple 45. Their 30cm height also makes them rather short for the varāndikā. On top of this, the stepped outline of their kapotālis would be most unusual and their ‘cut out’ lotuses would be unnecessary, backed as the varāndikā 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 7cm wide, and these both, set in their recessed course beneath the eave are about 10.5cm tall. These are immediately unsuitable for the varāndikā from Temple 45 because of their narrow, stepped shapes. SAN 173, for example, has three ‘tiers’ of steps which would not fit with the varāndikā plan. These fragments fit more closely with the more complicated, stepped plan of the maṇḍapa, as 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 *kapotālis*, 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.](image)

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 *kapotāli* 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 *kapotāli* 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 *karna* 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 *pratilata* projection following them. Seven other fragments show plain chequered stone courses, one of which have the remains of a *kapotāli* above them. One of the chequered pieces rests on top of the wall behind Temple 45 but the *kapotāli* 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 *kapotālis* attached.
Varandikās 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 varandikās 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.

Kiṅkiṅikājālas

Around the top of the janghā from a Latina temple, just beneath the varandikā, a festoon or kiṅkiṅikājāla is usually carved, a little hanging bell or tassle hanging in each loop. The walls of Temple 45 are particularly plain, and a kiṅkiṅikājāla would relieve its bare faces, however the two types of festoon courses from amongst the fragments are not typically used in this context.

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 vyālas. There is a slim
chance these could have supplanted the more typical kinkinikājālas since 10th century temples from Kadwaha show aberrations and use differently styled kārttimukha 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 karna, 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 kinkinikājāla 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 karna.3

3 One of these kinkinikājāla 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.
These courses probably do come from the walls of Temple 45, but instead of sitting directly underneath the varandikā as the typical kinkinikājālas 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 kinkinikājāla 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 sikhara 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 karnakūṭa 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 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 *gavākṣas*’ sashes, for example, are sometimes thin, sometimes thick, sometimes of medium width, some are feathery, some are foliate, some are trilobate, some are scored with a cross, 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 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 assigning them all to Temple 45.

The hypothesis that each differently styled *gavākṣa* comes from a different but ideally 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 and stepped temple body that form the rest of Temple 45. The possibility of the variety of the *gavākṣas* from Temple 45 makes more sense when the way the fragments were found and assembled on the spire is also considered.
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 Jarāī-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 sikhara 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 karna 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.

**Karna:**
There are fewer remaining karnakīta fragments than there are latā and pratilatā fragments. The widest of the karnakīta’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 karnakīta 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 karna āmalakas and the karna 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 Šikhara from Temple 45

In this chapter the amassed data concerning the shapes and measurements of the multifarious šikhara 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 Diparnava 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, prālatā and karṇa kūza 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 šikhara 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 šikhara courses with the vēdibandha 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 šikhara 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 šukanāsa. 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 Vastusāstras in Chapter 3, shows that the spire weaves together both convention and

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 *lata*, *pratilata* and *karṇa kūṭa* courses**

The *pratilata* courses’ offsets point towards the *lata*, creating the recesses between them, whilst the *pratilataś*’ flat sides are met by the *karṇa kūṭas*’ offsets, these creating the outer set of recesses of the spire. The *lata* sides and the offsets from the *pratilataś* are each resolved in two different ways, as discussed in Chapter 4 (Figure 111 & Figure 114), 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 *pratilataś* with offsets distinguished by carefully finished eaves followed by sections of plain stone would have been paired with *lata* 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 *pratilata*, therefore, goes with Type A *lata*. The *pratilataś* with abruptly ending eaves are placed up against and cover the stretch of plain stone that follows the neatly finished eaves of Type B *lataś*: Type B *pratilata* goes with Type B *lata*. 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 *lata* and *pratilata* visible, which, given that they share the same vertical proportions, run smoothly together and create elegant recesses between the two courses.

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2 For the sake of simplicity, each complete *lata* course will be drawn with ends that are resolved in the same way, although this may not have always been the case.
The way that the *karna kūta* and *pratilatā* courses connect together is slightly more complicated, and, making things more difficult, there are less surviving *karna kūta* fragments from which to draw conclusions. Each *karna kūta* is made up of several different elements: a base eave, two or three *karna* 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 *lātā* courses.

The different *karna kūta* eaves and the *pratilatā* join together in the same two ways as the *lātā* 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 *karna kūta* 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 *karna* eaves’ projections would be placed (Figure 152a). Again, the marks for the staples on *bhūmi* and *pratilatā* pieces attest to this matching.
There are 20 *karna āmalaka* fragments and 11 base eave fragments left from the *karna kūta* 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 - 8 cm 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 *karna kūtas* it is possible that both ways of finishing the offsets occurred on all of the different *karna* elements, including the middle eaves, rather than applying exclusively to specific different parts of the *karna kūta*.

The vertical alignment of *pratilatā* and *karna kūta* courses.

On Latina temple spires, it is common for the horizontal lines of the *karna kūta* 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 *karna* middle eaves and that of a base eave and *karna 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 karna eave applies to one pratilatā eave, instead the karna eaves might well cross over the intersection of two different pratilatā courses. Perhaps it is for this reason that the offsets from the karṇa kūtas’ 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 of 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 karṇa 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 karṇa kūta and pratilatā heights, it is also surprising that most of the remaining middle eaves of the karṇa kūta have staple holes on the top of their offsets and a number of the pratilatās have holes to receive the other side of the karṇa/pratilatā staple, for this implies that the middle karṇa 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 karṇa 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 karṇa kūta 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 sikhara 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 sikhara.

Figure 154: Alternative way in which the courses connect on one side of the sikhara.

Figure 155: One way in which the sikhara 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 sikhara courses. Building a Latina sikhara 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 karna 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 sikhara.](image)

### Determining the sikhara plan dimensions

The information about the shape of the sikhara 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 sikhara. 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 sikhara with recesses and a vedibandha 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 sikhara at its base are usually level with the edge of the vedibandha beneath it, and for the fully articulated spires from the 9th century onwards each offset and projection of the karna, pratiratha and bhadra projections from the vedibandha of the
temple should line up with and be the same width as the projections of the karṇa, pratiḷatā and latā respectively on the bottom courses of the śikhara. The varanḍikā should also parallel these proportions. If Temple 45 were an exemplary Latina temple, therefore, the measurements of its vēdībandha 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 vēdībandha with the śikhara base is thwarted by the peculiarity of the ‘vēdībandha’ 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.

![Diagram of Temple 45](image)

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 vēdībandha 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 11.5 cm. 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 vēdībandha. 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 vēdībandha, or is the lowest course a pīṭha, and the higher course a substitute for all the elements of the vēdībandha combined?

