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**A Drop Falls from the Sky**  
**Nāgara Architectural Metre and Two Ontario Hindu Temples**

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# A DROP FALLS FROM THE SKY

## Nāgara Architectural Metre and Two Ontario Hindu Temples

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> LIBBIE MILLS<sup>1</sup> AND  
JAMIE S. SCOTT

Among the Sanskrit instructional texts classified as *Śāstras*, that hand down what Sheldon Pollock has called “authentic knowledge,”<sup>2</sup> a subset, the *Śilpaśāstras* and *Vāstuśāstras*, convey instructions for building temples. The extant written records date back as far as the sixth-century *Bṛhatsamhitā*, though a good deal of what they have to say about the architecture of temples doubtless derives from much older written and oral traditions. Working from both the written accounts and extant temple examples, contemporary scholars generally associate the *Nāgara* temple style with northern India and the *Drāviḍa* style with southern India. As Madhusudan A. Dhaky has remarked, the archival heritage of India’s western region, notably Gujarat and Rajasthan, includes numerous Sanskrit *Śāstras* concerned with the northern *Nāgara* tradition.<sup>3</sup> A “comprehensive compendium” of this work, to use Dhaky’s phrase, the “late 12<sup>th</sup>- or early 13<sup>th</sup>-century” *Aparājitaṭṭcchā* [Aparājita’s Questions] dramatizes a dialogue about architecture between the eponymous son and his father, Viśvakarman, “Maker of Everything,” the divine architect.<sup>4</sup>

In the *Aparājitaṭṭcchā*, Aparājita has many concerns, including “the origin of temples, their 14 classes and other sub-species.”<sup>5</sup> The answers Viśvakarman gives to his son are wide-ranging: they draw on materials from multiple texts and serve as a thorough presentation of classical architectural theory as it applies in northern India, encompassing domestic, civic, and religious structures. When we reach chapter 67, however, the text seems to change topics to inquire into the matter of poetic metre, or *chandas*. The following chapter



FIG. 1. FOLIO FROM THE BRITISH LIBRARY’S MANUSCRIPT OF THE PINGALĀMATA, AN EARLY ŚAIVA MANUAL FROM NORTHERN INDIA. | BRITISH LIBRARY OR 2279.PNG.

clarifies the situation; it elaborates upon the new topic in a discussion of *chandas* in construction. Here, a word usually thought of in terms of the rhythm of verse is used instead to denote the pulse of a building.

Focusing upon chapters 67 and 68 of the *Aparājitapṛcchā*<sup>6</sup>, this essay discusses the notion of a built structure's rhythm, notably the architectural metre of the *Nāgara* style of temple. First, we offer a succinct account of some basic principles of poetic metre in Sanskrit and their transposition from verse to the three-dimensional sphere of architecture. We then consider more closely what the *Aparājitapṛcchā* has to say about the metre of the house, the royal palace, a particular kind of roofing known as the *vitāna*, and, most importantly, temples. To illuminate the argument on temple metre, we present key principles associated with the design and construction of classical *Nāgara* temples in northern India. A fourth section discusses the varying degrees to which two Ontario Hindu temples—the Hindu Temple of Ottawa-Carleton (1989) and Brampton's Hindu Sabha Temple (2001)—exemplify the metric principles of *Nāgara* architecture explored in the *Aparājitapṛcchā*. The essay's "Afterword" draws these themes together and suggests paths for further research.

## FROM POETIC METRE TO HINDU ARCHITECTURE

We begin, as does chapter 67 of the *Aparājitapṛcchā*, with some generalities about Sanskrit *chandas*. While the rhythm of spoken English is based on a pattern of stressed and unstressed syllables, in Sanskrit the chief driver of rhythm is a pattern of syllables, or *akṣara*, that are "heavy," *guru*, and "light," *laghu*. In the briefest terms, a light syllable is one that contains a short vowel followed by not more than one consonant, allowing the

<p>एकाक्षर क्षरे भिन्नं व्यातं चैतच्छगचरम् । त्रैलोक्यस्यात्पत्तिकरं छन्दो भेरुसुप्युद्धवम् ॥ २ ॥ तथा दाम्भुञ्जमेरुश्च चिन्तामणिर्नृत्तान्वयः । चतुर्विधं छन्दशास्त्रमेकाक्षरतः क्रमान् ॥ ३ ॥ एकाक्षरोद्भवः दाम्भुस्तथामेरुश्च युग्मतः । चिन्तामणिसिन्धुश्चैव वेदेयुत्तान्वयः स्मृतः ॥ ४ ॥ छन्दाश्चतुर्विधाः प्रोक्ता वेदान्ताश्चैकतः पृथक् । गुरुलघूद्भवा मात्रा षडुतन्हस्वादिस्संज्ञकाः ॥ ५ ॥</p>	<p>द्वन्वा छन्दः समुदिष्टे तदन्ते लघुनि द्विकम् । न्यसेदेकं गुरुणां च द्विगुणं द्विगुणं ततः ॥ ५३ ॥ व्यत्ययात्तद्युनः स्थाने द्विगुणादेकं गुरोः । कुर्यात् तमापस्थानाङ्कसङ्ख्यं नष्टे गृहं भवन् ॥ ५४ ॥ इत्युदिष्टछन्दः ॥ प्राप्तस्यैकं कोष्टमेकैकपृष्ठया न्यस्येदृष्यं पङ्क्तयो यावदिष्टाः । इष्टानेकदीर्घिस्त्रैदानुपूर्वा कर्णेनाथः श्लेषरूपे च दद्यात् ॥ ५५ ॥ कर्णस्थाङ्कश्लेषतोऽङ्के भवेद् यस्तं विन्यस्येत् कोष्टकेषु क्रमेण । उदिष्टाङ्को भद्रसङ्ख्यानि मध्ये याभ्यः कर्णश्लेषतो मृषिकास्ताः ॥ ५६ ॥ एकादिषु द्विगुणितेष्विहः यावदिष्टमूपाकमध्यपदितेष्वथ तेषु विद्यात् । उदिष्टेऽमकृतनिर्गमामर्गमूपासत्काङ्कसेक्युतिनिर्मितसङ्ख्यमोकः ॥ ५७ ॥</p>
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FIG. 2. PASSAGES FROM THE *APARĀJITAPṚCCHĀ*. THE PASSAGE FROM CHAPTER 67 IS IN *ŚUDDHA*, THAT IS, "PURE" METRE; THE PASSAGE FROM CHAPTER 68 IN *MISRAKA*, THAT IS, "MIXED" METRE. | FROM THE EDITION OF P.A. MANKAD, BARODA: GAEKWAD, ORIENTAL SERIES CXV, 1950.

syllable to be spoken quickly and lightly. A heavy syllable, in contrast, contains a long vowel or a short one followed by more than one consonant, which means that the syllable takes longer to say and accordingly carries more weight. The system is binary: every syllable is either light or heavy: a light syllable is one *mātrā*, that is, one count long; a heavy one is two *mātrās*, that is, two counts or twice as long.

In this metric tradition, the classes of poetic metre fall into three categories.<sup>7</sup> The first category, *akṣaracchandās*, are metres specified by the number of syllables they contain. The second category, *ṛttacchandās*, are metres which consist of four *padās*, that is, feet or quarters, each of which has a specified sequence of light and heavy syllables. There are three types of *ṛttacchandās*, according to whether or not all the quarters are the same: *sama*, that is, "equal," in which all four quarters contain the same sequence of light and heavy syllables; "half equal," or *ardha-sama*, in which alternate quarters contain the same sequence of light and heavy syllables; and "unequal," or *viśama*, in which all quarters contain dissimilar patterns of light and heavy syllables. In the third category of poetic metre, *mātrāchandās*, only the total number of *mātrā* counts in each quarter is specified. Chapter 67

of the *Aparājitapṛcchā* gives all this information in a condensed form. The entire account is couched in śloka verse, which is catchy and predictable, and therefore commonly used for didactic purposes. By contrast, chapter 68 on building metre is composed in a mix of verse types.

How, then, does chapter 68 of the *Aparājitapṛcchā* take metre from Sanskrit versification to architecture? As we have seen, metre in verse comes in a linear sequence of heavies and lights. We utter and hear it in a single stream of syllabic rhythm. We are trained to write and read it from left to right, from top to bottom of the page. Sanskrit manuscripts let the stream of the script run on to the edge of the page without interruption. A folio from the British Library's manuscript of the *Pingalāmata*, an early Śaiva [dedicated to Śiva] manual from northern India, exemplifies this phenomenon (fig. 1).<sup>8</sup> Editions will generally put the lines of verse in a stack. The stack shows quite well how long each sequence is, but still does not give a good visualisation of the weight pattern of the syllables. A text may put the same verse pattern on repeat, as seen in the śloka couplets of chapter 67 of the *Aparājitapṛcchā* (fig. 2). One could label such consistent repetition "pure," or *śuddha*. Alternatively, the text

might switch between verse patterns, or switch between verse and prose, as seen in the verses from chapter 68 of the *Aparājitapṛcchā* (fig. 2). Such changing up of the rhythm might be considered “mixed,” or *miśraka*.

