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The Architecture of the Buddhist Temple Complex of Nyarma

This article discusses results of studies on the architecture in Nyarma (Myar ma, Nyar ma) in Ladakh, based on field research in 2002, 2006, 2009 and 2011, including the survey of the temples of Nyarma and its remaining structures.[1] From the viewpoint of architecture and architectural history, with the site of Nyarma we are dealing with one of the key-projects of early Western Himalayan Buddhist temple architecture and with one of the earliest surviving Buddhist temple sites of historical Western Tibet (mNga' ris skor gsum).

State of Preservation and Documentation

Nowadays, the remains of the early historical structure of the Nyarma temple site are in ruins. All the wooden parts have been removed from the site and the pure earthen adobe brick structures remain. Apart from some wooden parts in the innermost sanctum (*dri gtsang khang*) in the main temple (*gtsug lag khang*) on which a new temple (*lha khang*) was constructed as a second storey, no wooden parts are left. This building extension, initiated by the lamas of Thikse (Khri/gs rtse, Khrig se) monastery, can be related to a later addition, probably to the period after the Dōgra wars, i.e. after AD 1842.[2]

Most of the walls are in such a good condition that it was possible to make measurements and to draw plans of the whole site, including the height of some of the walls, and to make three-dimensional models of the temples. At several temples one can see the former position of main girders and in some cases even the rafters. To obtain a good picture of the architecture of Nyarma, in addition to the traditional structural recording it was helpful to use historical building research methods by reconstructing models, as well as building-materials research in identifying the materials used (see Feiglstorfer 2014). Using a horizontal level along the walls facilitated the study of the different levels, and in a further step the examination of the three-dimensional concept of the temples.

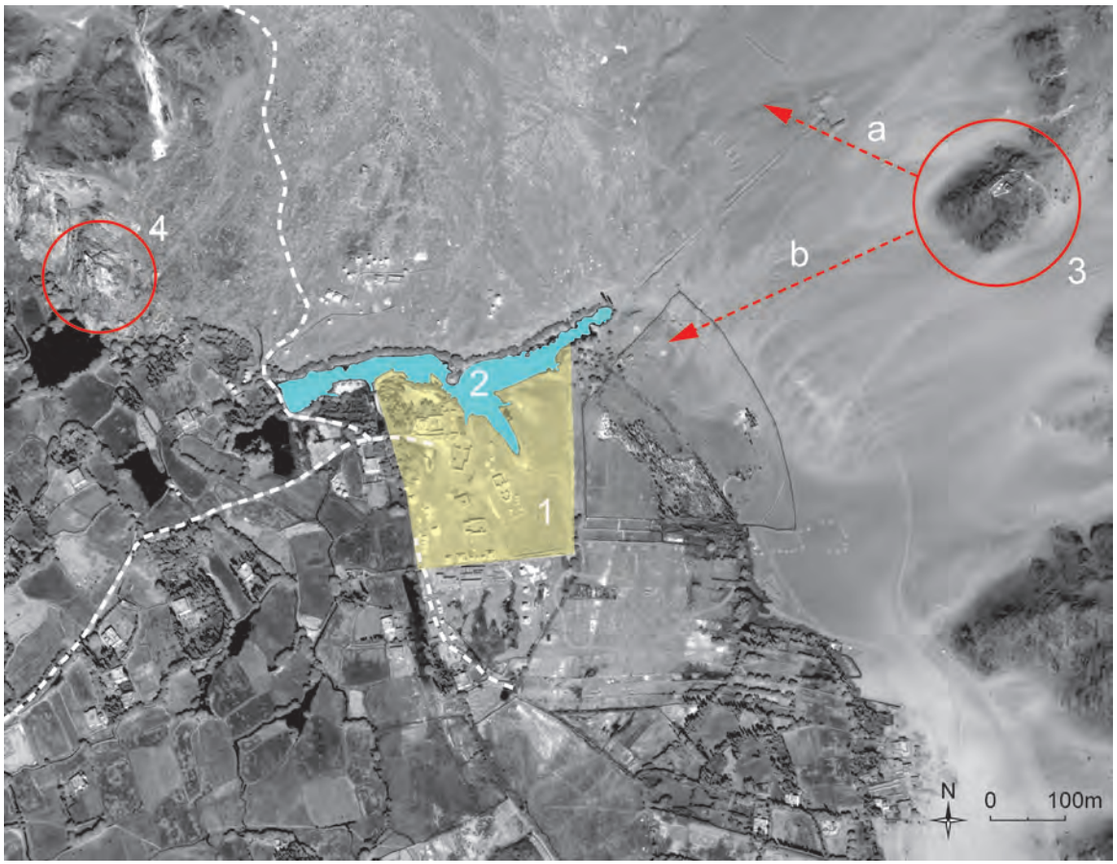
As this study of Nyarma would not be complete without a comparison of architectural data from other early temple structures of the early Western Himalayan period of temple building, a comparative study with these early structures became inevitable. As the *gtsug lag khang* of Nyarma belongs to the earliest period of the West Tibetan kingdom, a comparative study provides the answer to the question of the extent to which this temple has architectonic parallels to other sacred structures of the early period and how far it belongs to a superordinate architectural concept.

The Temple Site: Location of the Temples

The Buddhist temple complex is located on a plain. A range of hills rises to the east and the north side is flanked by a few rocky hills. Close to the *gtsug lag khang*, to the east and to the north a lake, which is nowadays surrounded by willows, adjoins the temple area (Fig. 1). To the west, the temple area is connected by a dirt road to the metalled Leh-Hemis road. Several individual *chörten* (*mchod rten*) as

[1] The research in Central Tibet and in Khorchag in February/March 2010 as well as the research in 2011 in Ladakh was funded by the FWF research project P21806-G19 "Society, Power and Religion in Pre-Modern Tibet". Christian Jahoda and Christiane Kalantari provided field documentation, in particular selected additional measurements of the Nyarma *gtsug lag khang* from their field trip to Ladakh in July 2009 and of the temples in Tabo from their expedition in September/October 2009, also funded by the FWF Project P21806-G19.

[2] See Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 175.



1. Satellite view of Nyarma temple site and its environment (Sept. 9, 2006, Earth Data Analysis Center, University of Mexico, Albuquerque). Satellite image (courtesy of FWF research project P21806-G19, drawing: H. Feiglstorfer, 2012). (1) Nyarma temple site, (2) lake, (3) hermitage (*dben sa*), (4) fortress and *lha tho* (shrine of local deity); (a) view towards Thikse, (b) view onto the temple site; (dashed line) routes linking the temple site to its environment.

well as groups of *mchod rten* accompany the footpaths connecting the sacred site or *chos skor*[3] with particular surrounding areas.

To the north a footpath leads along the uneven, arid plain from the monastery of Thikse towards the *chos skor* of Nyarma about 2.5 kilometres away. Today this path is a part of the outermost circumambulation path or *gling skor*, which defines a wider sacred space including the Nyarma *chos skor* as the southern extension and Thikse monastery as the northern one. The importance of the element water in relation to this sacred area is emphasised by the fact that not only is the lake to the north and north west of the *chos skor* part of this pilgrim's path but so is the stream to the west, which a section of the Leh-Hemis road follows, and which is involved in the ambulatory area (Fig. 2). The *gling skor* is accompanied by several stone reliefs. A single stone relief (see Fig. 2: Sr1) is located along the stream in the western section of the *gling skor* (Fig. 3). The first part of the *gling skor*, after passing the temple site, leads north, passes a trio of stone reliefs which are placed alongside each other facing south. These are located at the intersection of several paths just beside the lakes at the crossing of the footpaths passing one of the lakes towards the west when following the *gling skor*. Passing these stone reliefs northwards a path leads to the fortress on top of a rocky hill. Before reaching the hill another path leads east towards a Rigsum Gönpo (*rigs gsum mgon po*) represented by three coloured *chörten*,[4] to the cemetery and further on links with the *nang skor* to the south (see Fig. 2: Sr3).

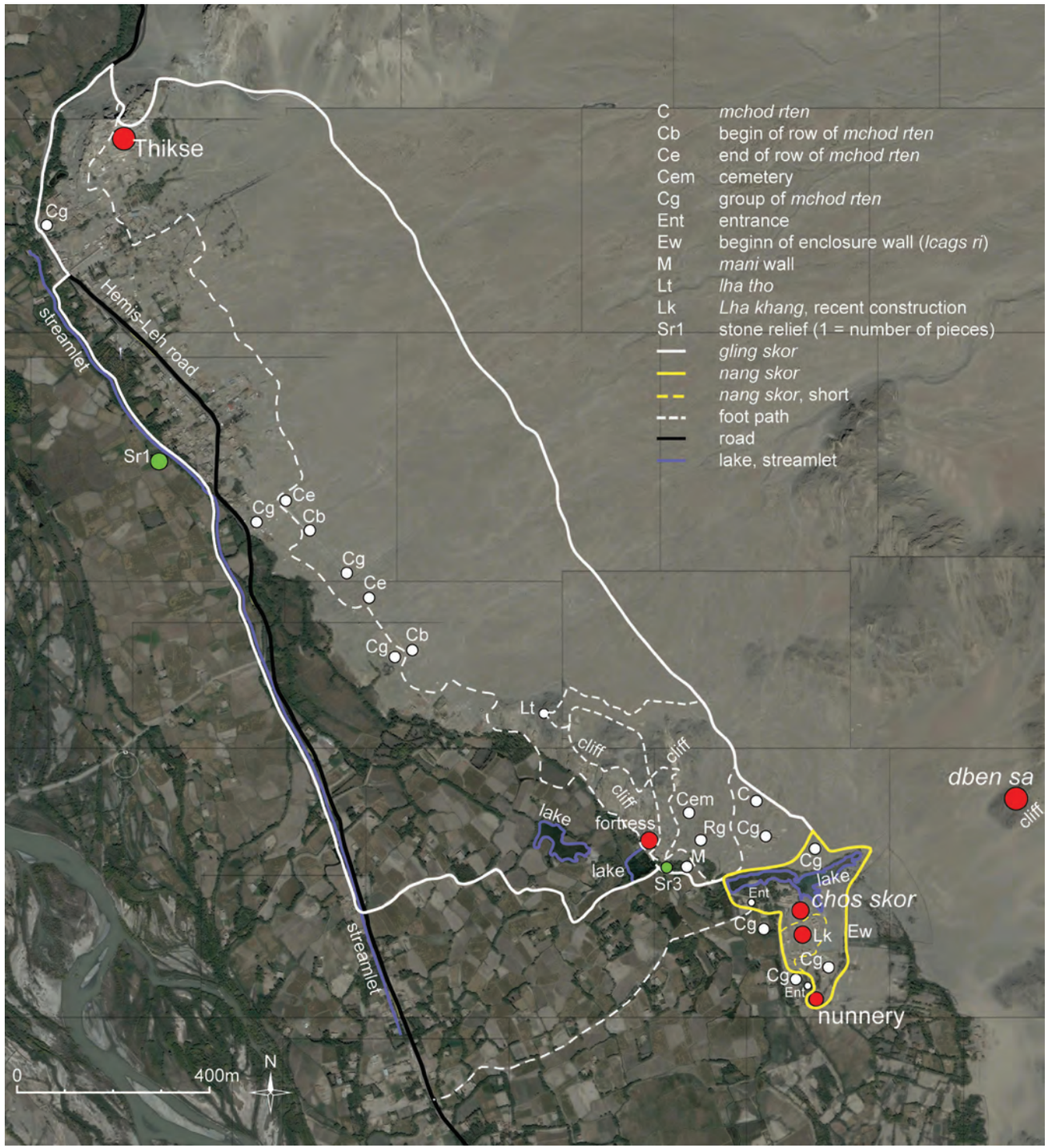
To the east, approximately 580 metres from the *gtsug lag khang*, a hermitage was built on the slopes of the range of hills. About 64° to the north-west of the *gtsug lag khang*, about 360 metres away, the ruins of a fortress with a crowning *lha tho* top a rocky hill with a *rigs gsum mgon po* at its foot. These elements are also part of pilgrims' ritual paths, such as the fortress by the *gling skor* and the *rigs gsum mgon po* by the *nang skor*.

To the south of the temple area a path accompanied by a row of *mchod rten* connects with some village houses merging into a plain of fields. The position of the various groups of *mchod rten*—i.e. to the north and west of the lake and to the west and south of the *gtsug lag khang* and at the site of the hermitage to the east—define the temple site and particularly the main temple in their cardinal intersections as their geometrical centre.

The core of this archaeological site consists of a temple complex which to facilitate further studies can be divided into five structures, which will be mentioned in the following text as the *gtsug lag khang* (temple I), the *lha khang* to the south of the *gtsug lag khang* (temple II), the square *lha khang* (temple IIIa), opposite a *maṇḍala*-shaped *lha khang* (temple IIIb), the *lha khang* containing a broken *mchod rten* in its *dri gtsang khang* (temple IV) and the temple-*mchod rten*, which can be entered from the east, in the shape of a *mchod rten* (temple V) (see Fig. 4). As well as these temple structures we find several *mchod rten* inside the remaining parts of the enclosure walls as well as outside the wall and across the lake. In this description temple III was divided into two parts, IIIa and IIIb, as it was mentioned as one temple in the text by Gergan (see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 178, and Fig. 18, p. 188).

[3] See also Feiglstorfer 2011a I: 158–168 for a discussion of the term *chos skor* (or *dharmacakra*) with respect to Nyarma and other early monastic foundations in Ladakh as well as in Central and Western Tibet.

[4] The name of this "protective *chörten*-triad" (cf. Gutschow and Ramble 2003: 146) can be explained by the association with the Lords of the Three Families (*rigs gsum mgon po*).



2. Nyarma *gling skor* and *nang skor* (satellite image: Google Earth, drawing: H. Feiglstorfer, 2012). The *gling skor* (white line) surrounding among others the Nyarma *chos skor* and Thikse monastery as well as lakes and a stream, the fortress, *lha tho* (La), 108 *mchod rten* walls, single *mchod rten* (C) and *mchod rten* groups (Cg) and stone reliefs (Sr) as part of the outer circumambulation path. Today mainly two different *nang skor* (or inner circumambulation) paths are known by pilgrims: The outer one (yellow line) encloses the *chos skor* as well as its enclosure wall to the east, the nunnery to the south, the new temple and the historic temple site in the centre and the lake to the north. The inner path for circumambulation or *skor lam* (dashed yellow line) is primarily focused on the circumambulation of the new temple (Lk).

3. Stone relief by the stream, as a part of the Nyarma *gling skor* (H. Feiglstorfer, 2011).

4. Nyarma temple site overview
Picture taken on the way to the hermitage (*dben sa*). (I) *gtsug lag khang*, (II – IV) unnamed *lha khang*, (V) temple-*mchod rten* (H. Feiglstorfer, 2006).

The Temple Site: Orientation of the Temples

As one can see from the following, the orientation of these six structures does not follow an immediately clearly readable concept: based on a satellite image (Fig. 1), a site plan of Nyarma (Fig. 5) shows that the *gtsug lag khang* faces east with a deviation to the north of about four degrees. Temple II faces about 13 degrees north-east, temple IIIa about 25 degrees north-west, temple IIIb about 19 to 20 degrees north-west and temple IV, similar to the *gtsug lag khang,* faces east with a northward deviation of about 3 degrees. Temple V faces east with a deviation to the north of about 16 degrees. According to these different orientations, the *gtsug lag khang* and temple IV can approximately be described as east-west-facing temples. All the other temples mentioned clearly differ from the east-west orientation to a varying extent.

In contrast to the temple sites in Tabo, in Alchi (A lci) or in Khorchag ('Khor chags, Kho char, etc.) these buildings in Nyarma do not follow a more or less common orientation. In Alchi, for example, the entrances to all the temples face approximately in the same south-easterly direction, in Tabo towards the east and in Khorchag towards the cardinal directions north and east. Even in Tholing (Tho gling, Tho lding, etc.) the orientation of the single temple structures follows the pattern of the *gtsug lag khang*.

Interestingly in Nyarma, the entrance to temple II faces the entrance of the *gtsug lag khang*, similarly still facing the lake. The IIIa and IIIb structures form a common and approximately square interspace; facing each other and away from the lake their common axis approximately intersects with that of temple II at the intersection point of the longitudinal axis of the *gtsug lag khang*.[5] This intersection point is located in the area of the entrance of the *gtsug lag khang*, thus linking the entrance areas of the *gtsug lag khang*, temple II and temples IIIa and IIIb. In this respect the orientation of these temples would determine a geometrical connection between them and explain their supposedly unorganised position.

The Enclosure Wall (*lcags ri*)

The five temples, which are equal to the six structures mentioned, are partially enclosed by a wall which may previously have surrounded the whole temple area. Today this wall is reduced to fragments at the eastern and southern end of the temple site. In the Western Tibetan region, enclosure walls can be found around *gtsug lag khang* of the early building phase, i.e. late 10th and 11th century.[6] These sites are Tholing, Nyarma, Khorchag, Tabo and Alchi. Conceivably they follow Central Tibetan monastic examples such as Samye (bSam yas)[7] (founded in AD 767, completed AD 779)[8] with a *lcags ri* (*cakravāda*) as a part of the whole architectural concept, which was part of the original master plan of the whole monastic site.[9] None of the dates

5 See Feiglstorfer 2011a II: 239, plan 41 for a drawing, based on a satellite image that shows that the axes of the temples II, IIIa and IIIb and of the *gtsug lag khang*, not precisely, but approximately intersect in the area in front of the '*du khang*.

6 At later monastic sites in Western Tibet such kinds of *lcags ri* are not known.

7 See Feiglstorfer 2011a II: 216, plan 2 and Feiglstorfer (2014 a) for a proportional analysis of the layout of Samye based on a satellite image. Compare also Mémet 1988: 32. Today the shape of the enclosure wall is of the form of a square with rounded edges. Reconstructing today's wall as a circle, its diameter would be five times the length of the central proportional unit (modulus), the size of one modulus being defined by the size of the dBu rtse temple. The idea of the enclosure wall as a part of a superordinate religious concept becomes a part of this concept in a geometrical and proportional sense. Furthermore, all the structures that appear within the enclosure wall as a part of the original ensemble are related to a common geometrical concept.

