PARTS AND WHOLES: THE STORY OF THE GAVĀKṢA

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Known by various names, of which the most familiar is *gavākṣa* ('cow eye' or 'ray-eye'), the horseshoe arch form is an omnipresent feature in both of the classical languages of Indian temple architecture, the northern Nāgara and the southern Drāviḍa. Though often regarded simply as an ornament, as implied in such phrases as 'the niche pediment is adorned with *caitya* arch motifs', the *gavākṣa* is not only ubiquitous, but also integral to the Nāgara and the Drāviḍa, having been a basic element in the range of timber structures which provided the initial imagery for both of the two broad traditions of monumental sacred architecture in brick or stone. *Gavākṣas* play a role not merely in the decoration of temples, but in their composition. At times they are the essential component in architectural patterns which convey (both within an individual monument and in the evolution of the patterns through the course of a tradition) a process of emergence, expansion, proliferation and subsequent dissolution. Such expression, through formal means, seems to embody a vision of cosmic manifestation, and to do so in a more intrinsic way than through the kind of associational overtone implied in the assertion that the *gavākṣa* 'retains as its outline the shape of the arch of vegetation, the shape of Prakṛti'.[1] In any case, aside from composition and regardless of symbolism, the shapes of *gavākṣas* tell their own story, providing the surest hallmark

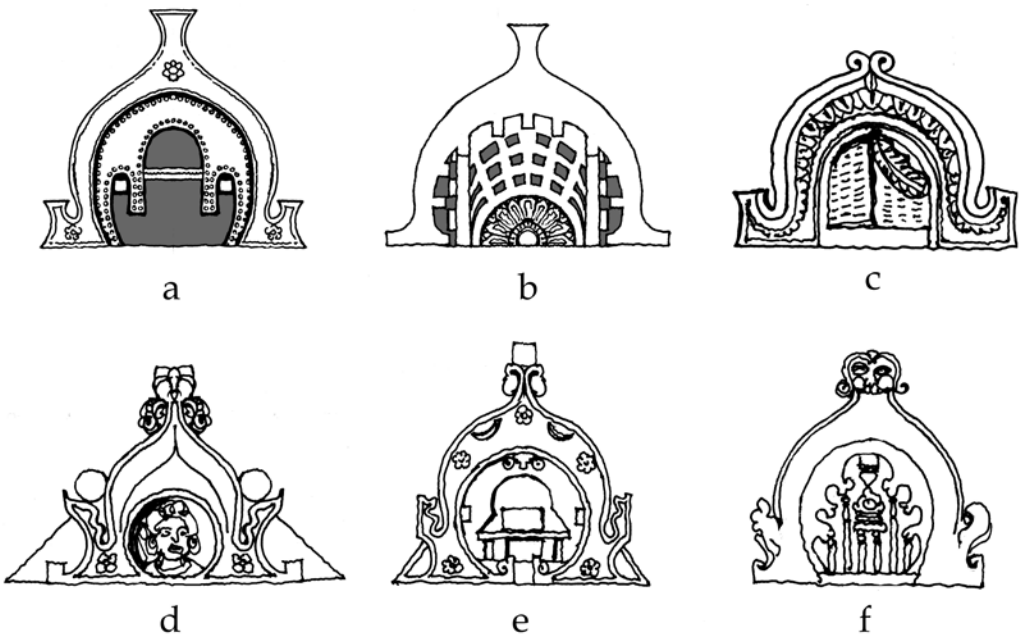


Figure 1: Early horseshoe arch windows and gavākṣas: a. window type shown in relief carvings, with shading device; b. window type depicted in caitya hall façades, with open wooden screen; c. window on a fragment from Mathura, c third century AD; d. gavākṣa on a fragment near the Gupta temple, Deogarh (Uttar Pradesh) c AD 500; c. gavākṣa from the Old Temple, Gop (Saurahstra), c AD 600; d. from the Lakṣmaṇa temple, Sirpur (Chattisgarh), c early seventh century.

of style, the most reliable indication of the time and place to which a temple belongs and of the guild or workshop which made it. While the quirks and inflections of the flowing outlines must often have arisen through unconscious habit, a typology of *gavākṣa* shapes can be seen to have been widely recognised by the craftsmen, and used deliberately for the sake of variation and identity.

This paper focuses on the *gavākṣas* found in Nāgara traditions of temple architecture, taking account of the role that they play in the different modes of Nāgara temple. It traces their origins in wooden buildings known through relief carvings and rock-cut monuments, describing the earlier varieties, identifying the types which prevailed during the heyday of temple building between the seventh and thirteenth centuries, and noting certain regional variations. One particular form is identified as the standard 'mainstream' Nāgara type across a very wide area, albeit with regional variants and evolving through time. The geometrical basis of this type is analysed here for the first time, allowing an explanation of the geometry of the increasingly complex combinations of *gavākṣa* motifs which developed.

EARLY GAVĀKṢAS

The origin of the *gavākṣa* lies in ancient Indian wooden architecture, as seen in narrative reliefs on the *tōraṇas* (archways) and railings of *stūpas* from the first and second centuries BC and AD. Bharhut (*Figures 2, 3*), Sanchi and Amaravati have provided the best known examples of such reliefs, while the recently excavated *stūpa* site at Kanganahalli, published in Michael Meister's paper in this volume, is an important addition to the corpus. Reliefs of this kind depict shrines, mansions and city gateways in which barrel-roofs, thatched or occasionally tiled, are conspicuous. Distinctive horseshoe gable boards adorn the ends of these roofs, and often also the dormer windows projecting from their flanks. Lower down, rounded canopies shade balconies and verandas, and these canopies too may contain horseshoe dormers. A typical gable opening from these early reliefs is shown with the ends of two longitudinal beams supporting a lateral brace, and a woven shading device with three lobes to allow the beam ends to pass through (*Figures 1a, 4*).

Figure 2: Relief on a stūpa railing from Bharhut (MP), c second century BC, showing horseshoe gables on a shrine and a barrel-roofed mansion; now in the Indian Museum, Kolkata. Photo courtesy of American Institute of Indian Studies.

Figure 3: Relief on tōraṇa (gateway) from Bharhut, showing wooden 'caitya hall' with nave and aisles. Photo courtesy of American Institute of Indian Studies.

