Degah, the Triple Chariot of God

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Introduction

As revealing as a *mantra* pattern of letters and perhaps a shade more esoteric than an anthropomorphic icon is the representation of Gods or their particular characteristics by geometric *yantra* diagrams. Whether as a beacon or a path, a religious practitioner follows the *yantra* basically to reach the state of awareness; additionally, *yantra* is used as a graphic design tool for making icons as well as a standard tool of architectural design of temples. Several 'architectural' *yantra* are known from ancient design texts. The architectural *yantra* of a temple describes its bodily form. Although, the early architectural *yantra* of *Vastu-purusha Mandala* was universal in nature, over history, *yantra* seem to have become particular as well as more complex.

The use of *yantra* was mandated basically to assure exacting response to religious symbolism and ritual, the central determinant of design of religious edifices. In Nepal, from the point of view of religious symbolism and ritual practices, we may note four ritually distinct groups within the tiered or *tallakara* temples variety: (i) the square *Devalaya* temple or the *Degah*, the ideal Hindu temple of God; (ii) the rectangular *Dyochhe*, which symbolically transforms a human residential building to suit 'godly inhabitants; (iii) the rectangular temple with a sanctum in upper floor that expects communal ritual worship; (iv) and the *pith* temple, with open sanctum from hypaethral traditions. Of these, the *Devalaya* temple or *Degah*, whose ideological link is with the ritual Hindu temple, were designed using *yantra*. The popularity of *Siva* worship with proto-*tantric* rituals in ancient Nepal and its influence on the *Degah* may be behind its display of the symbolism of *Sri Yantra*, a ritual *tantric* diagram depicting the power play of *Siva* and *Shakti.*

The architecture of *Degah*

The architectural composition of *Degah* is straightforward, it is multi-tiered, with square cores of brick walls supporting overhanging roofs, the floor and roof sets reducing in size in ascendance. Behind the simplicity is a rigidly applied set of codes of ritual geometry, proportion and measure, physical criteria prescribed of a perfect three-dimensional built form capable of personifying God, the perfect and the timeless. Just as the strict geometry is almost all masked in the simple structural composition, so is it cloaked in artistic carvings and decor in wood and terracotta, with motifs that add mystery and symbolism at once.

In the soft glow of the morning sun, the tiered *Degah* appears in ethereal elements. As the gilded copper roofs catch the sun to make a silvery and simmering edging to the skyline, the bricks reflect a rich glow onto the magnificently carved struts and undersides of the fanning roof joists, the metallic birds perching on the pea-cock roof-ends seem to launch themselves in a balancing flying act, as if, true to their calling and crafting, to lift the chariot of the gods in a delicate equilibrium in the sky.

The Nepali temple is a picturesque physical representation of the philosophical temple, which is a vertical pile of the three chariots, one afloat in the high heavens, another floating in the middle sky and the last sitting on the earth. True to such a religious symbolism, the

short brick core of the upper tier, coming out of the lower roof is provided with continuous stringcourses of timber and terracotta, with motifs of the lotus petals and lion-heads, and its corners embellished with large projecting bricks, to make it the base of a divine chariot look alike. That such was the aesthetic intent, at once both physical and symbolic, is more than elucidated in this truthful realization of the heavenly temple, the *Harmya*, or the *Chandrasala* as described in the ancient document of Hindu architectural sciences, *Brihatsamhita*. Indeed, medieval Newar manuals of temple construction and renovation designate the upper part of the temple as '*Chandrama-kvotha*', literally as well as philosophically pointing at the source. The symbolic reference is not only to white soft reflected luster of moon-light, that is believed to emanate from the *Gavakshya* window (*Ga* in Newar) as blessings to the devout but also to the resting place of the moon on the tresses of Lord Siva, the entangled state more vividly conveyed by the alternate terms used to further qualify the same, e.g., *Jala* in Sanskrit or *Pasuka* in Newar. The grand imagery of the Gods represented by the exquisite

carvings in the struts, particularly those supporting the lower roof, similarly picturize the *Chitrasala*, the painted house and chariot of God in the middle sky or the *antariksya*. The physical differentiation of *Chitrasala*, from the earthly sanctum, *Garbagriha*, is made, like in the case of *Chandrasala* above, by interposing continuous stringcourses of timber and terracotta, repeating the motifs of the lotus petals and lion-heads, that run to make a cornice around the core, its corners again provided with the large projecting bricks to echo the form of the chariot. However, unlike the timeless nature of gods these ritual chariots provide a resting place, the temple is conceived as building fixed both in time and space. It is for such reasons that a *torana*, which represents the ceremonial archway to the sacred *vedi*, the sanctum sanctorum, is placed over the main doorway to the temple and carries the image of a mythical demigod, *Kirtimukha* (*Chhepu* in Newar), who symbolizes the interface between the timeless and the time bound.

