



1 One of the twin *vimanas* of the Hoysaleswara temple, Halebidu, early twelfth century. The intended superstructure is missing.

Architectural history understood as ‘re-creation’ reveals design principles allowing the design of a new temple in an ancient Indian style to be ‘self-creating’, and to constitute ‘design research’.

## Re-creation and self-creation in temple design

*Adam Hardy*

It was in 2009 that I was first approached to design a large temple in Karnataka, India, for a site some 150 kilometres east of Bengaluru (Bangalore). A public trust, the Shree Kalyana Venkateshwara Hoysala Art Foundation was being set up to promote a renewal of the arts and culture that flourished in that region under the Hoysala dynasty during the twelfth and thirteenth centuries. They wanted to build a monument on the scale of the famous twelfth-century Hoysala temples at Halebid and Belur, entirely of stone, using traditional structural techniques, and carved by hand. There was no question of attempting a contemporary interpretation ‘in the spirit’: it had to be ‘authentically Hoysala’. The brief was not to copy any existing temple, but to create a new design embodying the principles of the tradition.<sup>1</sup>

The site is a bare granite outcrop rising above the small village of Venkatapura, near Nangali in Kolar District. It lies at what was at one point the eastern limit of the domains controlled by the Hoysalas, and is the home village of the Reddy family, from the Bengaluru business community, who are driving the project. The building will take the time it takes. So far, massive blocks of locally quarried granite, each funded by an individual donor, have been laid in bonded courses to form a platform for the ambitious temple structure.

A commission for a British architect and academic to design a new Hindu temple, in India, in a style of nearly a thousand years ago, relates to two themes of this issue of **arq** – modernity, and intercultural exchange. Other papers in this volume examine the nature of present-day traditional temple building in India and its diaspora (see articles by Chand Inglis and Branfoot), with its survivals and continuities, its revivals and reinventions. I shall not go over that ground here, nor discuss the extent to which it represents a ‘counter-modernism’ as opposed to a continuation, or a different contemporariness.<sup>2</sup> On the theme of modernity, I shall outline the context for a ‘Hoysala revival’ in modern-day southern Karnataka, before moving on to how the modern impinges on the intercultural. For me, the latter is not so much a question of ‘West’ meeting ‘East’, as

one of how a contemporary person can enter into a long-past age and world, and bring it alive in the present. For Hoysala architecture, which has not been built for centuries, this entails calling upon the modern discipline of architectural history. There is no direct continuity or ready-digested revival, which together underpin the work of traditional temple architects in India such as the Tamil sthapatīs and the western Indian Sompuras.

Before recounting the process by which the proposed temple has been designed, I shall argue that the kind of architectural history needed involves a re-creation of designs. Deconstructing in order to reconstruct is a form of design research. I shall show how this kind of architectural history enables re-creation of temple designs from ruins and from the prescriptions found in ancient texts. All of this reveals a remarkable characteristic of Indian temple architecture: a sense that it grows of its own accord, self-creating. Traditionally, this would be understood as the temple, god’s home and body, emerging from the divine.

### **Hoysala architecture and architectural history**

The temple architecture of the Hoysalas was a final phase of a tradition that can be called the Karnata Dravida, one of two main branches of Dravida or south Indian temple architecture.<sup>3</sup> This architectural language had developed by the seventh century across the Deccan and South, especially under the Chalukya and Pallava rulers, the rival powers in Karnataka and Tamil Nadu, respectively. By the eighth century the Tamil and the Karnataka versions of Dravida were already developing in contrasting ways. The Karnata Dravida blossomed spectacularly, as I shall illustrate later, but had died out by the early fourteenth century under the Sultanates by then ruling in the Deccan. When demand for temples revived with the establishment, in the fifteenth century, of the Vijayanagara empire, the architecture was essentially Tamil in character. The Tamil Dravida tradition has flourished in successive waves beyond the medieval period. From the eighteenth century, new forms of patronage, especially from the merchant classes, rekindled Tamil Dravida

architecture in south India. Today, both in India and among south Indian diasporas worldwide, the tradition continues, adapting to the needs of new, more community-based kinds of patronage and Hindu worship. The practitioners of the tradition are the sthapatis. Beyond Tamil Nadu, it is they who are now called on to design and build temples in Karnataka and elsewhere in south India, and indeed for the diaspora.

Over the last half-millennium, nobody would have retained a concept of a Chalukya or a Hoysala style (to use more popular, dynastic labels for phases of the Karnata Dravida). Such notions surfaced when, marching into modernity, the disciplines of archaeology and architectural history of the colonial era began to unearth ancient monuments and formulate their understanding of Indian architecture. As it happens, when James Fergusson wrote *Indian and Eastern Architecture*, the first overview of the subject by Western scholarship, he singled out a Hoysala temple as the epitome of otherness. Comparing the Hoysaleswara temple at Halebid [1] with the Parthenon, he declared:

*they form the two opposite poles – the alpha and omega of architectural design; but they are the best examples of their class, and between these two extremes lie the whole range of the art. The Parthenon is the best example we know of pure refined intellectual power applied to the production of architectural design [...] The Halebid temple is the opposite of all this. It is regular, but with a studied variety of outline in plan, and even greater variety in detail. All the pillars of the Parthenon are identical, while no two facets of the Indian temple are the same; every convolution of every scroll is different. No two canopies in the whole building are alike, and every part exhibits a joyous exuberance of fancy scorning every mechanical restraint. All that is wild in human faith or warm in human feeling is found portrayed on these walls; but of pure intellect there is little – less than there is of human feeling in the Parthenon.<sup>4</sup>*

This decidedly romantic and orientalist vision of Hoysala architecture no doubt encouraged the rather thorough documentation of Hoysala temples by the Archaeological Survey of Mysore in the early decades of the last century, and the assured place of the famous Hoysala sites in general works on Indian art and architecture.

Against this background, Hoysala art and architecture have become a symbol of regional pride and identity in post-Independence southern Karnataka, a role that has not abated with the prodigious growth of Bengaluru, India's Silicon Valley. Today there is no tourism brochure or website on Karnataka that does not give prominence to Halebid and Belur. Hoysala art is evoked in airport displays and gift shops. There are Hoysala hotels and a Hoysala bus company. The popularity of Hoysala art is not artificially imposed: the enjoyment and emotion that it evokes in local visitors can be readily witnessed at temple sites. Skills in making Hoysala-style sculpture have markedly revived in recent decades, boosted by government craft awards as well as demand for temple icons and adornments for

hotel lobbies. Yet, since the fourteenth century, there have been no new Hoysala style temples, until now.

