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**The ancient corbelled buildings of Upper Tibet.
Architectural attributes, environmental factors and religious meaning
in a unique type of archaeological monument**

**Die frühen Kragsteingebäude des Oberen Tibet.
Architektonische Merkmale, Umgebungseinflüsse und religiöse
Bedeutung eines einzigartigen archäologischen Gebäudetypus**

ABSTRACT

This paper examines a unique form of prehistoric (pre-7th century CE) and early historic (650–1000 CE) architecture in Tibet consisting of all-stone corbelled buildings. Characterized by the use of corbels, bridging stones and stone sheathing to construct flat roofs, Tibetans in the highest part of their plateau began to build monumental edifices and residential complexes by the late first millennium BCE. Historical and architectural data indicate that these extremely robust structures continued to be produced even during the Tibetan imperium (ca. 650–850 CE). In addition to representing some of the largest corbelled buildings ever produced, these are situated at up to 5500 m in altitude, making them the highest permanent residences in the world.

The corbelled buildings of uppermost Tibet differ dramatically from Buddhist architecture in terms of their conception, design, construction and use. These massive windowless structures are set atop mountains or in other hard to reach locations, fully exposed to the elements and to the sky in one of the world's toughest climates. The semi-subterranean aspect of many structures suggests a chthonic dimension in the ideology related to their establishment. Dark, easy to heat, with low ceilings and small rooms, Tibetan corbelled architecture is womb-like in nature, asymmetrical in plan, and heavily improvisational in execution. It intensively exploits the topographical character of local sites, incorporating in situ boulders and cliffs into walls. On the other hand, Buddhist architecture is generally located at lower altitudes, has an axial plan, and interior spaces elevated above ground level. The Buddhist temple exhibits a formalism and symmetry borrowed from Indian tradition and imported to Tibet in the imperial period, beginning in the 7th century CE.

The differences in the architectural canons of native and Buddhist monuments in Tibet reflect great disparities in the religion, culture and society of their builders and users. These distinctions in the architecture of two major eras in Tibetan history are also discernable in the literary and oral traditions. Applying information from textual and ethnologic records affords a perspective on corbelled buildings that is complementary to empirical approaches to understanding these structures, furnishing a powerful tool for the interpretation of archaeological evidence.

KEYWORDS:

Tibetan archaeology, Tibetan architecture, corbelled stone construction, pre-Buddhist culture, Bon religion.

Conventions used in this essay

Essential Tibetan terms have been transliterated according to the system of Turrel W. Wylie (1959). Common Tibetan terms are presented in phonetic transcription. Their transliteration is given in brackets when first noted.

KURZFASSUNG

Dieser Beitrag untersucht eine einzigartige Form der prähistorischen (pre-7^{tes} Jahrhundert u.Z.) und frühgeschichtlichen (650–1000 u.Z.) Kragsteinarchitektur in Tibet. Im späten ersten Jahrtausend v.u.Z. begannen die Tibeter mit der Verwendung von Konsolen, Verbundsteinen und Steindeckungen von Flachdächern in den höchsten Gegenden der Hochebene und errichteten monumentale Bauwerke und Wohnanlagen. Historische und architektonische Daten belegen, dass der Bau solch extrem robuster Konstruktionen in der ‚imperialen Periode‘ Tibets (ca. 650–850 u.Z.) anhielt. Neben ihrer Bedeutung als die größten jemals errichteten Kragsteingebäude handelt es sich bei diesen in Höhen bis 5500 m errichteten Bauten global um die höchst gelegenen und permanent besiedelten.

Die Kragsteingebäude, welche sich in den höchsten Regionen des tibetischen Plateaus befinden, unterscheiden sich bezüglich ihrer Konzeption, Planung, Konstruktion und Nutzung sehr stark von buddhistischer Architektur. Die massiven und fensterlosen Bauten befinden sich an oberster Stelle von Bergen oder an anderen schwer erreichbaren Plätzen – den ‚Elementen‘ und dem Himmel völlig ausgesetzt, in einer der klimatisch härtesten Gegenden der Welt. Der teils unterirdische Aspekt vieler dieser Bauten verweist in Bezug auf deren Gründung auf eine ideologisch chthonische Dimension. Dunkel, schwer zu beheizen, mit niedrigen und kleinen Räumen ist diese tibetische Architektur Mutterleib-ähnlich, auf dem Plan asymmetrisch und in der Ausführung von einem improvisierten Charakter. Die topographischen Möglichkeiten des jeweiligen Ortes werden ausgenutzt und vor Ort befindliche Felsblöcke und Felsvorsprünge in Wänden werden in situ mit einbezogen. Andererseits wurde buddhistische Architektur generell in geringeren Höhen errichtet, bestimmt durch eine axiale Anordnung der oberirdisch angelegten Innenräume. Der buddhistische Tempel präsentiert einen Formalismus und eine Symmetrie, welche aus der indischen Tradition entlehnt und zur Zeit der imperialen Periode ab dem Beginn des 7^{ten} Jahrhunderts nach Tibet importiert wurden.

Die Unterschiede in den architektonischen Kanons zwischen nativen und buddhistischen Monumenten in Tibet spiegeln große Unterschiede in der Religion, Kultur und Gesellschaft ihrer Erbauer und Nutzer wider. Diese Unterschiede in der Architektur der beiden großen Epochen in der tibetischen Geschichte sind auch in literarischen und mündlichen Überlieferungen erkennbar. Die Verwendung von Informationen aus historischen Quellen und ethnologischen Aufzeichnungen ermöglicht – komplementär zu empirischen Ansätzen – einen besonderen Blick auf Kragsteingebäude, wodurch ein leistungsstarkes Werkzeug für die Interpretation archäologischer Zeugnisse zur Verfügung steht.

SCHLAGWORTE

Tibetische Archäologie, Tibetische Architektur, Kragsteingebäude, vorbuddhistische Kultur, Bön Religion.

INTRODUCTION

Along with Buddhism, aspects of the Indian architectural tradition in combination with a huge store of other Indic beliefs, customs and traditions were imported into Tibet starting in the 7th century CE. The introduction of philosophical, mathematical, constructional, artisanal and artistic systems of Indian origin strongly influenced the design and construction of monuments subsequently established in Tibet (on this diffusion of Indian culture in Tibet and its impact on art and architecture, see Snellgrove and Richardson 1968: 66–94). This led to the creation of a Tibetan vernacular architecture which persists to the present day. Later, in the 13th century CE, Chinese architectural conventions began to make a mark in Tibet. These further enriched the architectural canon of Tibet.