Yantra **for orientation and rhythm in proportioning plan and elevation**

It would be logical to expect the *Degah* temple to use *yantra*, as it followed the classical Hindu symbolism and dictates of *Vastu-sastra*, the architectural science that requires pattern of plan of a temple, its measurement and proportions as governed by *Vastu-purusha Mandala*, a conceptual diagram of the cosmos as both space and time at once. This knowledge required that the temple, and all other objects of man's creation as well, be built as a finite

personification of the godly creation. Geometrically, the *Vastu-purusha* diagram is a square sub-divided into smaller equal squares and it is, spatially, two-dimensional. *Vastu-sastra* also prescribes use of similarly derived measurements and proportions for height or elevation aspects. As a temple was an entity defined not only in space but also in time, the *Vastu-sastra* recommends incorporation of 'time dimension' through rules of sizing and orientation based on the 'doctrine of remainders'.

Kapi Venus	6	7 Gaja Saturn	0	Vayasa Sun
Vrisa Jupiter	5	YONI	1	Garuda Moon
Kukura Mercury	4	3 Simha Mars	2	Dhyanksa Rahu

Giving a Time Dimension to *Degah:* Orientation

That Nepali *Degah* is sized and oriented according to the 'doctrine of remainders' is evidenced by several architectural manuscripts, which give these rules as '*Devalaya laksana*[i]' or '*Chulikaye laksana*'. The phrases may be respectively translated as 'the governing attribute of a temple' and 'the governing attribute for deciding the front (direction)'. In the manuscript transcribed by Kolver (1996), a *laksana* statement corrected for scribal errors reads '*devalaya laksana, dvojasa latake ta jurasa ku7 am2 teo, ku9 am8 teo, ku6 am3 teo*…' and translates as 'the attribute of the temple, if the direction falls in the location of *dvoja* put *ku7 am2, ku9 am8, ku6 am3*…'. Obviously, here '*laksana*' stands for key measurement of the side of the Vastupurusha square to be used for the temple, which has to face the direction occupied by '*dvoja*', depicted as the king of birds, the *garuda*. Any of the three measures of lengths is recommended.

Although this document does not tell how the recommendations are arrived at, others do, e.g., '*duvara vodhamnake.devalasaicchihachake.chuliyakiya lyaparimana. simas svonga kiya. Vrisadevalaya ngaga kiya*[ii]' which translates as 'taking the measure of enclosure wall, divide it by 8, the amount of remainder gives the facing direction. For *simha*, take 3, for *vrisa* devala, take 5'. This instruction on deciding the orientation of a temple on the basis of the remainder obtained from the sum where the width of the temple, expressed in *angul*, is divided by 8 is as per Manasara[iii]. The remainder of this particular sum, called '*yoni*'[iv], is not auspicious when even thus, rejecting corner orientation. Odd number *yoni* is auspicious. For the '*yoni*' remainder of 1, the orientation is east and the *vastupurusha* is *Garuda* or *Dwoja*; *yoni*: 3, orientation: south and *vastupurusha: Simha*; 5, west, *Vrisha* and 7, north, *Gaja.*

The Measure of perfection: 25 *angul* make a *ku-dhan*!

Several manuscript manuals for design or repair of temples, dating from medieval Nepal and in private and public collections, mention *angul* as a key traditional standard of measure. Other measures indicated as *ku* and *ku-dhan.* Different kinds of *angul* such as *jesthangul* and *madhyamangul* are also indicated. The absolute values as well as conversion tables have not been established.