Barrel-roofed wooden structures were translated into stone in rock-cut sanctuaries, their gable ends represented on the cliff face, thus given a prominence which invited both formal elaboration and symbolic association. An early example is the Lomāś Ṛṣi cave in the Barabar Hills near Gaya (Bihar), *c* third century BC (*Figure 5*). Although its interior chamber is in fact at right angles to the façade, the façade represents the end of a long roof, in this case a keel shape, with timber constructional details faithfully reproduced. Still rather like petrified carpentry are the Buddhist rock-cut '*caitya* halls' carved in the Western Ghats between the first century BC and the second century AD. These barrel-roofed spaces are mainly apsidal-ended, housing a *stūpa* in the apse, with side aisles, roofed with half-barrels, meeting at the rear to form a circumambulatory passage (*Figures 6, 3*). The great horseshoe arch '*caitya* window' in the façade illuminates the *stūpa* in the depths. Running outwards towards the gable, longitudinal joists pass across a ribcage of hooped beams, all cut in stone, and radiate out into the sunlight. Repetition of blind '*caitya* arch' forms at a small scale across the façades of *caitya* halls mark the beginning of the use of this motif as an ornamental or articulating device (*Figure 7*). The usual form (*Figure 1b*), already in the early narrative reliefs (*Figures 2, 3*) an alternative to the type with the three-lobed shading device, contains the representation of a timber screen with radiating spokes. This pattern looks like a perspective view into a *caitya* hall, but that it implies a screen is confirmed by the wooden one surviving in the gable of the *caitya* hall at Karle (*c* first century AD). As at the Lomāś Ṛṣi, short horizontal props are shown between the vertical posts and sides of the roof.

In Gandhara, around the second century AD, the kind of barrel-roofed building typified by the *caitya* hall was already being rendered in structural masonry for the sake of its exterior image rather than its interior layout. This is the case in the ruined Court of the Stupa at the monastery of Takht-i-Bahi, surrounded by small shrines alternately of the '*caitya* hall' type (*Figure 8a*) and a circular-domed form, respectively housing *stūpas* and Buddha images in a simple square sanctum. At this date, a miniature depiction of the same '*caitya* hall' shrine form was commonly used in Gandhara as a niche-surround or aedicule (*Figure 8b*).

Meanwhile around Mathura, the other extreme of the Kushana empire, ornamental treatment of the surfaces of horseshoe gables attained unprecedented lushness and variety, as can be seen in surviving fragments (*Figures 1c, 9, 10*). These qualities were accompanied by an increasing stylisation of the linear outline of the motif, which went hand in hand with the

Figure 4: Horseshoe gables on relief of storeyed shrine from Ghantashala (Andhra Pradesh), c second century AD; now in Musée Guimet, Paris.

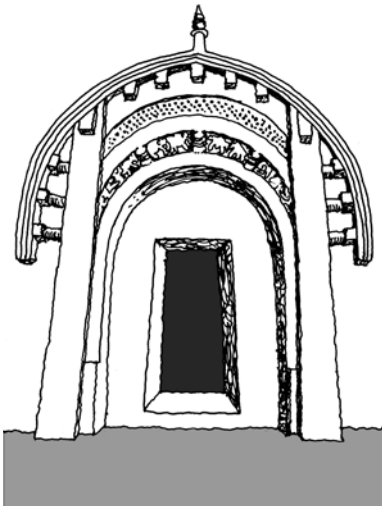


Figure 5: Entrance to the Lomāś Ṛṣi cave, Barabar Hills near Gaya (Bihar), c third century BC.

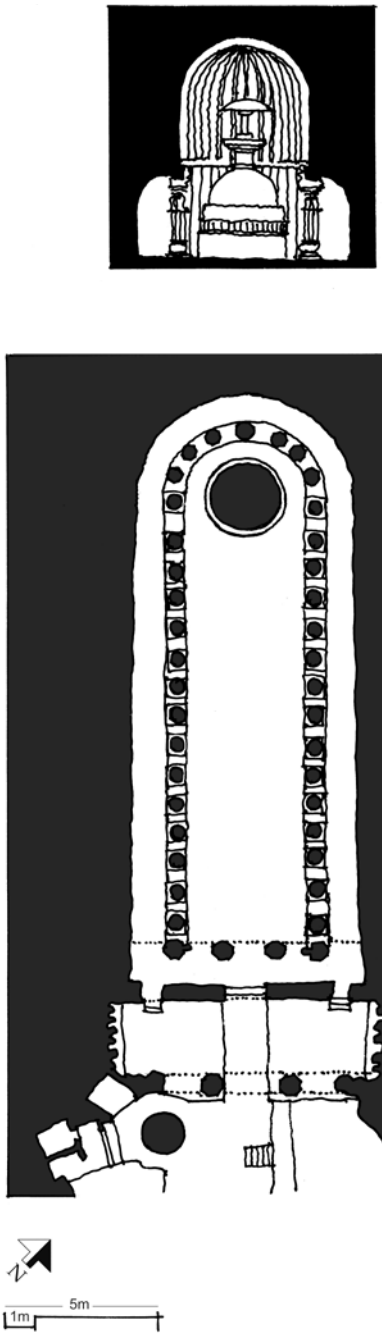


Figure 6: Caitya hall, Karle (Maharashtra), c AD 120, cross section and plan.

Figure 7: Façade of caitya hall (Cave 18) at Nasik (Maharashtra), c second century AD.

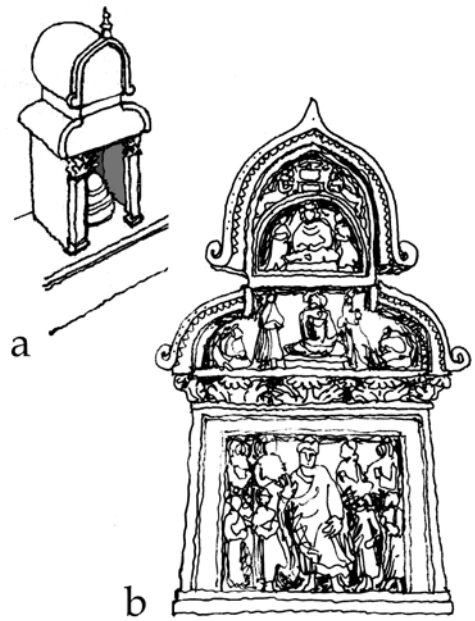


Figure 8: 'Proto-Valabhi' forms from Gandhara, c second century AD: a. shrine from the Court of the Stupa at the monastery of Takht-i-Bahi; b. typical aedicule of that period.

transformation of the imagery of wooden buildings into an architectural language for brick or stone monuments. By the fifth century the topknot of the *gavākṣa* had become bushy, the upturned 'ears' curvaceous and alert. These characteristics are typical of the *gavākṣas* of Gupta temples (*Figures 1d, 11, 12, 13, cf 14*). The giant sun windows of the fifth-century *caitya* halls of Ajanta (*Figure 15*) are similar, but with a face finial, later typical (in horned leonine form) of Drāviḍa traditions in southern India (*cf. 1f, 16*).

Figure 9: Depiction of a dormer window from Kakali Tila, Mathura (Uttar Pradesh), c second century AD, now in State Museum, Lucknow. Photo courtesy of American Institute of Indian Studies.