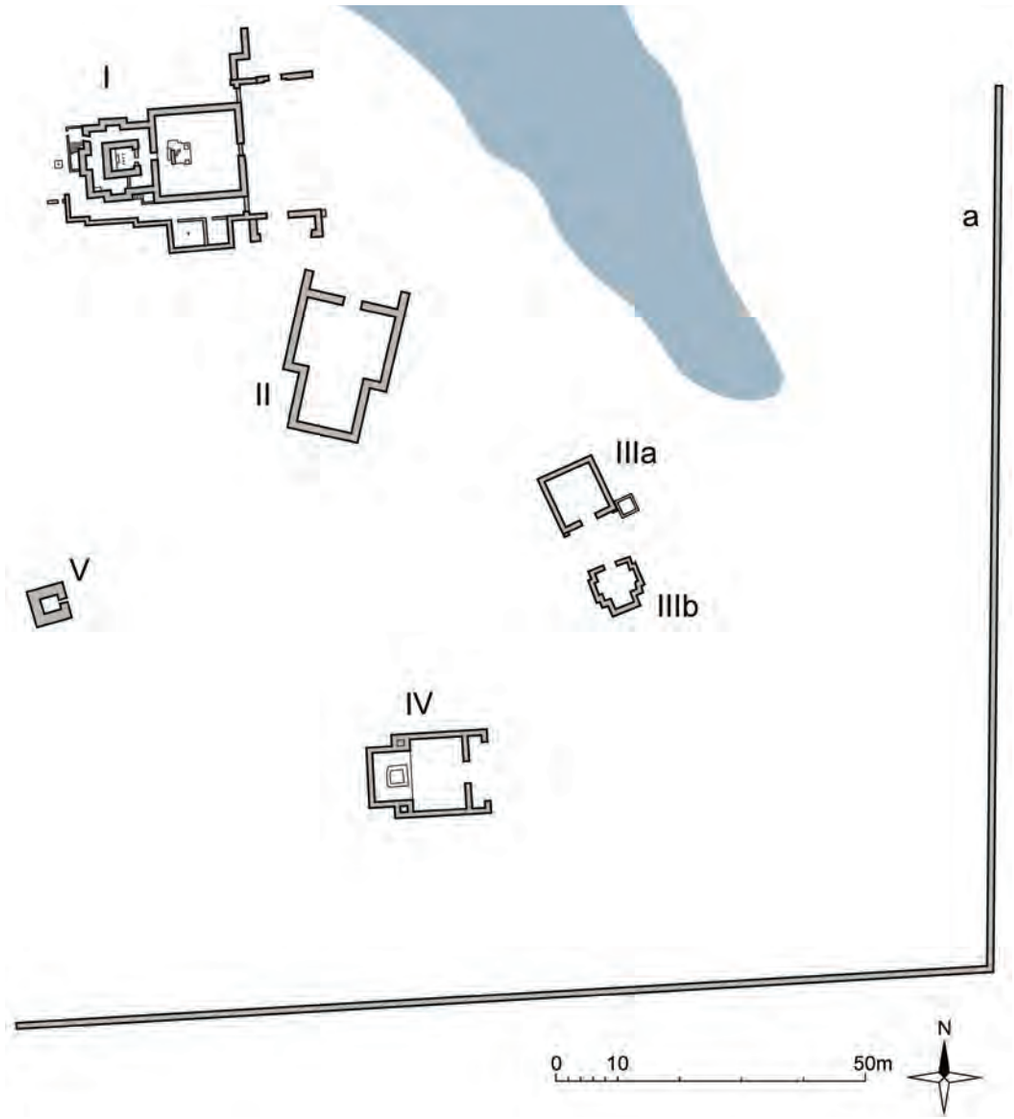
8 Data according to Vitali 1996: 199, n. 285. Vitali gives the year of foundation as AD 767 as the latest option.

9 The introducing of the idea of the *cakravāḍa* into the geometric concept of a whole monastic site can be found at sacred structures in South-East Asian areas of a similar period to the one of Samye, exemplarily at the *candi* Sewu in Central Java and at the Somapura *vihāra* at Pāhārpur in East India (see Feiglstorfer 2013). In a West Tibetan context, Goepper mentions "a wall of dried bricks" once probably protecting the whole area of the Alchi *chos 'khor* (Goepper 1996: 21; see also Goepper 1993: 111). It cannot be excluded that

of origin of these West Tibetan enclosure walls are documented. A closer look at the plans of Alchi *chos skor* drawn by Khosla shows that in the 1970s the western section of the enclosure wall existing today was not entirely part of the original structure (Khosla 1979: plate 8). His plan of the whole compound primarily shows the wall enclosing the temple compound up to the So ma *lha khang* ("New Temple"). In his description he mentions this part of the wall as being more rectilinear and better preserved, whereas he describes the western part along the houses as an informal continuous semi-ruin without any rectilinearity. He describes this part as a kind of "village boundary" (Khosla 1979: 55). Referring to a satellite image of Alchi,[10] it has to be said that the part given by Khosla as rectilinear does not approach a right angle either.

This would confirm the above-mentioned proposal by Goepper (1996: 21) that the *cakravāḍa-parvata* only encircles the main temple halls. Parts of this former and probably original construction of this enclosure wall surrounding the 'Du khang, the oldest structure of this temple site, can today be seen to the east of the compound, with the surmounting *mchod rten* referring to the idea of a 108-*mchod rten* wall (Feiglstorfer 2011a II: 19, fig. 39). The plan of the *chos skor* given by Huntington agrees with this statement, as she marks the eastern section of the enclosure wall as "old wall" *(*Huntington 1985: 379*)*, similar to the description given by Linrothe (1999: 23).

In Khorchag, the erection of the enclosure wall that exists today was initiated a few years ago. Based on an interview with a local lama, we can redraw the approximate plan of the previous outer boundary of the outer circumambulation path or *phyi skor* surrounding the Jo khang and the lHa khang chen mo (also referred to as brGya rtsa) temples. This boundary was partially built as a wall and largely formed by the facades of the adjoining houses of the local village people.[11] This kind of an occupied enclosure wall is comparable to the dwelling houses, bordering the *bar skor* around the Jo khang in Lhasa. In Khorchag none of these adjoining housing structures survived. A historical text—*Jo bo dngul sku mched gsum dkar chag* by Wa gindra karma (1996: 34)—mentions the restoration of the boundary wall (*lcags ri*) in the early 16th century. According to this text an enclosure wall existed at that time.



5. Nyarma site plan. (I) *gtsug lag khang*, (II–IV) unnamed *lha khang*, (V) temple-*mchod rten*, (a) enclosure wall (H. Feiglstorfer, 2012)

the *cakravāḍa-parvata* only encircled the main temple halls in Alchi, as stated by Goepper (1996: 21). The idea of the *lcags ri* probably follows a cosmological concept elaborated in the *Abhidharmakośa* by Vasubandhu. This seems to have also formed the reference basis for Giuseppe Tucci's comment that "bSam yas was intentionally built to be a reflex and a synthesis of the universe itself. It was surrounded by a wall, the Cakravāla, the girdle of mountains that surrounds the universe" (Tucci 1956: 280). Compare also Feiglstorfer 2011a II: 63, sketch 1, where two interpretations of the Buddhist cosmos after the *Abhidharmakośa* based on Brauen 1997: 31 and Sadakata 1997: 27 are juxtaposed. Brauen mentions the surrounding wall as a symbol of the iron mountain that fences off a world system. Sadakata calls the circular range of iron mountains *cakravāḍa*.

[10] Satellite image of Alchi (July 25, 2010; Earth Data Analysis Center, University of Mexico, Albuquerque) (FWF research project P21806-G19).

[11] Part of the enclosing housing structure can be seen on a black-and-white image in Sherring 1906: 206. See also Feiglstorfer 2011a II: 52, plan 54. Plan 46 (*ibid.*: 203) shows these bordering structures as part of the whole sacred site as a reconstruction in a chronological sequence.

6. Tabo temple site plan (H. Feiglstorfer, 2012). The orientation of the structures is based on a satellite image (Sept. 22, 2009, Earth Data Analysis Center, University of Mexico, Albuquerque) provided by the FWF research project P21806-G19. The four-cornered *mchod rten* mark the vertices of the site, probably close to the original structure. The lines connecting the centres of these *mchod rten* intersect in the area of the *'du khang* of the *gtsug lag khang* (1), possibly planned as the site's geometrical centre. The course of the enclosure wall follows the position of these corner *mchod rten*. The position of the gSer khang (2), the 'Brom ston *lha khang* (3), the Byams pa *lha khang* (4) and the 'Brom ston *lha khang chung ba* (5) roughly follows the north-south axis. The dKar chung *lha khang* (6) is located on the western end of the east-west axis, the longitudinal axis through the *gtsug lag khang*. The dKyil khang (7) does not follow this obvious geometry as it is located at the rear side of the gSer khang and the 'Brom ston *lha khang*.

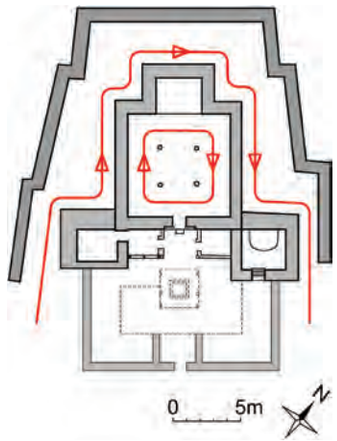
Neither in Tabo nor in Tholing is there any archaeological evidence of the foundation of the enclosure wall being of the same period as the foundation of the original structure of the respective *gtsug lag khang*. The enclosure wall in Tholing follows the orientation of the temples, like the *gtsug lag khang* as the earliest structure founded in 996, and the orientation of the 'Du khang or the lHa khang dkar po ("White Temple") as later additions. It seems to have been built according to the spatial conditions given by the temples inside the temple enclosure.

A somewhat different situation to the one in Tholing can be found with the enclosure wall at Tabo. The ground plan of this wall shows a geometric regularity that is not of a rectangular shape but more like a parallelogram (Fig. 7). The course of the eastern as well as of the western section of the wall faces rather exactly north-east. Unlike these, the northern and southern sections of the wall diverge at about the same angle from the right angle to the western and the eastern sections of the wall. It seems likely that the position of these non-orthogonal walls was forced by the corner *mchod rten*, which may have been part of the original structure, similar to the layout of the four surrounding *mchod rten* located on the inter-cardinal lines meeting in the centre of the main temple in Samye and in Tholing. In each case the course of the wall was determined according to their position.

According to these temple sites, which still show the existence of a *lcags ri*, as well as their different appearance there are also several similarities, but not necessarily general features. The course of the walls at Tabo and at Nyarma follows a regular geometry. At Alchi, the 'Du khang can be described as the ideal and historical centre of the ensemble of temple structures but it is not located in the geometrical centre of the whole compound (Feiglstorfer 2011a II: 53, plan 55).

As can be seen from the site plan (Fig. 6), the position of the walls of Tabo define the *gtsug lag khang* as the geometric centre, which is not the case at Nyarma (see Fig. 5). According to Nyarma's appearance today, its location is defined by the lake to the north, which is a unique feature among the early temples mentioned. In Nyarma there is no specific definition of the geometric centre.

Panglung (1995: 283) cites a description of Thikse monastery by dKa' chen Blo bzang bzod pa, who refers to the enclosure wall in his brief biography of the Great Translator Rin chen bzan po as follows: "The length of the enclosure walls measured on each side 250 *gom pa* with a width of 1.5 *lag khru* and a height of a little bit more than 8 *lag khru*."[12] Converting 250 *gom pa* gives about 155 metres, by converting one *gom pa* ("Schrittlänge", one pace) as 62 centimetres. The length of the remaining enclosure wall, observed on the satellite image (cf. Fig. 8), is about 159 metres. An interesting aspect seems to be his mention of the length of the "main temple" ("Haupttempel", *lha khang che ba*) as 25 *gom pa*, which means a tenth of the length of the enclosure wall, which would further mean that the measuring of the enclosure wall could have taken place in relation to the size of the main temple. In his text he does not mention a number of walls nor whether they were at right angles to each other. Nevertheless, his description mentions a regular but not necessarily orthogonal shape of the enclosure walls.



7. Alchi *nang skor*
(drawing: H. Feiglstorfer, 2012).
(Dark grey hatch:) Probably the original course of the enclosure wall related to the 'Du khang; (light grey hatch:) 'Du khang walls; (light grey lines:) fore court in a simplified and orthogonalised design in front of the entrance to the 'Du khang, probably being of a later phase (cf. Luczanits and Neuwirth 2010: 81 and 82).

8. Nyarma enclosure wall, lineament analysis.
Satellite image: detail of Fig. 1
(drawing: H. Feiglstorfer, 2012).

[12] "Die Umfassungsmauer maß an den Seitenlängen jeweils 250 *gom pa*, ihre Stärke betrug 1,5 *lag khru* und ihre Höhe etwas mehr als 8 *lag khru*." (Panglung 1995: 283).

9. Nyarma *dben sa*. View from the gate of the *gtsug lag khang*, located at its eastern side (H. Feiglstorfer, 2006).

When we compare the remaining parts of the former enclosure wall of Nyarma and put them together on the satellite image we get the two sides of an approximate square (Fig. 8). A lineament analysis of the satellite image of the area of the possible former location of the site of the western section of the wall shows a dividing line between the sandy zone of the temple area and a bushy area on the other side of this dividing line.[13] If we position a wall on this dividing line it would form the third side of this approximately square area of the temple site. Interestingly we do not find a lineament of this kind to the north of the site. On the satellite image, this northern side has much more natural shape, which would coincide with the theory that the northern boundary was formed naturally by the lake.

In the temples from the early phase in the West Tibetan region, we can distinguish between two different kinds of temple enclosure walls. The first is the enclosure of a whole temple complex consisting of different and architecturally separate temple structures as mentioned above. These sites are partially or completely surrounded by an enclosure wall. The second kind of a free-standing temple enclosure can be found at only two sites, namely at Nyarma, surrounding the *gtsug lag khang*, and at Alchi, surrounding the 'Du khang.[14]

Like the one in Nyarma the course of this inner enclosure wall in Alchi is adapted to the course of the outer wall of the temple structure (Fig. 7). Both of these enclosure walls are only partially preserved but can largely be reconstructed. A difference in their course is that the enclosure wall in Nyarma runs parallel to the outer shape of the temple walls while the enclosure wall in Alchi continuously diverges from the wall. Since the ambulatory path of the Alchi 'Du khang was closed by adding further constructions, it can no longer be used in its original form. Thus originally this wall can only be supposed to have been an outer border of an ambulation path. Regarding the relation between the wall and its bordering of an adjoining *skor lam* or "pilgrimage way" as described by Gergan,[15] one can presume that the enclosure wall in Alchi fulfilled a similar function. The course of the enclosure wall in Nyarma is more accurate than the one in Alchi and thus its geometric affiliation to the common structure of the *gtsug lag khang* of Nyarma is more obvious.

The Proximity: A Hermitage (*dben sa*)

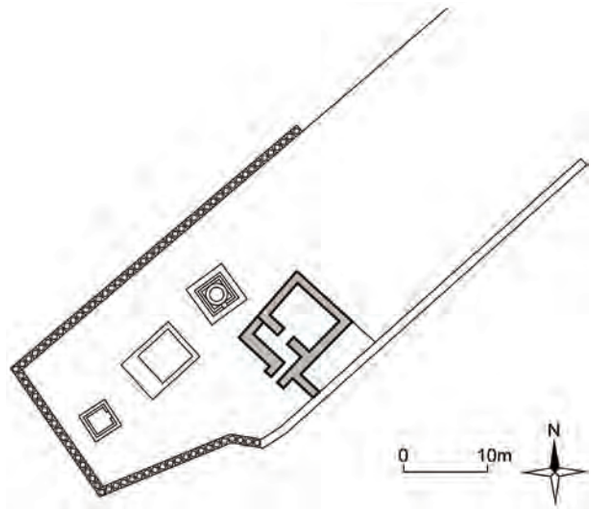
Outside this enclosure wall, especially towards the north, the south and the west, we find various sizes of *mchod rten* scattered over the plain. Towards the east, in the extension of the east-west-axis of the *gtsug lag khang* on the slope of the above-mentioned hill range, there is a hermitage (Fig. 9). It faces about 20 degrees north from the east-west-axis of the *gtsug lag khang*. From the hermitage the whole site of the temples of Nyarma as well as the monastery of Thikse are clearly visible. The enclosure itself can be seen from inside the assembly hall (*'du khang*) of the *gtsug lag khang* through the eastern gate (see Fig. 1: 3b). This small area of about 30 by 15 metres includes two chambers[16] and a row of three *mchod rten*, positioned approximately along one line with an orientation of about 50 degrees to the east (Fig. 11). This site opens towards the east onto the slope

[13] Discussed by Feiglstorfer as part of a joint presentation with Jahoda at the 20th EASAA conference, Vienna, 2010 (Jahoda and Feiglstorfer 2010).

[14] The remains of the enclosure wall flanking the 'Du khang at its lateral and rear side "can be interpreted as fragments of an original ambulatory" (Luczanits and Neuwirth 2010: 80). Compare also Kozicz 2007a: 26, fig. 14.

[15] See Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, pp. 177–178.

[16] Gergan mentions three chambers ("very small hermitages") surrounding the *dben sa* in his report. See Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, pp. 183–184.



10. Nyarma *dben sa*. Picture taken towards the west. Behind the left *mchod rten* the 108-*stūpa* wall is visible. The *gtsug lag khang* of the Nyarma temple site can be seen in the far background (H. Feiglstorfer, 2006).

11. Nyarma *dben sa*. Ground plan (H. Feiglstorfer, 2012).

of the hill and is closed on the other three sides by a 108-*stūpa* wall roughly constructed of stones (Fig. 10). According to Gergan's records, it is said that in ancient times there was a spring close to this hermitage, which in his time flowed through the village of Nang and was said to be called Murtsemig.[17] Today there is no evidence of a spring in the surroundings of this site. Giving credit to this legend, would mean that unlike the situation today this area around the temples of Nyarma had abundant water.