In Kolver (1996), each '*laksana*' of the temple for a given orientation has been provided with a set of three different dimensions in *Ku* and *Angul* - and the doctrine of remainders would require that *yoni* must be the same in every case. A simple mathematical logic will tell that for the remainder to be the same, the so called 'step', the difference between dimensions of the

same set expressed in *angul*, must simply be 8 or its multiples[v]. Traditional building professionals of the valley inform that *ku* is *haat* and 24 *angul* make one *haat*. For the given dimensions of the temple, such a conversion standard will not yield the '*yoni*' as required by the doctrine of remainder '*yoni*' and, therefore, cannot be correct. The '*laksana*' dimensions, however, make obvious that one *ku* must be more than 8 *angul*. Coincidentally, the first potential number in a sheer mathematical possibility, 9, when used to test the various *laksana* dimensions for '*yoni*', yields true and exacting results; for, example, each of the '*laksana*' dimensions given for temples with *Gaja* orientation in the various sketches in Kolver (1996), expressed in *angul*, yield a remainder of 7 when divided by 8. The table below illustrates this assuming one *ku* as equal to 9 *angul*:

Table 1: Dimensions of temple for *Gaja* Laksana

Gaja Dimension	In Angula	Quotient	Remainder	Step	Step as multiple of 8
5ku 2an	47	5	7	-	
6ku 1an	55	6	7	8	8x1
7ku 8an	71	8	7	16	8x2
9ku 6an	87	10	7	16	8x2
15ku 8an	143	17	7	56	8x7
17ku 6an	159	19	7	16	8x2
19ku 4an	175	21	7	16	8x2
21ku 2an	191	23	7	16	8x2

It can, therefore, be concluded that with one *ku* can be equal to 9 *angul*. The same mathematical logic will also tell that other multipliers such as 17, 25, 33, etc. will also meet the requirement of *yoni*. It is notable that in traditional iconographic paintings and sculpture in current practice in Buddhist monasteries of Kathmandu a measure of 25 *angul* for 1 *ku* is in use. It would appear that the standard was same for temple *laksana* too.

Classical documents from South India show 24 *angula* as equal to a *hasta* or *kiksu*. These *Vastusastra* texts also indicate three absolute measures of *angula* as well as *hasta*, the smallest set being 1.905 cm (*kanistha angula*) and 46.00 cm (*matra-saya hasta*[vi]). Manuscripts show that in Nepal, too, *kanistha, madhyama* and *jestha angul* were in use but with a system of subdivision[vii] of *yaba* different from the Indian system.

It can be seen from manuscripts that, whereas the three measures of *madhyama* and *jestha angul* were used in general construction such as houses (*chhejyaye*), a special measure named *Manadeva angul*[viii] was in use exclusively for religious purposes. Here, one is instructed to use these attribute measures (*mana-deva-laksana-kaye*) for measuring ground and sites (*prithi-bhumisima*), works of god (*devajyaye*) and temple works (*devalajyaye*). The same is to be applied to take '*laksana*' for monasteries, Chaityas and other religious buildings, as the measure is for both the religious streams attesting to the accuracy of practice of the Buddhist iconographers. It can be observed that *manadeva-angul* is obtained by adding one *yaba* to the ordinary *jestha-angul*.

Just as the *mandeva-angula* has an extra *yaba*, *manadeva-ku* seems made up of 25 *angul* (i.e. 24 *angul* of ordinary *ku* plus one *angul*) and was named *ku-dhan*. A proof of this can be drawn also from the sketch of Kankesvari in Kolver manuscripts, where outer dimension of the temple core walls in all the levels are expressed in *ku-dhan* and *tu* or *angul*. Here, since the

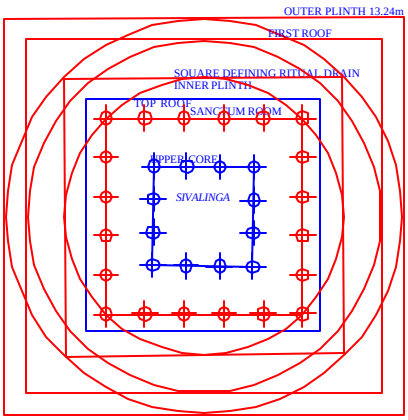
width of second core wall (dimension given as *ku* 3 *tu* 15 *dhan*) is half the width of first core wall (dimension shown as *ku* 7 *tu* 5 *dhan*), we can easily compute that 1 *kudhan* equals 25 *tu* or *angula*. Thus this mss sketch corroborates other manuscripts as well as iconographers' practice. It may be concluded that the correct *ku* used in the *laksana* of religious buildings and images is equal to 25 *manadevaangul* and such a *ku* was apparently referred to as *kudhan*. In absolute measure, 1 *ku* (*dhan*) would therefore equal 624.75mm.