As if to afford a view through the gable window into an interior world, the *caitya* hall cross section is sometimes placed inside early *gavākṣas*, complete with miniature pillars (*Figure 16*). When the pillars are omitted, a trefoil remains – the origin of cusping. In the seventh-century temples of Dakṣiṇa Kōsala (*Figure 1f*) the view through the gable is a perspective vista down the nave, stylised to the extent that the pillars are joined by loops. (This foreshadows a similar phenomenon in the Drāviḍa traditions of the following century, in which the pillars are freely bent, then disappear, leaving billowing cusps.)

Figure 10: Depiction of a dormer window from General Ganj, Mathura, c third century AD, now in Government Museum, Mathura. Photo courtesy of American Institute of Indian Studies.

Figure 11: Gavākṣas in fragment of a temple superstructure from Kakali Tila, Mathura, c fifth century, now in State Museum, Lucknow. Photo courtesy of American Institute of Indian Studies.

GAVĀKṢAS AND THE MODES OF NĀGARA TEMPLE ARCHITECTURE

Gavākṣas are an integral part of all the principal Nāgara shrine forms or modes – Valabhī, Phāṃsana, Latina, Śekharī and Bhūmija. Here I am using 'mode' to mean a basic shape of Nāgara temple, determining a particular way of organising the components of the Nāgara 'language', as opposed to 'style', which I am using in the sense of the character, manifest in small details, which betrays a work as having been made by a particular group of people.

Figure 12: Fragment at the Gupta temple, Deogarh, c AD 500. Photo courtesy of American Institute of Indian Studies.

Figure 13: Overdoor at Sarnath (Uttar Pradesh), sixth century, now in Sarnath museum. The miniature pavilions are alternately Phāṁsana with a Valabhī projection and Valabhī on a Phāṁsana background, illustrating the close connection between the two modes. Photo courtesy of American Institute of Indian Studies.

The Valabhī mode especially, defined by its rectangular plan and barrel roof, is dominated by *gavākṣas*, which form its gable ends. Its simplest form has a single barrel roof, but more often there is a half barrel on either side (*Figure 17a*); and it should be borne mind that it is the exterior image which is important, the interior being simply a rectangular sanctum. Although the form recalls a square-ended *caitya* hall, having been derived from the same kind of timber prototype, the comparison has its limits, as even the most basic Valabhī shrines have an eave-cornice (*kapotāli*) capping the wall, indicating that the superstructure is conceived as an upper pavilion, forming a second storey.

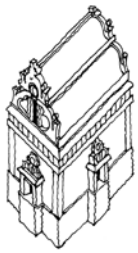
The Valabhī concept goes back as far as second-century Gandhara, as illustrated by the barrel-roofed shrines of Takht-i-Bahi (*Figure 8a*). Valabhī aedicules – that is, images of Valabhī shrines used as elements of a composite temple design – were placed at the centre of proto-Nāgara compositions of the sixth century.[2] By the seventh century, the newly mature Latina temples regularly displayed niche surrounds treated as Valabhī aedicules (*Figures 18, 19*) -- another idea foreshadowed in Gandhara. The earliest surviving full-size Valabhī temples, however, belong to eighth-century central India. An example is the Mātā-kā-mandir, Nareshara, shown in Figure 22 with the upper parts conjecturally restored. Here the basic Valabhī shrine form with 'side aisles' has become an upper tier, raised on a further *bhūmi* (level), the top of which is defined by *amalaka*-crowned corner pavilions just like those seen in contemporary Latina shrines. A central projection (*bhadra*), rising up into the superstructure, takes the form of a tall Valabhī aedicule. In the wall zone, but overlapping the cornice, projects a niche or wall-shrine that is

Figure 14: Gavākṣas on a lion capital at Eran (Madhya Pradesh), c fifth century.

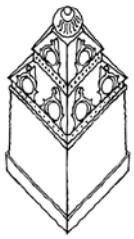
Figure 15: Façade of caitya hall (Cave 26), Ajanta (Maharashtra), fifth century.

Figure 16: Niche pediment from the façade of the caitya hall known as the Viśvakarma Cave (Cave 10), Ellora (Maharashtra), c 650.

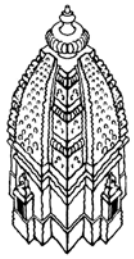
Figure 17: The principal modes of Nāgara temple architecture:



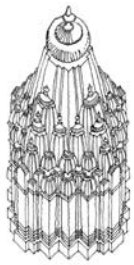
a. Valabhī



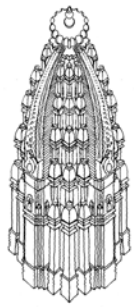
b. Phāṁsana



c. Latina



d. Śekharī



e. Bhūmija.

also a Valabhī aedicule, but one that is already entering a new phase of more complicated, overlapping *gavākṣa* patterning. This example illustrates the dynamic character of the Valabhī, already suggested in Figure 16. The sense of movement is achieved through the combined principles of splitting (the pairs of half *gavākṣas*, though originally indicating side aisles, are conceived as having belonged to a single arch which has split, the halves gliding apart) and projection (the embedded, stepped out shrine images seemingly de-telescoping one from another).

Valabhī shrines are rare after the eighth century, but the form lives on and continues to develop as a component of other kinds of Nāgara temple. Not least, the Valabhī is the form of the antefix or *śukanāsa* ('parrot's beak') of all the Nāgara modes. Valabhī niches continue to be the predominant variety. Free from the constraints imposed by an actual structure, it is in the superstructures of niches (along with the spine or *lata* of the Latina tower) that, from the eighth century onwards, proliferated, fragmented, overlapped *gavākṣa* patterns develop (*Figures 20, 21*). The different Sanskrit terms given to this kind of niche pediment may reflect the authentic terminology of canonical texts, but obscures the fact that the form is a development of the Valabhī concept, and that it is the niche as a whole, not its pediment alone, which represents in miniature an emergent Valabhī shrine.[3]

In the Phāṃsana mode, whether the shallow, 'pent roof' type (*Figure 17b*) or the steeper kinds, *gavākṣas* punctuate the layered eaves, representing dormer windows. When unfurling patterns of *gavākṣas* began to develop in Valabhī shrines and their miniature equivalents in aedicular niches, the arrangements of horseshoe arch gables in Phāṃsana srhines followed similar patterns, splitting and proliferating, and abandoning their dormer origins by bursting through several eaves at a time. In fact, the Phāṃsana

Figure 18: Pediment of Valabhī niche, Galaganātha temple, Pattadakal (Karnataka), c late seventh century.

Figure 19: Valabhī aedicule in wall of the Paraśurāmeśvara temple, Bhuvaneshvara (Orissa), c mid-late seventh century.

Figure 20: Valabhī aedicule in base of the ruined Tempe 2, Abaneri (Rajasthan), ninth century (Mahā-Maru style). Photo courtesy of Gerard Foekema.