The *gtsug lag khang*

As the largest structure in the temple area of Nyarma the *gtsug lag khang* opens towards the lake shore to the east. The whole structure is embedded in a plain, which slopes down slightly into the lake on the eastern side (see Fig. 1 and Fig. 12). The *gtsug lag khang* can be described as an assembly of different parts which could have been built consecutively although the basic design of the core structure seems to be of a common geometrical and proportional system, potentially related to a superordinate proportional concept as discussed by Kozicz (2007b, 2009 and 2010). Even without clarity on this question, we can identify the chronology of the construction sequence of the development of the different parts of the whole *gtsug lag khang* (Fig. 13).

A geometrical analysis of the whole structure of the *gtsug lag khang* (see below, Fig. 51, p. 253; cf. also Feiglstorfer 2011a II: 105, plan 35, and 108, plan 39) shows that the starting point for the construction must have been its central core, the *dri gtsang khang*. Based on this geometrical and constructive centre, the various segments of the compound were erected consecutively, each depending on the position of the previous segment. According to the chronological sequence of the erection of this spatial order, the several layers of the *gtsug lag khang*, from the centre outwards, can be given as follows: *dri gtsang khang*, *nang skor* as the *skor lam* around the *dri gtsang khang*, the *'du khang*, the *skor lam* around the *'du khang* and the adjoining open *skor lam* around the *dri gtsang khang* and the courtyard to the east of the central hall flanked by two *lha khang* (Fig. 13).

The *dri gtsang khang*

The spatial centre of the *gtsug lag khang* is the *dri gtsang khang* together with the surrounding ambulatory. Because of its niches, which are located as projections along the outer wall, this ambulatory is of a cruciform shape. Based on what was said above, we can proceed on the assumption that this central structure originally formed the first part of the whole. It cannot be said definitely whether this central core was built as an independent structure in the first phase and was later extended to the east with the *'du khang* or whether they were planned and built as a consistent concept at one time.

According to the superordinate geometrical concept it was planned as a proportionally interrelated structure, based on a master plan. Nonetheless, concerning the formally solitary appearance of the structure of the *dri gtsang khang* together with its surrounding ambulatory corridor, this part of the building appears as an autonomous structure. The narrow entrance from the *'du khang* into the *nang skor* of approximately 120 cm, a symmetrical ordering of the two

[17] See Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 184.

12. Nyarma *gtsug lag khang*. Wide-angle photo with three pictures joined together. (Picture left and centre:) *gtsug lag khang*; (picture right foreground:) edge of temple II; (picture right background:) mountain ridge with *dben sa* on top of a rocky elevation; (picture right centre:) the lake; (picture far left:) road linking the temple site with the Leh-Hemis road (H. Feiglstorfer, 2011).

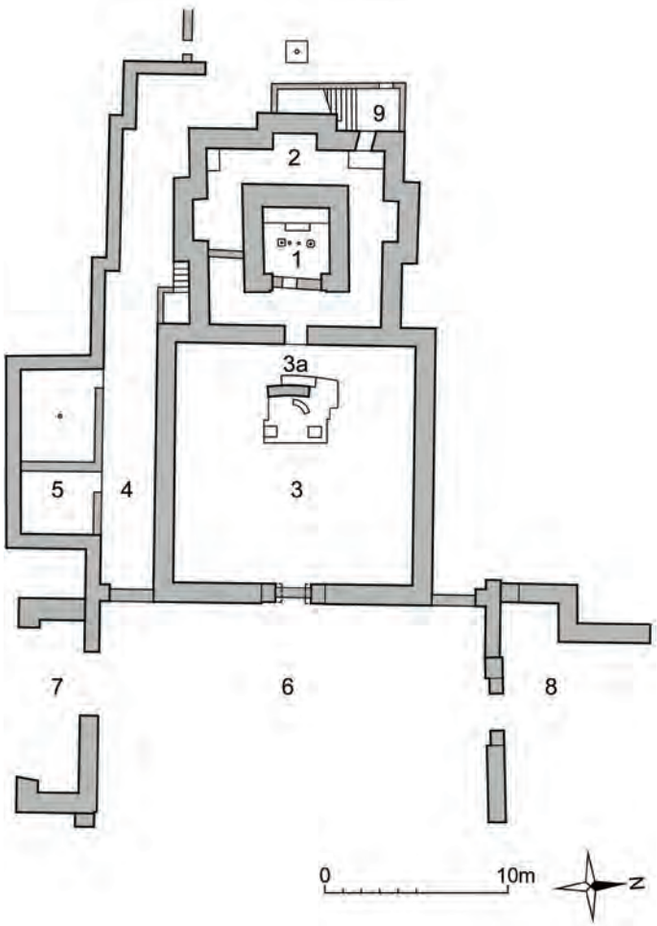
side walls—given that only one can be clearly reconstructed—emphasises this theory. The level of the *nang skor* is raised to the level of the *'du khang* in a way that suggests there must once have been a staircase here. Regarding the left junction of the *'du khang* wall with the *nang skor* wall, which is in such a state of ruin that we can observe the effective bond, we find that the bricks of these walls are weak or partially without bonds. These parameters give the whole constructive body of the enclosed *nang skor* a separate and independent appearance. In this respect the *dri tsang khang* together with the enclosed *nang skor* may also have existed independently of the other parts of the *gtsug lag khang*, similar to one-cella temples with a surrounding ambulatory, such as the Mirkulā Devī temple at Udaipur (Fig. 15) or the Lotsāba *lha khang* at Ribba in Kinnaur (Khu nu).

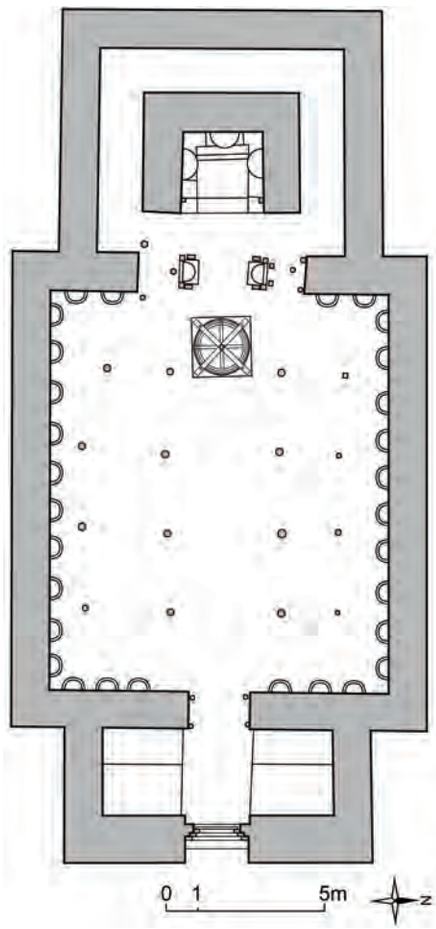
A feature that emphasises this appearance and thus separates it clearly from the formal organisation of the *dri gtsang khang* in Tabo is the laterally exposed brickwork in the entrance zone into the *dri gtsang khang*. These laterals do not exclude the possibility that there was previously a door here (Fig. 13). In contrast, in Tabo the *dri gtsang khang* was built with a U-shape, completely open along the whole width of the *dri gtsang khang* towards the surrounding ambulatory. With this open connection between the *dri gtsang khang* and the ambulatory in front, a door would not be conceivable. Together with the Tholing *gtsug lag khang* (Khang dmar dpe med lhun gyi grub pa'i gtsug lag khang), these three temples are the only known West Tibetan temples with a *dri gtsang khang* as a cell. The West Tibetan successors such as the 'Du khang in Alchi and later temples have a reduced version of this central cell in the form of a niche or no spatial extension at all, like many of the later Tibetan and north Indian temples.

The remaining pillars on stone bases in the *dri gtsang khang* in Nyarma today most probably do not belong to the original phase of the foundation of this temple, as their rough and undecorated dressing does not correspond to other examples of wooden pillars and capitals that we know from the early West Tibetan period. Furthermore, these two pillars would be the only remaining wooden parts of the whole original temple complex, thereby leaving a quite unrealistic picture. Thus the remaining pillars are not of priority interest. The question is far more whether the original form of the *dri gtsang khang* included pillars at all.

Without any supporting pillars, the span of girders would be about 360 cm. This is the upper limit of the average length of girders used in the Western Tibet tradition of temple-building. Statistically the average length is approximately between 240 cm and 360 cm. The girders in the *dri gtsang khang* of Tabo, for example, are about 250 cm while the girders in the *'du khang* in Tabo are up to 360 cm. By comparison, the *dri tsang khang* of Tabo was built without pillars. With regard to the statics and the traditional constructions, in the case of the *dri gtsang khang* of Nyarma a pillar would not be necessary to support its roof.

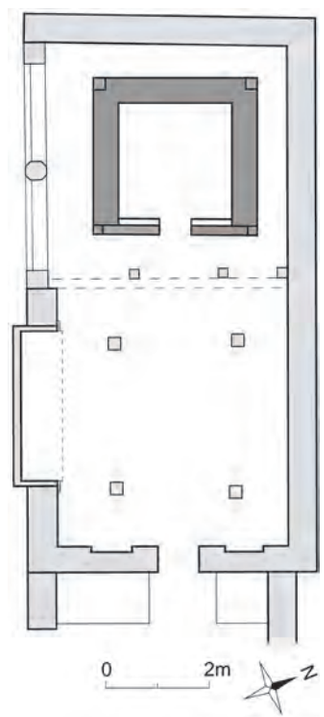
On the contrary we cannot exclude that the original structure may possibly have been built with pillars, possibly with only one central pillar, as we know this from the 'Brom ston *lha khang chung ba* in Tabo (see Fig. 6). Comparing this structure with early one-cella structures in the Western Himalayas such as the Mirkulā Devī temple at Udaipur, the Lotsāba *lha khang* in Ribba or single-cella temples in Pāndrethān or in Narastān—both in today's Jammu and Kashmir, and all built before the *dri gtsang khang* of the *gtsug lag khang* in Nyarma—one can state that none of these temples shows any vertical load-bearing





13. Nyarma *gtsug lag khang*. Status ground plan: (1) *dri tsang khang*, (2) *nang skor*, (3) *'du khang*, (3a) lotus throne, (4) *skor lam*, (5) *lha khang* attached to the *skor lam*, (6) fore court. (7) *lha khang*, (8) *lha khang*, (9) fore court (H. Feiglstorfer, 2012).

14. Tabo *gtsug lag khang*. Ground plan (H. Feiglstorfer, 2012).



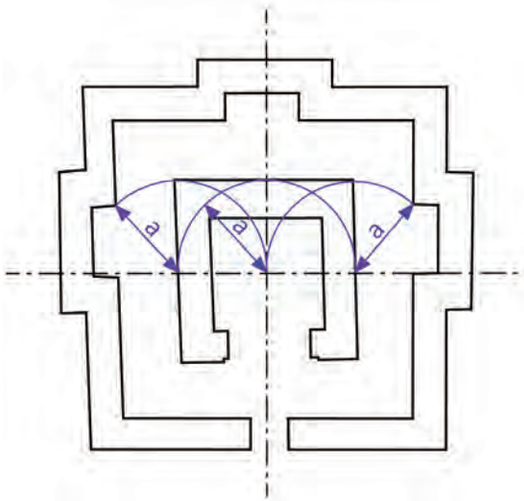
15. Mirkulā Devī temple at Udaipur. Ground plan. (Grey hatch:) The *garbhagṛha* as original core (H. Feiglstorfer, 2012).

structure like a pillar inside the *garbhagṛha*. In this context, pillars in the *dri gtsang khang* in Nyarma, which is in its appearance similar to a Hindu type of a single-cella structure, seem to be a later addition. Probably at the time when a second storey was added on top of the *dri gtsang khang*, a further support for the load of this upper floor became inevitable. The position of the pillars in the *lha khang* in the upper storey in Nyarma was chosen according to the position of the beams and pillars in the *dri tsang khang* below (see Fig. 48).

Like most of the walls of Nyarma, the inner surface of the walls of the *dri gtsang khang* is in a plain and nowadays undecorated state. A closer look at the surfaces shows small remains of particles of a colour to which also Gergan refers in his notes. He was able to witness the existence of clay ornaments on the wall at the rear of the throne (see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 176). Parts of an aureole can still be seen in the centre of the rear wall of the *dri tsang khang* above the pedestal. By this we can assume that the existing wall plaster is from the original phase. The same must be the case with the colours mentioned. Also along the lateral walls, holes are evident for a former fixture, possibly of statues. The pedestal below the aureole has partial cracks along the connecting line with the adjoining walls. This fact possibly weakens the hypothesis that this pedestal must necessarily have been part of the original structure. At least it shows that the pedestal was built after the walls had been plastered (Fig. 16). This fact provides important information about the previous existence of a statue fixed to the rear wall in the earlier usual manner by wooden brackets.[18]

[18] The *upaśūla* is used to mount the clay sculpture onto the wall. It is fixed in drilled holes in the clay brick wall, as described at the example of Tabo (Luczanits 2004: 263, fig. 279).

16. Nyarma *dri gtsang khang* (H. Feiglstorfer, 2011). Cracks along the connecting line of the pedestal and the adjoining walls suggest the pedestal was introduced after the wall had been plastered.



17. Nyarma *dri gtsang khang* and *nang skor* (H. Feiglstorfer, 2012). A possible relation between the size of the *dri gtsang khang* and the location of the niches in the *nang skor*.

With the pedestal and the clay ornaments on its rear wall, the *dri gtsang khang* is of the type of a directional room and not focused on a geometrical centre similar to the Hindu temples mentioned, similar to Tabo, but in this case contrary to the central quadripartite sculpture of Vairocana in the central *lha khang* in the Tholing *gtsug lag khang*. This architectural feature in Tholing enables this central statue to be circumambulated, which differs from the other early West Tibetan temples as directionally and not centrally built structures.

The Inner Ambulatory (*nang skor*)

The *nang skor* leads around the *dri gtsang khang* and today, except the area in front of the entrance is roofed. The southern, western and northern sections of the surrounding wall of this ambulatory have a projection in the form of a niche. To the east, the entrance to this ambulatory is in the cardinal position of a niche. The *dri gtsang khang* and the structure of the ambulatory are certainly built as a functional unit and probably they were the first structural core built as a single-cella structure. Also in this case, the typology of this cella ambulatory unit (*sāndhāra*) is more similar to Indian predecessors such as the Hindu temple in Udaipur or the Śakti Devī temple in Chatrāṛhī, even if the ambulatory of the Mirkulā Devī temple in Udaipur was possibly not roofed in its original phase.

Regarding the spatial typology with the focus of the ambulatory on its geometrical centre, these *garbhagṛha*s are much closer to the *dri gtsang khang* in Nyarma and in Tabo than to the later Tibetan spatial typology, based on a *'du khang* with an added cella niche at its rear as *nirandhāra*. The development of the Hindu temple is characterised by a *garbagṛha* orientated inwards like a cocoon. It can be entered by the priest and in special cases by the devotees and it has a door that can be closed and locked. This cocooning feature coincides with the situation at Nyarma, where as previously mentioned the wall projections beside the opening to the cella separate it from the surrounding ambulatory.

One difference between the architectural appearance of the *nang skor* in Nyarma and in Tabo is their different geometries. While the ground plan of the interior space of the *dri gtsang khang* at Tabo is a square, the ambulatory is rectangular (see Fig. 14). In contrast, in Nyarma the *dri gtsang khang* and the ambulatory are square. A geometric reason why the ambulatory in Tabo is not square is the integration of the dividing wall between the ambulatory and the *'du khang* with its outer border along the inner limit of the square formed by the outer walls of the ambulatory (Feiglstorfer 2011a I: 146).

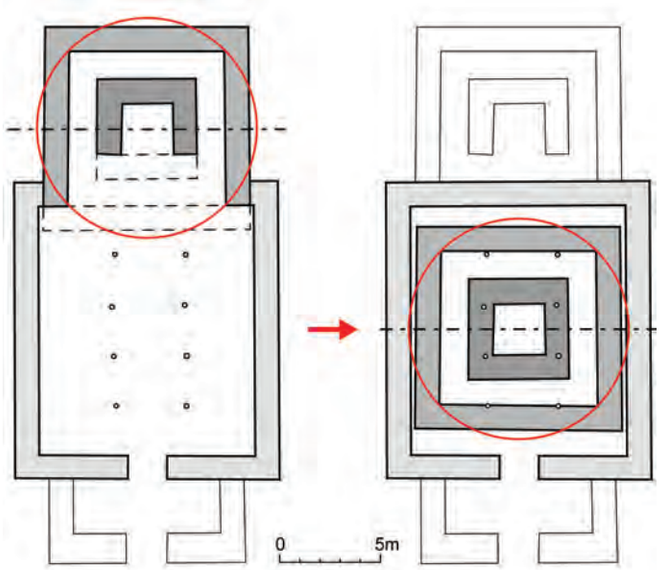
To obtain the same width of the ambulatory path surrounding the *dri gtsang khang* the front wall section with the entrance to the *dri gtsang khang* was shortened by the respective length.[19] As opposed to Tabo, in Nyarma there is a square-in-a-square. Furthermore, in contrast to Tabo the ambulatory is provided with niches and also shows no traces of former clay ornaments. On the north, west and south sides, the axes through the northern and southern niches were shifted westwards, thereby not being congruent with the north-south axis of the *dri gtsang khang*. The location of this niche can be created by drawing a circle with a diameter of the distance between the centre of the *dri gtsang khang* and the outer shape of the wall of the *dri gtsang khang*. The centre of this circle is the intersection

[19] In a proportional analysis, Kozicz (2007b: fig. 8) argues that a reason for this change from a square towards a rectangle shape was the shifting of outer walls by the width of the particular walls towards the centre of the square. Apart of this geometrical fact, one has to note the reason for this shift, as in some temples it was performed and in others it was not. Regarding the central pentalic core of the *gtsug lag khang* in Tholing, one can see the shift of the dividing wall between the rNam par snang mdzad (Vairocana) *lha khang* and the adjoining four *lha khang*, which turns them from squares into rectangles (Feiglstorfer 2011a I: 244–45 and Feiglstorfer 2011a II: 112, plan 43). This is similar to the situation one can find between the *nang skor* and the *'du khang* in Tabo but diverges from the situation in the *gtsug lag khang* in Nyarma. The reason for these decisions cannot primarily be found in certain planning principles as mentioned by Kozicz but they follow a certain intention in defining the two adjoining chambers belonging together or being separated according to a superordinate religious and spatial programme. Besides this geometrical tool it seems to be necessary to include several other parameters such as measuring units, possible proportional relations according to an Indian system, a modular unit or a three-dimensional relation between the individual parts of a temple before being able to give scientific statements of "principles of spatial design". In this context the "principles", given by Kozicz are geometrical tools among several others, and their occasional assessment as *the* principles appears to be an overemphasis.

of the north-south axis with the outer shape of the wall of the *dri gtsang khang*. The eastern edge of the northern and southern niche seems to have been defined by the location of the north-south axis through the centre of the *dri gtsang khang* (Fig. 17).[20]

Another geometrical order to achieve this non-square shape of the ground plan of the ambulatory in Tabo can be mentioned: as many of the early West Tibetan temples have a square modulus of a certain size as their basic measuring tool, according to the desired shape and size of the temple, this feature can also be found in Tabo and in Nyarma. The division of the square shape of the ambulatory into nine squares of same size has a modular system, which we can find in other West Tibetan temples of the early phase. Most of the temples of Nyarma are based on a regular grid. In some cases even the height of the buildings is in proportional relation to this modulus. One of the most common formations is the 3x3 grid which means the division of one square into nine equal ones. In Tabo the generation of a 3x3-grid defines the area of the *nang skor*. It is based on the size of the square which forms the interior ground plan of the *dri gtsang khang*.