The advent of Indian architecture in Tibet did not occur in a vacuum: the plateau was already home to highly developed architectural and other technological traditions. Prehistoric Tibet (writing was introduced along with Buddhism) boasted a wide spectrum of monuments, both residential (for temporary or permanent habitation) and ceremonial (for burial, tabernacular and other non-domiciliary functions). Tibetan historical texts tell us that before the 7th century CE, the plateau was divided into a number of kingdoms or proto-states, each with its own linguistic and cultural identity. With the formation of the Tibetan empire in the 7th century under King Songtsen Gampo (Srong btsan sgam po), these various proto-states were united into a single polity, leading eventually to the homogenization of antecedent cultural and linguistic legacies (on the creation of an integral cultural entity recognizable as Buddhist Tibet, see Kapstein 2000).

According to Tibetan historical sources, it was the rulers of the proto-states of Central (Bod) and Upper Tibet (Zhang Zhung and Sumpa) who initiated the tradition of building 'god houses' (*sekhang*: *gsas khang*) and 'god castles' (*sekhar*: *gsas mkhar*) more than 2000 years ago (on these structures in the Tibetan literary tradition, see Haahr 1969; Bellezza 2008). Tibetan historical and ritual texts explain that these temples or religious centers existed in parallel with castles (*khar*: *mkhar*) and fortresses (*dzong*: *rdzong*). This linkage between religious and political architecture prior to the 7th century CE era mirrors the nexus of chief priests and royalty also described in Tibetan literature.

Tucci (1973: 75) attributes the origins of military architecture in Tibet to conflicts between the royal family and aristocracy, struggles for land and grazing rights among powerful families, and

the emergence of local overlords. While internal conflicts do indeed seem to partly account for the establishment of defensive installations in pre-Buddhist Tibet, protection from external threats, especially in frontier regions of western Tibet, may also have been a critical factor.

In the Central Tibetan proto-state known as Bod few traces of pre-Buddhist religious and political residential complexes appear to have survived, at least in their original form. Tucci (1973: 73–74) reports that structural evidence from Ombu Lagang ('Om bu bla sgang), reportedly the residence of Tibet's first king, Nyatri Tsenpo (Gnya' khri btsan po), suggests that it was rebuilt several times. A more detailed account of ancient citadel construction in Central Tibet is provided by Snellgrove and Richardson (1968: 51):

'The traditional sites of many ancient castles are known, but only one of them is anything more than a heap of ruins or an obvious later reconstruction. This one is Yum bu bla sgang (*sic.*), by repute the home of the kings and the oldest dwelling house in Tibet. This may well be an authentic survival from the seventh or eighth centuries, and the name Om bu Tshal occurs in the Tun-huang Annals in connection with royal residences in that area. The tower recalls the defence-towers with which the southern part of Tibet is scattered. The interior has been converted into a chapel and the golden pinnacle is certainly a later addition, but the stone-work is indubitably old'.

Despite the poor state of preservation of ancient Central Tibetan buildings, in the last 20 years, a surprisingly large range of pre-Buddhist residential monuments have been documented in Upper Tibet (comprised of the Stod and Changthang regions of the western and northern plateau: see Bellezza 1997; 2001; 2002; 2008; 2011; in press-a; in press-b, etc.). The main factor accounting for the relatively good physical condition of certain ruins in Upper Tibet appears to be the complete abandonment of many ancient sites long ago. Beginning perhaps even before Tibet's imperial period (ca. 650–850 CE), colder and drier conditions were ostensibly the primary mover in the dereliction of early residential sites. Nevertheless, paleoclimatological and geomorphological studies on a site by site basis are required to properly gauge the impacts of desiccation and contextualize them in an archaeological sense. Moreover, a complex mix of cultural, political and demographic factors also seems to be at play in the desertion of numerous



Fig. 1

Fig. 1:
The exterior of a smaller corbelled building that has retained much of its all-stone roof, located on the insular site of Do Dribu (Do dril bu).



Fig. 2

pre-Buddhist castles and temples in Upper Tibet (for further information, see Bellezza 2008).

THE PHYSICAL CHARACTERISTICS OF ARCHAIC CORBELLED RESIDENTIAL ARCHITECTURE OF UPPER TIBET - SURVEY METHODOLOGY: WHEN, HOW, BY WHOM?

One of the most distinctive types of pre-Buddhist or archaic architecture in Upper Tibet is the all-stone corbelled building. These structures demarcate the bounds of a vast upland territory. Along with funerary monuments distinguished by standing stones, corbelled architecture defines the ancient built landscape of Upper Tibet, which can be associated with the proto-state or kingdom of Zhang Zhung (on historical and archaeological questions regarding the identity of Zhang Zhung, see Bellezza 2013; on the existence of corbelled residential architecture in central Tibet, see Bellezza 2010a). A few all-stone corbelled buildings have also been identified in Ladakh, a western fringe region of the Tibetan plateau that appears to have had some connection to Zhang Zhung (Bellezza 2013).

More than 100 sites, each with between one and 30 all-stone corbelled structures, have been surveyed by the present author since 1992. This contribution focuses mostly on a subset of these intriguing buildings: those not sited on the summits of hills and mountains. From their inherently more vulnerable location, we might infer that such structures did not primarily function as military or defensive installations.

Tucci (1973: 64) reports that according to ancient Chinese sources, Tibetans led a pastoral and nomadic existence without fixed settlements in ancient times. However, as the archaeological evidence demonstrates, this was clearly not the case for all Tibetans. In fact, agriculture and fixed abodes were widespread in Central and Upper Tibet. One might conclude therefore that the Chinese were not very familiar with the cultural and economic patterns prevailing in ancient Tibet, or that their accounts purposely distort its achievements. Indeed, the archaeological evidence brought to light thus far shows virtually no Chinese cultural imprint in Central and Upper Tibet before the 7th century CE.