Figure 21: Valabhī aedicule from the wall of a ruined, ninth century temple at Ashapuri (Madhya Pradesh).

and Valabhī modes are closely allied, even if this is not obvious at first sight. Not only do Valabhī-like configurations emerge from the matrix of Phāṃsana layers, but Valabhī 'pediments' are hardly even found independently of a background of Phāṃsana-like eave mouldings. Even single *gavākṣas* retain at their base the triangular ends of a pent roof (*Figures 1d, 1e, 12, 24a-c, 26*). Indeed, full-scale Valabhī roofs, which at first may appear like pure barrel vaults, have eave corners at the foot of their gable ends, indicating a rectangular dome – an element which, in some Valabhī temples, is fully articulated and conspicuous.

The curved *śikhara* ('spire') of a Latina shrine (*Figure 17c*) has vestigial, Phāṃsana-like pavilions at the corners, diplsaying *gavākṣa* patterns which follow the general trends. Its central spine (*lata*, meaning 'creeper') is derived through a merging together of superimposed Valabhī aedicules to create a cascading band of *gavākṣas* winking through piled eave mouldings.[4] In early examples, such as the Galaganātha, Pattadakal (*Figure 23a*), half-*gavākṣas* draw apart to reveal vistas into colonnaded depths, as a new, whole *gavākṣa* grows out in the middle. At the base of the *lata* is an intact, composite Valabhī element, and the wide recess contains minor Valabhī aedicules (*balapañjara*). The recess gradually disappears, and the sense of inner depth is lost as *gavākṣas* proliferate and overlap (*Figure 23b*). Eventually, overlap gives way to coalescence of *gavākṣas*, losing any suggestion of different planes. At this point the overlain pattern is like a woven tissue, and is termed a *jāla* ('net').

The Śekharī and Bhūmija (*Figures 17d, 17e*), established respectively by the tenth and eleventh centuries, are composite modes, both developing out of the Latina and with embedded Latina *śikhara* forms as components. They thus inherit *gavākṣas* along with the Latina spirelets. *Gavākṣas* play a less crucial role than in the earlier modes because of their reduced scale in the miniature *śikharas*, together with the prevalence at this stage of tightly spun *jālas* in which the importance of the individual motif is undermined, and the shift from frontal gable explosions to a centrifugal unfurling

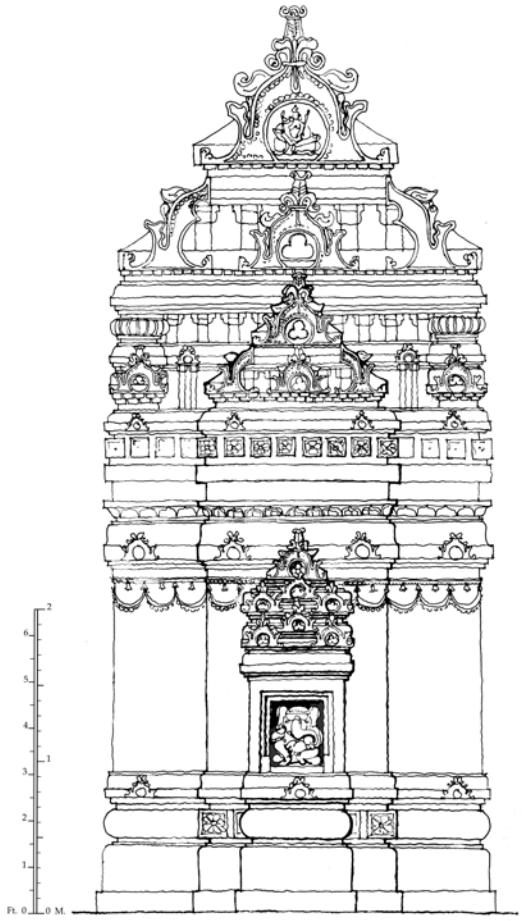
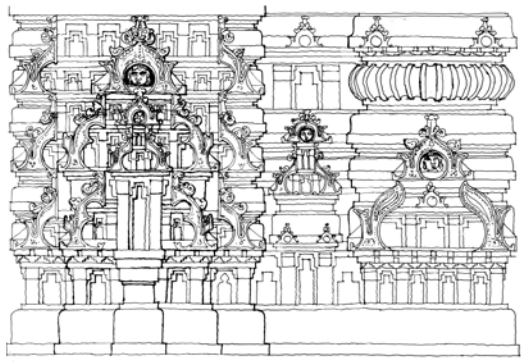
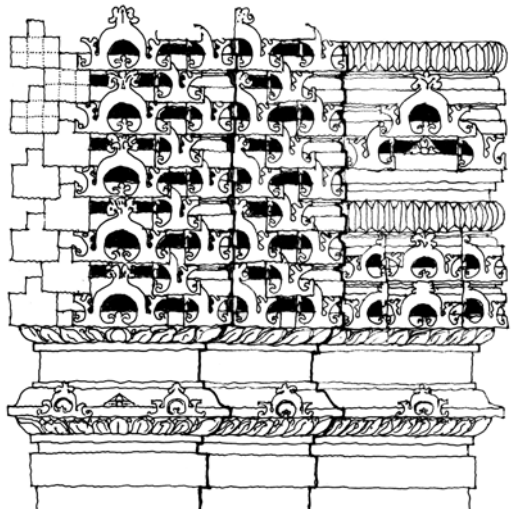


Figure 22: Mātā-kāmandir, Nareshara (Madhya Pradesh), end elevation of the Valabhī shrine, c early eighth century.

Figure 23: Lower portion of two Latina śikharas:



a. Galaganātha temple, Pattadakal, c late seventh century,



b. Temple 4, Roda (Gujarat), late eighth century.

of interpenetrating, three-dimensional components. Bhūmija shrines, nevertheless, keep the prominent *lata*, and display at its foot a giant *gavākṣa* (*mahānāsī*) which crowns a Valabhī-like centrepiece to the whole composition. Moreover, in Bhūmija temples *gavākṣas* seem not only to be a stylistic hallmark, but to be a conscious one, marking off the guilds who specialised in this mode.