Similar to the modulus of the central core in Tabo, as a possible basic measuring tool for creating the inner shape of the ambulatory, in Nyarma too this is related to a 3x3 division. In the case of the Tabo *gtsug lag khang*, the size of the *dri gtsang khang* is proportional to the '*du khang*: The perimeter through the inner corners of the *nang skor* equals the width of the adjoining '*du khang*, unlike the *gtsug lag khang* in Nyarma. In this case the outer width of the *nang skor* equals the inner width of the adjoining '*du khang* (Feiglstorfer 2011a II: 99, plan 22).[21] The inner length of the '*du khang* which, unlike the Nyarma *gtsug lag khang* is not a square but a rectangle, equals the external width of the *dri gtsang khang* extended by approximately the width of the outer wall (*ibid*.). Similarly, the external width of the Nyarma *dri gtsang khang* fits into the inner width of the adjoining '*du khang* (Fig. 18). A study of the proportional relation between the *dri gtsang kang* and the '*du khang* of early West Tibetan temples shows it to be one of the main tools for fixing a temple's ground plan. A comparison has revealed



18. Tabo *gtsug lag khang* (H. Feiglstorfer, 2012). The *dri gtsang khang* is shown together with the surrounding *nang skor* in a proportional relation to the adjoining *'du khang*. This corresponds to the proportional patterns IV according to Feiglstorfer 2011a II: 99f., plans 22–29.

four basic patterns to find this relation, as shown in Feiglstorfer 2011a II: 99, plans 22–29.[22]

Concerning early examples of the use of a modulus as the basic unit for further proportional planning decisions, we again have to refer to the layout of the monastery of Samye. The size of the dBu rtse temple of Samye, which is in the shape of a square, can be used as the basic measuring tool for organising the entire layout of the monastery enclosure, including the location of the four intermediate *mchod rten*, the four temples representing the four continents and their side temples in addition.[23]

In the case of Nyarma, the square modulus is based on a 3x3 grid with the interior shape of the *dri gtsang khang* as its outer limit. The length of the interior walls of the ambulatory is equal to the length of eight *moduli* as the smallest element of this grid and also the niche on the western wall of the ambulatory is divided on a 3:2:3 ratio. In this way the length of the niches in the ambulatory is based on the length of two moduli while the width of the entrance to the *dri gtsang khang* is based on the length of one modulus (Fig. 19).[24]

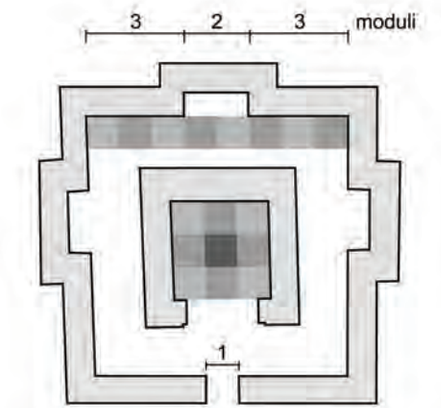
[20] The geometric operation mentioned shows one possibility among others. Also the shifting of the axis by approximately the width of a wall as given by Kozicz (2007b: fig. 7) can be mentioned as a possibility. Unfortunately there is no written evidence for the significance of either of these hypotheses.

[21] According to this study the relationship between the size of the *dri gtsang khang* or the surrounding *nang skor* and the adjoining *'du khang* is mentioned as the proportional type I within four different methods of proportion. This was also discussed and presented by the author at the 12th Seminar of the International Association for Tibetan Studies, Vancouver, Aug. 16, 2010 (Feiglstorfer 2010b).

[22] According to this study the proportional relation between the size of the *dri gtsang khang* or the surrounding *nang skor* and the adjoining *'du khang* is mentioned as the proportional type IV within four different used methods of proportion.

[23] See Feiglstorfer (2013) for a proportional analysis of the layout of Samye based on a satellite image. Compare also Mémet 1988: 32.

[24] The division of the western section of the ambulatory wall into eight parts is mentioned in Kozicz 2007b. In his explanations he does not mention the



19. Nyarma modulus (H. Feiglstorfer, 2012). The modulus as the basic unit for the further determination of the plan of the *dri gtsang khang* and the surrounding *nang skor*, including the adjoining western niche.

The *'du khang*

The *'du khang* in Nyarma, which is square, is attached to the *nang skor* in the west and opens towards the east onto a courtyard via a doorway that is today bricked up. In the early phase the only possible entrance to the *'du khang* and further to the enclosed *nang skor* and *dri gtsang khang* was through the gate in this doorway. The east-west-orientation follows the orientation of the *dri gtsang khang* and the ambulatory. There is a 60 cm to 80 cm drop between the entrance from the *'du khang* and the *nang skor*, which suggests that there must previously have been some steps here, steps which may be the reason for the slightly raised floor level at the rear of the lotus throne, as mentioned by Gergan.

As parts of the floor have been washed away and others are increased by earthen debris, the measurement of the several levels varies. Nevertheless, the step between the *'du khang* and the *nang skor* obviously separates these two parts and gives this section of the temple a completely different appearance to the levels in Tabo, where the floors of the *'du khang* and the ambulatory are at approximately the same level. On the other hand in Tabo the floor level of the *dri gtsang khang* is raised towards the surrounding *nang skor* (Fig. 20).

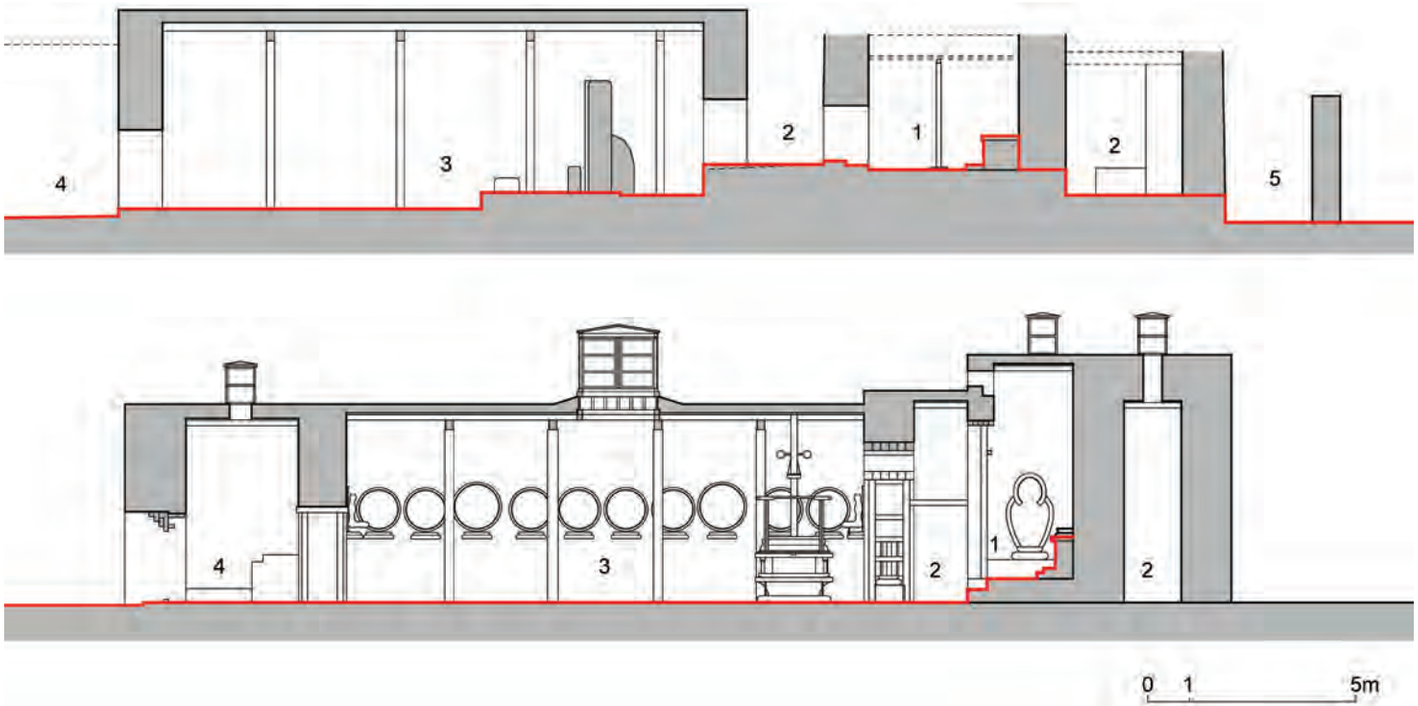
In contrast, in Nyarma the floor level of the *dri gtsang khang*, which is paved with round stones slopes down slightly towards the floor level of the surrounding ambulatory. This may also be owing to the earthen debris in front of the *dri gtsang khang* as demolition material of its upper section. The sloping of the *dri gtsang khang* towards the ambulatory is unknown in West Tibetan temple architecture. On the other hand, according to the today's situation the floor level of the *dri gtsang khang* may not have been much raised towards the ambulatory; rather they must have been on an approximately similar level. The obvious rise in the level is created by the pedestal in the *dri gtsang khang*, whose upper level is the highest in the whole *gtsug lag khang*.

This correlates with most of the West Tibetan temples, excluding those which have no possibility for an ambulation inside the *dri gtsang khang*, such as temples II and IV in Nyarma (Fig. 21), the 'Brom ston *lha khang* and the Byams pa (Maitreya) *lha khang* in Tabo (see Fig. 6) and the Lotsāba *lha khang* in Nako. According to the spatial programme of Nyarma, the *dri gtsang khang* and the surrounding *nang skor* were built as a unit on one level, clearly separated from the *'du khang* in front, which has a completely different spatial programme. In a wider context this feature, which cannot be seen in this way at Tabo, Tholing or any other West Tibetan temple, much more has the special feature of a Hindu temple whose *adhiṣṭhāna* is raised towards the surroundings and supports the *garbhagṛha* at its centre. This fact of separating and unifying two adjoining chambers is related to the above-mentioned integration of a wall into a square, as in Tabo, or the keeping of the squares by separating the adjoining chambers, which is the case in the *gtsug lag khang* in Nyarma.

The passageway between the *'du khang* and the adjoining *nang skor* is laterally limited by projecting walls, with only the right part being partially preserved and the left part being solely part of a hypothetical reconstruction that assumes the projecting walls were constructed symmetrically. The original width of this passageway is unclear. On the right of the passageway a remnant of a wall which slightly surmounts the adjoining platform of the *nang skor* may be evidence of the former width of a quite narrow passageway of roughly 125 cm, as far as it had its position symmetrically in the centre of this wall. This emphasises the hypothesis of the *nang skor* being built as a spatial unit together with the enclosed *dri gtsang khang*. Again, unlike the spatial programme of the *gtsug lag khang* of Tabo with the open corridor between the *'du khang* and the *dri gtsang khang*, not only the *dri gtsang khang* of Nyarma but the whole unit together with the surrounding ambulatory appears as a separate unit accessible through a relatively narrow doorway, probably with a staircase in front, as mentioned before.

On the right-hand wall projection (view towards the *dri gtsang khang*) traces of five shaped aureoles of approximately similar size can be found (Figs. 22 and 23). They are situated as two vertically organised pairs of aureoles above one another so that a sixth aureole

real core of the 8x8-grid, given by the division of the *dri gtsang khang* as the central core, which is responsible for determining the size of the actual smallest measuring tool, i.e. one modulus. The 8x8-grid is not the origin but a result in a further process of using the modulus as a measuring tool.



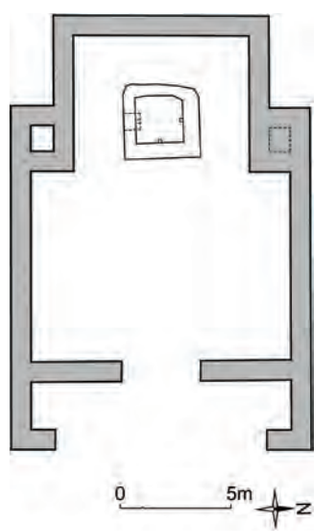
20. The *gtsug lag khang* of Tabo and Nyarma (H. Feiglstorfer, 2012). Longitudinal sections. Top: Nyarma, below: Tabo.
The roof of the Nyarma *'du khang* is reconstructed according to the height of the remaining walls on the north side. The height of the lintel between the *'du khang* and the *nang skor* in Nyarma is freely reconstructed.
The entrances face east, on the plan facing left.
(1) *dri gtsang khang*, (2) *nang skor*, (3) *'du khang*, (4) *sgo khang* in Tabo, and the forecourt in Nyarma; (5) an outer ambulatory along a free-standing enclosure wall.
The red line marks the sequence of different levels from the entrance towards the pedestal in the *dri gtsang khang* as the highest level.

on a part of the wall that is missing today can be suggested to maintain a symmetrical order. As far as the fragments are preserved, each aureole is made of two vertically organised partitions, one for the torso below and one for the head, both oval. Each of these aureoles surrounds several holes in the wall for the former attachment of clay sculptures by wooden sticks (*upaśūla*). The existence of these holes indicates the existence of another row of two vertical aureoles to the left of the fragmentarily preserved aureoles.

On the eastern wall inside the *'du khang*, the doorway is flanked by an aureole on either side. These consist of a lower torus and an upper much smaller head section as well (Fig. 24). The construction holes in the wall indicate the earlier existence of two clay sculptures mounted on the wall, as there is also no trace of pedestals for standing figures. Both these aureoles overlap a straight vertical gap caused by the addition of a part of the wall inside that they reveal, leading to different hypotheses: One of these is that these were added during later renovation, which would mean the aureoles are not from the original building phase. Luczanits (2005: 70) argues the aureoles may possibly be from the early building phase, as he could find no traces of colour below these clay ornaments. According to this discovery, we do not know in which phase these aureoles were moulded, as the walls may also have been added during a very early stage before the surface was painted. Kozicz (2010: 70) sees an explanation in the placing of these wall additions as parts of a general ground plan based on an 8x8 grid[25] and argues with a plan that would lead to structural weaknesses.

According to Gergan, the remains of a lotus throne were located along the east-west axis of the *'du khang*, not in the geometrical centre but close to the entrance from the *'du khang* into the *nang skor*,

[25] According to the geometry of the square and the orthogonality inside the *gtsug lag khang*, the built ground plan is very accurate. This seems to be characteristic for the temples of the early West Tibetan phase. Thus it appears unrealistic that this addition of the wall was based on an alteration during the first building phase. Examples of such changes to a temple's structure in the early building phase are very rare: the lHa khang gong ma in Nako has an alteration by closing a former cella niche, which can probably only be explained by an alteration during an early building phase, an example which does not completely exclude an alteration as mentioned in Nyarma. Furthermore it is not known if in the case of a possible renovation including the addition of clay aureoles parts of the plaster were removed and renewed to provide a better bond with the subsurface for the in situ work. Nevertheless one cannot exclude the idea these joints may have been part of the early building phase. Referring to the example of the Sumtsek (gSum brtsegs) in Wanla (Wan la), given by Kozicz 2010: 71, we cannot exclude the theory of the joints having been planned. Especially the surface of the wall inside the temple of Wanla indicates a later wall addition inside the reveals of the door. A proved clarification of the reason of these vertical cracks remains open.



21. Nyarma temple IV, ground plan (H. Feiglstorfer, 2012).

22. Nyarma *'du khang* (H. Feiglstorfer, 2006). Foreground left: remains of the lotus throne with the back of the throne. Foreground right: remains of the west wall of the *'du khang* showing remains of aureoles. Background centre: *dri gtsang khang* in the ground floor with the first floor as a later addition and the flanking parts covering the *nang skor* in the ground floor.

thus hiding this entrance (see Figs. 13, 20 and 22). The position of a throne inside the *'du khang* is rare among the West Tibetan temples and reminds of the throne of the quadripartite sculpture of rNam par snang mdzad (Vairocana) in the *'du khang* of Tabo, also located in an eccentric position along the east-west axis. As in Nyarma the westernmost fragments of the throne indicate the earlier existence of a protecting throne back, today about 270 cm high; a quadripartite sculpture of the kind found with the Vairocana sculpture in Tabo can be excluded.