The earliest calibrated radiocarbon date for organic material discovered in an Upper Tibetan corbelled building is circa 200 BCE to 100 CE (Bellezza 2008: 36–37). The sample, a small round of wood, must have been cut in the same timeframe as its use and deposition in a semi-subterranean dependency of a fortress known as Gekö Kharlung (Ge khod mkhar

lung). Other organic remains recovered from excavated domiciles in western Tibet, with a ground plan not unlike those of corbelled structures, have yielded calibrated dates of circa 550–100 BCE (Aldenderfer 2003: 8). On the other end of the chronological spectrum is Tibetan literary and archaeological evidence, suggesting that rudimentary corbelled structures (stupas and shelters) were constructed in Upper Tibet and Ladakh until at least the 11th century CE (Bellezza 2010b). Chronometric analysis of corbelled architecture in the region is still very much in its infancy. Origins around 1000 BCE or perhaps even earlier can be entertained on cross-cultural grounds, but for the time being this dating remains speculative.

Extreme altitude characterizes geographic settings in which the corbelled buildings of Upper Tibet appeared. These sites range from 4500 m to 5500 m in elevation, representing the highest residential structures ever built. When not situated on summits, most sites were placed in high valleys, in towering rock formations or otherwise hidden well above the broad plains and basins that unfold over most of the vast region. Corbelled buildings were located relatively near sources of potable water. Conversely, ancient funerary sites in Upper Tibet are usually found in waterless plains and valleys unfit for human settlement.

The altitudinous loci of corbelled architecture contrast with those of later Buddhist monuments in Upper Tibet; these are consistently situated at lower elevation. For example, at the famous pilgrimage place of Mount Tise in southwestern Tibet, Buddhist monasteries generally sit at the foot of the holy mountain, far below the corbelled building sites. Tucci (1989: 167) notes that almost all early Buddhist temples in western Tibet were established in bottomlands. Denwood (1998: 146) adds that these temples were often founded in or near agricultural settlements.

The use of corbelling to create arches and roofs is of course known widely in Europe, North Africa and the Levant, from the 5th millennium BCE until fairly recent times (for surveys of this architecture, see, for example, Löbbecke 2012; Junavec 2000; 2003; Shadi 2012). Nevertheless, it was only in the 1990s, that corbelled buildings were first reported in Tibet by the present author. Tibetan corbelled structures have unique architectonic traits, distinguishing them from their western counterparts.

The cultural genesis of corbelled architecture in Upper Tibet is still an open question. While some classes of artifacts (excavated and without provenance), mortuary monuments, funerary ritual

Fig. 2: The foundations of Arpo Dzong (Ar po rdzong), an all-stone corbelled stronghold near the shores of Lake Dangra (Dang ra). This structure is approximately 20 m in length.



Fig. 3



Fig. 4

traditions and rock art point to extensive links between Upper Tibet and other regions of Inner Asia (especially in the Bronze Age and Iron Age), not much headway has been made in tracing the origins of corbelled buildings. If their appearance was the result of a process of diffusion, neighboring territories with comparable architecture should be documented but no such record, save for in Ladakh, has yet surfaced.

In order to better appreciate the design and construction of corbelled buildings in Upper Tibet, let us consider their tectonic shell (façade, walls, floor and roof), the corporeal element, as well as the noncorporeal element of color, light and enclosed space. This manner of understanding the fundamental qualities of a built structure was proposed by Frankl a century ago (1968: 1–3), and it has remained important in architectural theory to the present day.

Perhaps the most conspicuous feature of corbelled buildings in Upper Tibet is the flat roof. The corbelled arch or pseudo-arch was never perfected in Tibet. Rather, irregularly-sized corbels were employed to support bridging stones that span walls diagonally and perpendicular to their axes. These stone members are 50 cm to 2 m in length. It is not uncommon for the corbelling and bridging stones to overtop one another to form three or four successive layers. The prolific use of wall buttresses to create room partitions (alcoves and nooks) helped to expand the size of rooms further but only marginally so. As the horizontal plane remains dominant, internal spaces are small and constrained (generally 2.5 m² to 10 m²). With rare exception, no attempt was made to build upward with courses of corbels installed in a regularized pattern to fashion peaked or domed roofs.

A well developed ensemble of corbels and bridging stones was essential to support the extremely heavy roofing materials. These consisted of slabs of stone that sheathe the bridging members. Roofing stones was covered in gravel, clay and other materials to weatherproof structures. It is possible that Tibetan 'cement' (*ar ga*) was developed in pre-Buddhist times to seal roofs, but this remains to be confirmed. Some roofs are fitted with one or more round openings, flanked by a symmetrical array of sheathing stones. These small apertures presumably functioned as smoke holes and may have admitted light and air into cells. Although Tucci (1973: 64, 73) states that early Tibetan literary sources speak of flat-roofed houses of the same type as the present day, the structures to which he refers have wooden, not stone roofs.

Walls, too, are eminently well adapted to the great

weight they must bear. Of a random-rubble texture, these contain variable-sized blocks and slabs, some of which were worked. Sandstone, granite and variety of metamorphic stones were used. In addition to dry-stone constructions, the seams of some walls were filled with a clay-based mortar. Walls tend to be massive (50 cm to 1.2 m in thickness) and the stonework very competent, as would be expected in such constructions.

Another conspicuous feature of Tibetan corbelled structures is their sheer size, with single buildings up to 65 m in length documented, as well as clusters of structures as large in area as a soccer field (for photographs of sizable corbelled structures and complexes, see Bellezza in press-a, etc.). Large scales were attained by interconnecting multiple structurally self-contained units to form single edifices. While the internal dimensions of individual rooms never exceeded 12 m², they were juxtaposed against each other as the nuclei of integral structures. The various rooms of a building were accessed through vestibules, internal doorways, or were clustered in separate sections with separate entranceways. As each room or unit of rooms within a building was structurally independent, there was no design imperative for long straight expanses. Outer walls therefore tend to be bowed, serpentine or otherwise non-rectilinear.

As might be expected in a style of architecture where the horizontal plane was accented, façades (exterior elevations) tend to be low-lying affairs, which do not exceed 5 m in height. Chiefly on account of their tremendous weight, the corbelled buildings of Upper Tibet are never more than two stories in height, and such structures are uncommon. Additional stature was provided by high retentions and foundations, which were required to level out the rocky mountain terrain, and to furnish a sufficiently stable and strong base for the extremely heavy superstructures. The vertical plane or elevation of buildings was further enhanced by splitting them between two or three levels on steep slopes. Also, structures were frequently superimposed on top of one another along cliffs and rocky spines, with complexes reaching 100 m or more in height.