NĀGARA GAVĀKṢA TYPES

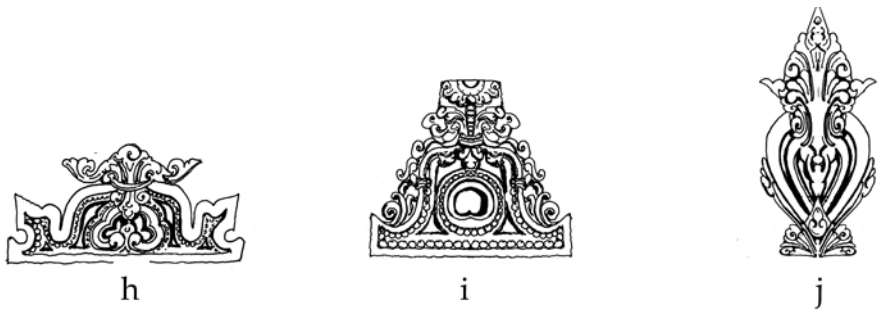
Up to the seventh century the general proportions of *gavākṣas* vary. Then a norm is established, which may be termed the 'standard Nāgara *gavākṣa*'. The form is widespread for some six centuries from the Gangetic plains to the west coast, at times reaching southward to the Deccan, eastwards to Orissa, and northward to the Himalayan foothills. The standardisation of this *gavākṣa*, descended directly from the 'Gupta' type, is due above all to the adoption of one particular grid (*Figure 25*). The grid may be stretched vertically, making rectangles rather then squares, to give more elongated proportions. To some extent the grid determines the shape, for example in the flattening of the tops of the ears, level with the top of the inner circle, and their little declivities responding to the vertical gridlines.

Figure 24: Nāgara gavākṣa types and related forms.

a-c: the 'standard' type (following standard grid), a. seventh to eighth centuries, b. ninth to tenth centuries (Mahā-Gurjara version), c. tenth to thirteenth centuries.

d. alternative, 'bushy eared' type, often used in secondary positions.

e-g: gavākṣas typical of Bhūmija temples (eleventh to thirteenth centuries), a. linear version of d, b. 'pipal leaf' motif, c. onion-shaped form of mahānasīs.



h-j: gavākṣas of the Pāla realms (tenth and eleventh centuries), a. relaxed version of the standard form, b. form found on Pāla period stūpas, c. vase shaped form.

k-m: Orissan gavākṣas, a. Orissan version of the seventh-century mainstream standard, b. gavākṣa at the Mukhteśvara temple, Bhuvaneshvara (c AD 960), c. eleventh-century meandering gavākṣa.

Figure 25: A seventh-century example of the standard Nagara gavākṣa type, from the ruined Temple 2, Nalanda, showing the newly established geometry.

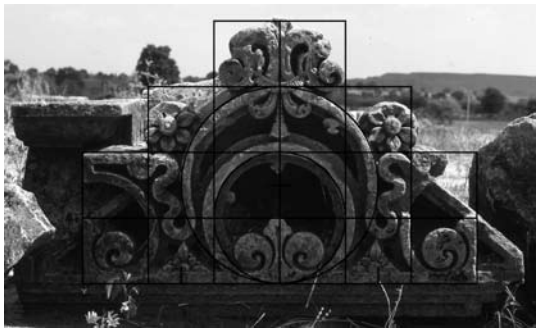


Figure 26: A standard gavākṣa in the Mahā-Gurjara style, from Roda (Gujarat) (late eighth century).

Figure 27: A surface version of the previous (linear) example, from the same site (Temple 3).

Figure 28: Gavākṣas at the Mālādevī temple, Gyaraspur (Madhya Pradesh), ninth century: standard gavākṣas, Daśarnadeśa style, with the grid stretched vertically.

During the seventh century a strikingly uniform 'mainstream' style is found among Nāgara temples throughout central India, extending from Nalanda (Bihar) to Pattadakal (Karnataka) and Alampur (Andhra Pradesh). A hallmark of this style is an open-faced and pearly version of the new standard *gavākṣa* (*Figures 18, 24a, 25*). This form lives on in central India through the eighth century, with little change, though becoming a little drier and less pearly as *gavākṣas* proliferate. The broader picture of the standard type, however, is both of evolution of the shape, and at the same time of the appearance of regional variations, with their own characteristic flourishes and inflections, all without changing the standard grid. For example, the masons of the Mahā Gurjara created an incomparably crisp and curvaceous form, used in both linear and (in minor positions) surface versions (*Figures 26, 27*).[5] Here the outer edge of the arch, as well as the inner opening, follows a circle. This western Indian style flourished between the eighth and tenth centuries, creating first Latina temples (*Figure 23b*) and eventually Śekharī ones, all the while recognisable by the character of its *gavākṣas*.

Notwithstanding regional diversity, the gradual evolution of the standard *gavākṣa* shape followed comparable trends all over central and western India, exaggerating the curves and loops, and progressively extending the ears laterally, as far as the edge of the grid or even beyond. By the end of the tenth century many parts of those regions had arrived at sharp and wasp-like versions of the standard *gavākṣa* (*Figures 24c, 29 upper, 31, cf 39*). While similar kinds of transformation might have happened organically in separate traditions, the picture is, rather, one of interchange and general awareness of the latest fashions. This impression is confirmed by the far-flung knowledge of an alternative, bushy-eared *gavākṣa* form (*Figure 24d*). Common throughout central and western India by the tenth century, it is found side-by-side with the standard form (*Figures 31, 32*), consistently used in lesser positions, especially as a dormer to an eave-moulding in the base or the cornice.

Figure 29: Sūrya temple no. 2, Osian (Rajasthan), Latina shrine with eighth-century walls (Mahā-Maru style) and tenth century superstructure, showing transformation of the standard gavākṣa. Photo courtesy of Gerard Foekema.

Figure 30: Miniature Valabhī pediment with gavākṣas of the alternative type, Parśvanātha temple, Khajuraho, eleventh century.

Figure 31: Valabhī pediment at Ashapuri (Madhya Pradesh), c tenth century, combining the standard gavākṣa type (waspish version) with the alternative type (cf Figures 24c and 24d).

Between the eleventh an thirteenth centuries temples of the Bhūmija mode were built in and around Mālava (Malwa, western Madhya Pradesh), Seuṇadeśa (north-west Maharashtra) and in the Deccan. The architects specialised in this mode seem to have been determined to maintain a distinctive 'style'. They did not therefore widely adopt the standard *gavākṣa*, though they knew it, but chose as their staple form the bushy-eared type used elsewhere as a second class *gavākṣa*. This they favoured both in its surface version (*Figure 24d*) and, especially, its linear one (*Figure 24e*). Another stylistic hallmark of this tradition is the 'pipal leaf' or 'moonstone' motif (*Figures 24f, 34*), which properly speaking belongs at the waist of a pillar, and is therefore seen all over the pilaster-lined walls of Bhūmija shrines. The motif

Figure 32: The same two types used together again at the Bajrā Maṭh, Gyaraspur (Madhya Pradesh), tenth century.

Figure 33: Mahākāleśvara temple no. 2, Un (Madhya Pradesh), c late eleventh century: lata ('creeper' spine) and giant gavaksha, both typical of a Bhūmija temple.

Figure 34: 'Pipal leaf' motif at the Bijamandal, Vidisha (Madhya Pradesh), c late eleventh century.

Figure 35: Udayeśvara temple, Udayapur (Madhya Pradesh), consecrated 1080. Varied niche pediments in the moulded base – from left to right: standard gavākṣa, alternative gavākṣa, 'pipal leaf'.

Figure 36: Valabhī projection on a stūpa at Bodhgaya (Bihar), Pāla period, c tenth century.