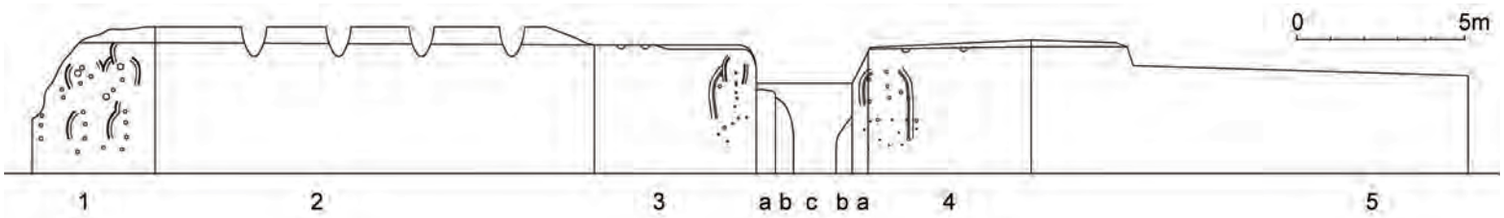
A proportional comparison between the two *gtsug lag khang*s of Tabo and of Nyarma shows the position of the Vairocana sculpture in Tabo and the lotus throne in Nyarma fixed at a similar position inside the *'du khang*. In both cases the position of the sculpture is related to the geometrical centre of the *dri gtsang khang*. In Nyarma the position of the throne back is located on the intersection of the east-west axis with the circum circle around the outer corners of the *nang skor*. In comparison to this in Tabo the centre of the Vairocana sculpture is defined by the intersection of the east-west axis with the circum circle around the inner corners of the *nang skor* surrounding the *dri gtsang khang* (Fig. 25).

The throne itself is in ruins. A pedestal adjoins the curved back of the throne. Next to it a platform supports the left quarter of a round base, probably the former pedestal of the main statue. Towards the east, but still on this pedestal, two symmetrically arranged sockets flank the main statue. In general one hypothesis is that the whole constellation may have been the main statue on a lotus throne in the centre with a relatively high throne back, flanked by two smaller statues. All of this throne is made of earth. A quadripartite structure according to the Tabo Vairocana sculpture can be excluded. This kind of a tripartite organisation of this throne may refer to a constellation of sculptures with a sitting Dīpaṃkara at the centre, flanked by Śākyamuni and Maitreya. The question of Dīpaṃkara as the central deity is also discussed by Jahoda ("The foundation of the Nyarma *gtsug lag khang*, Ladakh", this volume, pp. 284, 287). The size of the platform and the relatively large size of this throne in proportion to the *dri gtsang khang* again raise the question of whether the *'du khang* was part of the original structure. In view of the proportions, it cannot be excluded that with this huge statue the spiritual centre was shifted into the *'du khang* and that the *'du khang* might have been a later adaptation.

The wall of the *'du khang* is about 105 to 110 cm wide, similar to the wall of the *dri gtsang khang*. Gergan mentions the square *'du khang* as being 43 x 43 feet and 14 feet high, which correlates with the existing sizes on the site, the height being a third of the internal length (see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 176). Along the coping of the northern wall of the central hall four large notches from the former supports of the main girders are still visible (Fig. 26; see also Fig. 23).

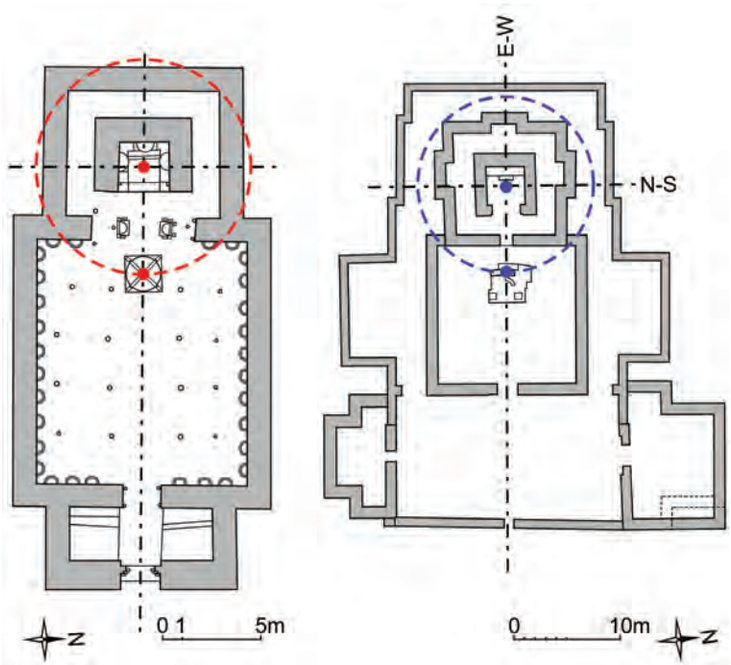
Along the eastern wall and the western wall projections beside the main gate, notches from former rafters remain, but not so clearly that we can reconstruct all their exact locations. The notches on the north wall are relatively similar distance apart and quite clearly show a wall division in five parts. The distances from east to west are approximately 246 cm, 270 cm, 248 cm, 252 cm and 295 cm, which is thus the approximate length of the rafters. The last-mentioned division of 295 cm towards the western end of the north wall is up to 50 cm longer than the others, which should play a role in a further discussion about the location of the lotus throne. This wall division thus equals a sequence of four pillars in east-west direction.

According to the length of the main girders used in the *'du khang* of Tabo, which average 360 cm, a division of the width of the *'du khang* in Nyarma into five equal parts would result in the main girder there being 260 cm long. Technically this length seems to be realistic. The 3D reconstruction was modelled on this hypothesis, although this result has to be qualified with regard to the following considerations (Figs. 27 and 28):



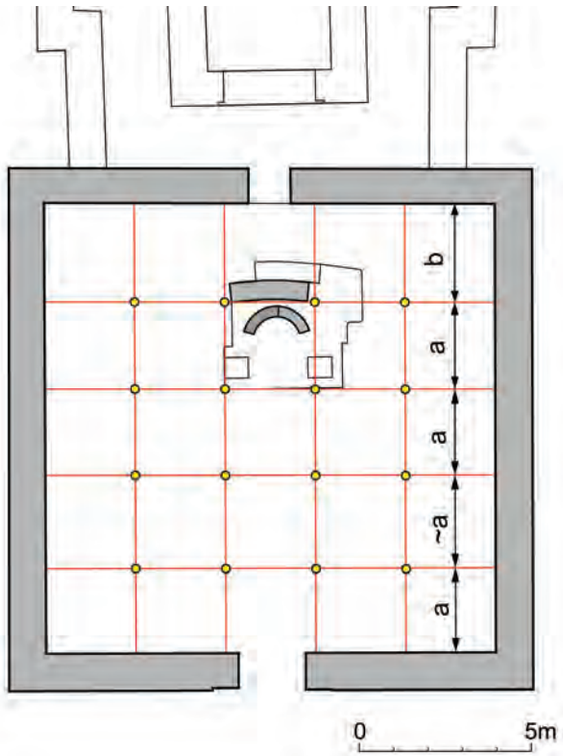
23. Nyarma *'du khang*
(H. Feiglstorfer, 2012).
Wall displays. View from inside.
From left to right: (1) remains of the right wing of the west wall. The left section no longer exists; (2) north wall; (3) left section of the east wall; (a, b) wall additions. (c) infill brickwork as a later addition; (4) right section of the east wall; (5) remains of the north wall.
The elevations (1), (3) and (4) show the position of the remaining aureoles including the fixing holes for the *upaśulas*.

24. Nyarma *'du khang*
(H. Feiglstorfer, 2006).
East wall viewed from inside the *'du khang*.



25. Tabo and Nyarma *gtsug lag khang*
(H. Feiglstorfer, 2012).
The position of main statue in the *'du khang*, i.e. the rNam par snang mdzad (Vairocana) statue in the case of Tabo and a lotus throne in the case of Nyarma can be related in both temples to the geometry related between the *nang skor* and the *'du khang*.

26. Nyarma *'du khang*
(H. Feiglstorfer, 2006).
North wall with notches on top.
To the left: parts of the remains of the lotus throne.



27. Nyarma *'du khang* (H. Feiglstorfer, 2012). Reconstruction of the column grid and of the location of rafters and girders. The distance "b" seems to relate to the position of the lotus throne. The left half section of the circular lotus throne is reconstructed symmetrically with the existing section.

The discussion of the vertical gap on either side of the entrance gate on the eastern wall of the *'du khang* could not make it clear how the two massive column-like wall parts along the gate were fixed to the adjoining sections of the east wall. In any case, if this gap goes right through the wall this would worsen the load-bearing stability of these two wall parts, especially in the case of the division of the width of the *'du khang* to install one row of four columns. The fact is that in this case the rafters would be located over these two column-like wall parts and their installation as a further support cannot be excluded. From a static point of view, this raises the question of how these two wall parts are really fixed to the rest of the wall. All in all this does not exclude the possibility of there being one row of four pillars across the *'du khang*.

Another point to discuss is the position of the lotus throne in relation to the pillars. The existing remains of the lotus throne and the back of the throne would fit well into this concept of a row of four pillars. This reconstruction might resolve some further open questions concerning the lotus throne. The location of the throne fits with the grid of the wooden construction. As the position of the westernmost row of pillars is shifted eastwards to increase the space for the lotus throne, a far more important statement can be made: the location of the throne was not chosen according to the wooden grid construction but was already fixed beforehand, and the wooden construction was adjusted to house its cult object as central spiritual core.[26]

An alternative to the four pillar-concept would be a two pillar-concept, as the three pillar concept would set the central pillars in the axis of the room which is very rare in the West Tibetan temple tradition, apart from one-pillar temples such as Lalung (lHa lung) in Spiti. The concept with two pillars in one row seems to be unrealistic because of the great length of the main beams that would be needed—about 435 cm. This far exceeds the average length of beams used in Western Tibet. The four-by-four-pillar concept (= 16 pillars) seems realistic, concerning the construction itself as well as its relation to the position of the lotus throne.

Clay Aureoles

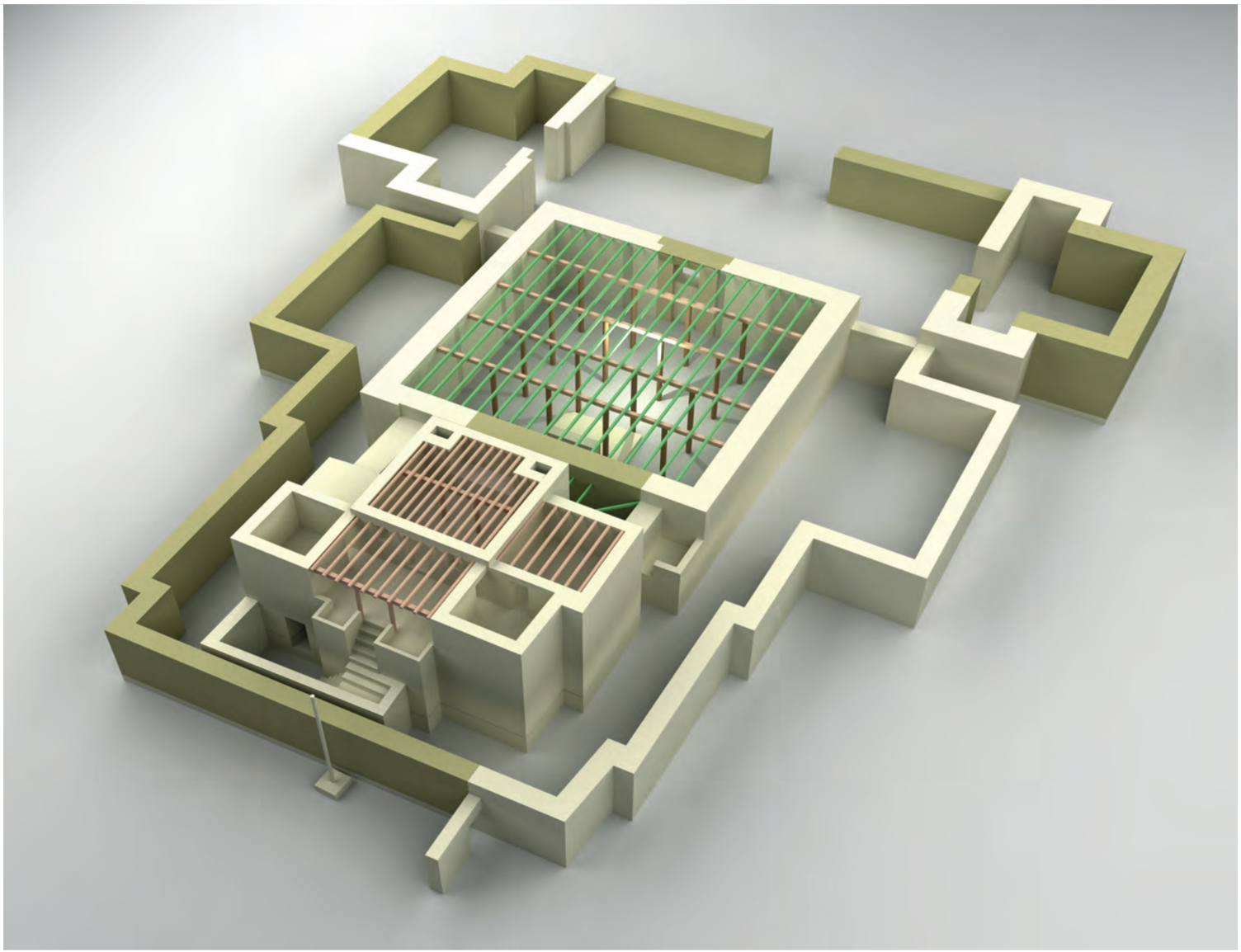
As the aureoles, *'od (s)kor or klong 'khyil* in Tibetan (halo or luminous circle), are generally related to a votive figure; their size, shape and position are dependent on the religious programme to which they are related. Not all early West Tibetan temples contain this kind of aureole, which are moulded out of clay in situ on the wall. In other words, clay aureoles are relatively rare in early West Tibetan temples and more common in later phases. The aureoles are mainly painted directly onto the wall.

The remains of aureoles in the *dri gtsang khang* and in the *'du khang* of Nyarma are in a ruinous state, partially broken off and washed away. Nevertheless, some remains give a clue about their former shape and the way they were moulded. This will be briefly outlined by a comparison with several other early West Tibetan temples.

As a result can be summarized that the aureoles I was able to examine differ in shape and execution in detail. In general they are part of the front of a votive sculpture. The uniform way they are made and a kind of an early West Tibetan style of clay aureole can primarily be seen in the symbolism of Vajrayāna Buddhism used. Regarding the shape and grade of detailing as well as the technical approach, clay aureoles are in most cases specific to each temple and technically executed according to each temple's particular way of expressing a religious figurative programme.

The Jo khang and the lHa khang chen mo temples in Khorchag currently do not contain any clay aureoles. Similarly the 'Du khang in

[26] On the subject of the temple as the vessel for housing a cult object, cf. Feiglstorfer 2011a I: 98.

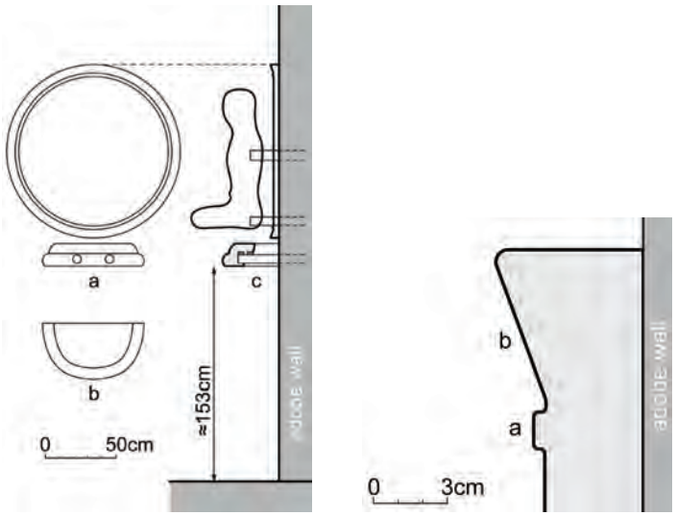


28. Nyarma *gtsug lag khang*, 3D visualisation after reconstruction (H. Feiglstorfer, 2012).

Alchi has no aureoles of this time, as the walls in the 'Du khang are painted and the *dri gtsang khang* contains smaller clay sculptures mounted onto the wall with painted aureoles, as far as I could observe. No such aureoles were to be found in the temples of Nako and in the village temple of Gumrang either.

In Tabo there are moulded aureoles only in the *gtsug lag khang*. Two different shapes of aureole are used—single-piece circular ones, and oval, vertically orientated ones, either as a single piece behind the sculpture's head or bipartite, with the upper part behind the head and a lower part behind the torso. The circular aureoles are not as common as the oval ones.

In Tabo the circular type forms the background to the sculptures mounted on the wall in the '*du khang* (see Fig. 20: section below). They appear in two sizes, the larger ones related to the four Jinas (Luczanits 2004: 43, fig. 30) surrounding the Vairocana statue. The aureoles behind the guardians in the '*du khang* are U-shaped, with



29. Tabo *'du khang*, plan of an aureole, mentioned in Fig. 30 (H. Feiglstorfer, 2012); (a) elevation of the aureole and the pedestal below with wooden wall fixing, (b) ground plan of the pedestal, (c) section of the aureole and the pedestal below.

30. Tabo *'du khang*, detail of a clay aureole, mentioned in Figs. 29 and 31 (H. Feiglstorfer, 2012). Vertical section: upside is the outer boundary and downside the inner boundary of the aureole. (a) ring of pearls, (b) ring of flames.

31. Tabo *'du khang*. Aureoles behind the sculptures belonging to a Vajradhātu *maṇḍala* (H. Feiglstorfer, 2006).

32. Radni (Rad nis) monastery in Western Tibet (K. Tropper, 2010). The aureole is circular, similar to the ones found in the Tabo *'du khang*. The design differs from the one in Tabo as it shows a second inner band, which gives the whole aureole a relatively broad appearance. Another striking difference is the position of the lotus pedestal. In Tabo it is mounted below the aureole without any constructive contact, while in Radni it covers the lower part of the aureole and the statue. Furthermore, in Tabo the statue is only fixed to the wall with a distance to the pedestal below, while in Radni it is fixed to the pedestal as well.

their open side at the bottom. The smaller circular aureoles are about 123 cm in diameter, the larger ones about 136 cm; they are about 8 cm wide, up to 6 cm thick, and covered with flames (Figs. 29, 30 and 31).