As discussed in Chapter 2, the base of Latina spires usually align with the edge of the vēdībandha'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 vēdībandha course will not equate exactly to the widths of the projecting face of the lowest karna 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.](image)

The ideal way for the articulated śikhara and stepped vēdībandha 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 karna, and then the next part of the śikhara, its second vēṇukōśa (or latā in a dvi-āṅga temple), steps out in unison with the pratīratha walls (or bhadra walls) beneath it. Following this logic, therefore, the karnakūta–pratilatā recesses from Temple 45 should fall at the inner edge of the karna, 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 sikhara 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 sikhara 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 (‘karna kūṭa width’, ‘pratilatā width’ and ‘latā width’ referring to the widths of their projecting, gavākṣa-decorated eaves):

\[ \text{Vēdībandha karna width} - \text{recess} = \text{bhumi width} \]
\[ \text{Vēdībandha pratiratha width} - \text{recess} = \text{pratilatā width} \]
\[ \text{Vēdībandha bhadra width} = \text{latā width} \]

Using the measurements from the vēdībandha therefore:

\[ \text{Karṇakūṭa width} = 101\text{cm} - 8\text{cm} = 93\text{cm} \]
\[ \text{Pratilatā width} = 76 - 8 \text{ cm} = 68\text{cm} \]
\[ \text{Latā width} = 153\text{cm} \]

This can be broken down to determine the gavākṣa sizes from the latā and pratilatā:

\[ \text{Latā} : \]
\[ \text{Latā width} = 153\text{cm} \]
\[ \text{Latā width} = 4(\text{Gavākṣa width}) \]
\[ \text{Gavākṣa width} = 153\text{cm}/4 = 38.25 \text{ cm} \]

\[ \text{Pratilatā} : \]
\[ \text{Pratilatā width} = 68\text{cm} \]
\[ \text{Pratilatā width} = 1.666667(\text{Gavākṣa width}) \]
\[ \text{Gavākṣa width} = 68\text{cm}/1.666667 = 40.8\text{cm} \]
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*. 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 *karna* eaves. Using this hypothesis the widest, base *karna* eave would be 93cm, whereas of the two widest *karna* eaves found on site, one is 96cm and the other is just over a metre.

![Diagram](image)

Figure 159: Changing the dimensions of the *vēdiibandha* plan affects only the width of the *latā*.

Clearly the above proposal, with its neat alignment of *śikhara* and *vēdiibandha* does not work for Temple 45. Efforts to maintain the ideal plan pairing by arguing for a different understanding of where the temple’s *vēdiibandha* was conceived of as lying, changing the overall width of the *vēdiibandha*, will not work either: the measurements from the *vēdiibandha* 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 *vēdiibandha* larger or smaller will only affect the size of the *latā*, not that of the *pratiratha* or *karna* (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.

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3 Except for the Rāmēśvara Temple at Amrol, see Chapter 2, ‘The developing form of the Latina Śikhara’.
Concerning the base dimensions of the šikhara, 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 šikhara projections are always about 7–8cm. Thirdly, the vēdībandha’s pratiratha remains 76cm regardless of changes to the overall width of the vēdībandha. Using these figures, the equation that explains the plan is fairly simple: 60cm + 8cm + 8cm = 76cm, therefore the pratilatā with both its own attached recess and that of the karna kūta must lie across the pratiratha on the plan of the vēdībandha. This conclusion is ratified by the fact that the width of the widest karna kūta fragment (minus offset) seems to have been just over a metre, which equates with the 101cm wide karna from the vēdībandha. The šikhara’s karna is therefore free to donate its recess width to the pratilatā.

The lata courses at the base of the šikhara should equate to the vēdībandha’s bhadra, and whilst different arguments can be made for wider or smaller vēdībandha bhadras, the neat and logical option is that it should correlate with the first projection beneath the janāhā, and be 153cm. The widest estimated total width of a remaining fragment that is incontrovertibly part of a lata course is 144cm, meaning that a number of the widest lata 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’ lata course, but whose lata patterns stop short after the first ¼ 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 lata 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 lata 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 varāṅṅkā and into the lata as occurs at the Surya Temple at Madhkedha? Or is this explanation too far fetched given, firstly, the dour plainness of the garbhagṛha 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 lata are not usual in Central Indian Latina temples. These pieces will be considered later in the chapter.
The **šikhara** and **vedībandha** 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 *lātā* match those of the *varaṇḍikā*, a 7–8 cm 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 *vedībandha* plan compared to the *šikhara* plan. The *vedībandha*’s offsets step outwards by 20 cm, whilst each of the projections of the spire steps beyond the horizontal face of the last by a minimum of 19 cm, therefore the *pratilatā* and *lātā* projections will fall short of the plan of the *vedībandha* by 1 cm and 2 cm respectively. Although not ideal, the dimensions and shapes of the **šikhara** fragments, how their proportions fit with the **vedībandha**, and how this correlates with dimensions cited in the *Dīpanaṇa*, as discussed next, make it convincing.

The dimensions of the base of the **šikhara** from Temple 45 are therefore as follows:

\[
\text{Karna} + \text{recess} + \text{pratilatā} + \text{recess} + \text{lātā} + \text{recess} + \text{pratilatā} + \text{recess} + \text{karna} = \\
101 + 8 + 60 + 8 + 153 + 8 + 60 + 8 + 101 = \\
507 \text{cm}
\]

Like the *vedībandha* and the *varaṇḍikā*, the overall width of the base of the **šikhara** is 507 cm.
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 karna, pratilata and latā dimensions at the bottom of the śikhara have been established. These measurements, therefore, can be directly compared against the Dipānava Latina diagrams and their karna, 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 Dipānava proportions with spire fragments
The Dīpārṇava ratio for the karna, pratilata 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 pratilata: the karna width is 101cm, the pratilata 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 karna:pratilata: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 karnas would be 67.6cm. The ratio of the karna, pratilatā and latā measurements from

![Figure 161: Dīpārṇava spires with latā, pratilatā and karna kūṭa curves included (see Chapter 3, pp. 87 – 97.)](image)
Temple 45 are 2:1.5:2, accurate to one decimal place, which, again, is exactly that prescribed by the Dipārṇava.