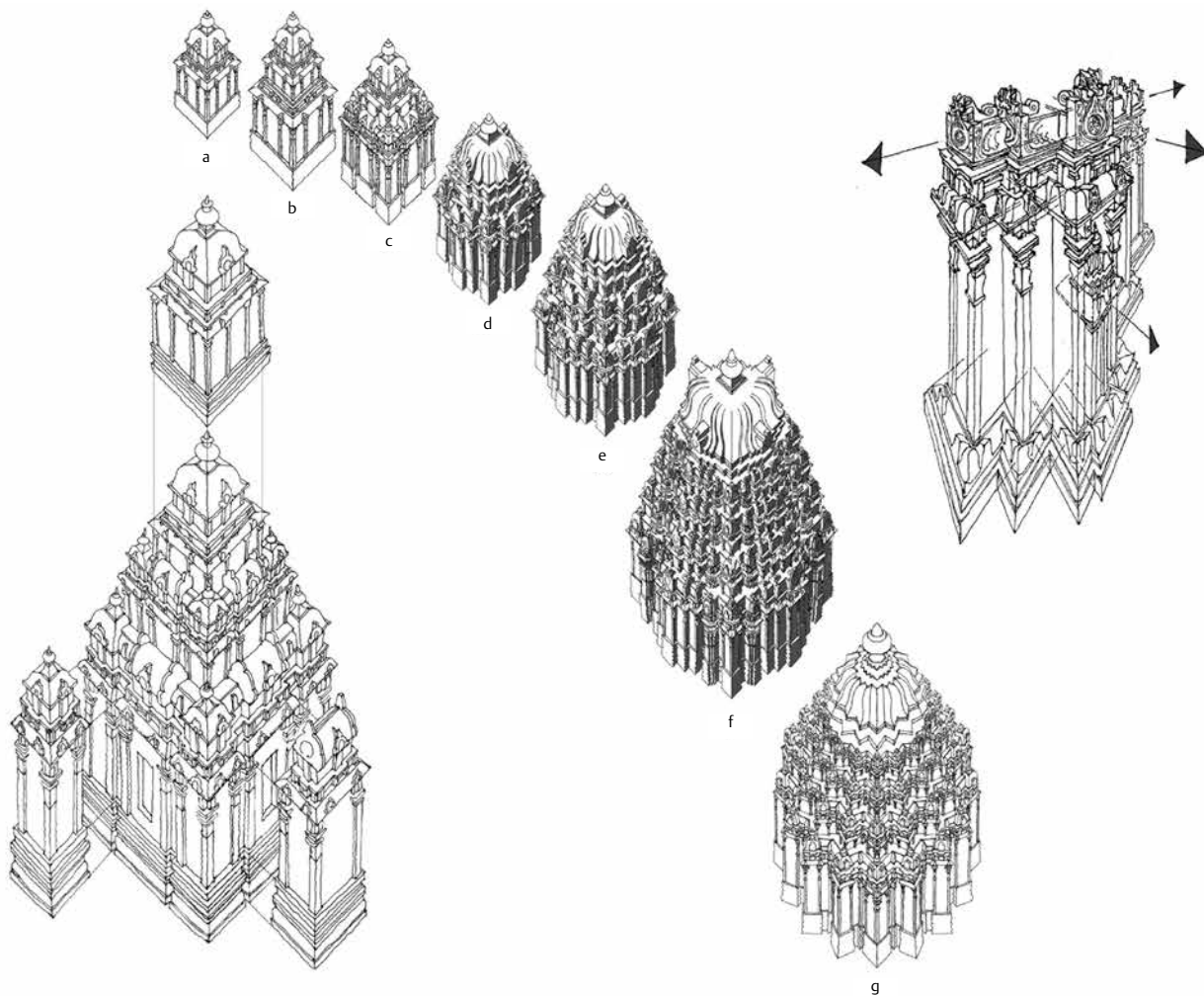
That is the context in which the vision was conceived, the faith and enthusiasm kindled, and the organisation set up to build the new Hoysala temple; the context in which, since there were no sthapatis practicing Karnata Dravida architecture, they asked me to design it. Inevitably, there have been some objections in India, thankfully muted, to a foreigner venturing into 'our heritage', and some exoticist fascination in the United Kingdom at an English (or sometimes honorary Welsh) architect designing in 'their' tradition. For me there is not really an 'ours' or 'theirs', but rather a complex architectural language, a system, a medium that can be learned and assimilated; not as something fixed and changeless, but in its dynamic development, and with its endless creative potential. To learn and use such a language is to relive something of its creators' ways of thinking and of making things. This is largely architectural thinking but reflects the larger cultural world that created it, its forms embodying aspects of that world and providing a window into it. The process is certainly one of cultural interchange, between past and present probably more than between 'East' and 'West'.

To be given the brief to build an 'authentic' Hoysala temple is an opportunity of a different kind from being asked to interpret ancient forms in modern materials. To work in a discontinued tradition like the Karnata Dravida one is different, too, from the normal task of a present-day sthapati whose tradition is already active and contemporary. Rather, the task becomes one of research. This research is of the same sort as is involved in doing architectural history – not any kind of architectural history, but one that is approached as an architect aiming to understand and relive the processes by which buildings have been designed and built.

This kind of architectural history re-creates, and this kind of design, through re-creating, contributes to architectural history by discovering things about the tradition in question. In this sense it is 'design research'. Both bring into the present and make contemporary through interpretation. The interpretation is not subjective or arbitrary inasmuch as it must aim to be true to what it interprets, which has its own existence. It has to be both imaginative and critical. There may be no single truth, but an interpretation can be more or less true to its object. To this extent, the interpretation is not a personal one. Design, in this light, is a discovery. Expression goes far beyond self-expression, and creative potential is in the architectural system, the tradition, more than the individual architect or craftsperson.

### **Architectural principles and the Karnata Dravida tradition**

The corpus of monuments catalogued and documented by archaeology and art history over a century-and-a-half, and the chronology that they have broadly worked out, are the basis for the kind of 'design research' architectural history that I am



2 Development of *vimana* types in the Karnata Dravida tradition, seventh to thirteenth centuries ce.

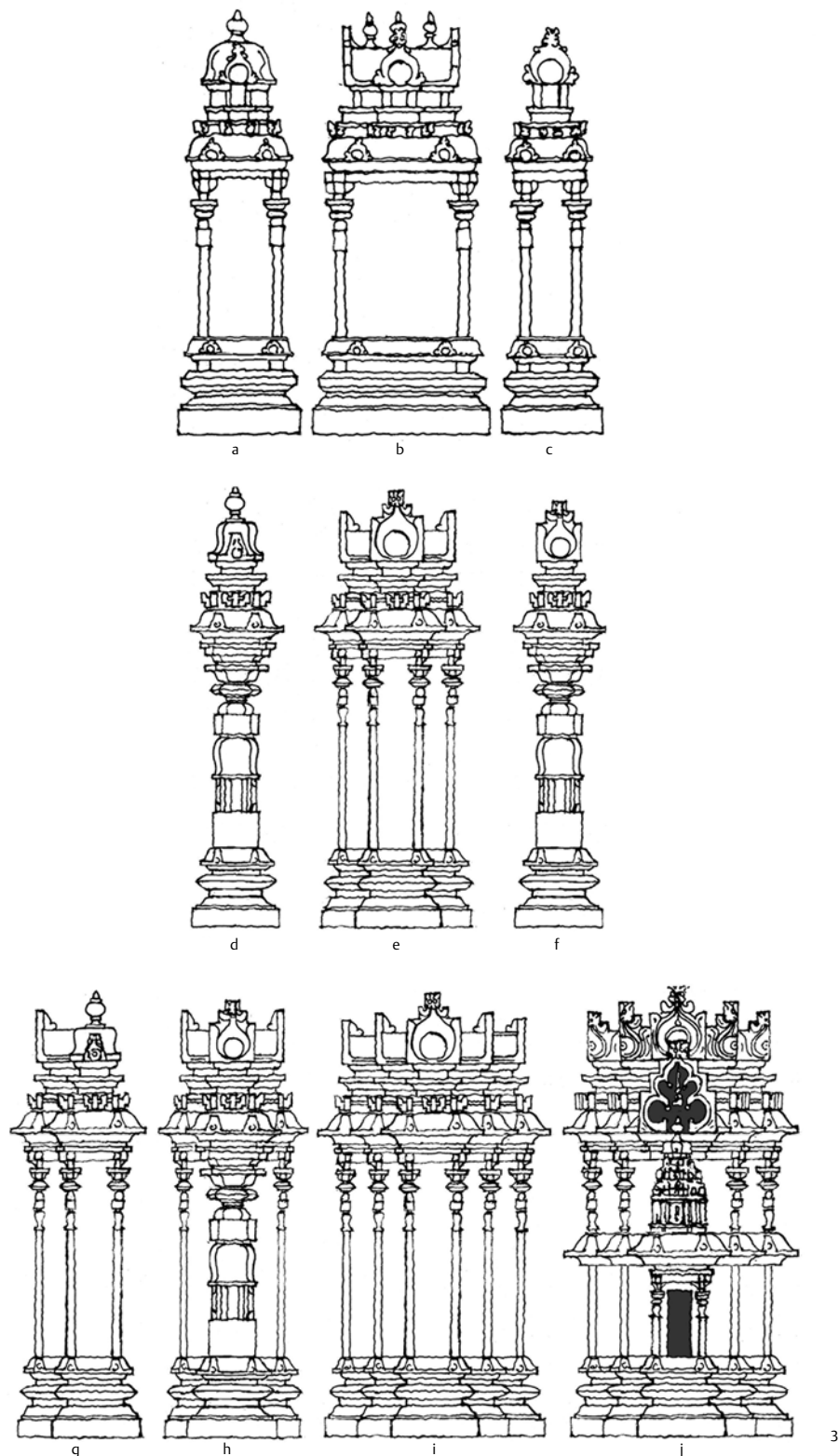
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describing. From that starting point, my primary methodology has been looking and drawing. I began nearly forty years ago, and it happens that the Karnata Dravida tradition was the one in which I first immersed myself. Certain principles and patterns jumped out early on. Finding that others had never really articulated them, I set about substantiating and elaborating these intuitions, and discovering that they illuminated whole swathes of temple architecture across South Asia. If not essential or universal, they were certainly typical. Early prototypical shrine forms made of wood, having been monumentalised in brick and stone, became the aedicules or compositional units for more complex types. A single god's house or shrine – the *vimana* or *prasada* itself, the sanctum plus its superstructure – is composed of multiple images of shrines arranged around a central vertical axis. The arrangement evokes the idea of one god with many aspects or manifestations. Existing shrine types are combined to create new types. Relationships between these embedded shrine-images express a pattern of outward and downward emergence of growth. This dynamic pattern, a sequential emanation of