Figure 37: Vase-shaped gavākṣa, Itkhore (Jharkhand): finial missing, but present from the one below (cf. Figure 24j).

evolved from the roundels with tongue-like ears seen on *stūpa* railings and early pillars, the roundels gradually, in the Deccan, acquiring points and becoming elongated. Although not strictly a *gavākṣa*, this motif was seen as belonging to the same family, to be alternated with varied *gavākṣa* forms as a miniature niche pediment (*Figure 35*). One further *gavākṣa* type is characteristic of Bhūmija temples: an onion-shaped type of Deccani character, with a monster finial and streaming ears, used for the large *gavākṣa* (*mahānāsī*) crowning the *bhadra* (cardinal projection) (*Figures 24g, 33*).

Eastern India, as reflected in its *gavākṣas*, had sporadic contact with central Indian traditions and also developed its own forms. Nalanda (Bihar), the great Buddhist university, had its own characteristic types during the sixth and seventh centuries. In the latter century a temple of the purest 'mainstream' Nāgara was built there (*Figure 25*). In temples built under the Pāla dynasty (late eighth to early twelfth centuries) knowledge of central Indian forms is evident, especially in the western part of their realms, where the geometry of *gavākṣa jālas* (explained below) has been understood. But the attitude to the standard mainstream *gavākṣa*, when it appears in isolation, is relaxed and non-geometrical (*Figure 2h, cf 24i, 36*). A special, vase shaped *gavākṣa* type (*Figure 24j, 37*) is also found in many temples of the Pāla period.

In Orissa it is not easy to trace the kind of continuous unfolding often found elsewhere in the traditions of Indian temple architecture. Here developments are better understood in terms of a succession of influxes from other regions, each in turn assimilated. Again the details of *gavākṣas* reflect the general picture.[6] The earliest temples, belonging to the seventh century, though already unmistakably Orissan in character, are firmly rooted in 'mainstream' Nāgara, as indicated by the chunky Orissan version of a standard *gavākṣa* (*Figures 19, 24k*). This type persists, until a wave of Drāviḍa influence from the Deccan in the tenth century brought the form shown in Figure 24l. The example illustrated is from the Mukhteśvara temple, Bhuvaneshvara (*c* AD 960) (*Figure 38*). Interestingly, the *maṇḍapa* of same temple shows evidence of renewed contact with central India, not least in the pediments of its porch-like projections. These faithfully follow the contemporary 'wasp *gavākṣa*' then sweeping through central and western India (*Figure 39, cf 24c*). That the contact was not maintained is evident in the extremely drowsy wasp *gavākṣas* of the Rajarani temple (despite the fact that central Indian inspiration underlies the overall Śekharī form of the shrine) and the Brahmeśvara temple (*Figure 24m*).

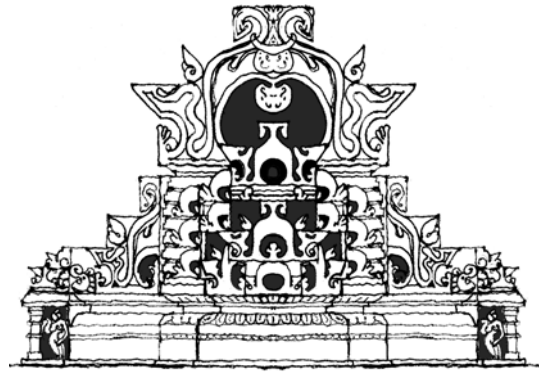


Figure 38: Mukhteśvara temple, Bhuvaneshvara (Orissa), pediment projecting from maṇḍapa roof, made of careful copies of contemporary central Indian standard gavākṣas.

Figure 39: Mukhteśvara temple, Bhuvaneshvara (c AD 960), śikhara: the central giant gavākṣa (crowning a regional type of Valabhī centrepiece) is a version of the type shown in Figure 24l, and the same type is the basis of the mesh patterns (cf Figure 50).

COMBINATIONS

In the mainstream Nāgara traditions of the seventh century, Valabhī 'pediment' designs became more elaborate, developing through the projection of further configurations from the centre of earlier designs, and also through proliferation downwards. This unfolding of an idea, in which each stage is incorporated into a subsequent stage, illustrates a way of evolving observable in the development of various other forms and aspects of Indian temple architecture.[7] The process tends towards fusion, the individual part getting lost in the whole, and the devices which express movement in a single design – splitting (hence fragmentation) and overlap – contribute to this dissolution as the tradition progresses. Figure 40 (top)

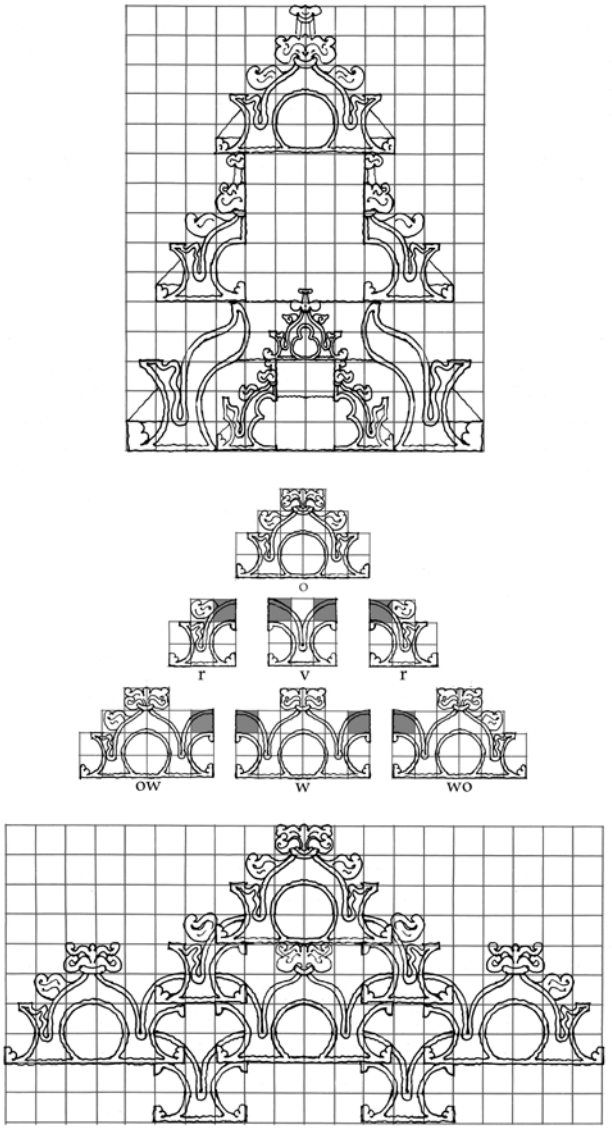


Figure 40: Above: kit of parts typical of the seventh century Nāgara 'mainstream', continuing into the eighth century. Middle: kit of parts invented in the 8th century and then used until at least the 13th, with a suggested notation. Shaded grid squares show parts which overlap when these components are combined. Below: showing all the later components combined.