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 Dipārṇava proportions for the lata, pratilata and karna kūta widths, whether it be the 1 ¼ X or 1 1/3 X tall Dipārṇava spires or indeed any other spire height or shape that followed the Dipārṇava’s key dimensions. If either of these differently proportioned sikharas 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 Dipārṇava karna: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 karna kūtas 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 Dipārṇava 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 Dipārnava 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 Dipārnava details for spires with heights that are 1¼ 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 karna kūṭas that are made up of a base eave, two middle karna eaves and a karna őmalaka, and the second using karna kūṭas that incorporate three middle karna 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 karna kūtas 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 karna kūtas’ 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 pratilata 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 pratilatā, four right-hand pratilatā, and four karna kūtas. The sukanāsa 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 pratilatā courses. A brief table of results has been included beneath each hypothetical image to summarise how the fragments work with each.
Four hypothetical *sikharas* drawn to *Dīpārṇava* proportions

![Diagram of *sikharas* drawn to *Dīpārṇava* proportions](https://via.placeholder.com/150)

Figure 163: Elevation of the spire from Temple 45 using *kārṇa kūṭas* that have two middle *kārṇa* eaves each, proportioned according to *Dīpārṇava* instructions: Width of spire base = X, height = 1 1/4X, curvature radius = 4X

<table>
<thead>
<tr>
<th>Fragment type:</th>
<th>Lātā</th>
<th>Pratilatā</th>
<th><em>Kārṇa kūṭa</em> middle eaves</th>
<th><em>Kārṇa kūṭa</em> base eave</th>
<th><em>Kārṇa āmalaka</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of fragments that give concrete measurements:</td>
<td>61</td>
<td>78</td>
<td>21</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>No. of these that fit in diagram:</td>
<td>61</td>
<td>78</td>
<td>13</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>No. of these that do not fit in diagram:</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Range of widths for fragments that do not fit:</td>
<td>n/a</td>
<td>n/a</td>
<td>69 – 61cm</td>
<td>n/a</td>
<td>65 – 58cm</td>
</tr>
</tbody>
</table>
Figure 164: Elevation of the spire from Temple 45 using karna kutas that have three middle karna eaves each, proportioned according to Dīpārṇava instructions: Width of spire base = X, height = 1 1/4X, curvature radius = 4X

<table>
<thead>
<tr>
<th>Fragment type:</th>
<th>Lata</th>
<th>Pratilata</th>
<th>Karna kuta middle eaves</th>
<th>Karna kuta base eave</th>
<th>Karna amalaka</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of fragments that give concrete measurements:</td>
<td>61</td>
<td>78</td>
<td>21</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>No. of these that fit in diagram:</td>
<td>61</td>
<td>78</td>
<td>9</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>No. of these that do not fit in diagram:</td>
<td>0</td>
<td>0</td>
<td>12</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Range of widths for fragments that do not fit:</td>
<td>n/a</td>
<td>n/a</td>
<td>72 - 61cm</td>
<td>77cm &amp; 76cm</td>
<td>70 - 88cm</td>
</tr>
</tbody>
</table>
Figure 165: Elevation of the spire from Temple 45 using karna kāṭas that have two middle karna eaves each, proportioned according to Dipārṇava instructions: Width of spire base = $X$, height = $1 \frac{1}{3}X$, curvature radius = $4 \frac{1}{2}X$.

<table>
<thead>
<tr>
<th>Fragment type:</th>
<th>Lata</th>
<th>Pratilata</th>
<th>Karna kāṭa middle eaves</th>
<th>Karna kāṭa base eave</th>
<th>Karna āmalaka</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of fragments that give concrete measurements:</td>
<td>61</td>
<td>78</td>
<td>21</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>No. of these that fit in diagram:</td>
<td>61</td>
<td>78</td>
<td>13</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>No. of these that do not fit in diagram:</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Range of widths for fragments that do not fit:</td>
<td>n/a</td>
<td>n/a</td>
<td>69-61cm</td>
<td>72cm – 70cm</td>
<td>69–58cm</td>
</tr>
</tbody>
</table>

No. of fragments that fit with course measurements on elevation:
- 5
- 4
- 3
- 2
- 1

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 karna kāṭas that have three middle karna eaves each, proportioned according to Dipārṇava instructions: Width of spire base= X, height = 1 1/3X, curvature radius = 4 1/2X

<table>
<thead>
<tr>
<th>Fragment type:</th>
<th>Ātā</th>
<th>Pratilatā</th>
<th>Karna kāṭa middle eaves</th>
<th>Karna kāṭa base eave</th>
<th>Karna āmalaka</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of fragments that give concrete measurements:</td>
<td>61</td>
<td>78</td>
<td>21</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>No. of these that fit in diagram:</td>
<td>61</td>
<td>78</td>
<td>13</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>No. of these that do not fit in diagram:</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Range of widths for fragments that do not fit:</td>
<td>n/a</td>
<td>n/a</td>
<td>69–61 cm</td>
<td>84cm, 82cm, 72cm, 70cm</td>
<td>69–58</td>
</tr>
</tbody>
</table>
Analysis of the hypothetical śikhara elevations

The four drawings, created according to two Dīpārnava 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 Dīpārnava ratio for karna: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 Dīpārnava proportions, pulls the recesses and projections out of sync with the vēdibandha and requires a wider base eave for the karna (Figure 167). The ungainliness of this design makes it seem an unlikely way to resolve the problem.

![Figure 167: Śikhara plan over vēdibandha plan if the latā is made slimmer.](image)

An alternative and slightly less ugly solution in design terms would be to suggest that the vēdibandha lined up with the edge of the varanḍikā’s kapotālī rather than the śikhara base, and the projections from the śikhara stepped back from the varanḍikā edge by a little way, thereby narrowing the latā width whilst maintaining karna, 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 Dīpārnava dimensions,
the same problem still applies. Given the shape of the lata’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 lata leaves a number of the lowest lata courses missing. Given that this
problem occurs even when spires with invented ratios and proportions are used, maybe the
absence of the lowest lata courses is simply a matter of circumstance.

Perhaps the answer lies, as suggested earlier in the chapter, with the three unusual lata-style
fragments (Figure 136). If these do represent the lowest lata courses, and their
measurements fit with the lowest lata courses in the four elevations, then the plain areas of
stone that follow their initial gavākṣas indicate that something was covering over the lower
lata courses, perhaps the peaks of towering superstructures from the niches beneath them.
This would then explain the lack of lower lata courses, for the niche tops would take the
place of those from the side of the spire, and the sukanāsa 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 karna 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 ¼X tall spire with three karna middle eaves, however, there is a yawning gap between the final karnakūṭa 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 1/3X 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) Mahādeva Temple, Batesara (775 – 800 AD) (Photograph courtesy A.I.I.S.)

The majority of the eaves from the vēnukōśa are missing, and not all those that are present and accounted for work with the diagrams’ karnakūṭa proportions. The fact that some of the smallest of the karnakūṭa courses will not used in the spire is a given from the outset since the Dipamava proportions confirm that the spire’s karna projection will be about 68 cm at its summit, and there are slimmer pieces than these amongst the fragments. These and some of the other smaller karna 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 ¼X high elevation with two middle eaves all of the karnakūṭa base eaves fragments find homes (probably helped by the fact that a small eave has been included to top the final karnakūṭa), and the eight middles 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 1/3X 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 karna 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 *karnakūta* proportions of the elevations that use three middle eaves in their *karnās* jar significantly with the fragments from Temple 45 however. The majority of the *karnakūta* 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 *karnakūta* 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 *karnakūta* forms with three middle eaves is unlikely, the fact that they do not reach high enough up the 1½X 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 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 *šukanāsa* 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.