The doorways of corbelled buildings, like all other basic constituents, are of a stone composition. Entrances are normally diminutive (70 cm to 1.2 m in height), giving rise to folktales of buildings having been built and occupied by a race of dwarfs (*ba lu*). Most corbelled buildings are windowless or contain an odd small aperture. Living in a house without windows affords a different perspective on the world than one with them. Dark and easy to heat with low ceilings, the cells or chambers in these edifices have a womb- or cave-like quality. The

Fig. 3:
Typical arrangement of corbels and bridging stones in an ancient all-stone residence of Upper Tibet.

Fig. 4:
In this image corbels, bridging stones, stone sheathing on the roof, and a stone lintel over an entranceway are all visible. Do dril bu, Lake Teri Nam Tsho (Bhira ris gnam mtsho).

highly enclosed and sheltered ambience of rooms is increased by the semi-subterranean aspect of many buildings (on ancient temples as an eschatological womb, tomb or cave, see Wightman 2007: 910–912). Most entranceways face east or south, with warmth and the importance of the sunrise potential explanatory factors. The doorways of Tibetan Buddhist temples, houses and tents are also usually in the east and south.

As for the element of color in the corbelled residences of Upper Tibet, aside from the hue of different stones, this may have been represented by mineral pigments (oxides of iron, manganese and calcium, etc.) used to paint over plaster adhering to walls. If religious monuments of the last millennium are anything to go by, the walls of archaic edifices were colorful affairs. There is faint evidence in some structures that rooms were enrobed with whitewashed plaster, moderating the severity of internal spaces where sunlight never reaches.

While the movement of the sun appears to be behind the axial plan of various ancient funerary pillar sites in Upper Tibet (see Bellezza 2008; in press-b), most corbelled residential structures lack a strong sense of axiality. Many are essentially nonaxial in plan, although a few buildings have an axial corridor in one tier or section. This lack of axiality comes from the organic manner in which individual compartments or units of compartments are appended to one another without any obvious central space or other internal organizing structure.

A significant minority of corbelled buildings are more or less aligned in the cardinal directions. This may possibly reflect conformance to the solar trajectory at specific times of the year, such as when the foundations were laid (on the importance of the path of the sun in ancient sacred architecture, with sunrise and sunset serving as a potent locative axis, see Wightman 2007: 980). Most structures, however, accommodate themselves to the exigencies of the local terrain, in which steep slope gradients, vertical rock faces and boulder strewn surfaces regularly play a part. It is possible that some, if not most complexes, were oriented or self-referenced according to local aligners such as a sacred mountain, rock formation or cave, or some more metaphorical environmental quality, but these kinds of orientations are inherently difficult to determine.

ASSIGNING FUNCTIONS TO THE CORBELLED ARCHITECTURE OF UPPER TIBET

While the positivist school in architecture has demonstrated how specific types of construction are localized according to climate, natural resources, availability of materials, and other environmental restrictions, the differentiation of architecture worldwide proves that an understanding of specific cultural, social, economic and religious structures is essential in assigning functions to it (on this matter, see Guidoni 1978: 8). For example, Buddhist monasteries may be situated high above water supplies, not an obvious choice of location, in order that they may conform to Buddhist geomantic principles (for a specific case study, see Powers and Templeman 2012: 60–61).

The Tibetan textual tradition (particularly that of the Bon religion) assigns many locations in Upper Tibet with religious significance. These places are supposed to have been the haunts of great saints and adepts, and to be where great temples

and hermitages of the *sekhang* and *sekhar* type came up. Fortunately, some ancient locations have retained their old names and coincide with the existence of corbelled building complexes. The textual evidence is very attractive not only because it pinpoints locations where ancient religious activity is said to have taken place, but also because it weaves colorful and intriguing tales around these places. Nevertheless, we cannot accept such sources as necessarily authoritative, for in many cases they were not written as historical chronicles per se, but to legitimize and glorify past events and personalities, as examples of ideal conduct, and for exemplifying the metaphysical and mystic.

Pre-modern Tibetan historiographic methods in which faith, myth and sectarianism predominate may significantly alter the historical complexion of sites, impairing the value of source materials as interpretive tools for understanding Upper Tibetan archaeological evidence. Similarly, Fogelin (2007) referring to materials taken from Hindu and Buddhist tracts, concludes that they can distort the interpretation of archaeological evidence from the Indian Subcontinent.

By its nebulous yet pervasive nature, the study of religion in the archaeological context is a formidable enterprise, and the methods proposed in such study engender much debate. Kyriakidis (2007) calls for a rational approach that eschews the extremes of the 'fertile imagination' and the denial of ritual as a relevant field of study. This call for moderation is a good departure point for inquiry into the functions of corbelled buildings as tantamount to the *sekhang* and *sekhar* of yore. For various studies that grapple with the challenges of discerning religious activities, objects and concepts in the empirical record, see Biehl et al. 2001; Garwood et al. 1991.

For Tibetologists and others familiar with Tibetan religion, past and present, the angst that religion has engendered in the field of archaeology might seem a bit out of place. As many observers have commented, religion, namely Buddhism and Bon, infuses virtually every aspect of life in Tibet, from the way in which an arrow is fletched to the pasturing of livestock. We might extrapolate from this, then, that archaic religion in pre-Buddhist Tibet also exercised a huge influence on all facets of ancient life, but this would be a huge jump and one that cannot be sustained on its own merits alone. We must look past the Tibetan textual and ethnographic records to verify that corbelled buildings in Upper Tibet did indeed have religious functions. Part of the problem in identifying religious phenomena at archaeological sites is that there is still no widely accepted comprehensive definition of 'religion'. It is generally agreed that it encompasses an extremely wide range of ritual behaviors, ideological structures, and cognitive, emotional and other psychological processes. Indeed, there is a growing realization in archaeology that religion permeates many aspects of human life, from the economic, political and technological spheres to the social and cultural domains. Insoll's thesis (2004) that religion influences all aspects of human life, requiring study and analysis using interdisciplinary approaches, is on target, at least as regards Tibet. Pursuant to Insoll, Rowman (2012) takes it as axiomatic that human beings are compelled to give concrete forms to the immaterial or spiritual dimension of life.