If, however, solidly linear sequencing characterizes metre in verse, metre in three-dimensional architecture—the pulse of a building—will have a voluminous nature. We are trained to read a text in a secure order of left to right and top to bottom, and to follow its rhythm in a linear sequence of sounds. The idea of the thrum of a building—its passages of quiet, its syncopations, sudden bolts, gentler accelerations—poses a different challenge. How do we discern and articulate the rhythm of such a structure? For the average observer, there are none of the set rules that make reading the lines on a page so predictable. The Sanskrit textual record describes built metrics in terms of plan and elevation: the plan is described from centre to periphery, the elevation from bottom to top. In other words, typical architectural descriptions are strictly planar; they do not take account of three-dimensional forms. We encounter the word *chandas* regularly, but in general it refers rather blandly to an overall style and fails to capture the full import of built rhythm. *Aparājitapṛcchā* chapter 68 stands out from the others, however, making a real attempt to connect the concept of *chandas* in building more firmly to the rules for *chandas* established for verse, and to describe that rhythm in three dimensions.

### ARCHITECTURAL METRE IN THE APARĀJITAPṚCCHĀ: HOUSE, ROYAL PALACE, VITĀNA, AND TEMPLE

Chapter 68 of the *Aparājitapṛcchā* identifies a set of six basic metres: *Meru*, *Khaṇḍameru*, *Patākā*, *Sūcikā*, *Uddiṣṭā*,

and *Naṣṭa*. Generally, the text pays little attention to *Khaṇḍameru*, *Patākā*, *Sūcikā*, *Uddiṣṭā*, or *Naṣṭa*. But there is a good deal of information about the use of the *Meru chandas* in temples, palaces, houses, doorways, wells, settlements, and elsewhere. Of the several uses and related derivations involving the *Meru chandas*, four kinds of structures are significant for present purposes: the house, the royal palace, a particular kind of roof called a *vitāna*, and the temple. For houses, the chapter lists six metres derived from *Meru*: *Tṛṇa*, *Paṭṭa*, *Vāji*, *Pūrṇa*, *Khaṇḍa*, and *Pāṇḍu*. It goes on to explain how this set is applied to architecture. The roof is in *Tṛṇa* and *Paṭṭa* metres; stonework is in *Vāji* metre; the interior of the house is in *Khaṇḍa* metre; the base of the house is in *Pūrṇa* metre; and the upper levels, built of stone, are in *Pāṇḍu* metre. In the case of the house, then, the six metres developed from *Meru* are put to use in different parts of a single building. By contrast, the six metres derived from *Meru* for the royal palace are *Māḍa*, *Mauḍa*, *Śuddha*, *Śṛṅga*, *Tuṅgāra*, and *Siṃhaka*. Chapter 69 of the *Aparājitapṛcchā* explains that these six metres each produce a distinct style of royal palace associated with a particular architectural characteristic. The *Māḍa*, for example, has bell-shaped designs, while the *Mauḍa* features an upper terrace. Here, then, the six metres developed from *Meru* form distinct kinds of buildings.

The discussion of the *vitāna* reveals a different concern; specifically, it is an exposition of the mixing of metres. A *vitāna* is a roof covering over a *catuṣkī*, a square structure with four columns, one at each corner. Chapter 68 of the *Aparājitapṛcchā* associates six metres with the *vitāna*: *Padma*, *Nābhi*, *Sabhāmārga*, *Mandāra*, *Bhinna*, and *Miśraka*. In chapter 189, though, the *Aparājitapṛcchā* reports that there are only four *vitāna* metres: *Padma*, *Nābhi*, *Sabhāmārga*, and *Mandāra*. What

has happened to the *Bhinna* and *Miśraka* metres? Chapter 189 goes on to categorize the metres of the *vitānas* as *Śuddha*, *Samghāṭa*, *Bhinna*, and *Udbhinna*. From this categorization, we can understand that *Bhinna* and *Miśraka* have been removed from the first list because they are mixed, not *Śuddha*, that is, “pure.” Sure enough, the next chapter defines the metrical categories: *Śuddha* is one single metre; *Samghāṭa* is a mix of two metres; *Bhinna* is a mix of three metres; and *Udbhinna* has four metres. In theory, it seems, metres can be pure or mixed to specified degrees. Examples of the mixed metre of the *vitāna* follow. “[When] the rhythm is *Padma* below and *Nābhi* above,” one reads, “that first combination (*Miśraka*) is called *Padmanābha*” (*Aparājitapṛcchā* chapter 190, verse 4). Though the *Aparājitapṛcchā* is not always this precise and the terminology is occasionally inconsistent, in general these examples demonstrate that in combinations of two metres, the metre on the bottom of the building comes first in the name and the metre at the top of the building comes second.

Let us now turn to the *Meru chandas* and the temple. As a northern text, the *Aparājitapṛcchā* presumes knowledge of the *Nāgara* style of northern Indian temples, so some account of the main architectural features of these temples will help to contextualize what the *Aparājitapṛcchā* has to say about their architectural metre. Classical Sanskrit descriptions of the temple are given in flat accounts of plan, then elevation, beginning with a discussion of the site for the temple complex, which is carefully chosen to avoid inauspicious influences and involves a square plan laid true to the cardinal directions. Wider than the temple itself, the *pīṭha* is the base or plinth upon which the structure is built. The elements of the plan radiate out



FIG. 3. THE TWELFTH-CENTURY NAVALAKHA TEMPLE, GHUMLI, GUJARAT, INDIA, SEEN FROM THE SOUTH IN 1874. | JAMES BURGESS AND JOHN FAITHFULL FLEET, 1971 [1876], *REPORT ON THE ANTIQUITIES OF KATHIAWAD AND KACHH, BEING THE RESULT OF THE SECOND SEASON'S OPERATIONS OF THE ARCHAEOLOGICAL SURVEY OF WESTERN INDIA, 1874-75*, VARANASI, INDOLOGICAL BOOK HOUSE, PLATE XL.

from the centre, which is the locus of the temple deity. The deity is installed in the *garbhagr̥ha*, the innermost chamber of the temple. In every temple, a walled ambulatory, termed a *pradakṣiṇā* or *andhāra*, circumscribes the deity within the *garbhagr̥ha*. Some temples have a second walled ambulatory around the outside of the *garbhagr̥ha*. The walls, or *bhittis*, are shaped into broad convexities, minor offsets on either side of these broad projections, and corner elements and recesses, known respectively as *bhadras*, *upabhadras*, *koṇabandhas*, and *praveśas*. Occasionally, concavities acting as water channels, known as *udakāntara*, and latticed windows, or *jālas*, are set into the walls. Columns, pillars, and pilasters, collectively called *stambhas*, serve as supports and ornaments. An outermost wall, or *prākāra*, circumscribes the temple enclosure. Every doorway is known as a *dvāra*, whether it leads into the temple enclosure, or into the temple itself, or into the *garbhagr̥ha* at the centre of the temple.

Put simply, the elevation divides into two parts: the *janṅhā* and the *śikhara*. The *janṅhā* is the portion of the temple between the base of the doorway and the base of the *śikhara*. One or more pavilions or pillared halls, known as a *maṇḍapa*, adjoin this structure. The *maṇḍapa* and temple are connected by an *antarāla* passageway. Devotees pass from the outside world into the *maṇḍapa* as they

approach the *garbhagr̥ha*. A pedestal for offerings, or *balipīṭha*, and a flag staff, or *dhvajayaṣṭi*, stand in front of the *janṅhā*. The *śikhara* is the superstructure, a highly peaked roof, over the temple *janṅhā*. The superstructure tapers as it ascends, in either a gradually increasing curve or a straight line, rising as far as the *skandha*, a flat upper platform. On that is a narrowed portion termed the *kaṇṭha*. Over the *kaṇṭha* is the *āmala*, a rounded element with vertical grooves, that projects beyond the *kaṇṭha* in breadth. The *sāraka* is a yet narrower pinnacle shape above the *āmala*. These two elements are usually bracketed together as the *āmalasāraka*. On the *āmalasāraka* is the finial. This highest point of the temple composite is vertically aligned directly over the deity in the *garbhagr̥ha* far below. The *śukanāsā* is a projection from the *śikhara*, supported by a projection at the wall termed the *prāggrīva*. The *śukanāsā* width is the same as that of the *garbha*. Its height is half that of the *śikhara*, while its projection out from the *śikhara* varies with the presence and absence of a *bhadra* or *maṇḍapa*. By the time of the *Aparājītapṛcchā*, the *śukanāsā* projection is multiplied to produce repeated embedded *śikhara* forms, termed *uruśṛṅgas*, that ripple down the sides of the *śikhara*, to produce a complex which is designated *Śekharī*. With its heavy base lidded by a tapered *śikhara*, light barely penetrates the whole temple for most of the day. At the centre of the temple, the *garbhagr̥ha* remains in deep

darkness except for perhaps once a day, when the angle of the sun allows light through the doorway to illumine the deity at the heart of the building. At the same time, the *dr̥ṣṭi*, that is, the narrow sight line of the deity back out of the doorway, receives thorough attention in the *Śāstras*.<sup>9</sup> Its alignment and protection from impingement is a serious matter.