**Šukanāsa delimitations**

Most *šukanāsas* 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 *šukanāsa* 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 *šukanāsa* 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 *šukanāsa* cannot extend is shown by a green line.

There are two other clues that delimit where the *šukanāsa* lies on the spires. The first is its base width. *Šukanāsas* 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 kūta 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.
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 sukanāsa 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 sukanāsa is considered. In both the shorter spire and the longer spire, the plain area of stone suggests that the final point of the sukanāsa would occur less than halfway up the spire. Perhaps SAN 350 was not part of a lata course that joined up with the sukanāsa 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 sukanāsa. Or, perhaps one of the many unusual aspects of the design of Temple 45 was its unusually short sukanāsa. Whichever the case may be, exploring the constraints to the sukanāsa 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 varāndikā 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 $Dīpāraṇava$ proportions for a spire with a height that is $1 \frac{3}{4}$ times the width of the sikhara base.
Figure 172: The eastern face of Temple 45, drawn to Dipāṛuva 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 straightforward. 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 1¼ times the width of the sikhara 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 varanḍika 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 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 vedibandha and possibly pīthā. The more elaborate vedibandhas and pithas 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 āmalasaraka 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) Māljādevī Temple, Gyaraspur (Photograph courtesy of A.I.I.S.), c) Sūrya Temple, Madkhedha.](image)

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 Māljādevī temple at Gyaraspur (850-875 AD), the Sūrya Temple at Madkhedha (850 – 875 AD) and the Jarai-kā-math 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 Śūtradhāra, and Kulkarni translates parts of the Dipārṇava and Aparājitaprcchā 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 vēnikōsa of the spire.

Kulkarni’s translations of the two Dipārṇava descriptions use the former method. As with the instructions for Latina spire design taken from the Dipārṇava, 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 Dipārṇava proportions are not drawn to scale, therefore they misrepresent the instructions. The first translation of Dipārṇava instructions for the design of the grīva, āmalasāra, candrika and āmalasāraka creates the image shown in Figure 175a. Kulkarni’s translation of a second set of instructions that appear in both the Dipārṇava and the Aparājitaprcchā 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.’ This would suggest the āmalaka stretches to the point where the pratiratha joins the karna at the vēdibandha or varanḍikā 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.

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2 Dipārṇava 9.63 – 65 from R P Kulkarni, Prāśāda – Śīkha, p30: ‘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 Dipārṇava 9.66 – 67 & A P 142.1-3a, from R P Kulkarni, Prāśāda – Śīkha, 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 ¼ 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 Dipārṇava 9.63 – 65).
tip (Figure 175b), and the second allowing the āmalasāra to cross over the point where the pratiratha meets the karna at vēdībandha level (Figure 175c).

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 āmalasaraka, 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 Aparājītāpṛcchā, 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 Aparājītāpṛcchā 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 sikhara, continue upwards past the spire’s vēnukōśa 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 ½ parts, that of padmacchatra 1 ½ parts and the finial is three parts in height.”

Unlike the Dīpārṇava descriptions, the widths of the different crowning elements are not referenced, although maybe these are also

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4 Aparājītāpṛcchā 158.15 – 16, from R P Kulkarni, Prāśāda – Śikhara, p. 34.
meant to be determined by the outline of the skandhakośa. This method of proportioning the grīva, āmalaka, kalaśa etc also appears in the Samarāṇgaṇa 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 Samarāṇgaṇa Sūtradhāra’s descriptions of Nandiśālaḥ 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 gunas, one should draw the padmakosa.

49. Contiguously to the skandhakośa one should subdivide three bhāgas. The grīva should be half bhāga, the āmalasaraka 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 Samarāṇgaṇa Sūtradhāra do not explicitly mention the term skandhakośa, but here it is assumed that same proportioning method is implied.

137. With sūtras made into four, he should draw the padmakosa. A beautiful mañjāri should be constructed, with the shape of blue–lotus’ petals.

138. The grīva should be one and a half bhāgas, and the āmalasāraḥaka one bhāga, while the wise should construct the padmaśīrṣa according to the measure of the grīva.

139. The kumbhaka should be on top of the padya, being one and half bhāga, and endowed with an usnīṣa.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

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5 Sapādāṁś catuḥ bhāgāṁ śikharam locchhayah smṛtaḥ
   trigunena ca sūtraṇaḥ padmakośam samālikhet[48]
   skandhakośāntaram cāsyā bhāgāliḥ pravibhajet tribhiḥ
   bhaved grīvārdoḥ ha ṣe padmakośaṁ samālikhantam[49]
   padmaśīrṣaṁ ca bhāgārdhād bhāgena smṛtaṁ
   ity ukto rucakākhyo ‘yāṁ
   rucakāṁ[50]

Translated by Mattias Salvini, op. cit.

6 (caturgunaṁ prthakṣuṣṭram) (traiḥ) padmakośam samālikhet
   mañjāri lalitā kāryā nilotpalaśālākṛtib[137]
   grīva caikārdoḥ haḥ saḥ padmakośaṁ (bhāgenāḥ) malasāraḥ
   padmaśīrṣaṁ ca kartavyaṁ grīvāmāṇena dhīmatā[138]
   sardhaḥ haḥ seṣoṣṣaṁḥ padasyopyoparikumbhakaṁ
   sarvatobhadra ityukto reṣūnānāṁ eṣa śekharah[139]

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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 griva, āmalasāra, padmaśīra and kalaśa proportioned using the skandhakośa from a) Kulkarni’s translation of Aparajitapṛcchā spire Chapter 158: 15 – 16 (Kulkarni, p. 34) b) Samarāṅgaṇa Śūtradhāra descriptions of Mandira and Sarvatobhadra temple types, Chapter 56:161 – 162 & 137 – 139, c) Samarāṅgaṇa Śūtradhāra descriptions of Rucaka and Nandiśālah temple types, Chapter 56:48 – 50 & 153–154.](image)

Of these three diagrams the Aparajitapṛcchā description seems most accurately proportioned. In the first Samarāṅgaṇa Śūtradhāra spire shown in Figure 176b the griva seems disproportionately tall, as does the padmaśīra or candrika, whereas the āmalasāra seems rather thin. In contrast to this, in the Rucaka temple from the Samarāṅgaṇa Śūtradhāra (Figure 176c) the griva seems too short and the āmalaka disproportionately fat. The Aparajitapṛcchā 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 guna śūtra’, none of the descriptions mention the use of a ‘4.5 guna śūtra’ as used to create the outline of the taller hypothetical spire.