Insoll (2004) observes that ideological aspects of religion are usually considered as reproducing or reinforcing a preexisting social order, not as a

potentially transformative force acting upon societies. Likewise, Droogan (2013), in his appraisal of Marxist, Durkheimian, processualist and post-processualist perspectives, maintains that religion must be viewed as more broadly based than the commonly held social functions of facilitating communication, cohesion and order. Insoll (2004) criticizes the neglect or naiveté associated with religious phenomena in archaeology. He (ibid.) also convincingly critiques the reductionist and essentialist approaches to religion, debunking the notion that there is a one-size-fits-all universal phenomenological experience or unchanging collective meaning.

Renfrew (1985: 19–20) is widely acknowledged as helping to reintroduce religious structures and phenomena into discourses about archaeological materials, a field until that juncture appropriated mostly by those espousing Marxist or secular ideologies and processualist methodologies. In the criteria he set out for this purpose of relevance to the Upper Tibetan archaeological record, are the following (with local examples provided):

1. Selected place for religious practice will have particular facilities (e.g., altars, benches, hearths, bays, sequestered chambers)
2. Possible location in a special natural setting (e.g., caves, mountaintops, lakeshores, cliffs, hidden valleys)
3. Large investment in wealth and resources may be reflected in structure itself (corbelled structures of considerable economic expenditure and engineering skill)
4. Use of special buildings set aside for religious functions (monumental structures in contradistinction to tents and other portable shelters)

Criteria for discerning religious centers in Upper Tibet more broadly include evidence of a textual, folkloric, epigraphic, artistic, geographic, and structural nature. (for a general discussion on identifying sacred architecture, see Wightman 2007: 898–904). These criteria when viewed in tandem convincingly indicate that at least some of the corbelled buildings of the region had religious functions (in the description of sites below, these benchmarks for determining religious architecture are considered further). Even when one or more of these criteria can be discerned in the archaeological record, this does not necessarily mean that such structures had an exclusive function as centers of ritual (stylized, repetitive and formalized behaviors), and non-ritual (visualizations, immersion, possession, rapture) activities. As Wightman (ibid., 899) notes, architectural hybridization may obscure the identification of cult sites. The reverse is also true: religious structures may obscure utilitarian functions.

It remains to be determined how the corbelled buildings of Upper Tibet were organized and occupied. According to Tibetan literary tradition, the *shen* (*gshen*) and *bon* priests formed the sacerdotal backbone of archaic ritual traditions. It was these priests who purportedly resided and worked in the ancient *sekhar* and *sekhang*. Tibetan literature is replete with interesting descriptions of the *shen* and *bon* and their incredible feats and lives. In understanding the makeup of ancient households, Allison (1999) judiciously maintains that domestic activity and organization vary in different periods. We can not expect that textual or ethnographic parallels will with perfect fidelity explain who lived in the corbelled buildings of Upper Tibet.

There are complications incumbent in correlating textual materials to archaeological resources, as the former may be restrictive in scope and biased towards elite personalities and activities. In any case, domestic architecture is inherently difficult to correlate to household composition (the fundamental social unit and hub of social agency).

One way of reading corbelled buildings in Upper Tibet is to see this sophisticated architecture as embodying sacred spaces used in clan or tribe based religious rituals, those conducted by professional priests in specialized structures. This would be more in keeping with how the *sekhang* and *sekhar* are envisioned in Tibetan literature. Yet, much of religion the world over is family based and practiced at home. Hence these structures may possibly also be read as having a far less exclusive remit, functioning essentially as domestic centers of activity. As there are no central cellae, sancta or halls in Upper Tibetan corbelled edifices, there are few architectural cues in their plans to help decide whether they were occupied by a priestly corps, biological families or other types of households. Much depends on the level of social complexity informing the structures and their usage. The five well established fundamental indices of complexity in society are: political integration, social stratification, population density, community size, and agricultural dependence. These factors surely affected residential patterns associated with corbelled architecture but in ways that are still not well understood.

Wightman (2007: 898, 899) recognizes that in societies lacking a notion of the profane and the sacred, those with a more egalitarian sharing of ideas and resources, the dichotomy incumbent in built temples is largely unnecessary. In such elementary societies there are holistic views concerning the mundane and the divine. On the other end of the social continuum, societies that are hierarchical and with a small centralized elite tend to have strong ideas about the sacred and the profane. In these complex societies, religion is likewise hierarchical, characterized by personnel and spirits with specialized functions. Nevertheless, postulating a sacred/profane dichotomy may obscure the apparent ubiquitousness of religious phenomena in all phases of Tibetan history. Here it is again worth mentioning two volumes of collected works of post-processualist and postmodern methodological persuasion (Biehl et al. 2001; Garwood et al. 1991), which call into question the fundamental dualistic scheme of the sacred and the profane in the archaeological record, going some distance to dispelling such appositions.

In attributing the workforce that built ancient monuments in Central Tibet to part-time craftsmen, who also had to attend to subsistence activities, Snellgrove and Richardson (1968: 50) describe a hallmark of what in archaeological parlance is called a 'middle range' society:

'The common man was farmer and herdsman. He built the castles and raised the royal funeral mounds. He made earthenware pots and metal vessels and figures of animals. He made tents of felt and armor of leather and metal, which he wore in campaigns on distant battle fronts. His wife helped look after the fields and the animals, and wove the woolen homespun...'