increasingly complex forms, precisely reflects a development that temple forms typically follow in the course of a tradition. As the temple architects draw out the possibilities inherent in the architectural language, they pull forth new forms from old ones, leaving the old form within the new one, so that the unfolding stages of the tradition display their sequential presence in the emanatory dynamism of a single temple. All this is formal and observable, at the same time profoundly evocative of many Indian accounts of how the universe is manifested, progressing from formlessness to form, from one to many; and ultimately dissolving back into unity, and so on in endless cycles.

The course of the Karnata Dravida tradition can be described here in very barest outline. The drawing on the left of figure 2 shows a typical Dravida *vimana* with three *talas* (symbolic storeys), based on the eighth-century Bhutanatha temple, Badami, Karnataka [2]. It is composed of three-dimensionally conceived, embedded images of shrines crowned by domed *kutas* and barrel-roofed *shalas*, descended from early wooden shrine types roofed with thatch. *Kuta*-topped forms mark the corners of the first and second *talas*, the third comprising a wide version of the same type, while the central element of the lower tiers carries a *shala*. Drawings a–g in figure 2 summarise the evolution of the tradition. The

3 Aedicular components of temple design in the Karnata Dravida tradition.



shrines illustrated are not particular temples but types which emerge successively and which, while appearing alongside an inventive variety of other combinations and permutations, are often repeated. Each is representative of its respective stage. First comes the simple type with a *kuta* (domed pavilion) as its superstructure (a), which in turn becomes the superstructure of a more developed form (b). *Kutas* and *shalas* are then garlanded around the tiered superstructure (c). By placing these pavilions over

wall projections bounded by pilasters (d), images of the simple *kuta*- and *shala*-topped shrine types are created, which become the primary compositional elements of temple design [3a, b]. The type represented by the Bhutanatha temple [2, left] is equivalent to [2d] with an extra storey, and appears around the same stage.

The repertoire of aedicules is gradually extended. *Panjara*-aedicules [3c], apparent from the earliest stages, are end-on *Shala*-aedicules. Later, *kutas* and

*panjaras* are placed on pillar forms to make *kutastambhas* and *panjarastambhas* [3d, 3f], and a great variety of new aedicular forms is created by embedding the existing range one in another. As shrine forms step progressively farther out along their cardinal axes, their central projections are staggered in a way that transforms them into clusters of interpenetrating *shala*-aedicules that seem to be bursting apart one from another [2, right, 3e, 3i]. The formerly sideways-sliding gables of *shalas*, spewed from the jaws of monster-finials, are made to emerge diagonally, with monster faces folded down the nose [3j, 4]. Under the growing thrust of diagonal forces, the whole plan explodes into stellate formation [2g]. Meanwhile the horizontal mouldings, originally depicting heavenly palaces conceived in wood, have been continuously transformed.

### Re-creation from ruins

If deconstructing temples is necessary in order to re-create them as architectural history, the understanding offered by the latter in turn makes possible a very direct kind of re-creation – re-creation of temples from ruins. Some parts of India are strewn with heaps of stones that were once temples, victims of earthquakes, subsidence, warfare, or everyday dilapidation. Many of these, where sufficient fragments remain, are three-dimensional jigsaw puzzles waiting to be solved. Graphically

4 Viranarayana temple, Belavadi, northeast *vimana*, c. early twelfth century.



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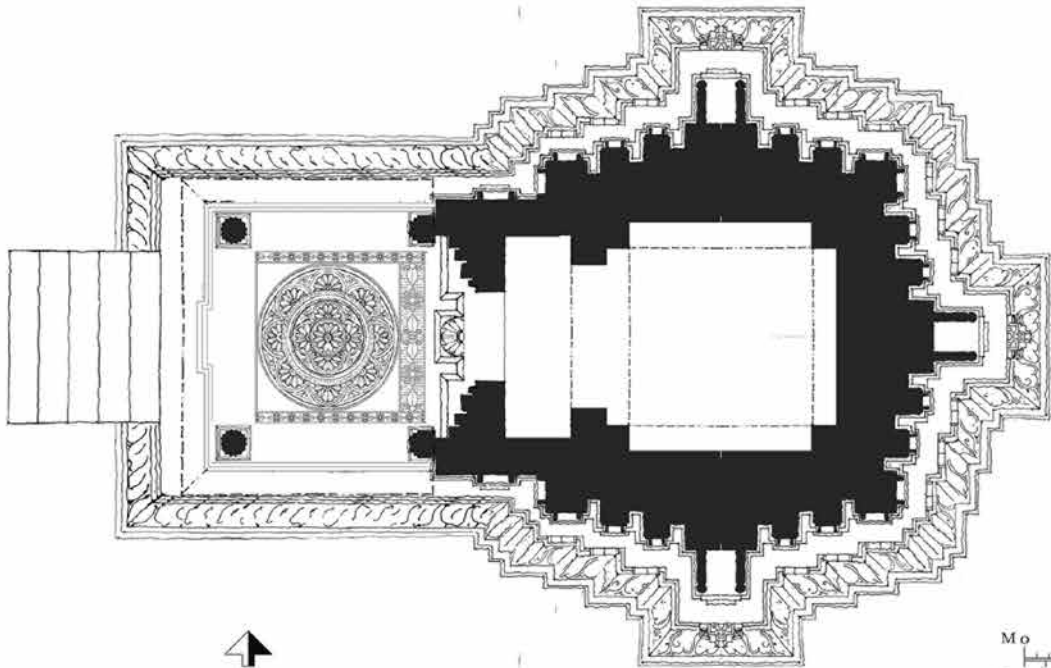
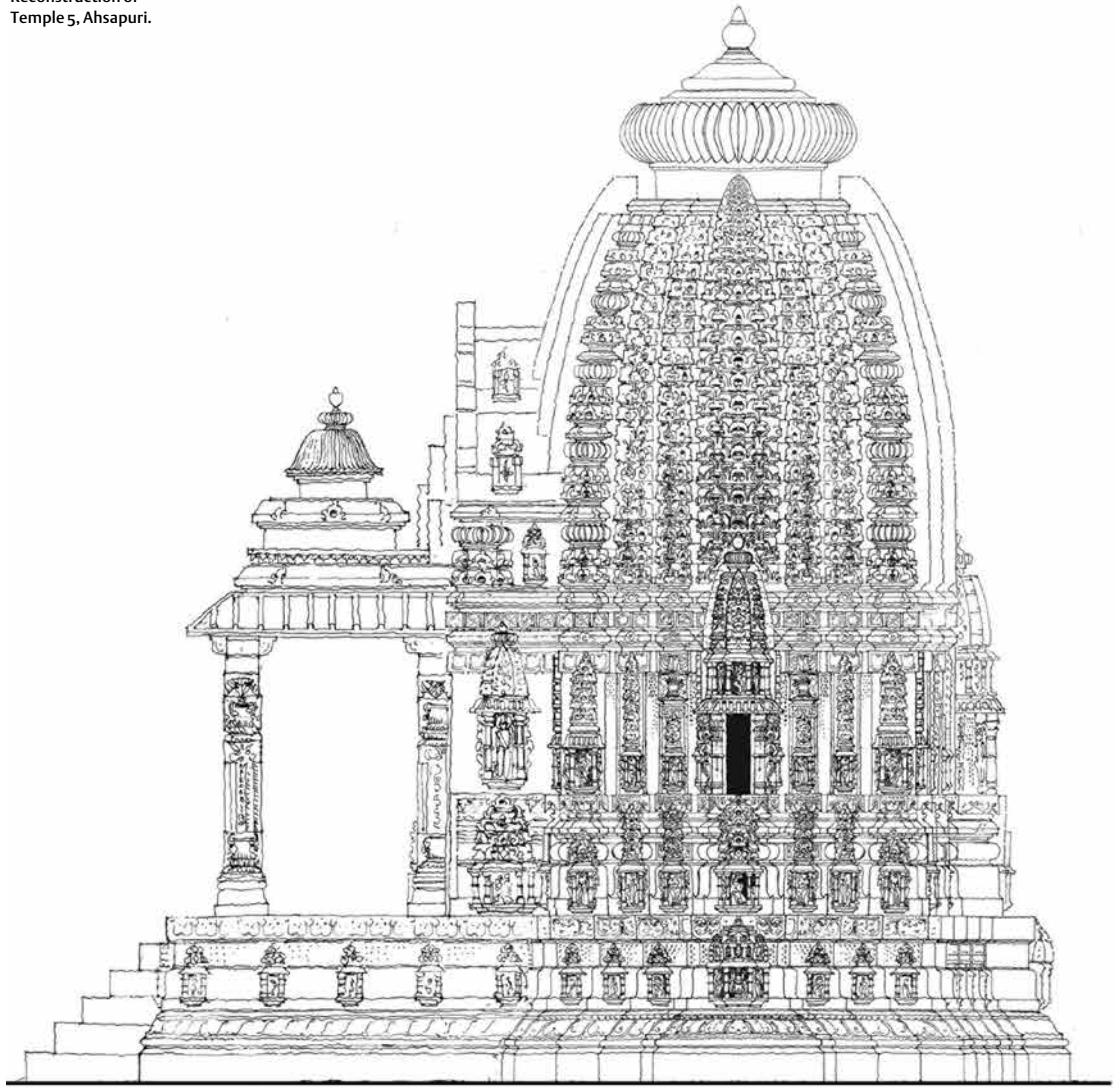
reconstructing an Indian medieval temple design is not the same as for most kinds of ruin – for, say, a Norman castle, which is relatively amorphous with one stone looking much like another. For the carved exterior of a temple, as long as there are enough pieces, this can be done with certainty, not merely conjecturally, because a temple composition is such a highly structured pattern. Reconstruction does not require intricate measurements of the pieces, let alone a digital scan, only key dimensions, because reconstruction depends not on precisely fitting stone to stone, but on understanding the forms and the principles of putting them together.