Figure 177: Description of āmalasāra etc design from Kulkarni’s translation of an Aparājitapṛcchā 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 Aparājitapṛcchā 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 Aparājita-prcchā measurements,
and topped with a representation of the surviving kalaśa from Temple 45.
Figure 178: Hypothetical elevation of Temple 45 with a 1 ¼ X tall spire with grīva, ṛmalasāra, candrika, ṛmalasāraka 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 karna, 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 1/3 X spire would be 676cm, and the 1 ¾ 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 karnakūta 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 ¾ times the width of its base (1 ¾ 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 karna kūta 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 Valabhi 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 vēnukōsa of the 1 ¼ X 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 sikhara. Spire elevations created using a four guṇa sūtra appear not just in the Dīpārṇava, but several times in the Samarāṅgana Śūtradārā and in the Aparājitapṛcchā. 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 vēnukōsa 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 Samarāṅgana Śūtradārā, 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 Aparājitapṛcchā. 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 sikhara 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 vēdibandha 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 ‘karnakūta’ courses that are most likely part of the sukanāsa, fit with the measurements shown in the elevation. Piled up with the diminishing lengths of the connecting courses

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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 *Vastusastras* 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 *Vastusastra* 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 *Vastusastra* were discussed. Having interrogated different contemporary theories of Latina spire design, each resulting from different interpretations of *Vastusastra* descriptions, the logic and feasibility of the account offered by Dr R P Kulkarni in *Prāśāda-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 *Dīpārna*, 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

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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 Dipārnava 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 Dipārnava 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 Vastusāstras, therefore, and the inaccuracy of some of the texts’ descriptions were made clear in the unlikely elevations drawn here, in light of the Dipārnava 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 sikhara courses from Temple 45 and pieces that may have formed its varandikā 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 vēdibandha were used to establish the dimensions of the sikhara base. This crucial measurement then enabled the system of Latina spire design and sets of proportions from the Dipārnava 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 Dipārnava 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 Vastusastraic descriptions of amalasāra, gṛiva and kalaśa 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 Vastusastrastras. 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.
Bibliography


Bhattacharya, Tarapad, *Canons of Indian Art or A Study on Vastuvidya* (Calcutta: 1963).


Casile, Anne, *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).


Chattopadhyaya, Sudhakar, *Early History of North India (From the fall of the Mauryas to the death of Harsa)*, (Delhi: Motilal Banarsidass, 1976).


- *History of Indian and Indonesian Art*, (Londres: Goldston, 1927).


Deva, Krishna, Gopal, Lallanji and Singh, Shri Bhagwan (eds), *History and Art: essays on history, art, culture and archaeology presented to Prof. K.D. Bajpai in honour of his fifty years of Indological studies*, (Delhi: Ramanand Vidya Bhawan, 1989).


- Tree and serpent worship: or, illustrations of mythology and art in India in the first and fourth centuries after Christ, from the sculptures of the Buddhist topes at Sanchi and Amaravati, 2nd ed, (London: W. M. Allen & Co., 1873).

Fergusson, James and Burgess, James, The Cave Temples of India (New Delhi, 1880).


- , Hoysala Architecture: Medieval temples in southern Karnataka built during Hoysala rule, (Delhi, 1994).


- (ed), The Temple in South Asia (London: British Academy, 2007).

- , Indian Temple Architecture: Form and Transformation (Delhi, 1995).


Havell, E. B., The Art Heritage of Indian Art: comprising, Indian sculpture and painting; and Ideas of Indian art, (London: J Murray, 1911).

Hawkes, Jason and Shimada, Akira (eds), Buddhist Stupas in South Asia. Recent Archaeological, Art-Historical, and Historical Perspectives, (Delhi: Oxford University Press, 2009).


Tripathi, K. K., *Archaeology of Vidiśā (Daśārṇa) Region*, (Delhi: Sharada publishing house, 2002).


Glossary of Sanskrit terms

āmalaka: ‘myrobalan fruit’, ribbed crowning member of North Indian shrines

āmalasāra: āmalaka. This term is used in particular to reference the fat, crowning āmalaka that sits above the Latina spire

āmalasāraka: compressed āmalaka. It usually sits above a disc (candrikā) that covers the larger āmalasāra in the final sequence of elements that crown Latina temples

aṅga: ‘limbs’ or ‘members’, used in reference to the projections in a temple plan: a dvi-aṅga temple is ‘two-limbed’ or has two plains of offsets, therefore it has three stepped or articulated projections per side; a tri-aṅga temple is ‘three-limbed’ and has five stepped or articulated projections per side

antarāla: antechamber in front of the sanctum

apsarā: celestial nymph

aṁśa: ‘part’, used as a proportioning measure in Vastusaśāstric descriptions of temple design

ardhapadma: half-lotus decorative motif

bālapaṇjara: miniature Valabhi aedicule, set in the recesses between Latina spire projections

bhadra: central wall projection, normally on a cardinal axis

bhāga: ‘part’, used as a proportioning measure in Vastusaśāstric descriptions of temple design (see also aṁśa)

bhīṭṭa: a plinth course.

bhūmi: tier or storey in a North Indian temple

Bhūmija: North Indian temple type characterized by the vertical chains of kūṭastambhas making up the spire’s corner and intermediate projections

bhūta: goblin

bhūtasākhā: door-jamb carved with goblins

cāitya: a barrel-vaulted worship hall

cakra: wheel, discus
candraśālā: dormer windows

candrikā: disc with a flared lip that sits on top of a North Indian temple's crowning āmalasa

chādya: stone canopy, awning

catukṣākha: with four door-jambs

caturmukha: four-faced, four-doored

Dikpālas: the guardians of the directions

Drāviḍa: generic name for South Indian temple types
dvāra: door
dvārapāla: door guardian
dvi-āṅga: 'two-limbed' or with two plains of offsets, leading to three projections in total
gajapīṭha: basal moulding bearing a series of elephants
ganā: dwarf, sprite
ganaśākhā: door-jamb carved with sprites
gandharva: celestial minstrel
garbhagrha: womb-house; the inner sanctum of a temple.
garuḍa: mythical eagle or kite.
gavākṣa: 'cow eye', stylized horse-shoe arch.
ghanṭā: bell