Generally speaking, primitive societies tend to have

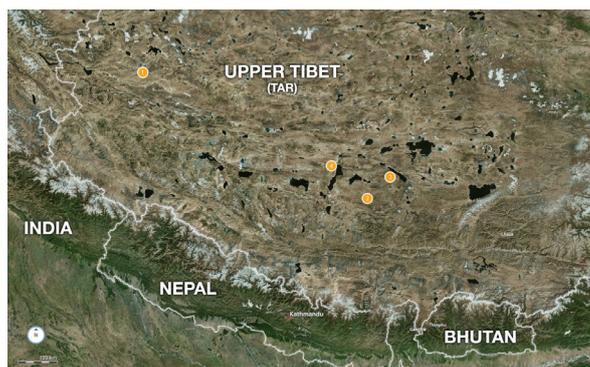


Fig. 5



Fig. 6

little craft specialization while complex state-level societies have sectors of society involved in full time production of material goods and monuments. While the matter remains to be fully resolved, for middle range societies, due to conflicting signals in the archaeological record, Bagwell (2006) questions the assumption that increasing social complexity always gives rise to increasing craft specialization. Similarly, the degree of social complexity represented in the corbelled architecture of Upper Tibet is ambiguous. The society that constructed these structures while having highly developed citadel communities, did not possess true urban settlements reflective of great social complexity. Nonetheless, the use of a full complement of metals and a wide range of other materials by the early first millennium CE at the latest, indicates a considerable degree of social and cultural sophistication (on this material culture in western Tibet, see Bellezza 2012). A level of refinement is reinforced by copious accounts in the Tibetan literary tradition. Given these qualities, it seems therefore that Snellgrove and Richardson's characterization of ancient Tibetan architecture as belonging to a middle range society suits the empirical evidence collected in the upland. It is through the lens of social complexity and patterns of residency that the corbelled structures of Upper Tibet can be better understood, augmenting ethnographic and textual perspectives on ancient buildings. Progress in this regard hinges upon further archaeological exploration. By doing so, the mythic and quasi-historical *sekhar* and *sekhang* of the literary tradition will become better rooted in time and space as the actual built structures found in the field.

It is commonly accepted in architecture and archaeology that human behavior influences the organization and exploitation of architectural spaces, which in turn, affect the regulation of human behavior. With this axiom in mind, let us examine the corbelled architecture of Upper Tibet in more depth.

SITE DESCRIPTIONS

In order to adequately convey the special characteristics of all-stone corbelled edifices in Upper Tibet, four sites are presented in detail below. The sites selected contain structures that have survived the years relatively intact (matters pertaining to their conservation form the topic of another paper).

Site 1. Riu Gonpa (*Ri'u dgon pa*: Little Mountain Monastery)

Riu Gonpa is an ancient residential monument of great historical, architectural and geographic significance. A preliminary survey of the site was carried out in 2001 and 2002 by the author and a plan of the main edifice drawn. This ancient complex of well-built buildings and shrines is situated in northwestern Tibet, in the district of Ruthok (Ru thog), at 4850 m above sea level (see Bellezza in press-a, site B-25, for a detailed description). Riu Gonpa sits in an extremely isolated location, far from the network of archaic corbelled temples and strongholds that arose in lower elevation Ruthok. Riu Gonpa shows that sedentary forms of settlement extended into the northern tier of the Changthang (Byang thang), the high and bleak plains and mountain ranges that cover most of the western third of the Tibetan plateau. The presence of chapels, special ornamental

Fig. 5: Map. Locations of the four sites discussed in this paper. Site 1: Riu Gonpa; Site 2: Phukchen; Site 3: Kyiphuk; Site 4: Monlam Dzong. The demarcation of international borders shown is non-authoritative. Map by Brian Sebastian.

Fig. 6: The site of Riu Gonpa. The ancient structures are located at the foot of the mountain in the vicinity of the large prayer flag mast. This mountain is said to have the shape of a horned eagle (*khyung*), a totemic animal of the Zhang Zhung kingdom. In the foreground are modern pastoralist (*'brog pa*) structures. On the extreme left side of the image is a modern wall with stone plaques inscribed with prayers and mantras.



Fig. 7



Fig. 8

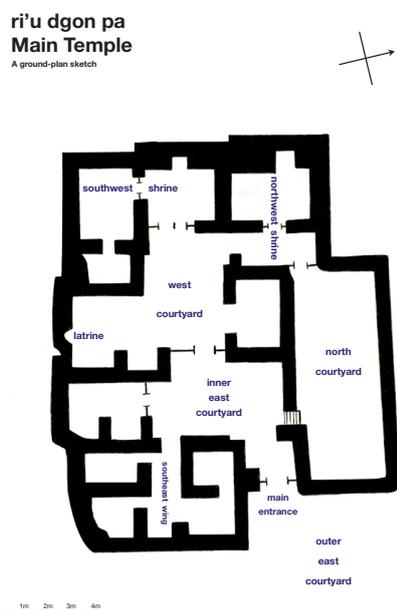


Fig. 9

Fig. 7: The meandering south face of the main temple, Riu Gonpa. Note the random-rubble walls comprised of thin slabs and some blocks of sandstone. Some of the white-washed clay-based plaster still clings to the wall. The opening in the left central portion of the building is a latrine pit. Further to the left is a small window.

Fig. 8: The west wall of the main temple, Riu Gonpa. Note how the wall is progressively built into the rear slope, giving the building a semi-subterranean aspect. In the middle of the wall is a protruding stone rain gutter. On the corner of the roof stands a modern prayer flag shrine (*dar lcoq*).

Fig. 9: Ground plan of the main temple, Riu Gonpa.

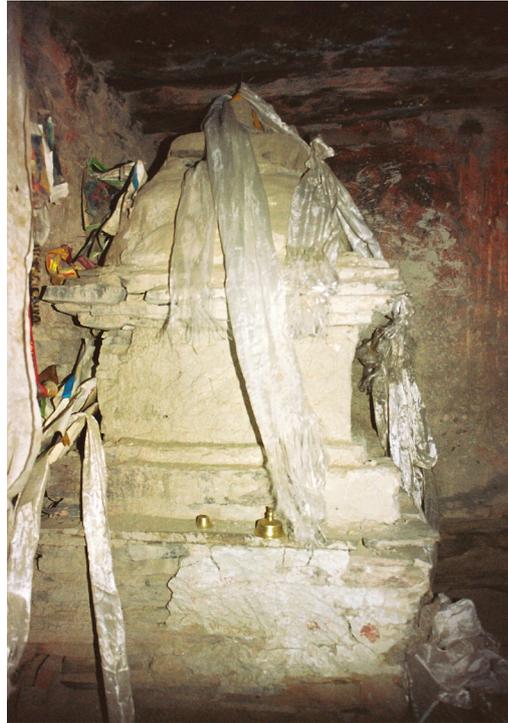


Fig. 10:
A reliquary shrine (*sku gdung mchod rten*) in one of the chapels of the main temple, Riu Gonpa. After being desecrated in the Chinese Cultural Revolution, this shrine was renovated by a descendant of the individual whose remains are entombed.



Fig. 11

Fig. 11:
A view from the doorway of a chapel looking towards the west inner courtyard, Riu Gonpa. The panels in the courtyard entranceway (one of which is tinted with red ochre) are made of large slabs of stone. Above these panels a stone dentil band and a multilayered lintel can be seen. Note the light-colored plaster on the walls of the temple.