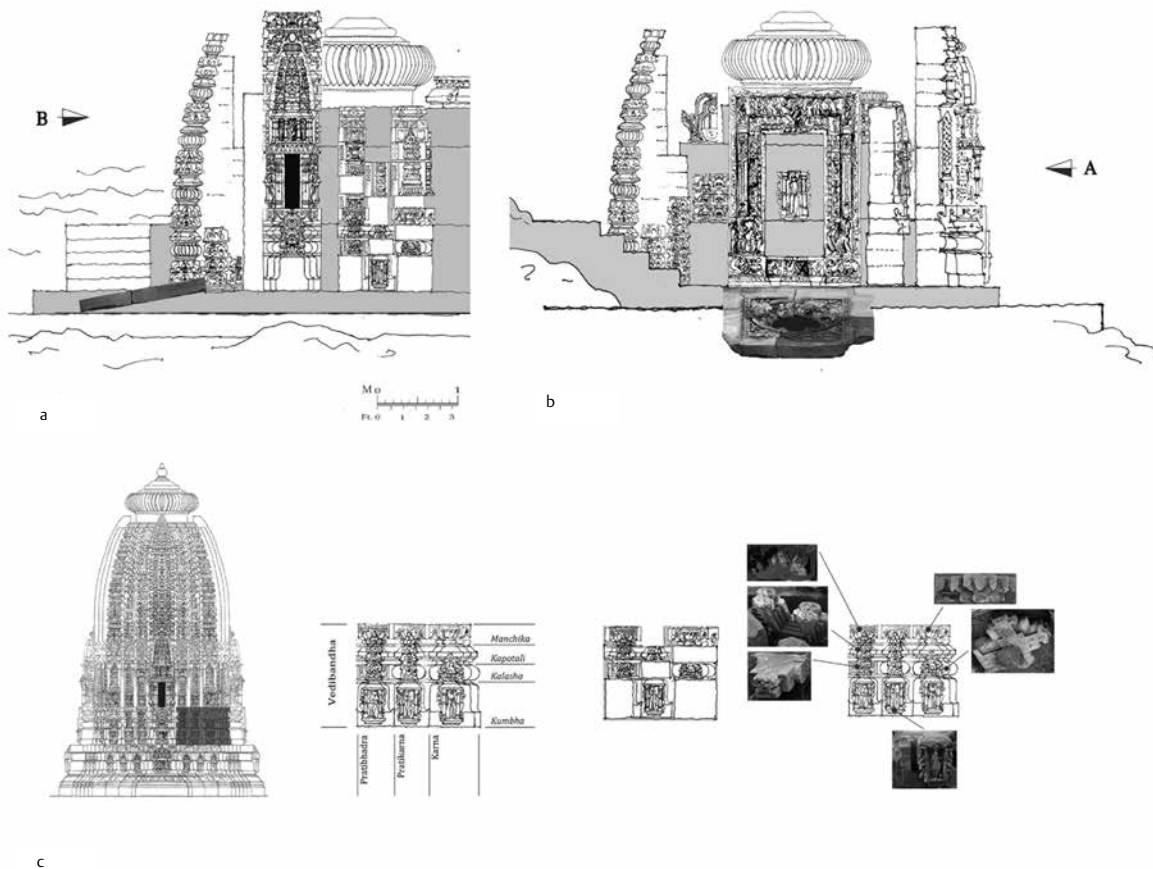
An opportunity came up in 2013 to study the little-known site of Ashapuri in Madhya Pradesh and to propose a conservation strategy.<sup>5</sup> This must have been a flourishing settlement and cult centre between the ninth and twelfth centuries, as the remains of some twenty-six magnificent temples of that period are found clustered on the banks of a sacred tank. A decade ago, they were overgrown heaps, but the Madhya Pradesh state archaeology department has since tidied the site, exposed a number of intact temple bases, and lain the fragments out on the hillside, provisionally sorted. The jigsaw puzzle of the whole site consists of twenty-six smaller puzzles, slightly jumbled together and with many pieces missing. Despite these challenges, the chronology and development of the site can be worked out by initial reimagining of all the temples and observing the stylistic niceties. The individual puzzles can also be done, and we completed three examples for our study. These are not Dravida temples, but belong principally to the north Indian, Nagara tradition. Figure [5] shows the re-creation of Temple 5 at Ashapuri. Facing west, Temple 5 is lush and complex. For its date and form (the single-spire Nagara type termed *Latina*) it arrives at an unprecedented degree of proliferation in its *saptaratha* (seven-projection) plan.

Reconstructing the design is a different issue from actual reconstruction. Identification of an element within the composition does not tell us which elevation it belongs to in a shrine where three sides (and much of the fourth) are essentially identical. The proportion of original material surviving calls for judgement as to whether or not the building should be reassembled, since new material is necessary to fill the gaps. Only about 20% of the original stones survive from Temple 5, so rebuilding is probably not advisable. However, the pieces can be meaningfully arranged. Using pieces from Temple 5 as an example, the next figure suggests the kind of display that could be created, and allowed to evolve as work at the site progresses [6a, b]. Drawings and other explanatory material can help visitors understand the original place of individual pieces. The display could be explained graphically [6c].