Round aureoles can be found in the monastery of Radni (Rad nis) (Fig. 32) or in the Vairocana *lha khang*[27] between Nimmu (sNye mo) and Basgo (Ba sgo/mgo, Bab sgo) in Ladakh (Fig. 33). The examples in Basgo seem to be of a similar type to those in Tabo, regarding the separation of the figure and its base and their circular shape. The relation between the *upaśula* and the aureole with the position of the upper *upaśula* in the aureole's centre is an early Western Himalayan feature, as mentioned by Luczanits (2004: 264). This circular type cannot be found in Nyarma. They belong to the second, oval, either single piece or bipartite type.

In the *dri gtsang khang* of Tabo the aureole of the sitting central Tathāgata is of the second, bipartite type. The heads of the standing Avalokiteśvara and Vajrasattva[28] who flank the central figure are blackened aureoles of a simpler style (see Fig. 20). The aureole behind the central Tathāgata is about 115/115 cm at the upper part, which is open at the bottom, and about 160/130 cm at the lower part which is open both at the bottom and the top. They are 13 cm wide, up to 10 cm thick and covered with flames and pearls, seen from the outside to the inside (Figs. 34 and 35). Other oval shaped aureoles can be found in the *gtsug lag khang* of Tholing. In the Sa

skya court, as shown by Phun tshogs rnam rgyal et al. (2001: 83), the aureole behind the head of a Maitreya Buddha is in relatively high relief, the outer band covering flames of a floral design and the inner band lotus beads. The torso-part of the aureoles behind the standing Buddhas in the north-western *mchod rten* in Tholing, which are also embellished with flames, but not florally, and with adjoining lotus beads are also relatively high relief (see Luczanits 2004: 32, figs. 14 and 15).

Similarly, the relief of the aureoles in cave 2 in Dungkar (Dung dkar) (see Luczanits 2004: 117, fig. 127) is high compared to the western type we find in Spiti and Ladakh. In comparison to the aureoles in Tholing, those in the Dungkar cave appear massive and not as graceful as those in Tholing (see Gu ge Tshe ring rgyal po and Kalantari, "Guge kingdom-period murals in the Zhag grotto in mNga' ris, Western Tibet", this volume, Fig. 27, p. 420). This cave also contains the circular type of an aureole.

Interestingly, the main sculptures in the Lotsāba *lha khang* in Ropa (Ro dpag) in upper Kinnaur are also bipartite and high

[27] Luczanits (2005: 72) identifies the programme of this *lha khang* as a Vajradhātu *maṇḍala*.

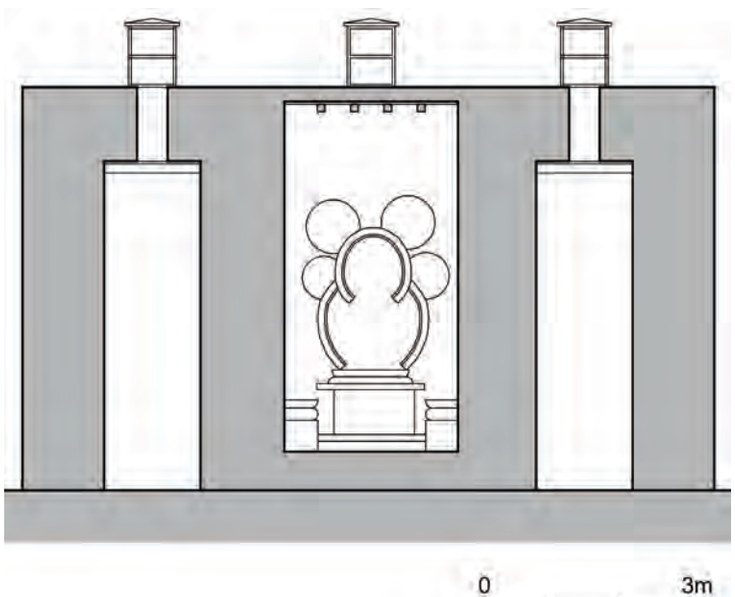
[28] Identification of the sculptures after Luczanits 2004: 36 and 37.

33. Basgo Vairocana *lha khang*. Aureoles along the west wall (H. Feiglstorfer, 2005).

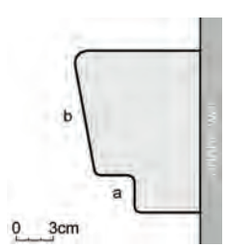
relief (Fig. 36), in contrast to those found further north in Spiti and Ladakh. Their outer bands are covered with flames in a naturalistic style, with both sides adjoined by a plain broad band in between a row of pearls. The shape of the aureoles in Lalung/Spiti behind Śākyamuni and Prajñāpāramitā follow the type found in the Tabo *dri gtsang khang* and in the Nyarma *'du khang* (Fig. 37).

The two examples of aureoles in Lalung have a tripartite ornamentation, with a band of *vajra*s adjoined by a band of pearls and a band of flames from the inside towards the outside. In Basgo, the temple known locally as Lotsāba *lha khang* is completely in ruins. Not enough of the aureole remains to make any further comment in this context. It is interesting to note that the upper part of this bipartite aureole seems to have been fixed to the wall with wooden sticks (Fig. 38).

At the temple site of Nyarma, clay aureoles can only be found in the *gtsug lag khang*. As clay aureoles are relatively rare in West Tibetan temples, and they must have involved considerable effort, they become somewhat special, being reserved for places of a high value, exemplarily in main temples. Although in Nyarma we can find remains of *upaśūla* fixing holes in temple IIIb as well as many of

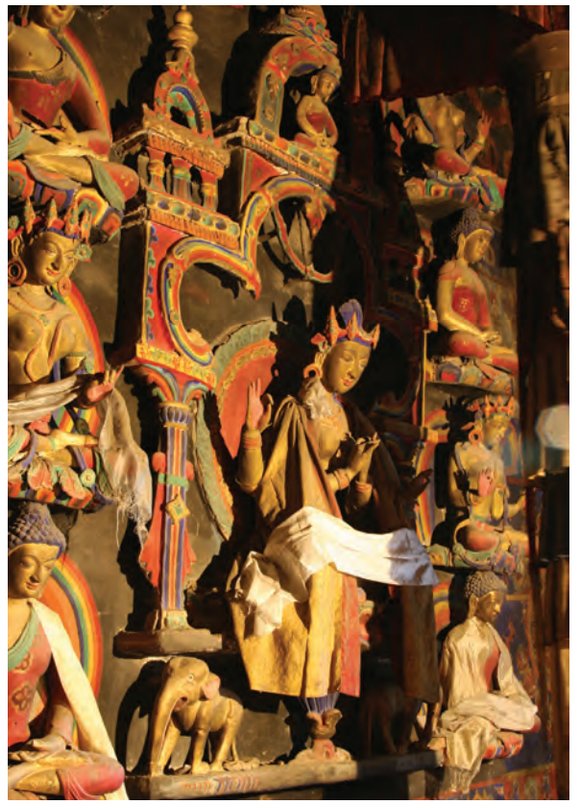


34. Tabo *dri gtsang khang*. Cross-section (H. Feiglstorfer, 2012). Central view towards the aureoles of the central Tathāgata in sitting position, flanked by the pedestals of Avalokiteśvara and Vajrasattva.



35. Tabo *dri gtsang khang*. Detail of a clay aureole (H. Feiglstorfer, 2012). Vertical section: upside is the outer boundary and downside the inner boundary of the aureole.
(a) ring of pearls, (b) ring of flames.

36. Ropa Lotsāba *lha khang*. Aureoles between statues in the central niche (H. Feiglstorfer, 2006).



37. Lalung gSer khang. Aureole surrounding Prajñāpāramitā (H. Feiglstorfer, 2006).

them along the inner wall surfaces in temple II, there are no existent aureoles in these temples. In the side *lha khang* along the southern ambulation path in the Nyarma *gtsug lag khang* the former fixing of statues to the wall is obvious, but also without any aureoles.

The aureole in the *dri gtsang khang* in Nyarma is oval and made as a single piece behind an earlier, no longer existent sculpture, probably behind the sculpture's head as the lower part of this aureole is open (Fig. 39). It is interesting to note that the clay was modelled on top of the lower layer of the plaster and not onto the bare wall. The tear line between the different layers of the plaster in the area of the aureole suggests they were added in one step (Fig. 40). This aureole is about 62/72 cm (width/height), with a modelled aureole rim about 12.5 cm wide and about 6 cm thick. In cross-section it appears approximately triangular and severely washed away. The degree of the decay suggests the *dri gtsang khang* was without roof for quite a long time.

The aureoles in the *'du khang*, on the eastern wall as well as on the western wall, are bipartite with a head part and a torso part, both open at the bottom (see Fig. 23). Although washed away they indicate that each flame was modelled in clay. After reconstruction, the aureoles on the western wall of the *'du khang* are about 65/65 cm (width/height) at the upper section and about 110/82 cm at the lower section and about 12 cm wide, and with an aureole rim between 2 cm thick at the outer edge and 5 cm at the inner edge (Fig. 41).

The aureoles flanking the entrance gate on the eastern wall suggest the two sculptures in front were huge, nearly touching the ceiling (Figs. 42 and 43). These aureoles are broader than those on the western wall. After reconstruction, the aureoles are about 74/87 cm (width/height) at the upper section and 160/206 cm at the lower section, whereas the lowest end of the aureole is still about 106 cm above floor level. The highest part of these two aureoles is an impressive 360 cm above the floor. The width of the clay modelling varies between the head and torso sections, at the head measuring about 10 cm and up to 8 cm wide and at the torso measuring about 15.5 cm and about 5 cm high. The aureoles are divided in two bands, the outer one decorated with a ring of flames. The ornamentation of the inner band is too worn to be identified (see Fig. 43).

38. Basgo Lotsāba *lha khang*. Fixing holes for the aureoles (H. Feiglstorfer, 2005).

39. Nyarma *dri gtsang khang* (H. Feiglstorfer, 2011). The only extant aureole in the *dri gtsang khang*, on the west wall between the pedestal and the today's ceiling construction.

40. Nyarma *dri gtsang khang*. Detail of the aureole described in Fig. 39 (H. Feiglstorfer, 2011).

The position of the aureoles mounted on the wall is high enough for pilgrims to pass below the sculptures (see Fig. 20 and Fig. 29: c).[29] This type was used in the *'du khang* of Tabo while those modelled on the western wall of the *'du khang* in Nyarma are too low to pass beneath.

The Outer Path of Circumambulation

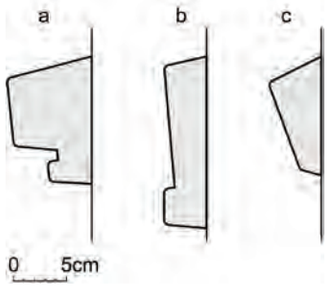
A circumambulation path, closed to its outside by a free-standing enclosure wall, leads around the *'du khang* and the *nang skor*. Today, only the southern section of this wall exists. The rest has completely disappeared. Opposite the *'du khang*, this enclosure wall has a projection formed as a niche. The front of the niche is closed by a recent brick wall, including two doors into a storage room covered with a flat roof. It is the only roofed section of this enclosure wall, which does not preclude the former roofing of the whole outer circumambulation path. Remains of wooden sticks for attaching statues to the wall emphasise that this niche was once a *lha khang*, and thus probably roofed.

As this existing section of the free-standing enclosure wall runs parallel to the wall of the *'du khang* and the *nang skor*, it follows the *maṇḍala* shape of the ground plan of the inner structure. After this wall, a Tibetan-style toilet has recently been built at the intersection of the *'du khang* and the *nang skor*. The coping of the section of the ambulatory wall opposite the wall around the *nang skor* has indentations that may mark the position of a former roof of this outer ambulatory.

The south-eastern corner of this enclosure wall includes a short piece of the western section of the wall. From here onwards towards the north and along the northern section no traces of this enclosure wall remain. In this case, Gergan's notes are helpful in reconstructing this missing section of the outer enclosure wall. He gives measurements of the course of the eastern and northern sections. After a reconstruction, according to Gergan's measurements we can state that the former course of the western section was built without any further wall projection and the course of the northern section was approximately symmetrical to the southern section, mirrored along the east-west axis of the whole *gtsug lag khang* (Fig. 44).

The outer ambulatory is slightly (≈ 30 cm) lower than the level of the *'du khang* and slightly higher than the level outside this ambulation path. This enclosure wall is about 310 cm high. If this ambulatory path were roofed, the walls of the adjoining *'du khang* would have been visible up to about one metre above the roof of the ambulatory, calculating the height of the *'du khang* as about 435 cm.

[29] This aspect of devotional tradition in a temple is discussed by Kalantari (2016) and by Gu ge Tshe ring rgyal po and Kalantari ("Guge kingdom-period murals in the Zhag grotto in mNga' ris, Western Tibet", this volume, p. 420).



41. Nyarma *'du khang*, three different types of aureoles (H. Feiglstorfer, 2012). Vertical sections: upside is the outer boundary and downside the inner boundary of the aureole. Details of clay aureoles along the east wall of the *'du khang*: (a) head-aureole, (b) torso-aureole, (c) detail of a clay aureole along the west wall of the *'du khang*.

42. Nyarma *'du khang*. Aureole on the east wall, flanking the entrance gate (H. Feiglstorfer, 2006).

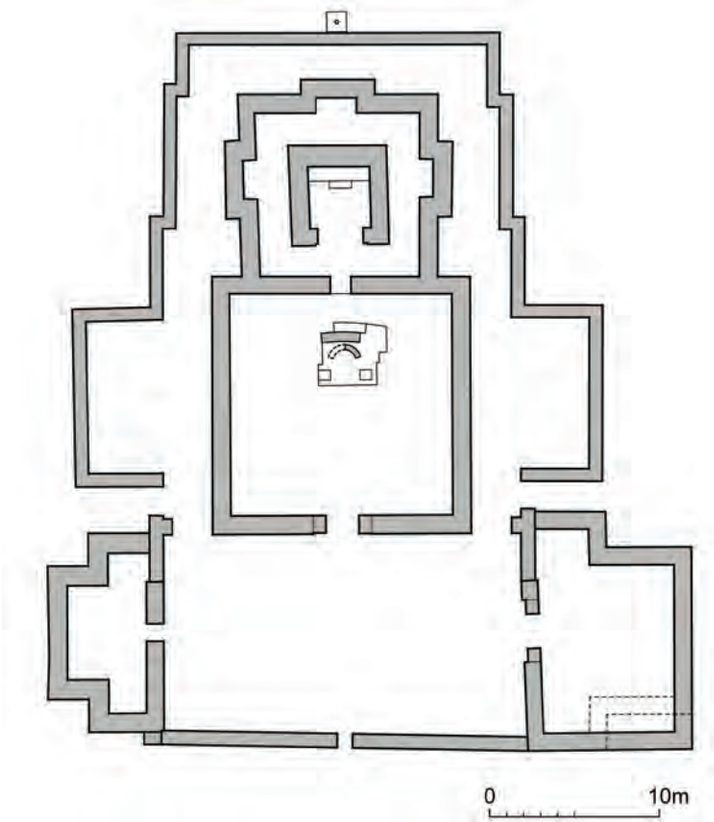
43. Nyarma *'du khang*. Aureole on the east wall, flanking the entrance gate in detail (H. Feiglstorfer, 2006).

The Courtyard

At around 290 cm to 300 cm, the distance between the outer walls of the *'du khang* and the walls around the *nang skor* on the one hand and the surrounding enclosure wall on the other is approximately the same along the whole existing section of the wall. The existing eastern projections of the southern and the former northern part of the wall are a similar distance from the outer course of the eastern wall of the *'du khang*. Both these ends of the enclosure wall have been integrated into two later additions probably as *lha khang*. The area enclosed by these two wall projections to the north and to the south as well by the eastern wall of the *'du khang* to the west must have been a forecourt of the whole *gtsug lag khang*, facing the lake in the east.

There are several holes for mounting any objects along the outer surface of the eastern wall of the *'du khang*, some of them still containing wooden remains of former suspension brackets (Fig. 45). As these holes are at about the same level and a similar distance from the doorway, the position of sculptures here, possibly covered by a roof, cannot be excluded, which would mean a quite extraordinary composition in comparison with other early West Tibetan temples. On the other hand, the whole arrangement of this forecourt, including the two openings towards an enclosed ambulatory, has no West Tibetan parallels. Compared to other early temples such as the Jo khang in Khorchag, the *gtsug lag khang* in Tholing and the *gtsug lag khang* in Tabo, which are horizontally organised in three parts—the *dri gtsang khang*, the *'du khang* and the *sgo khang*—in the case of the *gtsug lag khang* in Nyarma the *sgo khang* is missing. Temples II and IV in Nyarma both have two laterally flanking antae as parts of a former porch and as an elongation of the lateral walls of the *'du khang*.

It is interesting that the porches of these two Nyarma temples, temples II and IV, were integrated into the whole proportional concept of each of these temples. In a similar way the forecourt of the *gtsug lag khang* in Nyarma is also organised as a part of the *gtsug lag khang*, proportionally integrated in its whole structure. Constructive evidence at temples II and IV in Nyarma suggest their



porches were roofed. At the *gtsug lag khang* the evidence is not as clear. The distance of about 290 cm from the façade of the *'du khang*, which is similar to that between temples II and IV as well to the eastern wall projections of the outer ambulatory wall, would allow for a roof without the need for any supporting pillars.

Along the uppermost part of the eastern wall of the *'du khang* the plaster of the wall has broken off horizontally and the outer surface of the wall is further back. In addition, in places this upper zone has holes to support former wooden beams. If this were the roof zone it would be slightly lower than the roof of the *'du khang*, thus following a common feature of West Tibetan temples, especially the ones in Nyarma, by raising the level of the roof of the *'du khang* to the level of the roof of the porch (Fig. 46).

Imagining this porch of the *gtsug lag khang* in Nyarma with pillars approximately four metres high and a porch about 21 metres long, it must have had an imposing appearance. Although several of the early West Tibetan porches, like those at Alchi or Wanla are built in an exquisite manner, none of those appears as a peristyle of this kind. Today this forecourt is flanked by a *lha khang* to the north and south. The outer terrain along the eastern wall of the *'du khang* is slightly below the terrain inside the *'du khang* and slopes down towards the shore of the lake.