Fig. 12

Fig. 12:
A close-up view of an elaborate lintel and cornice in the main temple of Riu Gonpa.

Fig. 13:
The fire-blackened ceiling of one of the rooms in the main temple at Riu Gonpa. In the Chinese Communist period Riu Gonpa was used as a shepherd's shelter and livestock corral. Diagonally placed bridging stones lie directly on top of the walls and on abbreviated corbels. Resting upon these cater-cornered bridging stones are other bridging stones that were installed perpendicular to the two shorter walls of the room. An opening in the middle of the ceiling reveals some of the stone roof sheathing.

features, inner courtyards, and a reliquary stupa (*mchod rten*) in the main edifice demonstrate that Riu Gonpa was built and occupied for religious purposes. This religious function is corroborated by the oral tradition connected to the site. It is said that Riu Gonpa was probably constructed by Chenpo Pagyaltsa Shakar (Gcen po spa rgyal tsha sha dkar), an uncle of the Tibetan epic hero, Gesar of Ling (Gling ge sar). Another figure of the Tibetan epic, the goddess Atak Lumo (A stag klu mo), is also supposed to have resided at the site. It is believed that Riu Gonpa eventually came under the authority of Tholing Gonpa (Mtho lding dgon pa), one of western Tibet's most important Buddhist centers. This strongly suggests that Riu Gonpa was founded before the late 10th century CE and the so-called second diffusion of Buddhism in Tibet (Tholing Gonpa was established in 996 CE).

features associated with the archaic corbelled buildings of pre-Buddhist Upper Tibet. This blending of major stylistic and constructional traits belonging to Tibet's two major epochs indicates that Riu Gonpa represents a transitional phase in architectural development. This places it after the introduction of Buddhism in Tibet, but prior to the loss of the engineering skills required to make large corbelled structures. As such, Riu Gonpa is best dated to the early historic period (circa 650–1000 CE).

The main temple of Riu Gonpa is unique in Tibet, for it is the only all-stone corbelled structure known that boasts ornamental cornices and door frames of the style regularly found in Buddhist monasteries, and which are normally fashioned from wood. This ornamentation consists of multiple door panels, multi-tiered thresholds and lintels, and a band of molding comprised of small blocks or dentils that lines the cornice. The only difference is that at Riu Gonpa these architectural elements are made from pieces of sandstone, not wood. The main edifice and dependencies also exhibit architectonic

The main temple (18 m x 13.5 m) abuts a large courtyard on the east side and is surrounded by several dependencies and cubic shrines. All of these structures are of uniform construction. This suggests that the entire complex can be attributed to a single phase, one as noted, probably coinciding with encounters between native and Indic forms of culture and religion, beginning with the unification of Tibet in the mid-7th century CE. What is not clear is whether Riu Gonpa was originally built to house archaic or Buddhist religious practitioners.

The main temple of Riu Gonpa has a non-axial plan, and can be divided into residential (east) and ritual (west) spaces, the latter with more elaborate architecture, more spacious rooms, higher ceilings, and larger doors. There are also three interior courtyards in the main temple, organizing rooms that open around them into distinctive sets of apartments, each of which must have had specific

Fig. 14:
The roof assembly in one of the chapels of the main temple, Riu Gonpa. A line of abbreviated corbels are visible above the wall on the right side of the image. Although the cater-cornered bridging stones overlie one another the roof is flat. True corbelled arches (which do not require capstone at the vertex) are not found in the architectural canon of Upper Tibet, nor apparently in other portions of the Tibetan plateau. This ceiling of Riu Gonpa with its multiple layers is reminiscent of more formally designed ones in central rooms of contemporary houses in northern Pakistan, but these are made of wood (for images, see Aga Khan Trust for Culture 2005: 103, 133). Red ochre is still used to paint the inner and outer walls of Buddhist and Bon temples in Tibet.



Fig. 13



Fig. 14



Fig. 15



Fig. 16



Fig. 17

functions and usages. East of the exterior courtyard there are the remains of three cubic shrines with central stone axes (*srog shing*), each around 2 m in height. Farther east are the traces of a residential structure (around 3.5 m in width). West of the main temple are the ruins of three more corbelled buildings, each of with contained several small rooms, as well as two smaller one-room corbelled huts.

Site 2. Phukchen (Phug-chen: Great Retreat Shelter)

The remains of Phukchen are situated at 4980 m above sea level, in a high valley isolated from the major pastoral basin and river of Nyawo (Nya bo). I surveyed this site in 2001. Phukchen, in the Naktshang (Nag tshang) district of the Changthang, consists of a single all-stone corbelled residence (for a detailed description, see Bellezza in press-a, site B-27). The relatively large main entrance (1.6 m x 90 cm) and two exterior windows seem to indicate that Phukchen, like Riu Gonpa, may date to

early historic period (circa 650–1000 CE). The remote location, high elevation and appended shrine at Phukchen suggest that its function was religious in nature. This is supported by the oral tradition of the region.

In the Upper Tibetan vernacular, these types of structures are commonly called *phuk* (*phug*), which can also denote a ‘cave’, underscoring the inter-relationship between caves and ancient residential architecture.

Phukchen (13 m x 11 m) is split between three levels: a forward level comprised of a walled courtyard, a middle level containing two rooms and an upper level of two rooms. These cells range in area from 3.2 m² to 4 m². Much of the corbelled stone roof has endured. On the north side of the building, a separate wing has been reduced to its foundations. The height of the interior rear wall is 2.2 m, more than half of which is underground.