Figure 41: Pāpanātha temple, Pattadakal (Karnataka), c 720-50, Valabhī aedicules in the wall using both the kits of parts shown in Figure 40.

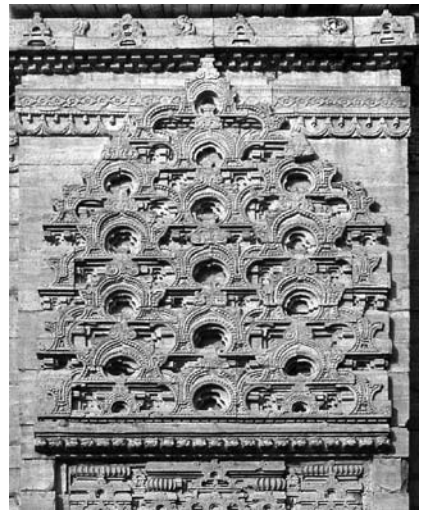


Figure 42: Pediment of a proliferated Valabhī aedicule in the bhadra (central projection) of the Telī-kā-mandir, Gwalior (Madhya Pradesh), c 750; the largest Valabhī temple.

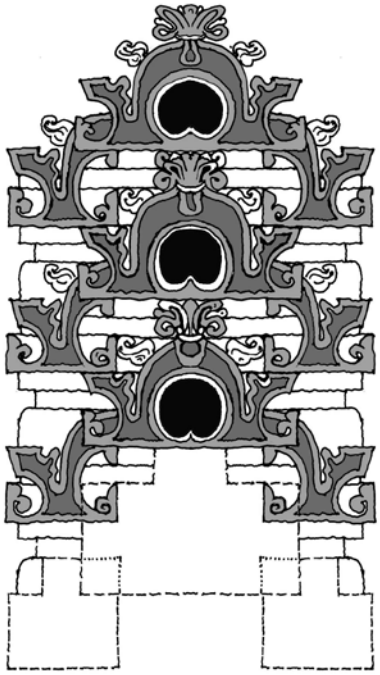


Figure 43: This common pattern of 'o' and 'r' motifs provides the starting point (the top) for most other patterns; it is an overlapping version of the longstanding whole-over-two-halves configuration. Drawn in Mahā-Maru style of c eighth century.

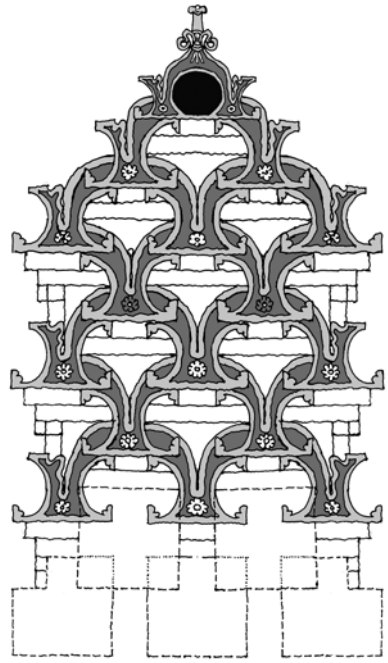


Figure 45: Pattern of 'r' and 'v' motifs, drawn in Karṇāṭa Nāgara style of c eighth century.

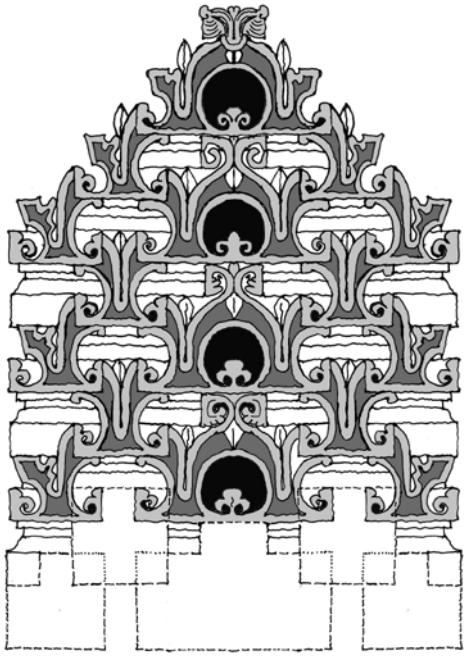


Figure 44: Pattern of 'w', 'v' and 'r' motifs, drawn in Daśarṇadeśa style of c 9th century.

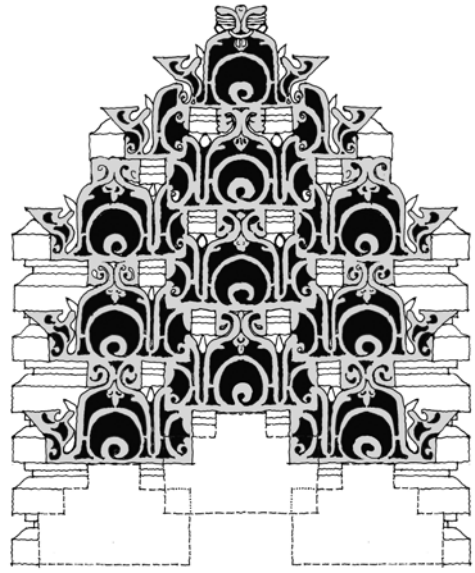


Figure 46: Pattern of 'ow' 'w' and 'wo' motifs, drawn in Maru-Gurjara style of c 12th century. This pediment is very close in composition to the one shown in Figure 42, although its 'style' is very different. The gavākṣas are of an extreme kind, with ears that poke half a square beyond the grid.

shows the 'kit of parts' from which different compositions were made in the seventh century mainstream, continuing into the eighth century. During that century, perhaps in more than one place independently, the masons discovered a property of the standard grid which both enabled the evolution towards fusion to continue, and ensured that the same grid would survive over a wide area for centuries to come. The grid allowed them to overlap and interlock *gavākṣas* and part-*gavākṣas* in a rich variety of complicated patterns (*Figure 40 middle and bottom, Figures 43-46*).[8] As for the individual *gavākṣa*, the grid could be stretched and modulated: in any case, it needed to be plied to the curvature and diminution of a *śikhara*.