As discussed in the *Aparājītapṛcchā*, the southern *Drāviḍa* style of temple shares the basic features of plan and elevation with the *Nāgara* style of northern India, but differs in *śikhara* form and ornament. Southern temples also feature grand *gopura* gateways to mark the temple entrance at plural concentric boundaries of the site. If, however, classical Sanskrit texts describe the plan and elevation of various forms of temple in some detail, the interpretation of these writings is not always straightforward. Although their *śloka* verse form eases memorization and dissemination, the requirements of metre sometimes lead to ambiguities. The practice of *bhūtasamkhyā*, for example, typifies such difficulties; here, the names of physical realities easily associated with numerical values substitute for numbers, like eyes for twos.<sup>10</sup> That said, the extant structures themselves testify to the extent to which temple builders recognized the authority of the texts. Take, for example, the twelfth-century Navalakha temple in Ghumli, Gujarat, India, which was once an influential fortified city. The building





FIG. 4. PHOTOGRAPHED FROM THE SOUTH-WEST, THE NAVALAKHA TEMPLE, GHUMLI, GUJARAT. RESTORED BY THE ARCHAEOLOGICAL SURVEY OF INDIA IN 2011, THE TEMPLE PROPER IS ON THE LEFT, AND A TWO-STOORY MAṄḌAPA IS ON THE RIGHT. | LIBBIE MILLS, DECEMBER 2010.

had long been in ruins by the time British archaeologist James Burgess [1832-1916] assayed it for the Archaeological Survey of Western India in 1874-1875 (fig. 3). Restored by today's Archaeological Survey of India, which reports to the Ministry of Culture, the site comprises the temple proper and a two-storey *maṅḍapa* (fig. 4). The elevation of the temple divides into the *pīṭhā*, the *jaṅghā*, and the *śikhara*. The *śikhara* subdivides, with the *śukanāsā* constituting the lower half and the *āmalaka* the topmost quarter, and the *śukanāsā* projection is multiplied to produce repeated *uruśṛṅgas* running down the sides of the *śikhara*. Drawn indicating "W[est]" at the top, Burgess's plan shows how the temple works in cross-section. There are *bhadra* convexities to the south, west, and north, while the *maṅḍapa* faces east to receive the rays of the rising sun (fig. 5). *Upabhadras* flank the *bhadras*, with *koṇabandhas* at each corner.

Having set out the basic form of the temple, we may now turn to the discussion of temple metre in chapter 68 of the *Aparājitaṭṭcchā*. The chapter opens with Aparājita asking his father about metre in building:

You have told me about metre in written material. Please tell me about it elsewhere too.

I understand that there are six metres for buildings: *Meru*, *Khaṇḍameru*, *Patākā*, *Sūcīkā*, *Uddiṣṭa*, and *Naṣṭa*. The multitude of their possible combinations (*prastāra*) very much confuses me. (*Aparājitaṭṭcchā* chapter 68, verse 1)

In metric versification, the term *prastāra* refers to the entire spread of possibilities for the combination of heavy and light syllables. As Felix Otter has observed, here *prastāra* indicates the array of possibilities

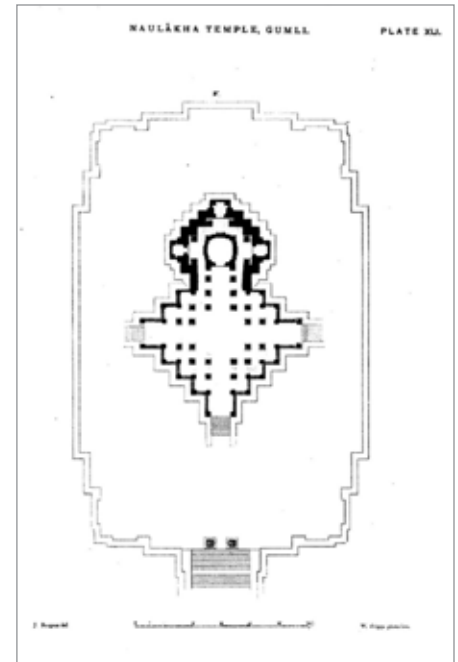


FIG. 5. DRAWN INDICATING "W[EST]" AT THE TOP, THE JAMES BURGESS'S PLAN OF THE NAVALAKHA TEMPLE, G[H]UMLI, GUJARAT. | JAMES BURGESS AND JOHN FAITHFULL FLEET, 1971 [1876], REPORT ON THE ANTIQUITIES OF KATHIAWAD AND KACHH, BEING THE RESULT OF THE SECOND SEASON'S OPERATIONS OF THE ARCHAEOLOGICAL SURVEY OF WESTERN INDIA, 1874-75, VARANASI, INDOLOGICAL BOOK HOUSE, PLATE XLII.

for metre in building.<sup>11</sup> Recall that the *Aparājitaṭṭcchā* generally enlarges only upon *Meru* among the six basic metres—*Meru*, *Khaṇḍameru*, *Patākā*, *Sūcīkā*, *Uddiṣṭa*, and *Naṣṭa*. *Aparājitaṭṭcchā* chapter 68, verse 12, establishes the point that from the *Meru* base *chandas* arise seven temple *chandas* metres: *Latina*, *Nāgara*, *Bhauma*, *Drāviḍa*, *Virāṭaka*, *Sāvandhāra*, and *Vimāna*. Elsewhere, one finds a list of eight *chandas* metres, with *Miśraka* added in, for example at *Aparājitaṭṭcchā* chapter 198, verses 29c-30b. *Aparājitaṭṭcchā* chapter 112, verses 1-2, also list the same *chandas* metres, this time with the number specified as eight, so one can be sure that there are eight items listed, and with the claim that despite its name, the *Miśraka* type should be regarded as *Śuddha*, pure. The names of these eight metres overlap with some of the names of the fourteen temple types given at *Aparājitaṭṭcchā* chapters

104-106. These temple types have generally agreed upon characteristics and extend beyond the north: indeed, the *Drāviḍa* is by definition a southern type.

After the introductory verses, chapter 68 of the *Aparājītapṛcchā* associates *Meru* metre with a variety of projects and structures, from roads to royal palaces. While these projects are all contained in the *Meru* metre, chapter 68 attends to temples in all six basic metres—*Meru*, *Khaṇḍameru*, *Patākā*, *Sūcīkā*, *Uddiṣṭa*, and *Naṣṭa*—and makes explicit connections between the way metre is used in verse and the way it is used in building. In both cases, there are patterns of *guru* and *laghu*—heavy and light—in each foot or quarter. In verse, the quarters follow one another in a linear series. In a building, however, the quarters radiate out from the four sides of the *garbhagrha*, the innermost chamber at the centre of the structure. In fact, they splash out: the text uses the image of a *bindu*, or “drop,” falling from the sky, causing heavy and light *latā*, or “ripples,” to spread out from the *garbhagrha*.<sup>12</sup> Suddenly, there is a shift from the planar norm to a vision of the building in three dimensions, the radiating ripples reminiscent of Adam Hardy’s analysis of the “aedicular composition” of the Śekharī style of temple architecture. “[A] sense of growth, of centrifugal movement,” Hardy writes, “originates at the finial of the tower, or at an infinitesimal point above its tip, continues downwards and outwards from the vertical axis, and radiates all around but especially in the four cardinal directions . . . as one form gives birth to another, which in turn puts forth another . . . and the whole building seems to grow.”<sup>13</sup>

In theory, this understanding of the architectural metre of the temple as centrifugal movement raises other questions. What is the nature of the relationship

between heavy elements and light elements? Is it a horizontal matter or a vertical one? If horizontal, does it involve a deep convexity or a shallow one, a wide one or a narrow one? Or, if the relationship between heavy elements and light elements is vertical, should one imagine a profile like a waterfall, with alternating cascades of larger and small volume? In fact, chapter 68 of the *Aparājītapṛcchā* uses the language of verticality, first in three variations on the *Meru* metre, then in accounts of the five other basic metres—*Khaṇḍameru*, *Patākā*, *Sūcīkā*, *Uddiṣṭa*, and *Naṣṭa*. The first treatment of the *Meru chandas* opens:

A drop falls from the sky. That drop spreads from the *garbhagha*. And from that ripple (*latā*) [there come about] heavy (*guru*) and light (*laghu*). There arise eight of those. Below the initial heavy is a light. Then the remainder is as above. After that one should fill it in with curves (*aṅka*) until the quadrant (*pada*) is complete. (*Aparājītapṛcchā* chapter 68, verses 34-35)

Heavy and light, eight elements of the temple ripple outward from the centre, though how they are arranged is not clear: perhaps two in each cardinal direction, or perhaps one in each cardinal and one in each intermediate direction. A second passage offers a different version of the *Meru* metre:

Or, putting a heavy (*guru*) below the heavy (*guru*), having designed the remainder properly in the normal way, one should create a section (*khaṇḍa*) to fill up the heavy. Up to the quadrant (*pada*) they are all light. (*Aparājītapṛcchā* chapter 68, verse 36)

Translated here as “section,” *khaṇḍa* may also mean “interruption” or “breakage” or “gap,” so that one cannot be certain whether the passage indicates a structure or an empty space. Otherwise, the verse is

clear enough: the *Meru* metre comprises a heavy element, then another heavy element, with light elements infilling to the edge of the quarter. The next verse affirms this air of authority and cements it with an admonition:

These are the possible combinations (*prastāra*) of heavy and light for buildings.