This kind of jigsaw puzzle can fill in parts of the greater puzzle of Indian temple architecture. Temple 5, for example, would have had a single *Latina* *shikhara* (spire), but prefigures composite, multispired Nagara temple types. The design of the *bhadra* (central projection) is unique, with its main

5 Reconstruction of Temple 5, Ahsapuri.





6 Strategy for display of fragments from Temple 5, Ashapuri.

niche belonging to a miniature Latina temple form penetrating up into the base of the main *shikhara*. The later temples at Ashapuri occupy an even more significant gap in architectural history, as they are, in my view, the earliest surviving examples of a new temple form, the Bhumiya, which was invented in this region at this time. They are the direct forbears of the vastly bigger, early eleventh-century temple of king Bhoja at nearby Bhojpur. This well-known, unfinished monument has a unique set of architectural drawings engraved on the surrounding rocks, allowing a different process of re-creation of the original design, in this case intended but never completed.<sup>6</sup> If finished, it would have been the tallest Hindu temple ever.

#### Re-creation from texts

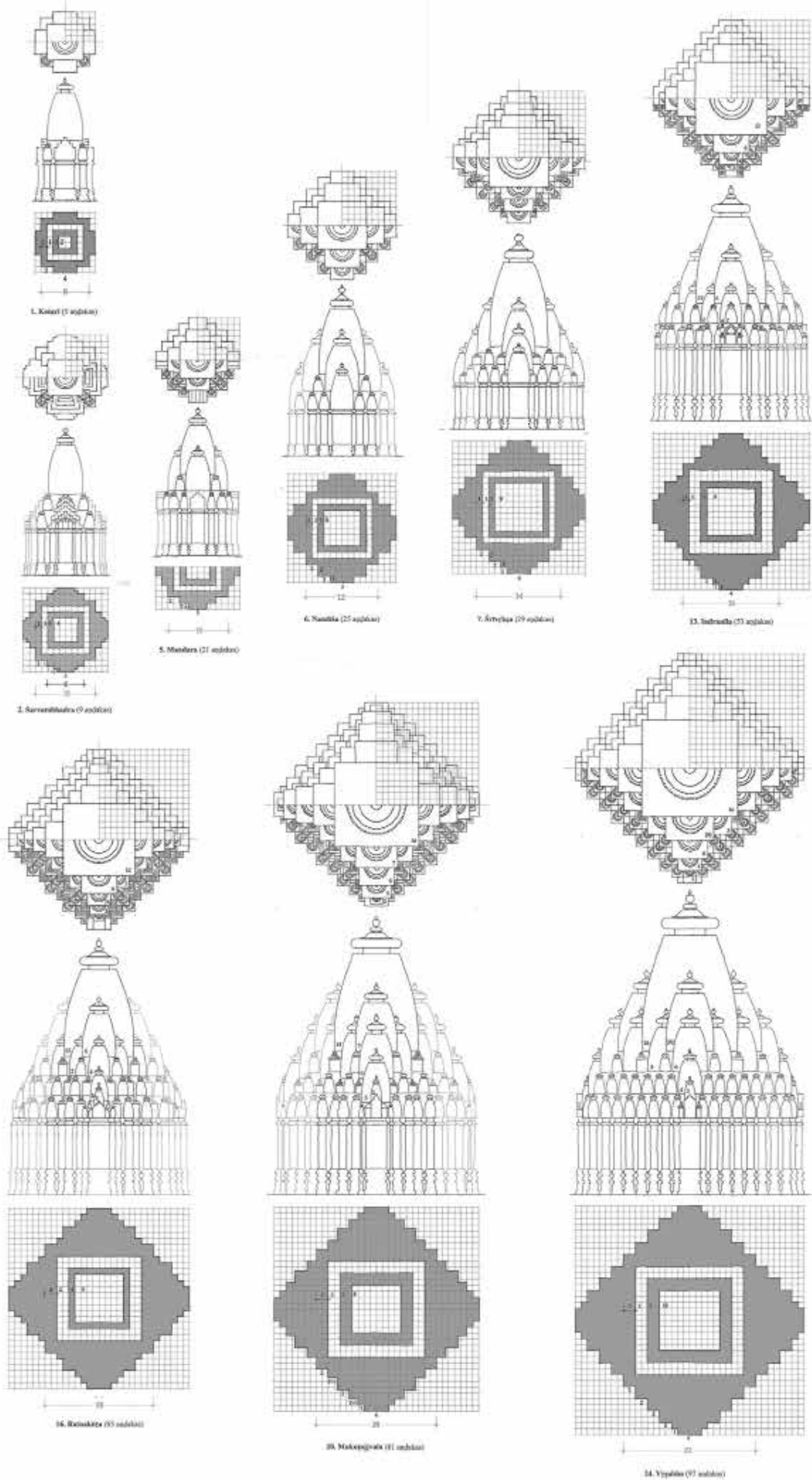
Countless temple designs can be re-created from the verbal instructions in Sanskrit canonical texts termed Vastushastras or Shilpashastras. Some of the temples described in these texts, like temples reconstructed from ruins, once existed – in the sense that the textual prescriptions refer to types that were actually built. Others imagine designs that, as far as can be known, were never realised. Theory must generally follow practice but can also conceive ideas that practice can take up one day, or never. The texts are not illustrated, but their injunctions call for interpretation through drawing, the drawing being

a necessary mediation between the words and the building.

Surprisingly, attempts to draw the temples in the texts have been very few. There have previously been only two worthwhile attempts: for south India, in modern scholarship's earliest publication on Indian architecture, Ram Raz's 1834 *Essay on the Architecture of the Hindus*,<sup>7</sup> and a century later, for northern India, N. M. Sompura's *Shilparatnakar*,<sup>8</sup> a new Shastra for hereditary architectural practitioners. As an architect, I used to think that the Vastushastra texts had little relevance to practice, since, like virtually everyone who dips into available translations, I could make no sense at all of them. More recently, working in collaboration with Sanskritist colleagues, it became clear that understanding was not so much a matter of knowing the technical terms, which are extremely inconsistent and fluid, as their context. As long as the architectural language and broad type of temple referred to by a particular text is identified, a design can be teased out by keeping in mind the possible compositions and recognising when the words fit a given pattern.

Temple designs in the texts are presented in sequences of types. Instructions for each type begin from a square, corresponding to the distance from corner to corner of the shrine and divided into a certain number of parts (*bhagas*), which determine the relative proportions of sanctum and walls. Once the plan has been dealt with, vertical proportions are given for the elevation, often but not always using the original module of the plan, and occasionally redividing part of the elevation to set





7 Drawings from Keshari series of Nagara temples in the Aparajitprchha (western Indian text of twelfth century).

up another module for its details. In the typologies they present, the texts are certainly not doing architectural history, but they do reflect the same ways of thinking and patterns of transformation as can be observed in the built record. Types are combined to create new types, and the sequences of types, generally progressing from simple to complex, often have the emanatory character that we have traced in the Karnata Dravida tradition. Each type develops from the previous one, sometimes through a rigorous arithmetical or geometrical logic, other times through a palpable emergence of one form from another.

The latter kind of evolution is conspicuous in the Nagara tradition and its texts. A notable example, appearing first in chapter 56 of the eleventh-century *Samaranganasutradhara*, is a sequence of twenty-five starting with one called *Keshari*.<sup>9</sup> This type has five *andakas* ('eggs', i.e. the ribbed *amalakas* crowning its five spires or *shikharas*). By adding four *andakas* at a time, the series progresses to the Meru type, with 101 of them. Development is not purely numerical, but each stage has to create a credible, three-dimensional design, and the text explicitly points out how simpler forms are incorporated into more complex ones. The *Keshari* series appears in several later texts, which play the same ingenious game of proliferating *andakas*, while keeping up with developments in the built tradition, or even going beyond them [7].

These examples are not concerned with detail, giving only the essential composition of the temple with its overall proportions. My drawings based on the instructions given in the Sanskrit text reflect this schematic character. Other texts give more detail, describing mouldings and ornaments. Even then, translation of the words into a building presupposes a through knowledge of the architectural tradition, and the text inevitably leaves out much more than it includes. There is no such thing as slavish adherence to a text: it provides only a framework, demanding

interpretation, improvisation, invention. Yet, the invention is not arbitrary. The results are only partly determined by an individual architect, and the framework can stimulate creations that an individual would never have thought of.