A range of combinations and permutations presented itself. Some local traditions tried out almost every conceivable combination within a few decades: this was certainly the case at Pattadakal (Karnataka) where, in the Pāpanātha temple, for example, the old and new systems were used side by side (*Figure 41*). Figures 43-46 show typical patterns, all made from the components shown in Figure 40 (middle). They are drawn in various 'styles', in the sense indicated earlier (stylistic labels following the *Encyclopaedia of Indian Temple Architecture*), to show how composition is independent of regional style, and to some extent of date, as certain compositions are repeated over long periods (cf *Figures 42 and 46*). The grid system allows minor variations to these basic arrangements. For example, 'o' and 'w' motifs are interchangeable, 'o' can be substituted for 'ow' or 'wo'; and 'v' for 'r', except at the edge of a pattern. The Bhumija workshops adapted the standard grid to their preferred *gavākṣa* type and wove their own kind of mesh (*Figures 48, 49*). In Orissa, where such principles were not understood, the designers of the tenth century took one current *gavākṣa* type (*Figure 24l*) and made *jālas* not by overlap but through clever shifts, as if tugging at the weft (*Figure 50, cf Figure 38*).

In the 'standard' system, however, after the eighth century, while proliferation continued, no fundamentally new patterns were invented as the possibilities of the system had been exhausted.

Figure 47: Fragment of lata at Padhaoli (or Paraoli) (Madhya Pradesh), c tenth century, with highly abstracted gavākṣas in the pattern shown in Figure 44.

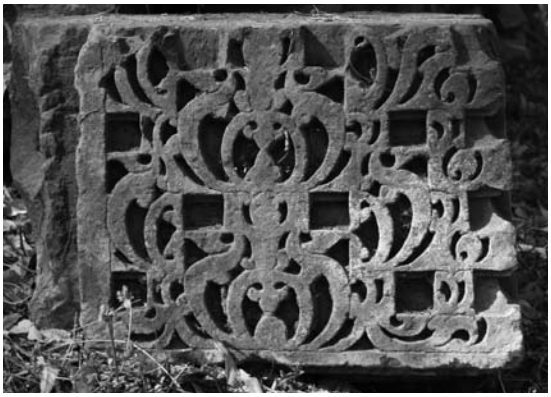


Figure 48: Fragment of lata typical of Bhūmija temples, at the Bijamandal, Vidisha (Madhya Pradesh), c late eleventh century.

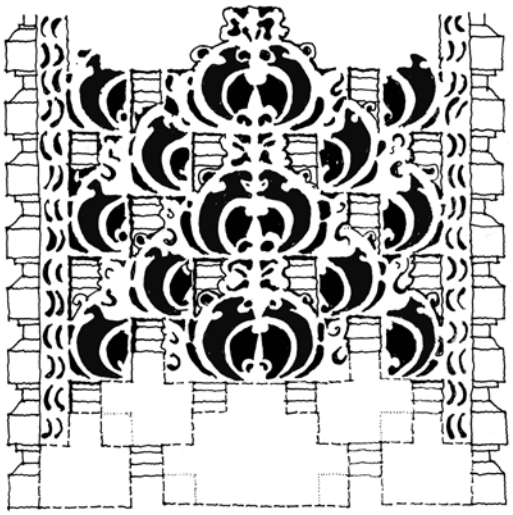


Figure 49: Pattern typical of Bhūmija temples, eleventh to thirteenth centuries, composed of the gavākṣa type shown in Figure 24e.

By providing a ready-made formula, the very geometry that had generated the patterns must have hastened their fossilisation. Depth was lost as *gavākṣas* were flattened out and interior vistas forgotten. Sequential growth was vestigially implied where conceptual overlap remained, but this was gradually supplanted by coalescence of motifs in a single plane. In any case, *gavākṣas* and their combinations, while still providing a rich texture, ceased to be the focus for invention as temple architects turned to the new composite modes, where the skill lay in combining three-dimensional aedicular elements.

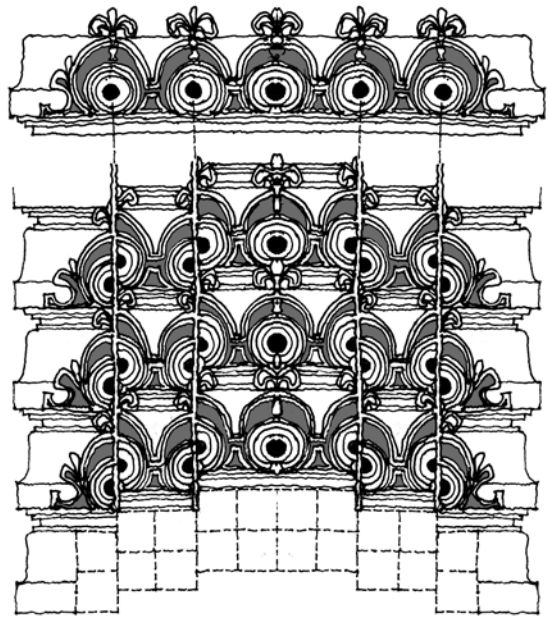


Figure 50: Gavākṣa net appearing in tenth-century Orissan temples, composed of the gavākṣa type shown in 24l.

In the Nāgara revivals that have taken place periodically from the fifteenth century onwards, the surfaces of *śikharas* have often been smooth, symbolic windows no longer seen as essential. Where a traceried veil has been applied, it has followed new and less subtle patterns, as the principles that I have tried to unravel here were lost. But in earlier centuries *gavākṣas* were integral to the composition, expression and meaning of temple architecture, which is why this brief survey has had to attempt a lightning history of Nāgara traditions in general. Sometimes the study of a motif and its small details cannot be kept in isolation. Through the eye of the *gavākṣa* we can catch sight of the great fabric into which it was woven.

NOTE

Drawings are by the author. Photographs are by the author except where noted.

ENDNOTES

1 Stella Kramrisch (1946), *The Hindu* Temple, Calcutta: University of Calcutta, 1946, 319-20.

2 On the formation of the Latina mode see Adam Hardy (2007), *The Temple Architecture of India,* Chichester: Wiley, Chapters 10 ('Nagara shrines') and 17 ('Early Nagara Temples').

3 A *Siṁhakarṇa* is 'a complex gavāk*ṣ a*-pediment'; an *udgama* is a pediment of interconnected gavāk*ṣ a*-dormers (candraśālās)', according to *Encyclopaedia of Indian Temple Architecture* Vol.II, Part 2, North India: Beginnings of Medieval Idiom c. AD 900-1000, ed. MA Dhaky (Delhi: AIIS and IGNCA, 1998), glossary, 418, 420.

4 See note 2.

5 Style identified by MA Dhaky (1975), 'The Genesis and Development of Māru-Gurjara Temple Architecture', in Pramod Chandra (ed.), *Studies in Indian Temple Architecture*, New Delhi: AIIS, 114-165.

6 Argument developed in Hardy, *The Temple Architecture of India*, Chapter 21, 'Temples of Eastern India'.

7 Argument developed in Hardy, *The Temple Architecture of India*, Chapter 6, 'Unfolding Traditions'.

8 For an earlier classification of *gavākṣa* patterns see Odette Viennot (1976), *Temples de l'Inde centrale et occidentale*, 2 vols., Paris: École Française d' Extrême-Orient.