Architects who do not know what is taught by the teachers, are the enemies of the people. (*Aparājītapṛcchā* chapter 68, verse 37)

The final passage on the *Meru* metre changes tack:

Another reckoning of the *Meru* takes the form of a bowl.

One should install [it] at [the two sides], stationed over the throne [for the deity]. It should be piled up in between, part by part. (*Aparājītapṛcchā* chapter 68, verses 39-40)

These lines maintain the language of verticality but invert the imagery from ripples falling from the centre to an upturned bowl rising in the centre.

Chapter 68 of the *Aparājītapṛcchā* continues with descriptions of the five other architectural metres for the temple, albeit a good deal more briefly. The *Khaṇḍameru* appears to be a variant of the *Meru*, with one quadrant, one *pada*, altered, being either expanded or contracted. In poetic metric terms, it is a sort of *ardhasama vṛttacchandās*, as opposed to the *samacchandās* of the *Meru*. The *Patākā* also appears to be a sort of *ardhasama vṛttacchandās* variant of the *Meru*, this time with three sides altered, being expanded to the north and east sides, and contracted to the west. The *Sūcī* involves an expansion by one or more parts on all sides to create *āliṇḍa* balustraded verandas. Like the *Sūcī*, the



FIG. 6. FORMERLY THE AVENUE ROAD UNITED CHURCH (1925 [1899]), THE HARE KRISHNA HINDU TEMPLE (1976), 243 AVENUE ROAD, TORONTO, ON. | [HTTPS://COMMONS.WIKIMEDIA.ORG/WIKI/FILE:HARE\\_KRISHNA\\_TORONTO.JPG](https://commons.wikimedia.org/wiki/File:Hare_Krishna_Toronto.jpg), ACCESSED MARCH 2021; COPYRIGHT: CREATIVE COMMONS ATTRIBUTION-SHARE ALIKE 3.0.



FIG. 7. CONVERTED FROM A CHRISTIAN MEETING HALL, THE SHRINATHJI HAVELI, 58 CLARK AVENUE, THORNHILL, ON. | LIBBIE MILLS, JANUARY 2020.

*Uddiṣṭa* also involves an expansion on all sides to create *ālindas*. In this case, though, the expansion is not a simple addition of parts all around, but a splitting of the original parts. The *Naṣṭa* is a variant of the *Uddiṣṭa* with a hollow space, or *sūnyarūpa*, below the corner in the lower portion. In these respects, then, chapter 68 of the *Aparājitapṛcchā* describes built forms in terms of three-dimensional rhythms of heavy and light. In poetry, the heavy and light describe syllable weights. In the construction of a temple like the Navalakha at Ghumli, real weight, real heft, mass is involved, described as being organized in heavier and lighter splashes out and down from the centre of the building; or, looked at from the bottom up, as forms mounded up to result in a final shape resembling an upturned bowl.

### THE ARCHITECTURAL METRE OF THE NĀGARA TEMPLE AND TWO ONTARIO HINDU TEMPLES

Does the architecture of contemporary Hindu temples in Ontario reflect the

classical metric rules of northern India's *Nāgara* temple as articulated in chapter 68 of the *Aparājitapṛcchā*? In many cases, of course, the question is moot. To begin with, as Paul Younger has pointed out, the first Hindu migrants to Canada felt little need for temples, "because attending the temple is an optional activity in India."<sup>14</sup> They performed *saṃskāras*, that is, ritual observances of the stages of life, at "elaborate altars in their homes," and "even arranged for traveling *gurus* to visit these altars."<sup>15</sup> By the late 1970s, however, the increasing recognition that in Canada federal and provincial laws required licensed practitioners to conduct marriage and funeral ceremonies led to "the need for temples and full-time priests."<sup>16</sup> Home to Canada's largest and most diverse community of Hindus, the Greater Toronto Region enjoys the country's richest variety of temples. In some instances, congregations have repurposed buildings originally constructed for other uses, designating such places with exterior signage and remodeling interiors to facilitate Hindu ritual practices.

A wide variety of structures have served such needs: former residences; warehouses, light industrial and commercial units; and even Christian churches and Jewish synagogues. Downtown Toronto features a striking example of such adaptation, where the International Society for Krishna Consciousness converted the Late Gothic Revival Avenue Road United Church into a Hindu temple in 1976 (fig. 6). Other conversions are on a more modest scale, as in the case of the Shrinathji Haveli, which transformed a Christian meeting house (fig. 7). Elsewhere in the Greater Toronto Region, a temple like the Periya Sivan in Scarborough began life as a suburban commercial building (fig. 8). In other instances, though, Hindu communities have succeeded in raising funds to establish a purpose-built temple. As Younger has noted, "almost all such community projects resulted from the efforts of a hundred or more Hindu immigrant families under local leadership."<sup>17</sup> Exemplifying this trend, two contemporary Ontario buildings—the Hindu Temple of Ottawa-Carleton and Brampton's





FIG. 8. ADAPTED FROM A SUBURBAN COMMERCIAL BUILDING, THE WORLD SAIVA MISSION'S PERIYA SIVAN TEMPLE (1993), 148 BELLAMY ROAD NORTH, SCARBOROUGH, ON. | LIBBIE MILLS, JUNE 2012.



FIG. 9. CONTRARY TO CLASSICAL ARCHITECTURAL PREFERENCES THE HINDU TEMPLE OF OTTAWA-CARLETON (1989) IN THE TOWNSHIP OF GLOUCESTER, SOUTH OF OTTAWA AT 4835 BANK STREET, GLOUCESTER, ON, ALIGNS TO THE NEIGHBOURHOOD BUILDING GRID, NOT TO THE CARDINAL DIRECTIONS. | [\[https://www.google.ca/maps/place/Hindu+Temple+of+Ottawa+Carleton/@45.3103396,-75.58675,146m/data=!3m1!1E3!4M5!3M4!1S0X4CCE0A19CCF796C7:0X3CA359BE3FE94F6A18M2!3D45.310285614D-75.58674327HL=EN\]](https://www.google.ca/maps/place/Hindu+Temple+of+Ottawa+Carleton/@45.3103396,-75.58675,146m/data=!3m1!1E3!4M5!3M4!1S0X4CCE0A19CCF796C7:0X3CA359BE3FE94F6A18M2!3D45.310285614D-75.58674327HL=EN), ACCESSED DECEMBER 14, 2021; COPYRIGHT: GOOGLE MAPS.

Hindu Sabha Temple—represent differing articulations of the architectural metre of the classical *Nāgara* temple.

In 1984, under the leadership of Madhu Sahasrabudhe [1923-2004], Ottawa's Hindu community acquired ten acres of cornfield in the township of Gloucester, south of Ottawa, for the construction of the Hindu Temple of Ottawa-Carleton.<sup>18</sup> According to tradition, the site was consecrated with ground-breaking and purification ceremonies.<sup>19</sup> In a departure from tradition, however, the temple is aligned to the local building grid rather than the cardinal directions (fig. 9). Funded by "the generous donations of devotees" and intended "as a monument of Hindu religious heritage and a place for Hindu worship and meditation," a building was designed by Harish Gupta, a graduate of the School of Architecture and Planning, Delhi, India, and senior architect at the Ottawa firm of Murray and Murray, Griffiths and Rankin Architects, later Griffiths Rankin Cook Architects.<sup>20</sup> Construction started in 1985 and was completed in 1989.

Consecrated as a "joint temple," to use Radhika Sekar's phrase, the Hindu Temple of Ottawa-Carleton temple was originally intended to meet the devotional expectations of a diverse congregation comprised mainly of Hindus with roots in the northern and northwestern regions of the subcontinent, but with a significant minority of predominantly Tamil members from southern India and Sri Lanka.<sup>21</sup> The exterior design of the build was intended to reflect that diversity: three *śikhāras* stood as markers of the north Indian style, and a *gopura* gateway was to be constructed to represent the southern style. Inside, too, the temple was configured for a wide Hindu community, with nine main shrines, to Viṣṇu, Śiva, Durgā, Rāma, Hanuman, Naṭarāja, Gaṇeśa, Kārtikeya, and Kṛṣṇa (fig. 10). The Śiva *lingam* and the images of Gaṇeśa, Kārtikeya, and Hanuman are made of granite, while the statue of Naṭarāja is of bronze, and the remaining figures of marble, suggesting compromises between northern conventions, which favour marble, and southern ones, which favour granite or

bronze.<sup>22</sup> The temple aims to serve "the needs of all the Hindus in our community from different regions of India as well as Hindus from other countries."<sup>23</sup> "Different groups are allotted separate days on which they can hold their own customary *pūjās* [devotions]," Sekar remarks, though the main language of the temple tends toward northern Hindi rather than southern Tamil.<sup>24</sup>

Externally, the Hindu Temple of Ottawa-Carleton stands out vividly among neighbouring light industrial and commercial properties and the suburban bungalows, townhomes, and schools under construction nearby.<sup>25</sup> Eastern Ontario's cold winters required a completely enclosed structure and prevented the addition of encircling open terraces, or *ālindas*. Similarly, the expectation of heavy accumulations of snow necessitated the use of steel and concrete throughout. Originally, Gupta's "elevation plans were designed to reflect both northern and southern traditions."<sup>26</sup> This scheme included three *śikhāras* in the style of northern India's *Nāgara* temples, as well