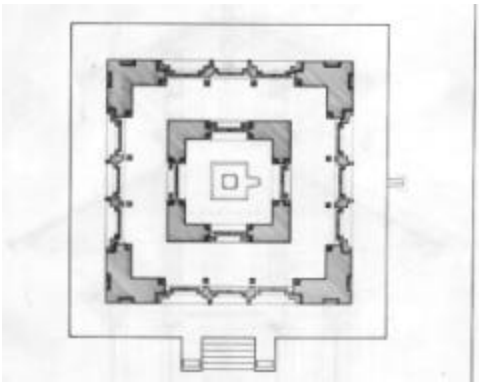
Further, two statements in the lowest storey, e.g., '*thodevaraku 13xdhan*' and '*vo kwotha* 11II', respectively meaning '*kudhan* of this temple is 13x' and 'width of room is 11-1/4 module', both tell the outer width of the sanctum room and the design module can be obtained by dividing the former by the latter. Just below the width statement, the value of the module is written as '*bhaga ku 1 tu 4 ya 9.*' The calculation confirms that the design module is *ku* 1 *tu* 4. Also, the wall thickness is 9/8 unit or *ku 1 tu 7x*- the symbol *x* used to indicate approximate numerical value of a modular quantity. Since 5/9 of the outer width of sanctum wall is *ku*7*tu*5~, the width of the first core wall, we may also infer that a nine-square *vastu-purusha-mandala* is in use here. In the measurement system, modular quantities are given as whole *angul* and fractions dropped. The reference side, which has to be 9 times the module and *ku* 10 *tu* 11 *dhan*, may have been the internal dimension of sanctum room. On the above system of absolute dimensions, this would be equal to 652.24cm, which compares favorably with the dimensions of the colonnade exterior measuring an average of 656cm at present. Also, in addition to design changes, currently Kankesvori temple also has cores reducing in the ratio 6:4:3 (656/440/328), whereas the manuscript requires 10.8:6:3.

Such ratio of reducing cores and roofs as observed from the Kankesvori example demonstrates that the sizes of elements at various levels are proportionately interrelated and in each level the Degah plan is always a square. The architecture of the *Degah* appears developed with proportionate plans (*talachhanda*) and elevations (*urdhvachhanda*) as per the prescribed geometry of *Vastupurusha mandala* square diagram.

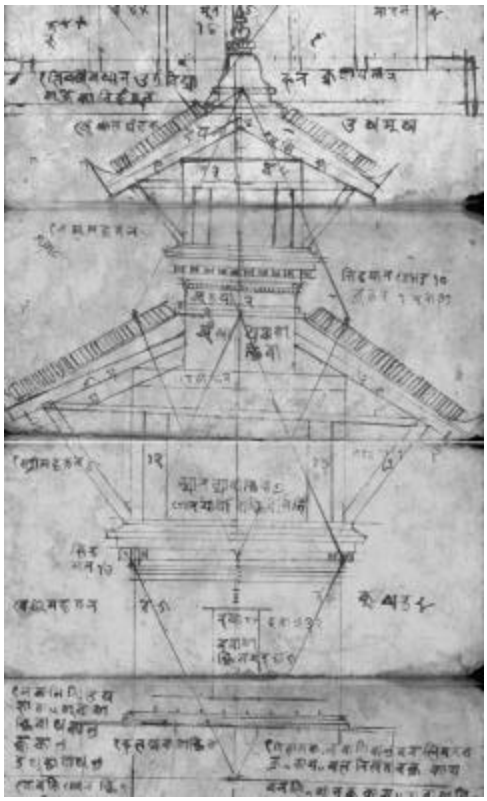
The Plan *yantra*

Whereas temples preserved in India, generally exhibit use of only one entrance door into the sanctum room, the Nepalese Degah, as a rule, has four doors, one on each cardinal point of the square sanctum. Such an arrangement of *garbhagriha* is described in *Vastusastra* and their survival in Nepal may relate to its strong adherence to Saiva practices. In course of development, the temple plan ordained for Sivalinga temples appear to have been used for temple of other gods too. Since architectural principles are often attributed to Lord Siva, it is likely that Siva temples follow the original dictates most scrupulously.





A comparative review of the size of the sanctum room, circumambulatory passage, wall thickness as well as size of openings such as doorways or computation of ratio of sizes of upper floor brick cores with that of the sanctum or sizes of roofs will show that a Degah is proportioned by sub-division of square in ways similar to one or the other *Vastu-purush-mandala.* Particular mandala used for a temple can be constructed by substituting proportioning squares and divisions. For example, the width of the upper brick core (W) of Charnarayan Degah of Patan is half of the sanctum core (2W), the thickness of wall being respectively W/6 and W/5 in upper core and sanctum floor. Similarly, the *ga*-window in the upper core is W/3, whereas the width of triple-doors in the sanctum is 6W/5. The first roof extends out by 4W/5 on each side. The upper roof extends out by 2W/3 on either side. The size of the *Sivalinga* in plan is W/3 square. The two plinths are squares inscribed in and circumscribed about a circle of radius 2W. The temple uses a nine square *mandala* for sanctum floor plan and a seven square *mandala* for the plan of upper floor. A side to diagonal relationship is also evident between the various square sizes in use.