grāsamukha: gorgon face
grāsapatta: moulding made up of a row of gorgon faces
grīva: 'neck', cylindrical shaped architectural element that stands on the shoulder course that tops a North Indian temple spire, holding aloft the crowning āmalaka and final sequence of elements.
gūḍhamaṇḍapa: closed entrance hall
jagati: plinth, platform
jāla: mesh design, grill
jaṅghā: wall frieze
kákṣśāsana: seat back
kalaśa: vase; ‘vase’ or ‘pot’ moulding, a vēdibandha basal mouldings; pot finial
kaṇṭha: neck, recess between mouldings
kapīśī: walls of the vestibule in front of the temple sanctum
kapōṭa: roll cornice; overhanging cornice
kapotāḷī/kapotāṭī: cyma-eave cornice moulding
karna: angle; corner wall-division, corner
karnakūṭa: square, corner aedicules
karnika: a moulding cornice
khura: vēdibandha basal moulding
kiṅkiṇīkā: festoon
kiṅkiṇīkājāla: bell festoon
kīrttimukha: ‘face of glory’; demon face
kumbha: ‘pot’; vēdibandha basal moulding with a curved shoulder
kumbhaka: pillar base
kūṭa: square aedicule
kūṭāstambha: kūṭa-topped pillar
lāṭā: creeper; central vertical band of a temple spire made up of a ‘creeper’ of interlocking gavākṣas projecting from piled eaves
lalāṭabimba: central symbol or figure on door lintel;
Latina: North Indian temple type with a curving superstructure
linīga: phallic representation of Śiva
mahāmanḍapa: great hall
makara: aquatic mythical creature
manḍapa: pavilion, hall
mālā: garland; decorative band
mandala: sacred diagram; geometric representation of the cosmos
manḍapikā: temple type with pillared walls, often with flat roof
manḍōvara: wall of the temple above any base or plinth and below the eave
mukha: face
mukhamanḍapa: entrance hall
miśraka: 'mixed' pillar type, combining square, polygonal and circular forms
mithuna: affectionate couple
mithunāśākhā: door jamb bearing affectionate couples
mūlaprāśāda: main temple
nāga: serpent
nāgapāsa: intertwined serpents
Nāgara: generic name for North Indian temple types
Nandi: Śiva's bull mount
Navagrahas: the nine planets
nirandhāra: without ambulatory
padma: lotus
padmapāṭṭikā: lotus frieze
patravallī: leafy scroll
patrāśākhā: door jamb carved with foliage
pattikā: rectangular fillet
pēdyā: lower section of door jamb
Phāṁsanā: North Indian temple type with tiered, pyramidal superstructure
pīṭha: moulded base
pradakṣinā: circumambulatory passage
prāggrīva: projection in front of the sanctum
prāśāda: palace, mansion; temple
pratihāra: attendant, door guardian
pratiliṭā: vertical band flanking central projection of the spire
pratirātha: offset flanking the central projection of the wall
raṅgaṇāḍapā: open pillared hall
rēkā: the curvature of spire
rucaka: square pillar type
śākhā: door jamb
salilāntara: recess between wall and spire projections
sāndhāra: with ambulatory
sarvatōbhadra: temple type with four entrances
Śēkharī: North Indian temple type with superstructure made from multiple, cascading Latina spires
śikhara: spire
skandha: shoulder; ‘shoulder’ moulding that caps the main body of a spire
skandhakōśa: circular curves that determine the proportions of the temple’s final sequence of grīva, āmalasāra and pot finial
stambhaśākhā: door jamb in the form of a pillar
stūpa: hemispherical memorial mound
śukanāsa: antefix that crowns the vestibule in front of the temple
śūrasēna: pediment made up of a trifoliate gavākṣa pattern
Sūtra: cord, string; philosophical, doctrinal or technical text

tala: storey

Tūraṇa: gateway

Tri-āṅga: ‘three-limbed’ or with three plains of offsets, leading to five projections in total

Triṅbhaṅga: standing pose with three bends in the body

tulā: joist, joist end

tulapīṭha: row of joist ends

Udgama: pediment of interconnecting gavākṣas

Upabhodra: minor offset flanking but forming a part of the central offset

vāhana: mount

Valabhi: North Indian temple type with barrel-vaulted superstructure

Vāsantapāṭṭikā: broad band carved with floral scroll

Varaṇḍikā: moulded parapet; mouldings separating wall frieze from superstructure

Vāstu-mandala: sacred diagram involved in the planning of towns, habitations and temples

Vedi: altar

Vedi-bandha: basal mouldings, usually involving khura, khumba and kalaśa mouldings

Vedi-kā: railing, balustrade

Venukōśa: comer bands of a curvilinear spire

Vidyādhara: flying celestial figure

Vyāla: mythical, composite creature; griffin

Vyālasākha: door jamb decorated with vyālas

Yakṣa: male nature spirit, associated with trees, mountains, streams and forests

Yakṣī: female nature spirit, associated with fertility.
yōgini: 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.

- 'Topknot'
- 'Sash'
- 'Shoulder'
- 'Arms'
- 'Points'
- 'Feet'

\[ = \text{`low-arm` } gavākṣa = dO_b \]

\[ = \text{`high-arm` } gavākṣa = )O( \]

\[ = dO( \]

\[ = )c( \]

\[ = )b \]

\[ = d( \]
Site plan: fragment locations referenced in the tables of measurements.

Detailed plan of area 'f':

Detailed plan of area 'j':
*Latā* course measurements, arranged in descending size order.

**Key:**

- **GW** = *Gavākṣa* width
- **1/2GW** = $\frac{1}{2}$ *Gavākṣa* width
- **XW** = 'X' width
- **1/2TW** = $\frac{1}{2}$ Total course width
- **1/2TH** = $\frac{1}{2}$ Total course height
- **SH** = *Gavākṣa* height to 'shoulder'
- **TH** = Total course height
- **ETW** = Estimated total width

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<tr>
<th>Measurements in cm.</th>
<th>L.D. and location</th>
<th>Fragments</th>
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<tbody>
<tr>
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<td>SAN 367&lt;br&gt;Photo 1359&lt;br&gt;Location: j-vii</td>
<td><img src="image1.png" alt="Fragment SAN 367" /></td>
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<tr>
<td>GW: 35&lt;br&gt;ETW: 140&lt;br&gt;XW: 17.5&lt;br&gt;SH: 22</td>
<td>SAN 97&lt;br&gt;Photo 106&lt;br&gt;Location: f-v</td>
<td><img src="image2.png" alt="Fragment SAN 97" /></td>
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<td>SAN 290&lt;br&gt;Photo 1465&lt;br&gt;Location: j-iv</td>
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| | ETW: 93  
| | SH: 22  
| SAN 88 | GW: 22.5  
| Photo 100 | 1/2TW: 45  
| Location: f-v | ETW: 90  
| | XW: 11.5  
| | SH: 22  
| SAN 358 | GW: 21  
| Photo 1175 | ETW: 84  
| Location: j-vii |  
| SAN 185 | GW: 20  
| Photo 136 | TW: 80  
| Location: f-iii | SH: 22  
| SAN 109 | GW: 18.5  
| Photo 771 | TW: 76  
| Location: f-iv | SH: 21  
| SAN 363 | GW: 16.5  
| Photo 1353 | TW: 65 - 66.5  
| Location: j-vii | SH: 18  

Measurements of fragments relating to the *laṭā* courses:

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Measuresments of *laṭā ṭudgamas*:

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<td>Width at base: 54 Height: 53 Depth: 36</td>
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<td>Photo 1393 Location: j-viii</td>
<td>Width at base: 55 Height: 54 Depth: 35</td>
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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’