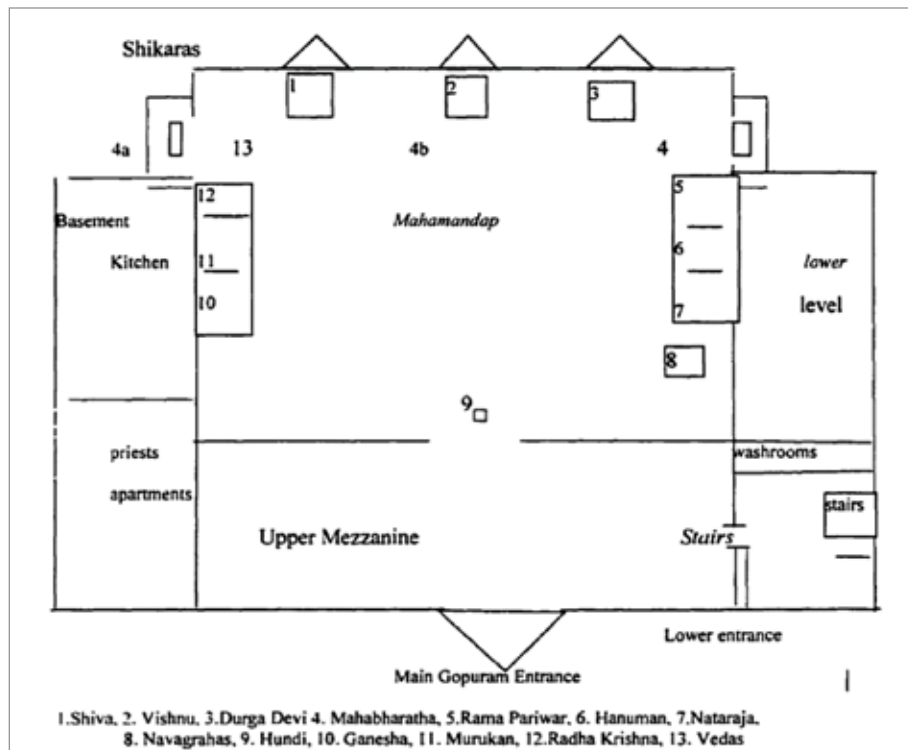


FIG. 10. FLOOR PLAN OF THE HINDU TEMPLE OF OTTAWA-CARLETON (1989), 4835 BANK STREET, GLOUCESTER, SHOWING THE PLACEMENT OF SHRINES AND SACRED TEXTS IN THE MAHĀMANDAPA OR MAIN HALL. | SEKAR, *GLOBAL RECONSTRUCTION OF HINDUISM, OP. CIT.*, P. 151.



FIG. 11. THE HINDU TEMPLE OF OTTAWA-CARLETON (1989), 4835 BANK STREET, GLOUCESTER. | [\[https://s3.amazonaws.com/gswaymarking-images/10a8b270-fa80-4322-a812-3ec7ef43fa3c.jpeg\]](https://s3.amazonaws.com/gswaymarking-images/10a8b270-fa80-4322-a812-3ec7ef43fa3c.jpeg), ACCESSED DECEMBER 14, 2021; COPYRIGHT: BABUSHKA\_QC.

as a *gopura*, or gateway, over the main entrance of the temple, in the manner of many southern Indian temples. The *śikhara*s rise over the *garbhagrhas* of the three principal deities: the middle *śikhara*, somewhat offset to the west, rises over the figure of Viṣṇu, while the more northerly and southerly spires are set respectively over the statues of Durgā and Śiva. Symmetrical in configuration and almost completely lacking fenestration, the main structure, or *jaṅghā*, of the temple reflects the influence of the *Nāgara* style reconceptualized in a geometric modernist mode. The building comprises a connected sequence of rectangular volumes, which diminish in elevation from the *garbhagrha* through the *mandapas* beyond.

What, then, of the architectural metre of the Hindu Temple of Ottawa-Carleton? A modernist reworking of the *Meru chandas*, the structure captures the essential cadence, if not the sculpted complexity of the traditional *Nāgara* temple of northern India (fig. 11). This vertical movement originates in the *āmalasāraka*. In waves of unembellished concrete, it descends into the long, gently expanding curves of the tapered *śikhara* and the lighter secondary and tertiary *uruśringas* that augment the profiles of these quadrilateral towers on all sides. At the foot of the *śikhara*s, this cascading flow radiates outward and downward across the structure's diminishing elevations, tumbling from the central axis of the *garbhagrha* and the *mandapa* over the lower roofs of the symmetrical offsets on either side, and lengthwise, dropping from the higher roofs of these volumes toward the entrance portico. Contrasting with the white brick used throughout the exterior of the building, vertical patterns in grey brick replicate the silhouettes of the *śikhara*s. Horizontal bands of similar grey brick maintain the overall unity of the structure by gathering





FIG. 12. IN ACCORDANCE WITH CLASSICAL ARCHITECTURAL PREFERENCES, THE HINDU SABHA TEMPLE (2001), 9225 THE GORE ROAD, BRAMPTON, ON, ORIENTS TO THE CARDINAL DIRECTIONS, NOT TO THE STREET GRID. | [\[HTTPS://WWW.GOOGLE.CA/MAPS/PLACE/HINDU+SABHA/@43.778719,-79.67142,2391M/DATA=!3M1!1E3!4M5!3M4!1!50X0:0X14F9972E0B456BD18M2!3D43.777572514D-79.6681155\]](https://www.google.ca/maps/place/Hindu+SABHA/@43.778719,-79.67142,2391m/data=!3m1!1e3!4m5!3m4!1!50X0:0X14F9972E0B456BD18M2!3D43.777572514D-79.6681155), ACCESSED DECEMBER 14, 2021; COPYRIGHT: GOOGLE MAPS.



FIG. 13. THE MAIN SHRINE BENEATH THE MAIN ŚIKHARA OF THE HINDU SABHA TEMPLE (2001), 9225 THE GORE ROAD, BRAMPTON. | [\[HTTPS://LIVINGTORONTOJOURNAL.COM/2016/07/23/INDIAS-GREAT-DIVERSITY-LIVES-IN-TORONTO/HINDU-SHRINE/#MAIN\]](https://livingtorontojournal.com/2016/07/23/indias-great-diversity-lives-in-toronto/hindu-shrine/#main), ACCESSED DECEMBER 14, 2021; COPYRIGHT: SILVANA DE BONO.

into a symmetrical whole the rectangular white brick volumes that comprise the reinterpreted *garbhagrha* and *maṇḍapas*, and the lower offsets joining them.

While Gupta's design for the Hindu Temple of Ottawa-Carleton reimagines the architectural metre of the northern Indian *Nāgara Meru* in a relatively unadorned form, the original plan to include a southern Indian grand *gopura* over the main entrance of the building has yet to be implemented.<sup>27</sup> In this instance, then, a purpose-built Canadian temple conforms principally to northern India's architectural traditions, with concessions made to local zoning requirements and the winter weather of the region.

The story of Hindu Sabha in some respects echoes the experience of the Hindu Temple of Ottawa-Carleton, in other respects departs from it. In 1975, a handful of families from northern India's Punjab region living in the Brampton suburb of Bramalea began gathering as Hindu Sabha.<sup>28</sup> They met for weekly prayers in temporary locations, including rooms in the Bramalea Civic Centre and Brampton's Fallingdale Public School. In the 1980s, recalls founding member

and former president, Shравan Kumar Aggarwal, donations and "interest-free loans" enabled the growing congregation to purchase a house in Brampton and convert it into a temple.<sup>29</sup> When the provincial government expropriated the property for highway construction, Hindu Sabha used the windfall to acquire twenty-five acres of land for a larger purpose-built temple on The Gore Road, east of Brampton. The Toronto firm of Papadopoulos and Pradhan Architects Inc. was engaged to design the structure, which was intended to accommodate the community's present and future devotional, social, and cultural requirements<sup>30</sup>. Traditional ceremonies accompanied the consecration of the site.<sup>31</sup> Construction began in May 1994; the *maṇḍapa* was inaugurated in June 1995; and *śikharas* were added in 1999 and 2000. The Hindu Sabha temple was completed in 2001, with landscaping taking two more years.<sup>32</sup>

Unlike the Hindu Temple of Ottawa-Carleton, the Hindu Sabha temple follows classical preferences in orienting to the cardinal directions, which puts it out of alignment with the streets around it (fig. 12). Accordingly, worshipers access the building through a main entrance on

the east side. The interior design of the Hindu Sabha temple, however, reflects both traditional and contemporary influences. Totalling approximately thirty-two thousand square feet, the structure comprises a large open *maṇḍapa* on the main floor, with a community hall, kitchen, and washrooms on the lower level. Occupying some four thousand square feet at the western end of the *maṇḍapa*, the *garbhagrha* houses the deities, which are set out in ranked tiers for visibility: Viṣṇu with Lakṣmī at the upper back; Rāma with Sītā, and Kṛṣṇa with Rādhā in the middle layer; and the Śiva *liṅga*, Durgā, and Hanuman in the front (fig. 13).