Assuming that the protections of the free-standing wall of the outer ambulation path define the front of the veranda, we can use approximately the same length of rafters as may have been used in the above-mentioned concept of a 20-pillar grid. In this case the position of the rafters would be similar to that of the rafters inside the *'du khang*. The rafters would further constructively correlate with the length of the eastern wall of the *'du khang* as well as with the position of the door opening (Fig. 47). This ideal reconstruction of the veranda in front of the *'du khang* is not shown in the three dimensional model as it is still too hypothetical. Hopefully, further archaeological surveys can solve this question.

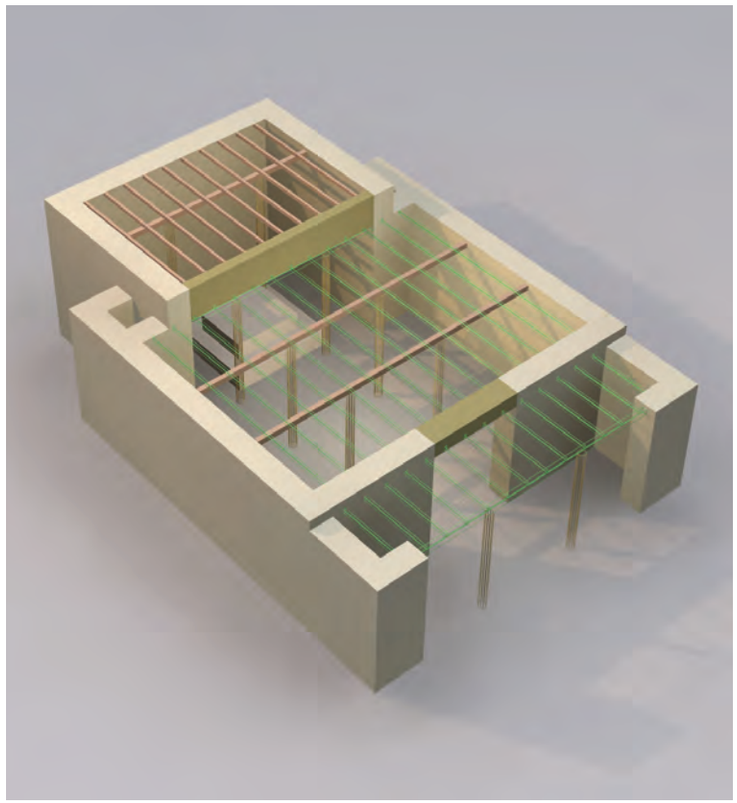
According to Gergan's notes this eastern courtyard was closed to the east by a wall, and he estimates the gate inside this wall as being 12 feet wide (see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 177). Traces of this wall can still be seen at its southern end. Today, both of these two *lha khang* remain as fragmentary ruins. Of the northern *lha khang* only, the southern and the western walls still exist. The southern wall has holes inside the *lha*

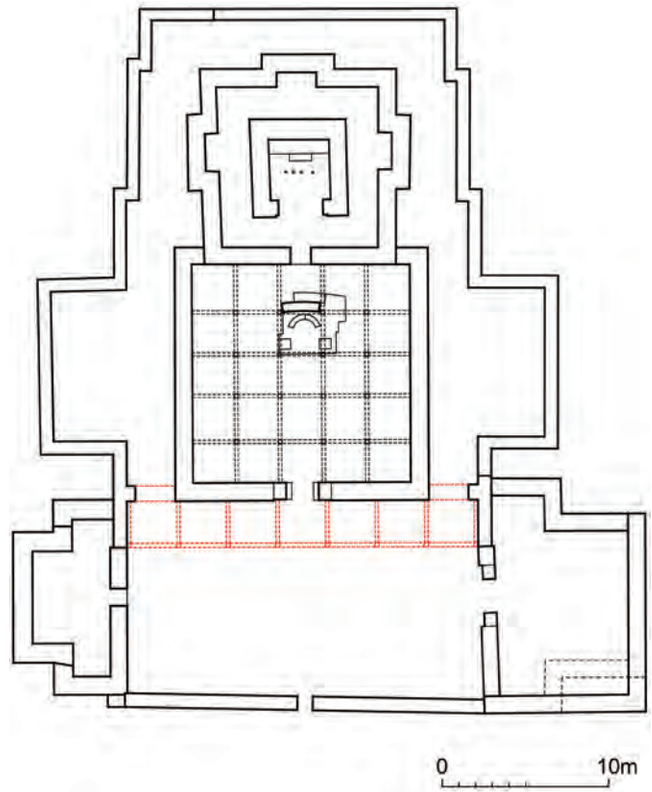
44. Nyarma *gtsug lag khang*. Reconstruction of the ground plan after Gergan (1917) (H. Feiglstorfer, 2012).

45. Nyarma *'du khang*. East façade of the *'du khang* (H. Feiglstorfer, 2006).

46. Nyarma temple IV. Reconstruction as 3D visualisation (H. Feiglstorfer, 2012).

47. Nyarma *gtsug lag khang* (H. Feiglstorfer, 2012). Hypothetical reconstruction of the veranda in front of the east wall of the *'du khang*: (bold red:) pillars, (dashed red:) beams of the veranda roof.





khang which can be associated with support holes for former wooden brackets for mounting sculptures. The south-western corner of this *lha khang* has a wall projection that forms a niche. The whole northern wall and the shape of the eastern wall of this *lha khang* can only be reconstructed hypothetically as there are hardly any traces left.

A hypothetical reconstruction of the eastern wall section follows the course of its western wall, mirrored along the north-south axis of this *lha khang*. According to Gergan's sketch and measurements (see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917" this volume, Fig. 16, p. 186), this niche exists only in the western wall of this northern *lha khang* but not in its eastern wall. The unplastered sections of the wall on either side of the doorway can be interpreted as traces of a former wooden doorframe.

Of the southern of these two *lha khang*, only some parts of the northern and eastern wall can be identified. The niche of the eastern wall is similar in form to the western niche in the northern *lha khang*. The only remains of the southern wall of the southern *lha khang* is a heap of earth. The reconstruction of this *lha khang* is similar to the reconstruction of the northern *lha khang*, mirroring its eastern niche along the north-south axis of this *lha khang*, always on the hypothetical assumption that this side temple was planned with a symmetrical shape.

The rDo rje chen mo *lha khang*

A new *lha khang*, nowadays commonly referred to as rDo rje chen mo *lha khang*, was built on top of the original walls of the *dri gtsang khang* and of the *nang skor* (most probably after 1842; see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, p. 175). The coping of the original walls had to be levelled in order to construct a new storey on an existing earth construction. Unfortunately, because of this later addition we do not know the original height of the walls of the *dri gtsang khang* and of the adjoining *nang skor*. The shape of the central *lha khang* on the second floor follows the location of the walls of the *dri gtsang khang* below.

The walls of this new storey were set flush with the outer boundary of the walls in the lower storey, continuing the sloping of the original walls. The new pillars on the first floor may have been necessary to support the pillars of the central chamber of the new *lha khang*

(Fig. 48). The cella niche of this *lha khang* is on the right above the doorway below. The niche in this *lha khang* contains a statue of rDo rje chen mo, today protected in a glass case, located in the east of this *lha khang* opposite the west-facing entrance. With the lantern on top of the roof of the central *lha khang*, the two windows and this proportion of a veranda on its western side, this *lha khang* follows a more recent type of architecture. The two pillars in the upper *lha khang* are located above the pillars and the beams below.

On its lateral sides this veranda is flanked by two other approximately square chambers, the southern one linked to another and bigger chamber. The northern chamber is used for butter lamps; the two adjoined chambers to the south are used as a store room and a kitchen. To the west the veranda can be accessed via a staircase. The two western projections of the veranda flanking the upper part of the staircase are located on the walls of the western niche of the inner ambulatory of the former construction below. This niche in the ground floor has been closed at the front to provide further support. The access to the staircase is located in a small forecourt enclosed by a wall. A gate to the west connects this forecourt with the surrounding garden and a doorway to the east, i.e. a hole in the former walls of the ambulatory which connects this forecourt with the central part of the original construction of the *gtsug lag khang*.

Constructive and Spatial Changes

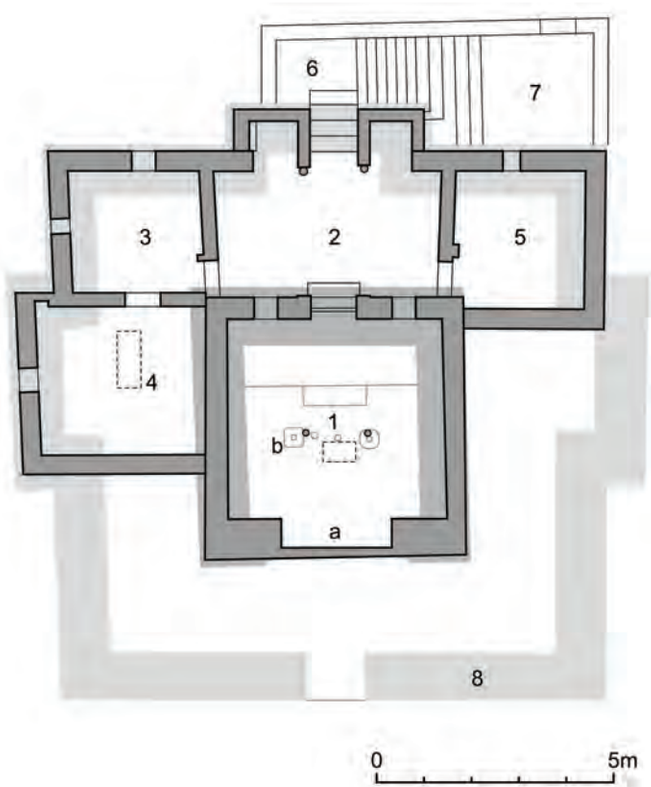
Alongside these many perceptions in the field of early West Tibetan temple architecture, which were enabled by the *gtsug lag khang* as a construction that was possibly never reconstructed or renovated, later changes give an insight in possibilities of later additions. As well as the already mentioned later additions of the forecourt to the east of the *'du khang* and of a second storey, one can find several other smaller important changes (Fig. 50).

As a transit gate from the ambulatory space to the staircase, the transition was enabled by breaking a hole into the western wall of this ambulatory path. (1) The space including the staircase to the upper storey was separated by the erection of a wall with an entrance gate. A small forecourt as a transition zone links the western access with the eastern *nang skor* via a passageway as a wall breakthrough, also as a later addition. (2) The opening into the *dri gtsang khang*, was reduced in its size by erecting a brick wall with a small door and a window. (3) According to several materials inside the former *nang skor* as well as inside the *dri gtsang khang*, recently these chambers have not been used for spiritual purposes rather than as a store room. The ambulatory around the *dri gtsang khang* was closed on the southern side by a brick wall which made its use as ambulatory path impossible and the former function as such was lost. (4)

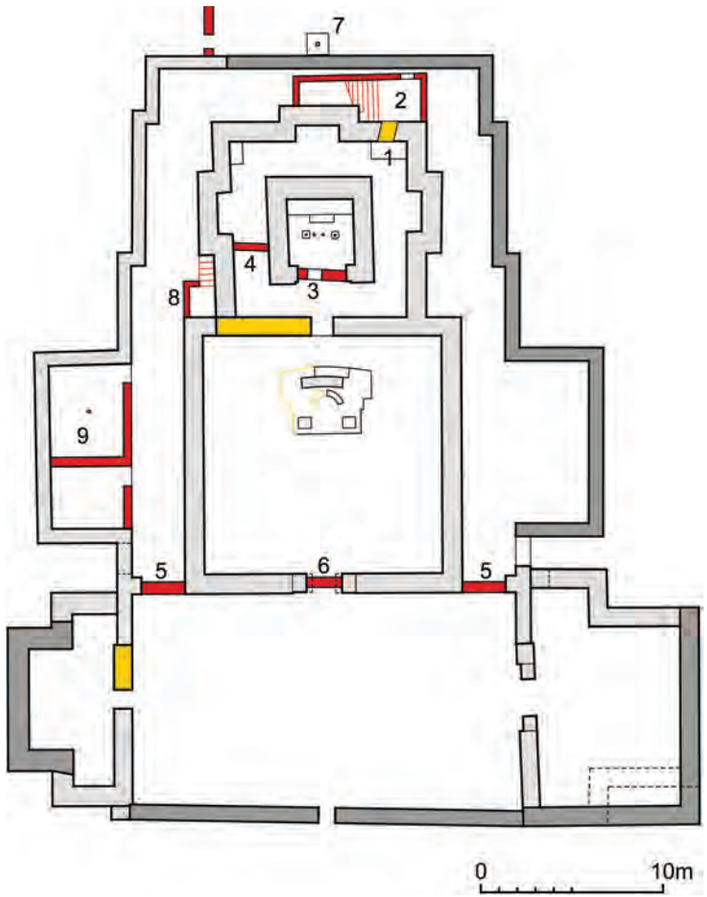
The outer ambulatory was closed at both eastern ends by a brick wall on either side in addition to the original wall projections. (5) This action must have been taken after Gergan's visit in 1917, the ambulation was then part of his description. After the ambulatory was closed it could no longer be used for its original purpose. The eastern gate of the central hall was closed with a brick wall. (6) This measure could only have taken place after breaking a hole inside the western wall of the ambulatory to enable a further access to the *'du khang*-area. A flagpole was erected in front of the steps on the western side of the *gtsug lag khang*. (7) As flag poles are generally erected in front of a *lha khang* rather than behind it, it was probably not on this side before the upper *lha khang* was built, as the *gtsug lag khang* originally faced east.

A Tibetan style toilet was built in the outer *skor lam*, at the intersection of the *'du khang*-walls and the *nang skor*-walls. (8) The *lha khang* along the outer *skor lam* was closed at the front and divided into two rooms, in the present state both used as storage rooms. (9)

At this point has to be stated that relatively high building precision was a specific feature of the early West Tibetan temples. Building the



48. Nyarma rDo rje chen mo *lha khang* (H. Feiglstorfer, 2012).
(1) *lha khang*, (a) position of the statue of rDo rje chen mo, (2) veranda, (3) kitchen, (4) store room, (5) butter-lamp room, (6) stairs, (7) forecourt linking the *nang skor* and the access from the garden, (8) light grey hatch and light grey lines: original structure of the *dri gtsang khang* and the *nang skor* in the ground floor.



49. Nyarma *gtsug lag khang* reconstruction (H. Feiglstorfer, 2012); (light grey hatch:) walls according to the present state of documentation, (dark grey hatch:) walls according to a reconstruction after Gergan (1917), (red hatch:) elements added in a later phase, (yellow hatch:) elements no longer extant, either because they were demolished or they disintegrated. (1) a hole broken into the western wall of the *nang skor*, (2) stairs and forecourt, (3) a brick wall with a small door and a window at the entrance of the dri *gtsang khang*, (4) closing the *nang skor* by erecting a brick wall, (5) the outer *skor lam* closed by a brick wall on either side in addition to the original wall projections, (6) the eastern gate of the central hall was closed by a brick wall, (7) a flagpole was erected in front of the stairs on the western side of the *gtsug lag khang*, (8) toilet, (9) additional walls in the side *lha khang*.

corners of these massive walls of clay bricks close to a right angle is a result of the geometric programme that the whole structure is based on. In this context the right angle has to be mentioned as a result of a superordinate geometric concept and is not primarily autotelic. The precision with which these clay structures are geometrically based indicates that the master builders and workers must have been highly skilled. The opposite can be seen in the above-mentioned constructive and spatial changes, which are all far from any precision in building and maintaining right angles.

The Vertical Shaping

With regard to the above-mentioned different levels of the several parts of the *gtsug lag khang*, i.e. the forecourt and the outer ambulation path and the *'du khang* and the *dri gtsang khang*, a continuous vertical shaping of the whole *gtsug lag khang* from its outer zones towards its central core, with the pedestal in the *dri gtsang khang* becomes apparent. The whole construction of the *gtsug lag khang* seems to have been built as several platforms at different heights along the level of the natural ground, which was actually the lowest level of the whole construction (Fig. 51).

A planning sequence according to a proportional system of each part of the building linked to the proportion and geometry of the *dri gtsang khang* was most probably the centre of a further proportional development. For a construction sequence of the several layers, the lowest level must have been erected first and finally the *dri gtsang khang*. Thus the setting of the marking points on the site, before starting the construction must have been decided and defined at the lowest level, followed by a complement of the marking points on each newly built level. A longitudinal section through the whole *gtsug lag khang* shows a rise in the individual layers between the lake on the one side and the garden on the other towards the spiritual centre, and gives it the appearance of an artificial temple mountain.

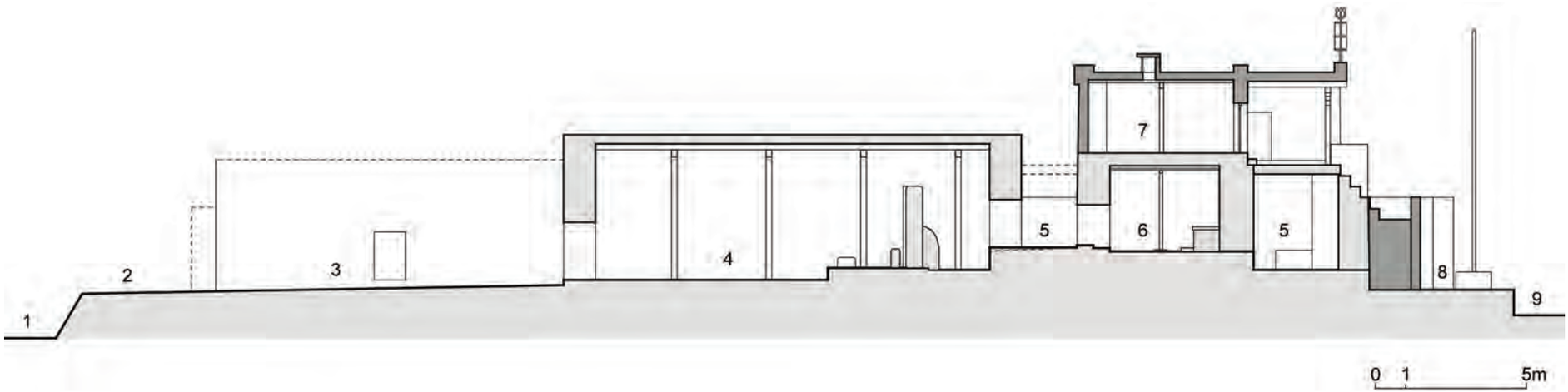
According to this work sequence, the whole proportional concept must have been fixed at the lowest level, the terrain, and then refixed at each level. For the master builder this process requires a precise knowledge both of the geometrical and proportional interrelations and the of related religious programme as well as the method of construction itself (Fig. 50).