There are two ways in which these texts enhance a sense of organic inevitability in the design of temples. Firstly, like the built traditions, they present unfolding sequences in which new designs are extrapolated from previous ones, drawing out the potential of a fertile formal system. Secondly, they provide a design framework that gives the architect the role of re-creating something that already exists yet needs to be brought to realisation. A new temple design is self-manifesting, appearing as if through a cosmic process from a supra-human source. To use the Sanskrit term for the phenomenon of naturally occurring icons of deities (notably Shiva *lingas*), it is *svayambhu*, self-creating.

#### A *svayambhu* temple design

Given the brief for the new Hoysala temple, all of this suggests that a claim to own the design or 'be original' would be meaningless. To let the temple design itself through a self-manifesting or *svayambhu* approach promises to be productive as well as culturally appropriate. The American anthropologist Samuel Parker uses this term *svayambhu* to characterise the design practices of traditional *sthapatis* in South India.<sup>10</sup> This is not so much in relation to architectural form, but a 'ritual mode of production'. In the shared understanding and actions of *sthapatis*, priests, and patrons, design is an act of channelling forces so that a temple or a temple icon can emerge. Practice is inherently fluid, adaptable to different contexts and unforeseen circumstances.

It is crucial for the client, the devotees, and critical onlookers that the temple should be 'true to Shastra'. This does not necessarily mean true to texts: texts



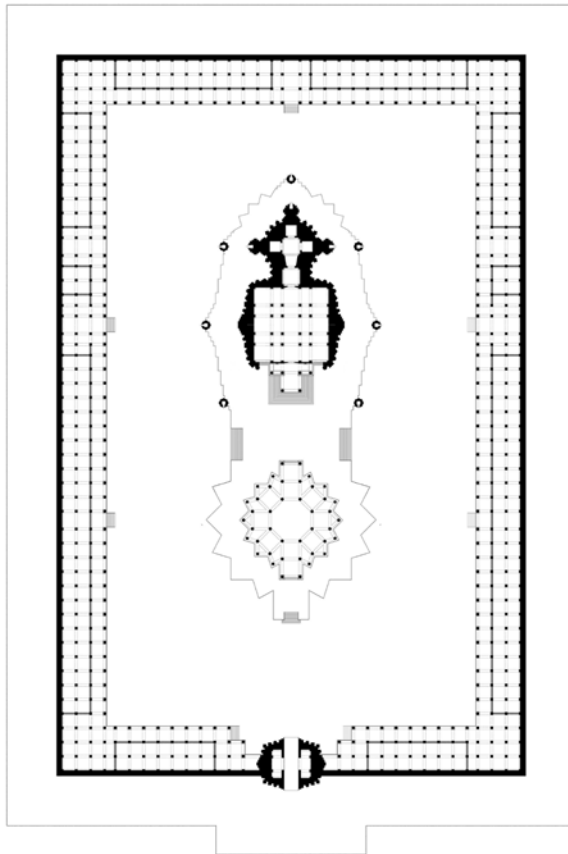
8 Ishvara temple, Arsikere, c. 1220.

legitimise the status of sthapatīs, but they may not necessarily use them, and Shastra can be used in the broader sense of a body of traditional knowledge.<sup>11</sup> It was a relief when Shankar Sthapati, the prominent member of a lineage of Tamil sthapatīs who is in charge of constructing the temple, pronounced that my drawings were ‘true to Shastra’. No texts survive for the Karnata Dravida tradition, so none can be used to legitimise, nor to provide a framework through which a design can be re-created, as if emerging from beyond. This leaves two parallel ways in which a *svayambhu* approach to the present project can work. The first is through awareness of the formal games that were played out in the tradition, of the emanatory logic of its development, and of its inherent possibilities. In this respect, the design can reflect what the Hoysalas might have done next if they had built another great royal temple after Belur and Halebid. The second is simply to accommodate

all the requirements and exigencies beyond one’s control: the decision that it should be in Hoysala style, with ritual and iconographic needs, and auspicious dimensions.

The new temple, the Sri Kalyana Venkateshwara Temple, is to be dedicated to Sri Venakteshwara or Balaji, a form of Vishnu. At the start of the project the client explained that the famous Chennakesava temple at Belur (dedicated 1117 AD) is to be the benchmark for the scale of the temple, including the plan size of the *vimana* (the shrine with tower) and the *garbhagriha* (sanctum) within. The material is to be the typically Hoysala ‘soapstone’, a blue-grey chloritic schist, soft to carve yet hardening in the atmosphere, perfect for intricate and durable carving. Certain hallmark features of the grandest Hoysala temples were expected [1 refers]: a great *jagati* platform supporting the entire structure, a wall in two tiers with sculptures in the lower register and miniature temples rising above, and half-emerged shrines bursting forth along the cardinal axes. A nine-bay *mandapa* or hall was preferred [9–11]. Sixteen freestanding pillars will support nine principal ceiling bays, with minor ceiling divisions set at a lower height to allow light to enter and glow across the main domes [11]. The client pointed to the beautiful little Ishvara temple at Arsikere as a precedent for the plan, particularly the stellate *sabhamandapa* (open hall) in front, for dance performances [8 refers]. Given the much greater scale, with a limit to the possible beam length, this could not be simply a blown-up version of Arsikere. The solution that offered itself is a large domed octagon surrounded by eight smaller domes, while retaining the star shape. Surrounding the entire complex is to be a 450 ft x 650 ft (137 x 198 m) *prakara* (compound wall), lined internally by ancillary rooms and a colonnade. Entry to the enclosure will be from the east through a *gopura* (storeyed gateway).

If these seem like normal programmatic needs, the iconographic requirements generated the specific temple form in a strikingly self-manifesting way. The *mandapa* walls are to display the *dashavatara*s, the ten avatars of Vishnu, necessitating ten principal projections, of which the main panels must be of equal size. In the *vimana* walls it is the *vishnuchaturvimsati*, the twenty-four names of Vishnu that are to be represented. This necessitates twenty-



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9 The proposed Sree Kalyana Venkateshwara Temple at Venkatapura: plan of the complex.