Reimagining the *andhāra* of classical temple architecture in northern India, a walled passageway circumscribes the *garbhagrha*. This ambulatory accommodates a Śiva *liṅga* and shrines dedicated to the Navagrahas, Sarasvatī, and Kṛṣṇa in the form of the child Shrinathji. At the same time, however, technological innovations illumine and colour these reiterations of traditional temple design. As Robert Fisher notes, the deities are neon-lit in shifting colours.<sup>33</sup> What is more, daylight pours in upon the statues through glass blocks serving



FIG. 14. INTERIOR OF THE MAIN ŚIKHARA, HINDU SABHA TEMPLE (2001), 9225 THE GORE ROAD, BRAMPTON. | CUSTOM CUPOLA AND STEEPLE CO. LTD.



FIG. 15. INTERIOR OF THE ŚIKHARA OF THE LATE SIXTH-CENTURY SŪRYA TEMPLE, NEAR GŌP IN GUJARAT, INDIA. | LIBBIE MILLS, DECEMBER 2010.

as structural elements in the principal *śikhara* that rises above the main shrine (fig. 14). Running up the height of the *śikhara* on all four sides, these glass blocks open it up and allow light to flood in. Although the building's interior design echoes structures like the late sixth-century Sūrya temple, near Gōp in Gujarat, India, it is altogether altered in

terms of illumination: throughout the day, sanitary lighting from every side replaces the deep gloom of a typical *śikhara* (fig. 15). In this respect, Hindu Sabha is a temple unlidged. On the other hand, the removal of the darkening hood transforms the temple from a place of heavy protection for the deity to a place of open invitation to worshippers.

Ambiguities pervade the exterior character of the Hindu Sabha temple, too. Like the Hindu Temple of Ottawa-Carleton, Hindu Sabha offers a striking contrast to the detached and semi-detached contemporary suburban residences that surround it. Similarly, if Gupta's enclosed design takes into consideration local weather conditions, so also Papadopoulos and Pradhan were keenly conscious of the rigours of the southern Ontario climate. More significantly, however, innovations temper the Hindu Sabha temple's debt to traditional *Nāgara* architecture. In a conventional manner, the symmetrical main structure, or *jañghā*, comprises two enclosed volumes: the *garbagrha*, and the *maṇḍapa* spaces. At the same time, diversity in the look of Hindu Sabha temple enlivens an otherwise predictable presentation, modifying the tone and texture of exterior surfaces in ways that capture the spirit, if not the technical intricacy of classical *Nāgara* temple design and construction (fig. 16). For instance, the arched roof of the main hall mitigates what Fisher calls the "minimalist" and "rather dreary modernist look" of Hindu Sabha, a softening effect carried further in the stronger arc of the clerestory windows between the roof of the *maṇḍapa* and the roof of the entrance space.<sup>34</sup>

The *śikharas* of the Hindu Sabha temple are still more intriguing. Papadopoulos and Pradhan not only invert the central convexities typical of *Nāgara śikharas*, instead centring vertical concavities of staggered concrete and glass block in each face of the pyramidal towers, but also turn the secondary *śikharas* atop the offsets either side of the entrance portico on their axes, so that the corner elements are oriented to the cardinal directions (fig. 17). In another architectural twist, the horizontal layering of the *śikharas* seems to evoke the *phamsanā* style.<sup>35</sup> This style originates





FIG. 16. THE EXTERIOR OF THE HINDU SABHA TEMPLE (2001), 9225 THE GORE ROAD, BRAMPTON, ON. | [\[https://cdn.canada247.info/assets/uploads/a258b76155fec2b8eb9c648fbc7e1439\\_-ontario-regional-municipality-of-peel-brampton-hindu-sabha-temple.html.jpg\]](https://cdn.canada247.info/assets/uploads/a258b76155fec2b8eb9c648fbc7e1439_-ontario-regional-municipality-of-peel-brampton-hindu-sabha-temple.html.jpg), ACCESSED JANUARY 24, 2022; PHOTO: PANKAJ SETHI.

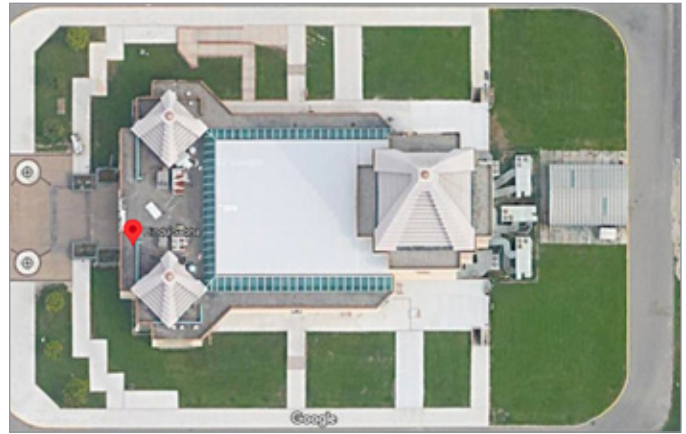


FIG. 17. AT THE HINDU SABHA TEMPLE (2001), 9225 THE GORE ROAD, BRAMPTON, THE SECONDARY ŚIKHARAS ARE TURNED ON THEIR AXES AND ORIENTED TO THE CARDINAL DIRECTIONS. | [\[https://www.google.ca/maps/place/Hindu+Sabha/@43.7776337,-79.6679959,63m/data=!3m1!1E3!4M5!3M4!1S0X0:0X14EF9972E0B456BD18M2!3D43.7775725!4D-79.6681155!\]](https://www.google.ca/maps/place/Hindu+Sabha/@43.7776337,-79.6679959,63m/data=!3m1!1E3!4M5!3M4!1S0X0:0X14EF9972E0B456BD18M2!3D43.7775725!4D-79.6681155!), ACCESSED DECEMBER 14, 2021; COPYRIGHT: GOOGLE MAPS.



FIG. 18. THE HORIZONTAL LAYERING AND PYRAMIDICAL FORM OF THE PHAṂSANĀ STYLE OF ŚIKHARA AT THE SEVENTH-CENTURY TEMPLE NUMBER TWO, MIYĀNĪ, GUJARAT, INDIA. | LIBBIE MILLS, DECEMBER 2010.



FIG. 19. REVERBERATIONS OF THE PHAṂSANĀ STYLE OF ŚIKHARA ATOP THE HANUMAN MAHAVIR MANDIR (1987 [1947]), PATNA, BIHAR, INDIA. | [\[https://commons.wikimedia.org/wiki/File:Hare\\_Krishna\\_Toronto.jpg\]](https://commons.wikimedia.org/wiki/File:Hare_Krishna_Toronto.jpg), ACCESSED MARCH 2021; COPYRIGHT: CREATIVE COMMONS ATTRIBUTION-SHARE ALIKE 3.0.

in fifth-century northern India and predates other expressions of *Nāgara* tradition. Generally, temples constructed in the *phamsanā* style present a broader plan and a lower elevation than temples built in the *latina* design. Composed of layered slabs, the *phamsanā śikhara* does not rise steeply in a curved profile, like the *latina* tower; rather, its rectilinear

outline slopes gently to a pyramidal apex. The *śikhara* at the seventh-century Temple Number Two in Miyānī, Gujarat, India, provides a simple example of these architectural principles (fig. 18), while the Hanuman Mahavir *mandir* of Patna, Bihar, India, may illustrate them at work in the towers of a contemporary Hindu house of worship (fig. 19). In this respect,

therefore, architects Papadopoulos and Pradhan seem to have turned to an antique style still older than the more widely invoked *Nāgara* temple designs, a departure that renders their innovations even richer in concept and realization. Indeed, one might argue that Hindu Sabha is a temple of *miśraka*, or mixed, architectural rhythm.

Taken together, however, the schematic simplicity of the *śikhara*s and the rational symmetry of the *jaṅghā* of the Hindu Sabha temple easily accede to the modernist architectural sensibility suffusing the structure, even as contrasting colours, a variety of forms, and the mixed use of industrial materials like concrete, steel, glass block, and plexiglass tend toward a postmodern aesthetic. These innovations at once embody and express the ways in which the Hindu Sabha temple reworks the volumetric rhythm of the northern Indian *Meru*. The structure rises to its highest elevation at its narrowest and expands to its greatest width at its lowest elevation. Conjointly, it widens and diminishes in height from east to west, lower projections to the north and south extending the quadrilateral symmetries of the *maṇḍapa* spaces. The main *śikhara* ascends one hundred and twenty feet to dominate the east end of the building. Below the *āmalasāraka*, luminous waves of lighter glass block cascade with swelling superfluity over heavier concrete steps down widening channels on each side of the pyramidal *śikhara*s. This rhythmic flow streams outward over equilateral convexities at the base of the spire, dropping precipitously to the east, north, and south, dispersing more gently to the west across the curved roof of the *maṇḍapa*, then more abruptly west, north, and south down the clerestory windows to the roof of the projections flanking the main hall, and finally, still further west to the roof of the entrance. If, however, this cascading effect dissipates as it continues downward and outward from the main *śikhara*, the secondary *śikhara*s erected either side of the entrance reprise and redirect the flow in all four cardinal directions. At the same time, the translucent glass blocks of the minor offsets recessed at either end of the entrance portico intensify the renewed rush of volumetric rhythm originating in the secondary spires above them.