Manuscripts confirm that the case of Charnarayan follows the general rule for two tiered temples that the size of the upper core wall is to be kept at half of the outside dimension of the sanctum. It is also evident from the same manuscripts that the same ratio is to be maintained between the top core and the one middle one, whereas the ratio between the middle core and the sanctum is shown as varying from 5:9, 1:2, 5:11. Kmss sketch of Nyatapola shows the variation as 1:2:3:4:5, whereas, in actual, the second and third core go off this ratio.

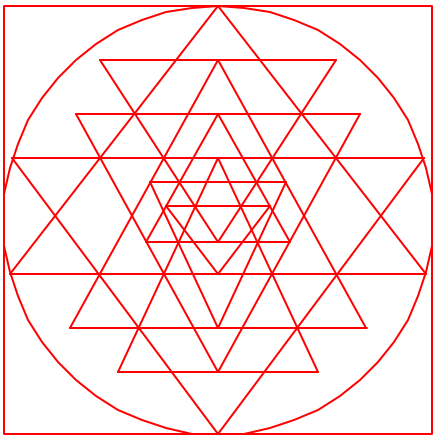
In other sketches, the rule of establishing wall thickness (*ankaya pahal*) is given as W/4, W/6 or W/8 (*pyavo, khuvo or chyabo* etc.). W/5 is also advised. For constructions in brick, half of the given proportions is also advised; it seems that classical proportions based on stone architecture were revised downwards to suit use of smaller sized materials like brick.

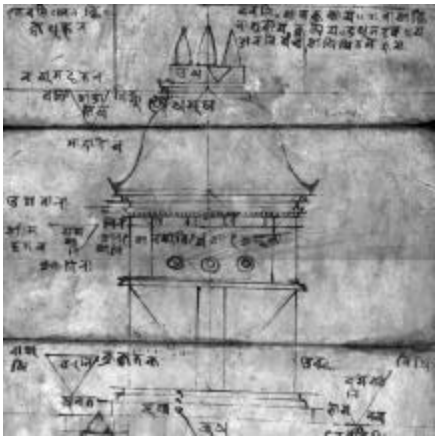
The Elevation *yantra*

Manuscripts indicate use of two systems of proportioning of the elevation of the tiered temples: (a) whereas the dimensions given seem to suggest that the heights are related to the divisions of the *Vastupurusha-mandala*, we also find use of (b) an overlay *yantra* made of intersecting triangles, two pointing downwards and two upwards. Both the systems may be observed in the sketch shown in the next page (from a manuscript in my collection). Although, an actual *mandala* is not drawn, may be because the temple plan is fairly simple from the design point of view, the division marks at the base of the sanctum clearly shows that several different divisions of the base square are made to define the design here, e.g.,

W/9, W/5 and W/4. However, salient 'height' dimensions are expressed in grid widths of (W/9) derived from a 9-square vastu-mandala drawn with side equal to width of sanctum exterior, given here as *kudhan* 4. For example,

(i) Sanctum room, *Vasu mahatala,* width 5, height up to first cornice band (*Simhamora*) marked by the lion-faced bricks: 4W/5
(ii) Mezzanine sanctum, *Sri mahatala*, same as sanctum room
(iii) Extension as well as height of the plinth step: 2-1/4 (W/9) or W/4 (*pevosachchhivo*)
(iv) Height of first socle, part of upper core wall hidden by the roof (*andha* or *andhara-kwotha*): 2-1/4 (W/9) or W/4
(v) Upper core, *Laghu mahatala* width 4W/9, height 3W/9, and
(vi) Upper socle (*andhar panchaka*), W/5.