10 South elevation of the main temple and open hall.

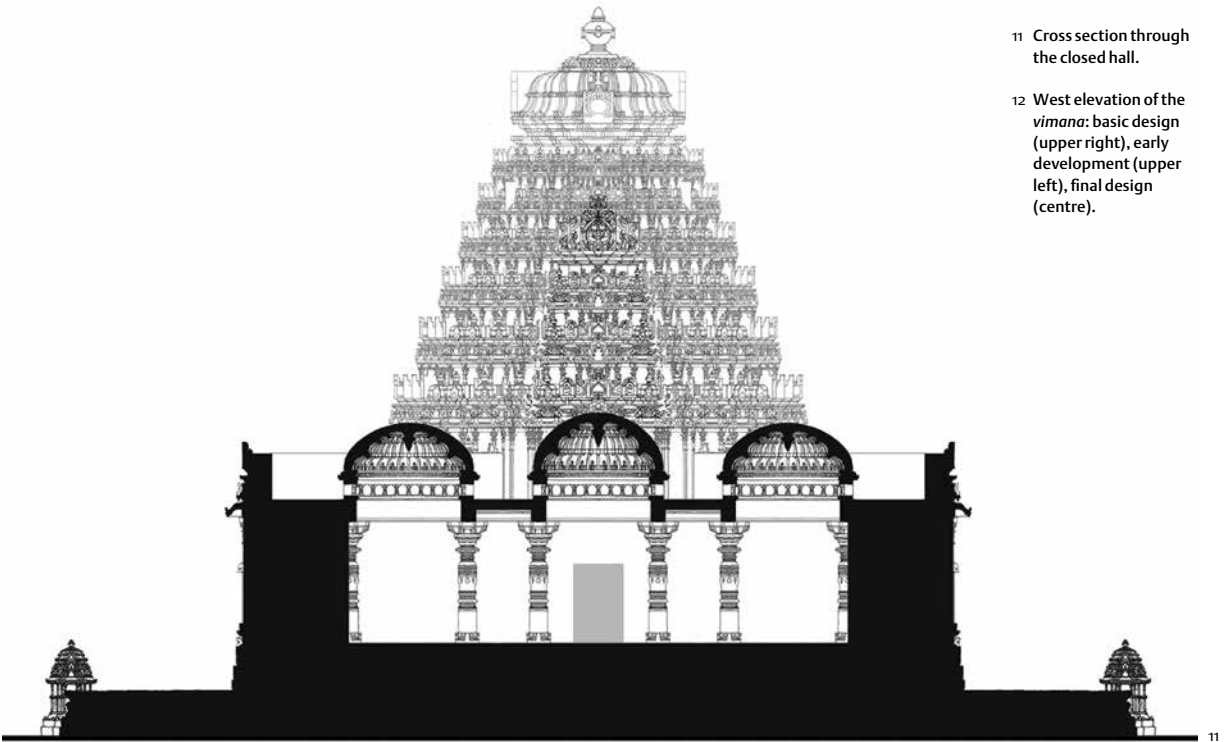


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four visible facets. Leaving room for the *bhadras* (cardinal projections), this calls for a stellate plan of twenty-four points, formed by a square rotated six times. The architectural language demands *kuta*-aedicules on the angles of the rotated squares, and staggered *shala*-aedicules with diagonal monster-faces on the *bhadras*. In the angles between the main elements emerge re-entrant projections based on an equilateral triangle rotated eight times. Norms of proportion dictate that this plan should generate a *vimana* of seven *talas* (storeys) [12]. As if by magic, the composition resulting from the iconographic needs

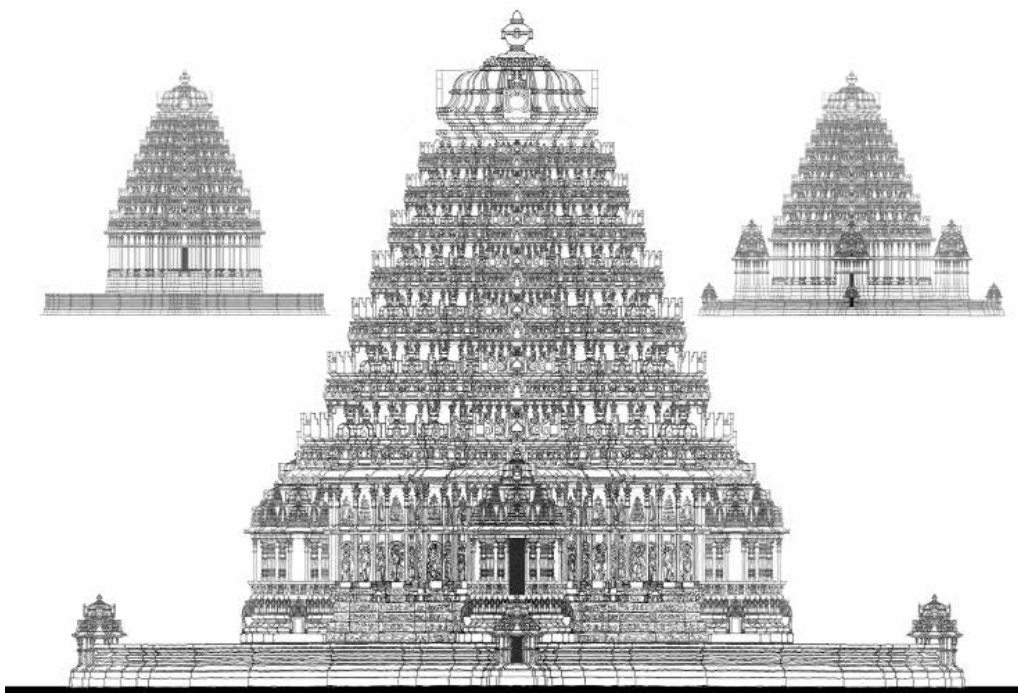
takes the unfolding, proliferating development of the Karnata Dravida tradition a step further than the Hoysalas did.

Design of the details is now in progress [13]. I am drawing the mouldings full size, trying to marry Hoysala lushness (to come with the carving) with the best of Chalukya elegance. CAD drawings are being done in parallel. Relative proportions of Karnata Dravida mouldings vary considerably. Although there is no text for reference, the proportions are guided by the ubiquitous principle in Vastushastra texts of dividing plans and elevations into parts



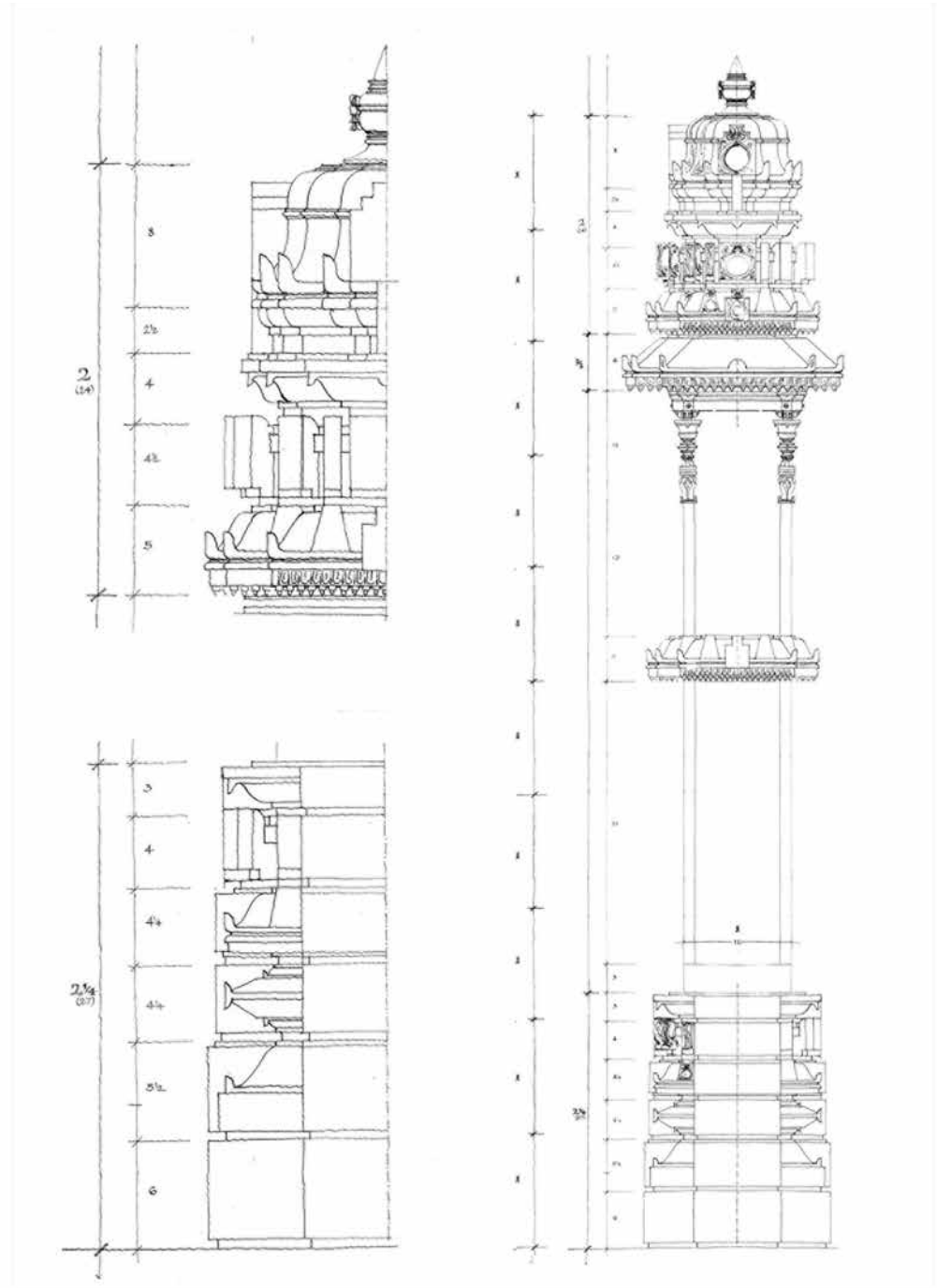
11 Cross section through the closed hall.