## AFTERWORD

Younger has noted that Hindu communities in Canada “faced three challenging issues: the nature and role of demographic discussion in temple life; the deities the community wanted to worship; and the style of worship they wanted to use in their temple.”<sup>36</sup> “By the 1970s,” he added, “Canada’s Hindus were beginning to see the breakdown of community temples into regional and sectarian groups based on language and sectarian affiliation.”<sup>37</sup> In architectural terms, broadly speaking, some congregations feel an allegiance to the style of Hindu temple built in the *Nāgara* tradition of northern India, others to the style of temple constructed in the *Drāviḍa* tradition of southern India. Historically, the classical Sanskrit *Śāstra* texts have determined the look, layout, and location of temples in India, in turn influencing community decisions about the architecture of purpose-built Hindu temples in Canada. While the textual tradition presents a two-dimensional account of the plan and elevation of the temple, recent scholars have invoked a vocabulary of dynamic three-dimensional movement in their understanding of the Sanskrit texts.

This approach owes a good deal to Stella Kramrisch. “The body of the [Nāgara] temple substantially steps across its own limits,” she writes, “enlarges its perimeter with compact pilasters and turrets, and makes its rhythm proceed from the centre in the oscillations of its elastic boundary.”<sup>38</sup> More recently, Pinna Indorf conceives of the temple as “a dynamic body or aggregation of moving bodies, choreographed as it were, moving outward from the center of the cella according to specific ordering patterns and measurements, or proportional and rhythmic systems or sequences.”<sup>39</sup> “Not only is this core idea

critical to the interpretation of architectural form,” she continues, “but it seems to be so also for the correct reading of related texts (*śilpa*- and *vāstu-śāstras*) and the use of *maṇḍalas* to coordinate the proportionate measurement related to architecture.”<sup>40</sup> In a similar way, as we have seen, chapters 67 and 68 of the compendary *Aparajitapṛcchā* suggest volumetric analogies between the rhythm of poetic metre and the rhythm of architectural metre to enrich our appreciation of the traditional *Nāgara* temple of northern India, and more particularly, our understanding of ways in which two contemporary Ontario Hindu temples rework that tradition—the Hindu Temple of Ottawa-Carleton and Brampton’s Hindu Sabha Temple.

Further research on the architectural metre of Hindu temples in Ontario owing elements of their design to the *Nāgara* style will likely complicate this picture still further.<sup>41</sup> Opportunities are several, from symbolic expressions of the iconography of this heritage to detailed analyses of the architectural characteristics of contemporary structures purpose-built as Hindu places of worship. In the first instance, for example, the relatively small congregation of the Brantford Hindu Temple, which runs the Brantford Hindu Charitable Association, gathers in the historic premises of the Baptist Eagle Place Christian Fellowship, but overtly identifies with *Nāgara* temple architecture by incorporating into its website banner a logo silhouetting a northern Indian *Nāgara śikhara* (fig. 20).<sup>42</sup> In more concrete terms, the *Nāgara* legacy is seen filtering into the design of temples serving congregations in the Greater Toronto Region with historical connections to the Hindu diaspora in the Caribbean, especially Guyana and Trinidad.<sup>43</sup> Like the Hindu Temple of Ottawa-Carleton, for instance, the Mississauga Ram Mandir



FIG. 20. THE WEBSITE LOGO OF THE BRANTFORD HINDU TEMPLE / BRANTFORD HINDU CHARITABLE ASSOCIATION, 13 EDWARD STREET, BRANTFORD, ON, FEATURES THE SILHOUETTE OF A NORTHERN INDIAN *ŚIKHARA* IN THE *NĀGARA* STYLE. | [HTTP://WWW.BRANTFORDHINDUTEMPLE.COM/INDEX.HTM], ACCESSED DECEMBER 14, 2021; COPYRIGHT: BRANTFORD HINDU TEMPLE / BRANTFORD HINDU CHARITABLE ASSOCIATION.



FIG. 21. THE MISSISSAUGA RAM MANDIR (2001) 270, EXPORT BOULEVARD, MISSISSAUGA, ON. | [HTTPS://WWW.PICUKI.COM/MEDIA/2262897551657625773], ACCESSED DECEMBER 14, 2021; COPYRIGHT: PUBLIC DOMAIN, PICUKI.



FIG. 22. THE DEVI MANDIR (1997), 2590 BROCK ROAD, PICKERING, ON. | [HTTPS://WWW.DEVIMANDIR.COM/], ACCESSED DECEMBER 14, 2021; COPYRIGHT: DEVI MANDIR.



FIG. 23. THE HINDU HERITAGE CENTRE (2011), 6300 MISSISSAUGA ROAD, MISSISSAUGA, ON. | [HTTPS://COMMONS.WIKIMEDIA.ORG/WIKI/FILE:HINDU\_HERITAGE\_CENTRE\_FRONT.JPG], ACCESSED DECEMBER 14, 2021; COPYRIGHT: CREATIVE COMMONS ATTRIBUTION-SHARE ALIKE 4.0 INTERNATIONAL.

(2001) features a central *śikhara* over the main shrine between two secondary spires atop adjacent offsets (fig. 21). By contrast, the Devi Mandir (1997), in Pickering, features three *śikharas* in isoscelean triangular relation to one another, like the Hindu Sabha temple in Brampton, with the principal *śikhara* over the main shrine toward the west end of the building and subordinate ones toward the corners at the east end (fig. 22). Likewise, an isoscelean triangle of *śikharas* distinguishes the Hindu Heritage Centre (2011) in Mississauga (fig. 23).

For the moment, full consideration of the *Nāgara* architectural metre and related characteristics of these houses of worship in Mississauga, Pickering, and Brampton—and indeed, Hindu temples elsewhere in the Greater Toronto Region, as well as further afield in Ontario and across Canada—must await further scholarly attention. Meanwhile, the look, layout, and location of the Hindu Temple of Ottawa-Carleton and Brampton’s Hindu Sabha Temple exemplify to a greater or lesser degree what Hardy calls “a profound connection” to the classical Sanskrit *śāstric*

texts rooted “in a common, dynamic approach to temple typology, which can be described as emanatory.”<sup>44</sup> “This process,” Hardy concludes, “leaves its trace in the built monuments, imparting an impression of movement and growth.”<sup>45</sup> As the *Aparājitapṛcchā* insists:

Metre is taught in metre, and so too is ornament and form.

Everywhere everything that is worthwhile is encompassed by metre. It is not otherwise. (*Aparājitapṛcchā* chapter 68, verse 33)