This understanding would be indicative of the whole sequence of levelling the individual platforms having been planned as one geometric concept, not excluding the possibility that the *'du khang* and the surrounding structures of the *gtsug lag khang* were erected at a later stage.

The Circumambulation Paths

As the practice of circumambulation inside the *gtsug lag khang* is no longer possible because of the deliberate closure of the ambulation paths with brick walls, we are reliant on historical sources for the reconstruction of the former ambulatory concept. So far, the oldest available information according to a practice of *skor lam* in Nyarma is provided by Joseph Gergan's account, recorded in 1917 (see Jahoda, "Joseph Thsertan Gergan's report on Nyarma, 1917", this volume, pp. 177–178). This mentions four different ways of ambulating the *gtsug lag khang*, which today can no longer be followed owing to several later additional walls blocking the way (see Fig. 49). Although we cannot say that his remarks are completely identical with the ambulation paths used about a thousand years ago, they give a great insight into the way this temple was used by pilgrims for the ritual circumambulation. In his report he mentions four pilgrimage paths (cf. *ibid*.: 177–178) (Fig. 52):

(1) The inner ambulatory (*nang skor*) leads around the central core,



50. Nyarma *gtsug lag khang* longitudinal section and the vertical shaping (H. Feiglstorfer, 2011).
(1) lake, (2) lake shore, (3) eastern forecourt, (4) *'du khang*, (5) *nang skor*, (6) *dri gtsang khang*, (7) rDo rje chen mo *lha khang*, (8) former free-standing wall, today circumambulation of the flag pole, (9) garden.

namely the *dri gtsang khang*. Its path is defined by the course of the walls of the inner ambulatory. To reach this ambulatory one had to pass through the gate of the *'du khang*, which is on its eastern side.

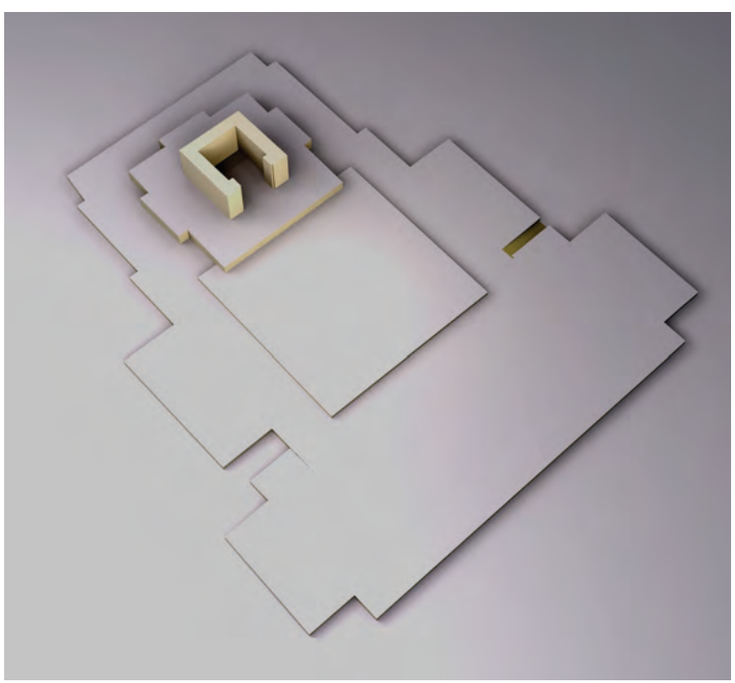
(2) The second ambulatory includes the ambulation along the inner border of the *'du khang* and combines it with the above-mentioned *nang skor*.

(3) The third ambulatory leads around the *dri gtsang khang* and the *'du khang*. To the south, the west and the north this *skor lam* was defined by the inner boundary of the free-standing enclosure wall. Parts of this path were possibly formerly roofed. To the east, this ambulation path passes the forecourt with the gate of the *'du khang*.

(4) The fourth ambulatory mentioned by Gergan surrounds the whole structure of the *gtsug lag khang* and is defined by the outer shape of the free-standing enclosure wall. For this *skor lam* he describes a passageway through an opening leading from outside the *gtsug lag khang* into the third ambulatory.

Gergan describes this as a narrow three by four foot opening (see Jahoda, this volume, p. 178) in the southern and northern sections of this free-standing enclosure wall. His description may explain today's slope in the terrain in the area of the passageway described in the northern section of the wall. In this context this slope may concern a former earthen stair or slope leading from the outside of the northern wall into the ambulatory around the central hall. The eastern section of this *skor lam* follows the course of the third ambulation path.

For the devotee, the *skor lam* is defined by the shape of the architecture that leads through the materialisation of a religious programme. The outer or inner shape of walls guides through this programme along its different levels. The number of ambulation paths



51. Vertical shaping of the single levels of the Nyarma *gtsug lag khang* (H. Feiglstorfer, 2011).
The individual zones of the circumambulation scheme described by Gergan (1917) follow the vertical shape of the "temple mountain". The levels described from outside towards the innermost core: Surrounding terrain – outer *skor lam* – *'du khang* – *nang skor* together with *dri gtsang khang*. This shape shows the innermost core, i.e. the *nang skor* together with the *dri gtsang khang* as a spatial unit, which cannot be excluded as having existed on its own in an early phase as an independent temple.

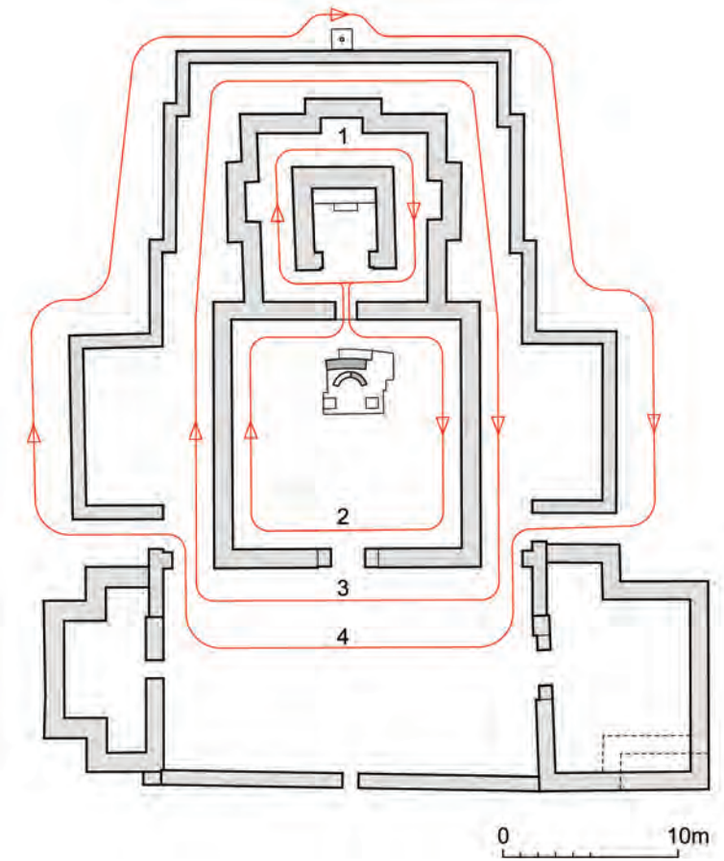
in a temple depends on the particular religious programme defined at the time of a temple's foundation.[30]

For comparison, in the *gtsug lag khang* in Tholing the inner ambulation path leads around the Vairocana sculpture in the

[30] Personal communication by Tashi Tsering at the 12th Seminar of the International Association for Tibetan Studies in Vancouver (August 2010).

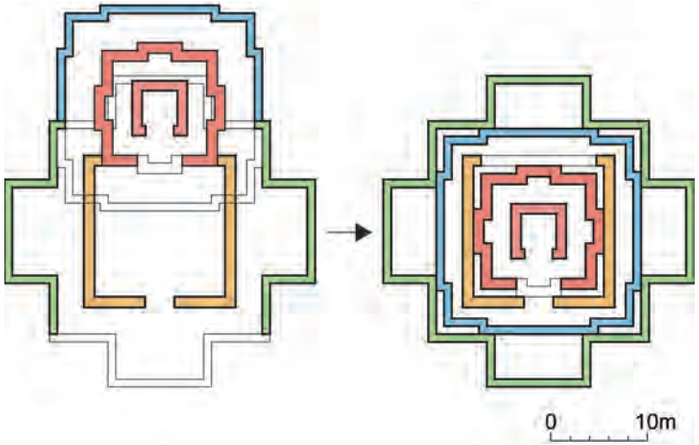
52. Nyarma *gtsug lag khang*. Circumambulation paths according to Gergan (1917) (H. Feiglstorfer, 2010).

53. Nyarma *gtsug lag khang*. Horizontal layering (H. Feiglstorfer, 2010).



central *lha khang*. A further *skor lam* leads around the pentalic core, passing the various *lha khang* of the brGya rtsa (see Vitali 1999: 79). In Tabo, today the *nang skor* leads around the *dri gtsang khang* and along the inner shape of the *'du khang*.[31] An ambulatory around the *gtsug lag khang* probably ceased to exist when the gap between the 'Brom ston *lha khang* and the *gtsug lag khang* was closed (see Fig. 6). In the Jo khang in Khorchag the innermost ambulatory leads around the sculptures of the Rigs gsum mgon po (or Jo bo dngul sku mched gsum, "Three Silver Brothers"). The circumambulation of the Jo khang along its outer walls is described locally as the *nang skor*. The *nang skor* in the lHa khang chen mo in Khorchag surrounds the innermost tripartite structure, the Byams pa (Maitreya) *lha khang* in the centre, flanked by the sGrol ma (Tārā) *lha khang* to its left and the *mgon khang* (Protectors' Temple) to its

[31] Based on information by Sonam Tsering, a local informant from Tabo (personal communication by Veronika Hein, July 2010).



right. Since several walls have been built it is no longer possible to follow this path.

In Nyarma the original circumambulation path (*pradakṣiṇapatha*) around the temple area follows the borders of a sacred space, and at this time was probably based on a new religious programme associated with new translations of tantric texts (for which the designation *gsar ma*, "new", or gSang sngags gsar ma, "Secret New Mantra", was coined), commonly considered as having started with the translation work of Rin chen bzang po (958–1055) (see Jahoda, "The foundation of the Nyarma *gtsug lag khang*, Ladakh", this volume, p. 284). These tantric concepts and practices have defined the architectural space of the temple plan. The location of the *skor lam* thereby at the same time becomes the concept of space for the popular movement of the devotee who becomes involved in the rhythm of a clearly defined spatial sequence.

Vertical Interlacing

Having described several architectural features of the Nyarma *gtsug lag khang*, namely the horizontal interlacing, the vertical shaping and the pilgrims' ritual of circumambulation, the question of a spatial model including all these aspects arises. The *gtsug lag khang* in general was built as a horizontally organised structure (see also Feiglstorfer 2010a: 126, 131 and 132).[32] Each of its individual parts

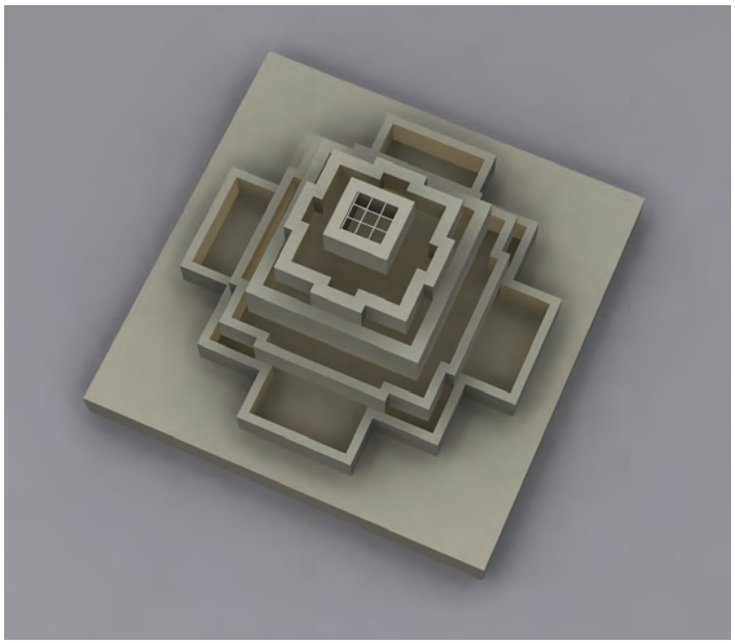
[32] The horizontal organisation of a centralised West Tibetan temple structure was discussed in Feiglstorfer 2010a in the context of a spatial development related to centrally organised structures such as the dBu rtse in Samye or the Somapura *vihāra* in Pāhārpur. The vertical interlacing including a description of the several components was presented by the author at the 20th EASAA Conference 2010 in Vienna. Prior to this a sketch was shown in Kozicz 2010: fig. 1 without giving any further empirically proven explanation. According to this sketch

fits into the shape of a concentric order. The size of the square inner ambulatory is linked to the size of the *dri gtsang khang* by using its modulus of a 3x3 grid. The square outer shape of the inner ambulatory, including its wall extensions, fits into the inner shape of the square *'du khang*. The inner border of the free-standing ambulation wall can be defined by the inner width of the *dri gtsang khang*, measured from the *dri gtsang khang*'s centre.

In the same way, the outer shape of the inner ambulatory fits into the inner shape of the adjoining *'du khang*, the outer shape of the free-standing enclosure wall around the inner ambulatory of the *dri gtsang khang* fits into the inner shape of the adjoining free-standing enclosure wall opposite the *'du khang* (Fig. 53). The two *lha khang* to the east fit into the whole structure as their geometrical centre is located on an equilateral triangle.[33] A similar interrelation between the *dri gtsang khang* and the two flanking towers can be found at the 'Du khang of Alchi. These geometrical interrelations are elements of several proportional interrelations. Their existence shows the interrelation of several layers in material form.

Interestingly, from a constructive point of view the two *lha khang* are obviously a later addition to the *gtsug lag khang*, but on the other hand they fit into this common geometrical concept. Raising the question of whether they belong to an original proportional concept or whether the original concept was extended by these two *lha khang* keeps the hypothesis alive that the whole proportional concept of the Nyarma *gtsug lag khang* is a succession of several structures in the following chronological sequence: *dri gtsang khang*—*'du khang* and outer ambulation path—two *lha khang* flanking the *'du khang* on the eastern side.

The several layers used for the concentrically horizontal shape find their parallels in the vertical shape of the structure of the *gtsug lag khang*. Each layer of the horizontal shape matches a particular level, which increases as it approaches the centre. From the lowest to the highest layer, the several horizontal zones can be mentioned as: the outer terrain—the outer ambulatory—the *'du khang*—the *nang skor* and the *dri gtsang khang* (Feiglstorfer 2011a II: 104, plan 33). Comparing these horizontal and vertical zones with the space



54. Vertical interlacing of the individual layers (H. Feiglstorfer, 2010). An hypothetical reconstruction of a *maṇḍala*-shaped space, following the vertical shape of the temple mountain given in Fig. 51 and the system of circumambulation as recorded by Gergan (1917).

used by pilgrims for their ritual circumambulation results in an interrelated accordance. The several zones described by Gergan can be described in the same spatial way, namely: the outer terrain—the outer ambulatory—the *'du khang*—the inner ambulatory and the *dri gtsang khang*. According to the vertical shape, the movement of the pilgrim rises towards the innermost centre.

Thus, the features mentioned show a proportional and geometrical as well as a functional interdependency according to a certain superordinate religious programme. The vertical interlacing of the several features shows the materialisation of a three-dimensional proportional structure in a horizontal order (Jahoda and Feiglstorfer 2010) (Fig. 54). This means that the individual layers of this structure are not built in a centralised manner, as can be found at the *gtsug lag khang* in Tholing, but that the layers of the centralised structure were organised horizontally beside and around each other. In this regard, we can note similarities between the *gtsug lag khang* of Nyarma and the one at Tabo but also with the *gtsug lag khang* at Tholing and the Jo khang at Khorchag (Feiglstorfer 2011a II: 95, plan 18).[34] This concept would also coincide with a superordinate tripartite sacred

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the theory leads to an obviously different result (see Feiglstorfer 2010a: 136). Kozicz refers to the geometric possibility of fitting several parts of the *gtsug lag khang* into one another and thereby creates a three-dimensional model (Kozicz 2007b, 2009 and 2010).

[33] This triangular geometry was shown as a sketch in Kozicz 2009: 18, plate 1.10 without any further explanation. In Feiglstorfer 2011a II: 103, plans 17, 28 and 29, the triangular concept is compared to temples whose layout has a similar feature of a triangular relation between particular parts of the guilding, i.e. the *gtsug lag khang* in Nyarma, the 'Du khang in Alchi and the Rameśvara temple in Ellora.

[34] The reconstruction of the original shape of the Jo khang in Khorchag shows a possible cruciform shape, not only of the exterior as it is today but also of the interior shape. See also the ground plan of the Jo khang by the author in Feiglstorfer and Jahoda (2012: 81).

concept over the territory of the early West Tibetan Empire, with the *gtsug lag khang* of Nyarma, Tholing and Khorchag as its centres. A possible association of these temples with Dīpaṃkara, Śākyamuni and Maitreya would refer to a superordinate religious concept (Feiglstorfer 2011b; see also Jahoda, "The foundation of the Nyarma *gtsug lag khang*, Ladakh", this volume, pp. 286–287), each temple characterised by its own proportional and geometrical concept. In a broader sense this concept may be mentioned as a basic structure for a further development in early West Tibetan temple architecture. By talking of a three-dimensional *maṇḍala*, if this was ever the intention of the master-builders, the *dri gtsang khang* could be understood as its central core on top of the spiritual mount embedded in a spatial and ritual concept as a part of a superordinate religious concept marking one of the three spiritual centres of the West Tibetan Empire.

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