12 West elevation of the *vimana*: basic design (upper right), early development (upper left), final design (centre).



12

13 Key dimensions in temple wall.



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(*bhagas*) and specifying dimensions in terms of whole numbers or simple fractions of such parts. This accords with the working methods of Shankar Sthapati, the sthapati acting as contractor. Twelve of the basic *bhagas* or parts make up one grid square of the temple plan. The grid is based on the *garbhagriha* being 4x4 squares, and with twelve the basic square of the *vimana* walls (the one that is rotated to make the star). The actual size of the grid is derived from the *aya* or *ayadi* calculation made by Agama (ritual text). This calculation takes into account the location, the horoscope of the deity, and that of the patron or *karta* (literally 'actor').<sup>12</sup> It results in a *garbhagriha* width of 14 ft 1 in, and thus a grid square size of 3 ft 6 1/4 in. The resulting *vimana* height is about 109 feet (33 m).

On 14 June 2017, a *shilavapanana* (stone-laying) ceremony was performed at the site. Seven years earlier, at the spring equinox at sunrise, I had participated in the *bhumipuja* or earth-worship ceremony, and more recently a *shilanyasa* for the foundation stone. Architecturally, the June event was more significant, as the stone to be placed was the first carved one. The soapstone block, roughly 45 x 45 x 18 1/4 inches, is part of the *upapitha* or base stone, forming one point of the star-shaped plan of the *vimana* or shrine. It had been selected, quarried, cut, and carved at Karkala near Mysore, and master-sculptor Gunavantheswara Bhat, pupil of the project's head sculptor Ganesh L. Bhat, delivered it at the eleventh hour after an arduous drive. Nine apprentice sculptors emerged with the stone from



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14 Apprentices working on first carved stone for new temple, with Gunavanteswara Bhat and Adam Hardy.

the truck and continued their work overnight on the first five of the interminable elephant herd who will zigzag around this moulding [14]. The stone was inaugurated by the Maharaja of Mysore, Yaduveera Chamaraja Wadiyar; the officiating priests were from the Tirumala Venkateshwara temple at Tirupati, primary seat of Sri Venkateshwara; and some seven thousand devotees took part.

The stone-laying ceremony was planned at short notice, to take place at a rare *muhurta* (auspicious time) that happened to coincide with the 900<sup>th</sup> anniversary of the consecration of the Belur Chennakeshava temple. The unexpected rush to finalise the design of the lowermost moulding demonstrated how *svayambhu* the design of details would prove to be. The typical Karnata Dravida moulding sequence for an *adisthana* (moulded base) was replaced in the most prestigious Hoysala works by a series of sculpted friezes [1]. It is not usually recognised that these were originally superimposed onto the traditional mouldings. At Halebid, the moulding shapes lurk behind the bands of lions, *makaras*, and so on. My idea for the new temple is that the pristine mouldings and lush bands will be interwoven. A drawing was suddenly needed for the 'first stone'. This might sound easy, but every stone is intimately related to every other one. Detailed decisions had to be made for what would come above, to ensure that the first stone was correct. Having already drawn at full size the *kuta* pavilion way above, I worked downwards to an elephant-lined *jagati* moulding around 22 inches high. However, it transpired that courses of this height would be difficult to source. An excellent first stone had been identified in the quarry at Karkala, which would give

us about 18 inches. The sculptors felt this would allow more suitable elephants, but I knew it would wreck the proportions. What was therefore required, without compromising the overall height of the moulded base, would be the addition of a sub-base or *upapitha* below the *adisthana* proper, consisting of elephants and two further mouldings. In *svayambhu* fashion the solution emerged.

### Conclusion

Puzzling out a temple design from the jigsaw puzzle of its scattered fragments is clearly a re-creation of something that once existed as a physical artefact and an idea made concrete. Understanding architecture from the past in terms of its compositional principles and design processes is a different kind of re-creation. This inevitably involves interpretation, through words and drawings, but this cannot be arbitrary. It must make sense of the buildings it seeks to explain and may have more or less explanatory power and consistency. Texts can give insights into such processes and principles, which may be substantiated by analysing built examples, but they never tell the whole story. If, conversely, an architectural tradition is assimilated and understood from temples themselves, it is possible to draw the temple designs prescribed in relevant texts. Interpretation is required to bring these to realisation in a drawing, even more in a building, along with imagination to elaborate and

embellish them. Yet, the intended underlying design diagram can, to whatever degree of comprehensiveness the text presents, be known with certainty.

These are all acts of re-creation in that they bring into the present something that has already existed as an object or a visual idea. That the design of a new temple can be seen as re-creation, and not merely in the sense of copying or pastiche, may seem paradoxical. Yet, it can re-create a tradition – revive it, but not in a superficial sense – by reliving the processes of design deducible from the buildings of that tradition, sometimes complemented by texts. That its processes of making can never be relived, at least not fully, is undeniable, even if the materials used are the same, and therein lies the rest of the story.

In terms of design, reliving the process of creating a single temple necessitates reliving the process of progressive bringing forth of temple forms in the tradition as it developed. The potential of an architectural tradition for designs that have never actually been realised is particularly strong in the case of Indian temple architecture because of its highly structured patterns and its uniquely emanatory way of unfolding. This is not to deny the agency of the architects and artists, but to note that they collectively created a system with its own logic,

with inherent potential for particular designs. A new design extrapolated from this system already exists in potential, and in this sense can be experienced not just as re-creating, but as self-creating.

Formal possibilities of a tradition can be explored theoretically by developing hypothetical designs, but the social and technical realities of a live project give an extra dimension, as well as forcing solutions to all the practical issues and details that canonical texts leave to choice, and contingency. Programmatic needs and unforeseen events have shaped the Sri Kalyana Venkateshvara Temple in ways I find mysterious. Meanwhile, the project rolls on, through funding matters and socially negotiated questions of meaning and ritual, expected to take another ten years. Other requirements and details will continue to mould it, and its material interpretation, its actual execution and adornment by many minds and hands, will take its ultimate realisation yet further from an individual architect's will, making it harmonious and beautiful, or not. If it is not built, it will have been a worthwhile piece of design research. Whether or not the monkeys of eternity will ever type out the works of Shakespeare, the potential of a *svayambu* temple design, flowing from a tradition channelled by minds and hands long silent, will always exist, along with the possibility of its further ramifications, endlessly passing through cycles of growth and dissolution.

## Notes

1. The contract (up to current stage) was with Cardiff University, and in collaboration with Esthetique Architects, Bengaluru.
2. Rahul Merhotra, *Architecture in India Since 1990* (Mumbai: Pictor Publishing, 211) p. 260.
3. Adam Hardy, *Indian Temple Architecture: Form and Transformation* (New Delhi: IGNCA and Abhinav Publications, 1995).
4. James Fergusson, *Indian and Eastern Architecture* (London: John Murray, 1876), pp. 448–9.
5. Project in collaboration with the School of Planning and Architecture, Bhopal, for World Monuments Fund in partnership with Government of Madhya Pradesh. For a talk on the project, see <<https://youtu.be/ZdqwLuOXFG0>>[accessed 10 February 2022].

6. Adam Hardy, *Theory and Practice of Temple Architecture in Medieval India: Bhoja's Samarāṅgaṇasītradhāra and the Bhojpur Line Drawings*, trans. by Mattia Salvini (New Delhi: Indira Gandhi National Centre for the Arts with Dev Publications, 2015). See also <<https://youtu.be/ybitncZZEyc>> [accessed 10 February 2022].
7. Ram Raz, *Essay on the Architecture of Hindus* (London: Royal Asiatic Society, 1834).
8. Narmadashankar Sompura, *Shilparatnakar* (Dhuandhra, Kathiawar: Shilpashastra Shri Narmadashankar Muljibhai Sompura, 1939).
9. Hardy, *Theory and Practice of Temple Architecture in Medieval India*, pp. 99–127.
10. Samuel K. Parker, 'Ritual as a Mode of Production: Ethnoarchaeology and Creative Practice in Hindu Temple Arts',

*South Asian Studies*, 26:1 (2010), 31–57.

11. Samuel K. Parker, 'Text and Practice in South Asian Art: An Ethnographic Perspective', *Artibus Asiae*, 63:1 (2003), 5–34 (p. 9).
12. Ramalinga Reddy, father of Aravind Reddy, who is the driving force of the project.

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## Competing interests

The author declares none.

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