## NOTES

1. Acknowledgements: Libbie Mills is grateful to the Leverhulme Trust for funding the group project "The Nāgara Tradition of Temple Architecture: Continuity, Transformation, Renewal," for which she did the work on the *Aparājītapṛcchā*, and to Adam Hardy, Kengo Harimoto, Megha Chand Inglis, and Mattia Salvini, for the great pleasure of working with them.
  2. Pollock, Sheldon, 1989, "The Idea of *Śāstra* in Traditional India," in Anna L. Dallapiccola, Christine Walter-Mendel, and Stephanie Zingel-Avé Lallemand (eds.), *Shastric Traditions in the Indian Arts*, 2 vols., Stuttgart, Steiner, vol. 1, p. 17-27, at p. 18.
  3. Dhaky, Madhusudan A., 1996, "The *Vāstusāstras* of Western India," *Journal of the Asiatic Society of Bombay*, vol. 71, p. 65-85, at p. 66.
  4. *Id.*, p. 69.
  5. *Ibid.*
  6. The edition of the *Aparājītapṛcchā* used here is that of Popatbai Ambasankar Mankad, Gaekwad Oriental Series no. 115, 1950.
  7. The earliest account of this tradition is seen in the *Chandaḥśāstra* of Piṅgala, which dates to the second century BCE. The edition of the *Chandaḥśāstra* used here is that of Ananta Sharma, Parimal Publications, 2007.
  8. Dating and placing such early Sanskrit texts is rarely an accurate business, but the *Piṅgalāmata* is known to have existed by the tenth century. See Mills, Libbie, 2014, "Dating and Placing Early Śaiva Texts through *Prāsādalakṣaṇa*, the Characteristics of Temples," *South Asian Studies*, vol. 30, no. 1, p. 57-67, at p. 58; Mills, Libbie, 2019, *Temple Design in Six Early Śaiva Scriptures: A Critical Edition and Translation of the Prāsādalakṣaṇa Portions of the Bṛhatkālottara; the Devyāmata; the Kiraṇa; the Mohacūrottara; the Mayasaṃgraha; and the Piṅgalāmata*, Pondicherry, Institut français de Pondichery / École française d'Extrême-Orient, coll. "Indologie," no. 138, p. 66.
  9. As an example, see Śilparatnākara of Sompura, Narmadashankar, Dhuangdhra, Kathiawar: Shilpashastri Shri Narmadashankar Muljibhai Sompura, 1939, chapter 4.
  10. To elaborate, words that mean "eye," like *netra*, *nayana*, or *īkṣaṇa*, may stand in for the number two. So, for example, where the single syllable *dvi*, meaning two, is not enough to fill out a verse, the two syllables of *netra* or the three syllables of *nayana* may be deployed to fill the gap. This substitution allows elegant variation in even the plainest list of numbers on the one hand, and on the other, expressive flexibility in texts constrained by metre.
  11. Otter, Felix, 2010, *Residential Architecture in Bhoja's Samāraṅgaṇa sūtradhāra*, Delhi, Motilal Banarsidass, p. 48.
  12. More properly, *latā* means "vine," "creeper," or "tendrils," and hence anything with curves. Developing the image of the falling drop of water, it is translated here as "ripple."
  13. Hardy, Adam, 2002, "Śekhārī Temples," *Artibus Asiae*, vol. 62, no. 1, p. 81-137, at p. 82-83.
  14. Younger, Paul, 2012, "Hindus," in Jamie S. Scott, (ed.), *The Religions of Canadians*, Toronto, University of Toronto Press, p. 219-260, at p. 234.
  15. *Id.*, p. 234.
  16. *Ibid.*
  17. *Ibid.*
  18. The Canada Revenue Agency records that the Hindu Temple of Ottawa-Carleton first registered as a charity May 30, 1984. The temple retains this status. For the reporting period ending December 31, 2019, donations and gifts accounted for over 95% of revenues of \$446,153.00, with no government funding. Declared programs and activities comprise daily Hindu religious services, including marriages and funerals, as well as health seminars and Sunday school. Canada Revenue Agency, May 8, 2019, "Hindu Temple of Ottawa-Carleton," Government of Canada, [https://apps.cra-arc.gc.ca/ebci/hacc/srch/pub/dsplyRprtngPrd?q.srchNm=hindu+temple+ottawa+carleton&q.stts=0007&selectedCharityBn=133049593RR0001&dsrdPg=1], accessed March 1, 2021.
  19. Sekar, Radhika, 2001, *Global Reconstruction of Hinduism: A Case Study of Sri Lankan Tamils in Canada*, unpublished Ph.D. dissertation, Department of Classics and Religious Studies, Ottawa, University of Ottawa, p. 150, [https://ruor.uottawa.ca/handle/10393/6108?mode=full], accessed February 4, 2021.
  20. Hindu Temple of Ottawa-Carleton, [http://www.hindutemple.ca/], accessed February 13, 2021.
  21. Sekar, *Global Reconstruction of Hinduism*, op. cit., p. 9.
  22. *Id.*, p. 156.
  23. Hindu Temple of Ottawa-Carleton, "Newsletter 2019-2020," p. 4, [http://www.hindutemple.ca/NL19.pdf], accessed February 5, 2021.
  24. Sekar, *Global Reconstruction of Hinduism*, op. cit., p. 152.
  25. Richcraft Group of Companies, 2021, "Pathways at Findlay Creek," [https://www.richcraft.com/community/ottawa-south/pathways/], accessed March 7, 2021.
  26. Sekar, *Global Reconstruction of Hinduism*, p. 150.
  27. Viewing the Hindu Temple of Ottawa-Carleton "as a 'North Indian' temple" dominated by a plurality of Punjabi and Gujarati devotees, Tamil congregants converted a residence in the city's southern suburb of North Gower into the independent Ottawa Shivan Temple (Sekar, *id.*, p. 178). Guided by a Śaiva temple architect, they intend eventually to build a new temple featuring a classical *gopura*. At the Hindu Temple of Ottawa-Carleton, meanwhile, the *gopura* remained a topic of discussion among trustees, as the minutes of the Annual General Meeting in May 2018 reveal. Hindu Temple of Ottawa-Carleton, "Minutes of the 33<sup>rd</sup> Annual General Meeting of the Trustees of the Hindu Temple of Ottawa Carleton, Sunday, May 27, 2018," [https://hindutemple.ca/2018AGM%20Minutes.pdf], accessed July 4, 2020.
- At the same time, plans are under way to build a separate assembly hall on their site. Ottawa's Lloyd Phillips and Associates Limited have been retained as planning consultants. Matters proceed well. Dated March 26, 2020, the firm's *Site Plan Control: Proposed Assembly Hall – Hindu Temple of Ottawa-Carleton* concludes: "The proposed development represents good land use planning that is in the public interest, and as such, is recommended for site plan approval." Lloyd Phillips and Associates Limited, March 26, 2020, *Site Plan Control: Proposed Assembly Hall – Hindu Temple of Ottawa-Carleton*, p. 25, [http://webcast.ottawa.ca/plan/All\_Image%20Referencing\_Site%20Plan%20Application\_Image%20Reference\_2019-08-29%20-%20Planning%20Rationale%20-%20D07-12-19-0138.PDF], accessed July 4, 2020.
28. The Canada Revenue Agency records that Hindu Sabha first registered as a charity January 1, 1979. The temple retains this status. For the reporting period ending December 31, 2019, donations and gifts accounted for over



- 98% of revenues of \$978,984.00, with no government funding. Declared programs and activities include religious festivals and classes for yoga, dance, music, and languages. Canada Revenue Agency, May 8, 2019, "Hindu Sabha," Government of Canada, [https://apps.cra-arc.gc.ca/ebci/hacc/srch/pub/dsplyRprtngPrd?q.srchNm=Hindu+Sabha&q.stts=0007&select edCharityBn=107483414RR0001&dsrdPg=1, accessed March 1, 2021.
29. Melwani, Lavina, 2005, "Toronto, Canada: Hinduism Arrives in Style," *Hinduism Today*, January 1, [https://www.hinduismtoday.com/?s=Hinduism+Arrives+in+Style], accessed November 29, 2021.
30. Pradhan, Arun, George Papadopoulos, and Dave Arora, December 1, 2007, "A Hindu Temple in Toronto," *Canadian Consulting Engineer*, [https://www.canadianconsulting-engineer.com/features/a-hindu-temple-in-toronto/], accessed January 15, 2021.
31. McCann, Gillian, 1995, "A Case Study of Five Hindu Temples in Southern Ontario," unpublished M.A. thesis, Graduate Department of the Centre for South Asian Studies, Toronto, University of Toronto, p. 38, [https://tspace.library.utoronto.ca/bitstream/1807/13478/1/MQ45856.pdf], accessed January 21, 2021.
32. Younger, "Hindus," *op. cit.*, p. 246.
33. Fisher, Robert, 2016, "India's Great Diversity Lives in Toronto," *Living Toronto*, July 23, [https://livingtorontojournal.com/2016/07/23/indias-great-diversity-lives-in-toronto/], accessed February 23, 2021.
34. *Ibid.*
35. On the *phamsanā* style in western India, see Meister, Michael W., 1976, "Phāmsanā in Western India," *Artibus Asiae*, vol. 38, nos. 2-3, p. 167-188.
36. Younger, "Hindus," *op. cit.*, p. 234-235.
37. *Id.*, p. 241.
38. Kramrisch, Stella, 1976 [1946], *The Hindu Temple*, 2 vols, New Delhi, Motilal Banarsidas, vol. 1, p. 103.
39. Indorf, Pinna, 2004, "Interpreting the Hindu Temple Form: A Model Based on Its Conceptualization as a Formal Expression of Measured Movement," *Artibus Asiae*, vol. 64, no. 2, p. 207.
40. *Id.*, p. 208.
41. In that respect, it is worth heeding Hardy's admonition that the architectural guidelines of the Sanskrit *Vāstuśāstras* are not set in stone. It is "misguided," he writes, "to imply that fidelity to Vastu Shastra means unchanging forms brought about through rigid adherence to inflexible rules and injunctions." Hardy, Adam, 2016, "The Nāgara Tradition of Temple Architecture and 'Truth to Shastra,'" in Raymond Brady Williams and Yogi Trivedi (eds.), *Swaminarayan Hinduism: Tradition, Adaptation, and Identity*, Delhi, Oxford University Press, p. 274-334, at p. 313. On the contrary, "the Vastu Shastras have provided a framework for interpretation and improvisation" and "are both creative in themselves and stimulate further creativity" (*id.*, p. 313). Indeed, Merton criticizes Sompura designs like Etobicoke's BAPS Shri Swaminarayan temple precisely for their all-too-careful replication of the classical heritage. Merton, A.G. Krishna, 1997, "Contemporary Patterns in Religious Architecture," *Architecture Plus Design*, vol. 14, no. 6, p. 23-29. "In sum," she opines, "these neo-traditional temples are pale imitations of ancient monuments, sitting anachronistically in a new cultural landscape, unable to emulate the spirit that spurred the past, and unwilling to come to terms with the forces fuelling the future" (*id.*, p. 26-27).
42. Brantford Hindu Temple, 2015, [https://brantfordhindutemple.com/], accessed March 1, 2021.
43. Younger refers to "Caribbean Hindu worship" at the Devi Mandir in Pickering (1997), Mississauga Ram Mandir (2001) as a "Guyana style temple," and the way in which "Guyanese and Trinidadian Hindus have established themselves as the most loyal members of Vishnu Mandir [1992 (1984)], although the temple makes serious efforts to appeal to other Hindu Canadians." Younger, "Hindus," *op. cit.*, p. 248-249.
44. Hardy, "The Nāgara Tradition of Temple Architecture and 'Truth to Shastra,'" *op. cit.*, p. 274.
45. *Ibid.*