The two sketches from manuscripts presented here will make it amply clear that the proportioning '*yantra*' is composed of four equal isosceles triangles, two pointing upwards and two downwards. The isosceles triangle is drawn with base equal to the exterior dimension of the sanctum room and the height as one third of the total height of the temple from the ground level to *gajur*. In my book, Tiered Temples of Nepal (1988), I have shown how such triangles were used in establishing the elevation proportioning of temples. However, the diagram is more than a constructional geometry as it incorporates important religious symbolism of Saiva *tantrism*. Here, the middle set of triangles is laid out to form a hexagonal pattern (*sat chakra* or *Sri chakra*) in the middle part of the temple called *Sri mahatala*. On the sky side of the hexagon, the triangle drawn pointing up, points to *Laghu mahatala* or minor temple conceived at its apex. On the earth side, the triangle drawn pointing downwards has its apex pointing to the temple on earth or *Vasu mahatala*. Kolver (1996) observes it as a play of the rhombus formed by two triangles and compares it to '*Antahlina,*' the '*yantra*' signifying dissolution aspect in Saiva *tantrism*. Kolver, although mislead to basically wrong conclusions on proportioning by the poor quality and mistaken inscription of triangles on both sketches D and F1, correctly states that the *Antahlina yantra* symbolizes the temple. However, he fails to relate it to the symbolism of 'three temples', on earth, on air or *antariksha* and in heavens or *akasha,* that are rolled into one *Siva* temple and overlooks the erroneous plotting of triangles on the sketches referred by him. The sketches shown in previous page clarify that the proportioning triangles are applied to all Saiva temples, whether with multiple roofs or not. They also show that this organization of the temple elevation is based on '*Siva avadana ugra vidhya,*' which means 'the *tantric* knowledge as told by Siva'.

The *yantra* of four triangles simply symbolized the three chariots: the earthly one, *vasu mahatala*, represented by the square of the *Garvagriha*, oriented and fixed; the middle one or mezzanine chariot of *Mahesvora* in *antarikshya, Sri mahatala*, the place of eternal joy as represented by the *Srichakra* conceived and presented through the picture gallery and with the first roof; the heavenly chariot, *laghu mahatala* with the top roof. Interestingly, *laghu* is *suksma, Sri* is *para* and *vasu* is *sthula* form of godly chariots. That such a symbolism was literally carried out in the *Degah* is more than established by the name, *junkura*, given to the cornice string-courses defining the base of the flying chariots. *Junkura* is chariot or *khat.*

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[i] Bernhard Kolver, 'Constructing Pagodas According to Traditional Nepalese Drawings' (Berlin: Akademei Verlag, 1996) takes a wrong view that '*laxana*' is protection compounding a transcription mistake with misplaced erudition. Kolver seems to have chosen to read 'dev*ar*aya *r*aksana' as 'dev*al*aya *r*aksana', translates it as "The Protection of the Temple" and presents a discourse on 'protection'. However, he has himself observed in III §1 that "there can be no doubt, then, the 'Protection' figures indicate the width of the building!".

[ii] The manuscript is in the collection of Mr. Gauri N Rimal and I have a photocopy of it.

[iii] Brihatsamhita recommends dividing the product of length and breadth by 8 to obtain the remainder indicating orientation. Manasara recommends dividing the length by 8. Other injunctions and instructions require dividing perimeter, perimeter multiplied by 3, or breadth multiplied by 3.

[iv] Several other types of sums are recommended that result in remainders with varying properties, e.g. '*vyaya*', '*rksha*', '*aya*', '*vara*', '*tithi*' etc. All are to be concurrently satisfied by the temple. (Andreas Volwahsen, Living Architecture: Indian, Fribourg: Office du Livre).

[v] It is simply untenable to imagine steps of 23, 46 etc. if the remainder has to be the same and discussions in Kolver, chapter III, § 3, appendix II, are against ritual mathematics and therefore irrelevant and superfluous.

[vi] S. Kramrisch, 'The Hindu Temple' Vol I, pp. 52/53, footnotes.

[vii] Indian texts show the standard system of measure as 8 liksa = 1 yuka, 8 yuka = 1 yava, 8 yava = 1 jestha-amgula, etc. The Nepali system of subdivision is stated thus: '*gorajasapta yukancha yukansaptahiyo bhavet. Astayebai jyasthaguli saptayebai madhyamanguli. Pramana eti kathyate.*' This translates as "7 goraja= 1 yuka, 7 yuka= 1 yava, 7 yava = 1 madhyama-angula and 8 yava= 1 jestha-amgula. This is called the standard of measure." The different absolute measures will naturally result.

[viii] In the same (as of above note) manuscript, a statement to this effect is made: "*thvokanthaya ubhayadharadhanke manadevaya anguliguyene anguli 9 2 yaba thvote anguli..*". It can be translated thus, "This is the system of measure for both the streams, *manadeva angula* is equal to 9 *yaba* each."