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<th>Left or right pratilatā, measurements in cm.</th>
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<td>Right GW: 36 TW: 60</td>
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<td>Right GW: 35 TW: 59 SH: 22.5</td>
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GW: Gross Width; TW: Twill Width; SH: Shaft Height; TH: Top Height; EW: Ear Width
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| Location: j-vii |  | | | | |

| SAN 265  | Right | GW: 31.5 | TW: 52.5 | SH: 22 |
| Location: j-i |  | | | | |

| SAN 379  | Right | GW: 31.5 | TW: 52.5 | SH: 22 |
| Photo 1367 | Location: j-vii |  | | | |

| SAN 408  | Left  | GW: 30.75 | TW: 51.5 | SH: 21.5 |
| Photo 1382 | Location: j-vii |  | | | |

| SAN 390  | Left  | GW: 31 | TW: 51 |
| Photo 1370 | Location: j-vii |  | | | |

| SAN 292  | Left  | GW: 30.5 | TW: 51 | SH: 22 | TH: 29 |
| Photo 1468 | Area 15 | Location: iv |  | | |

| SAN 108  | Right | GW: 31 | TW: 50.5 | SH: 22 |
| Photo 0779 | Location: f-iv |  | | | |

| SAN 126  | Right | GW: 30 | TW: 50.5 |
| Photo 739 | Location: f-iv |  | | | |
| SAN 176  
Photo 122  
Location: f-iii | Right  
GW: 30  
TW: 50  
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  
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Measurements for the *pratilatā udgamas*:

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<th>Measurements in cm.</th>
<th>Fragments</th>
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| Photo 1185 | Width at base: 36  
Height: 34  
Depth: 25 |  |

| SAN 195 | Width at base: 36.5  
Height: 50  
Depth: 28 |  |
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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

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<th>Left or right and measurements in cm.</th>
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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 |
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### Karnakātas of a different style:

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Measurements of fragments that break from typical karṇaṇaṭa form:

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<tr>
<td>SAN 192 Photo 0689</td>
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**Karna āmalaka measurements.**

**Key:**
ETW = Estimated total width
ETH = Estimated total height

(Note that the fragmentary nature of the āmalaka fragments means that all ‘total widths’ are estimates.)

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<tr>
<td>SAN 87</td>
<td>ETW: 75+ ETH: 15</td>
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<td>Photo 98</td>
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<td>ETW: 70+</td>
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<td>Photo 1503(1)</td>
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<td>SAN 83</td>
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<td>Photo 92</td>
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<td>SAN 425</td>
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<td>Photo 1239</td>
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327
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**Karnakūta cave measurements:**

Key:

- **1/2TW** = Half total width
- **ETW** = Estimated total width
- **ETH** = Estimated total height

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<th>Fragments</th>
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Spreadsheets of sikhara course measurements.

Key:
% = % of course surviving
L or R = left-hand or right-hand fragment
GW = gavākṣa width
1/2TW = \( \frac{1}{2} \) total width
ETW = estimated total width
XW = ‘X’ width
SH = height to gavākṣa ‘shoulder’
TH = total height

All measurements in cm.

\textit{Lajā courses:}

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336
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Pilasters beneath *manḍapa* seats:

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**Maṇḍapa seats:**

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<td>![Photo(2.5) 90](Photo(2.5) 90)</td>
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<td>![Measurements](Photo(2.5) 90)</td>
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<tr>
<td><strong>Photo(2.5) 89</strong></td>
<td>![Photo(2.5) 89](Photo(2.5) 89)</td>
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<td>![Measurements](Photo(2.5) 89)</td>
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<tr>
<td><strong>Photo(2.5) 88</strong></td>
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**SAN 197**

Photo 0693
Location f-i
### Mandapa seat backs:

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<tr>
<td>Location: c</td>
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<tr>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
</tr>
<tr>
<td><img src="image3" alt="Image" /></td>
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| Photo(2.5) 024    |                                |
| Location: f-ii    |                                |
| ![Image](image5)  | ![Image](image6)               |
| ![Image](image7)  | ![Image](image8)               |

| Photo(2.5) 68     |                                |
| Location: j-i     |                                |
| ![Image](image9)  | ![Image](image10)              |
| ![Image](image11) | ![Image](image12)              |

<p>| SAN 349           |                                |
| Photo(2.5) 70     |                                |
| Location: j-vii   |                                |
| <img src="image13" alt="Image" /> | <img src="image14" alt="Image" />              |
| <img src="image15" alt="Image" /> | <img src="image16" alt="Image" />              |</p>
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<tr>
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<tbody>
<tr>
<td><img src="https://example.com/image4.png" alt="Image" /></td>
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</table>
Measurements of diamond lotus/pilaster courses from *maṇḍapa* roof:

Wide diamond lotus/pillar courses:

<table>
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<tbody>
<tr>
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<td><img src="image1" alt="Image of SAN 80" /></td>
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<tr>
<td>Photo 090</td>
<td></td>
</tr>
<tr>
<td>Location: f-v</td>
<td></td>
</tr>
<tr>
<td>SAN 299</td>
<td><img src="image2" alt="Image of SAN 299" /></td>
</tr>
<tr>
<td>Photo 1471</td>
<td></td>
</tr>
<tr>
<td>Location: j-vi</td>
<td></td>
</tr>
<tr>
<td>SAN 180?</td>
<td><img src="image3" alt="Image of SAN 180?" /></td>
</tr>
<tr>
<td>Photo 046</td>
<td></td>
</tr>
<tr>
<td>Location: f-iii</td>
<td></td>
</tr>
<tr>
<td>Photo 754</td>
<td><img src="image4" alt="Image of Photo 754" /></td>
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Medium-sized *kapotapālī* and diamond lotus/pilaster courses:

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<tr>
<th>SAN 180</th>
<th>Photo 1307</th>
<th>Location: j-ii</th>
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<tbody>
<tr>
<td>SAN 173</td>
<td>Photo 034</td>
<td>Location: f-iv</td>
</tr>
<tr>
<td>Photo</td>
<td>Location</td>
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</tr>
<tr>
<td>102</td>
<td>f-v</td>
<td></td>
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<tr>
<td>SAN 180 (or 189?)</td>
<td>f-iii</td>
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</tr>
<tr>
<td>148</td>
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<td>SAN 300</td>
<td>j-vi</td>
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<td>1473</td>
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</tr>
<tr>
<td>751</td>
<td></td>
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</tr>
<tr>
<td>SAN 454</td>
<td>j-vii</td>
<td></td>
</tr>
<tr>
<td>1181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo 1774</td>
<td>I</td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Photo 142</td>
<td>f-iii</td>
<td></td>
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</table>
Narrow diamond lotus/pilaster courses:

<table>
<thead>
<tr>
<th>SAN 172</th>
<th>Photo 037</th>
<th>Location: f-iv</th>
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<tbody>
<tr>
<td>SAN 144</td>
<td>Photo 1026</td>
<td>Location: f-ii</td>
</tr>
<tr>
<td>Photo 772</td>
<td>Location: f-iv</td>
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*Chādya measurements: awnings, pillar tops, composite structures.*

Pillar tops:

<table>
<thead>
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<tr>
<td>Reference</td>
<td>Description</td>
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<tr>
<td>-----------</td>
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</tr>
<tr>
<td>SAN 125</td>
<td>Photo 1323</td>
</tr>
<tr>
<td></td>
<td>Location: j ii</td>
</tr>
<tr>
<td>Photo 082</td>
<td>Location: f iii</td>
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Awnings and composite pieces:

<table>
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<tbody>
<tr>
<td>SAN 76</td>
<td>Photo 085</td>
</tr>
<tr>
<td></td>
<td>Location: f v</td>
</tr>
<tr>
<td>SAN 166</td>
<td>Photo 062</td>
</tr>
<tr>
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### Udgamas, small composite shrine formations:

Three composite shrine arrangements:

<table>
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<tr>
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<tbody>
<tr>
<td>SAN 85 Photo 96 Location: f-v</td>
<td>![Fragment Image]</td>
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Large beaded *udgamas* in *pratilāṭa* style:
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:

<table>
<thead>
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<th>Description</th>
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</thead>
<tbody>
<tr>
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<tr>
<td>SAN 142</td>
<td>Photo 1028</td>
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<tr>
<td></td>
<td><img src="image2.png" alt="Image" /></td>
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<td>Ph 1489 j-v</td>
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359
**Udgamas from maṇḍapa niches:**

<table>
<thead>
<tr>
<th>SAN 218</th>
<th>![Image of SAN 218]</th>
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<tbody>
<tr>
<td>Photo 1195</td>
<td>Location: j vii</td>
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<table>
<thead>
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<th>SAN 344</th>
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<tbody>
<tr>
<td>Photo 1221</td>
<td>Location: j vi</td>
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</table>

<table>
<thead>
<tr>
<th>Photo 1227</th>
<th>![Image of Photo 1227]</th>
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<tbody>
<tr>
<td>Location: j vi</td>
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</table>

**Other udgamas:**

<table>
<thead>
<tr>
<th>SAN 331</th>
<th>![Image of SAN 331]</th>
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<tbody>
<tr>
<td>Photo 1501</td>
<td>Location: j v</td>
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</tbody>
</table>
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 śukanāśa from Temple 45 will be described and a few pictures included showing the initial experiments I made into how the śukanāśa could have looked. Following this the three aberrant latafragments 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.

Śukanāśa

All śukanāśas are conceived of and structured as the roofs of miniature Valabhi shrines, joining up to the temple’s kapili, which forms the Valabhi’s body, backing into the main spire of the temple. Aspects of the śukanāśa’s form and proportions are restricted by its Valabhi 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 śukanāśas are the same and the way they are put together allow the architect and craftsmen to showcase their individual talents and creativity.

Śukanāśas 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 by 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 Valabhi 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 Valabhi shrines stretch backwards from the śukanāśa’s crowning gavākṣa to meet the Latina spire, further little Valabhi shrines perhaps projecting from these too, and extra āmalaka shrines may be set beneath them along the kapili walls.

The elaborate spire that is the śukanāśa sits, like the main Latina spire of the temple, just above the level of the varanḍikā. The varanḍikā courses often continue on from the walls of the sanctum along the walls of the kapili, underscoring the śukanāśa spire as well as the central spire. The base proportions of the śukanāśa accord with the dimensions of the temple’s vestibule that forms the Valabhi 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 śukanāśa, and even with this surplus of pieces (and, in some ways, because of it) trying to piece the śukanāśa 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 śukanāśa 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 kūrtimukha 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 śukanāśa’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 śukanāśa.
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 sukānāsa.

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 āpsara leaping on its shoulder, and this too is part of a larger slab of stone.

Other possible sukānāsa elements.

Āmalaka shrines stand at the lower edges of the Valabhī arches. These follow the same form as the spire’s karnakūtas, 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 sukānāsa. Of these there are eight middle ‘karnakūta’ eaves ranging from 69 – 61cm in width, no remaining base eaves, and four karna āmalakas ranging from 65 – 58cm in width. This suggests that there are at least four āmalaka shrines involved in the sukānāsa, 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 sukānāsa 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 a 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.](image)

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 Valabhi 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 kapili, 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 kapili 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 śukanāsa arrangements 1.
Figure 186: Exploring šukanāsa arrangements 2.
Figure 187: Exploring šukanāsa arrangements 3.
Figure 188: Part of a śukanāsa arrangement 4.
Mandapa

Central Indian Latina temples are usually preceded by simple porches rather than the elaborate mandapas of later Sekhari and Bhūmija temples. Of the temples considered in this project, only the ‘split-Latina’ Gadharmal Temple at Badoh has a mandapa. Temple 45 is therefore unusual, because the mandapa base that stretches in front of it, following a typical medieval vedi bandha format of khura-khumba-kalaša-kapotapāli and boasting pretty udgama-topped niches housing playful little triplets and couples, and numerous architectural fragments, indicate that, in contrast to its Spartan garbhagṛha walls, it had an ornate open mandapa with benches along its inner, lateral walls.
*Maṇḍapa* pilasters, seats and seat backs.

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 190: Plan of the *maṇḍapa* from Temple 45.](image)

![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.)](image)
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 
\textit{mandapa}, 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 \textit{kaksāna} would have slotted.

\textbf{Figure 192: \textit{Mandapa} ‘bench’ bases.}

Eight fragments from the \textit{kaksāna} 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.

\textbf{Figure 193: \textit{Mandapa} seat backs.}

\textit{Mandapa} roof.

The courses of stone with diamond lotus and pillar designs discussed in Chapter 5 with reference to the \textit{varandikā} from Temple 45 are likely to have come from the roof of the \textit{mandapa}. 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 \textit{mandapa}, as indicated by their ‘three-tiered’ stepped outlines that fit with the corner projections from the \textit{mandapa} base (Figure 190, table of measured fragments p.352). Conveniently, one piece is currently situated above two corner fragments from the \textit{mandapa} 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


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.

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 kirttimukha faces spouting forth a 'T-shape' of aquatic swirls. A ribbed disc is set above the kirttimukha, 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 mandapa roof.
The circumambulatory passage around the temple would have remained uncovered since the varāṇḍikā 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).

Superstructures above the niches

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 lata course left uncarved would have been about one metre wide in total, and therefore too narrow to be covered by the śukanāśa. 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 Śūrya 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 śukanāśa 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 śukanāśa, or by the three niche superstructures.

Figure 200: Śiva Temple, Kodal (10th century AD), (Photograph courtesy A.I.I.S.), b) Śūrya Temple, Madhkedha (850 – 875 AD).