Fig. 18



Fig. 19

phug chen Middle Tier & Rear Tier Rooms

A ground-plan sketch

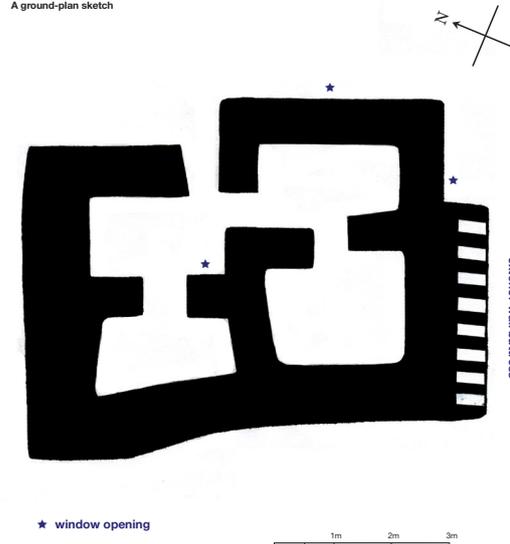


Fig. 20

Fig. 15: The exterior courtyard and entrance to the main temple in the east, Riu Gonpa. The long covered structure to the right of the entrance is a loggia that demarcated the north side of the courtyard. It appears to have contained a series of partially open sancta. While pillared galleries and arcades are common in Buddhist architecture, no other all-stone loggia appears to be known in Tibet. On the extreme left side of the image is an outlying structure that consisted of a single room. It is now used to support a large prayer flag pole.

Fig. 16: The three inner courtyards of the main temple at Riu Gonpa are visible in this image: north (left side), east (middle) and west (right side). The main entrance vestibule and the entrance between the east and west courtyards are also partly visible. The fine sand and silt on top of the roofs may be traces of a natural cement (Ar ga) used to seal them.

Fig. 17: Two of the shrines situated east of the main temple at Riu Gonpa. The ruins of similarly constructed shrines are found at many archaic residential sites in Upper Tibet. These structures are likely to have functioned as tabernacles for the protective deities of Riu Gonpa.

Fig. 18: One of the ancillary buildings located west of the main temple, Riu Gonpa. Note the window opening near ground level. The rough texture upper courses of this erstwhile corbelled structure do not appear to be an original construction.

Fig. 19: The walled courtyard and edifice of Phukchen. Note the way in which the rear of the structure is built into the slope, giving it a semi-subterranean aspect.

Fig. 20: A plan of the middle and rear tiers of Phukchen.



Fig. 21



Fig. 22



Fig. 23

Fig. 21:

The main entrance to Phukchen elevated on a solid stone sub-structure nearly 1 m above the courtyard. Small-stones laid perpendicular to the axis of the walls are interspersed between larger slabs of stone to form interlinking courses. Phukchen has undergone considerable subsidence and deformation over many centuries through the agency of gravity. Upper Tibet is highly susceptible to earthquakes and these are likely to have taken their toll on this and other structures as well.

Fig. 22:

A close-up of the roof of Phukchen. Corbels, bridging stones and stone sheathing are all discernable in this photograph. Note the orange climax lichen growing on some of the stones.

Fig. 23:

The interior of Phukchen. Both middle tier and rear tier rooms are visible. Note the multiple stone lintel over the entrance-way on the left.

Fig. 24:

The Kyiphuk edifice. Other structures visible in the photograph are Buddhist shrines.

Fig. 25:

The bowed north wall of Kyiphuk. There is much orange climax lichen growing on this side of Kyiphuk, a probable indication of the great age of the structure. This exterior wall is around 4 m in height, including its prominent revetment. Some in situ boulders were incorporated into its underpinning.

Fig. 26:

The south side of Kyiphuk. The entrance to the courtyard punctuates the forward wall. The very top of the entrance-way to the south suite can be seen directly behind it.

Fig. 27:

The south suite room of Kyiphuk that lost its roof in the Chinese Cultural Revolution. In the rear is the entrance to the north suite of the building. Note the niche (*bang khung*) to the left of this doorway, a common feature in corbelled buildings of Upper Tibet.

Fig. 28:

The corbels, bridging stones and stone sheathing over the passageway leading in from the entrance to the north suite of Kyiphuk.

Fig. 29:

Layered bridging stones converging on corbels bearing down on a wall buttress in the north suite, Kyiphuk.

The skillfully built walls of Phukchen are composed of dry-stone random-rubble. They contain dark-colored partly dressed slabs, primarily 40 cm to 65 cm in length and 5 cm to 15 cm in thickness.

Near the Phukchen edifice there is an all-stone cubic shrine (1.6 m x 1.6 m x 1 m), with a partially intact roof. A hollow in this shrine served as its inner sanctum or tabernacle. Of typical construction, this ancient ceremonial structure appears to be of the kind called *tenkhar* (*rten mkhar*) in Tibetan tradition.

Site 3. Kyiphuk (*Skyid phug*: Happiness Retreat)

Kyiphuk is situated 4720 m above sea level, on the north end of a summit that once accommodated a large residential complex called Dzongser (Rdzong ser: Yellow Fortress). A preliminary survey was conducted in 1999 and 2006. As the name indicates, this summit site appears to have functioned as a stronghold (for more information, see Bellezza in press-b; 2001). Kyiphuk is located in the eastern portion of the Naktshang district, in what is now Shentsa county. While the rest of Dzongser has fallen into utter ruin or was reconstituted as Buddhist shrines, the Kyiphuk edifice was left undisturbed. Reportedly, it was in regular use as a place of meditation until 1959, distinguishing it as one of Tibet's longest continuously inhabited buildings. The structure remained intact until the Chinese Cultural Revolution when it was partly destroyed.

Although Kyiphuk was used more recently by Tibetan Buddhist anchorites, its early history has been lost. With its full length corbels, transverse bridging stones, windowless walls, tiny cells, and mountaintop location, Kyiphuk may well date to the

prehistoric epoch (pre-600 CE).

On the rim of the summit there are the remains of a circumvallation, an architectural feature often associated with strongholds. Between this encircling wall and Kyiphuk there is a circumambulatory passage.

The outer walls of Kyiphuk have a sinuous contour, circumscribing rooms with irregular plans and rounded corners. There are two small rebuilt ritual turrets (*lcog*) on the west edge of the roofline. The stout walls have a random-rubble fabric, and are composed of blocks and slabs 10 cm to 1 m in length. The seams contain traces of a mud-based mortar. Kyiphuk can be divided into three sections: outer walled courtyard, south / forward suite (two rooms) and north / rear suite (two rooms). The total length of the structure is approximately 10 m. On the west side of the courtyard there is a depression under the wall, which appears to be the remains of a latrine pit. The ceiling in the rooms of the north suite is covered in thick, white and black organic deposits, an indication that Kyiphuk has stood for a very long time. The larger room of the north suite functioned as a chapel (*lha khang*), and is appointed with a stone altar, stone shelves and a wall niche. The adjoining room is said to be the protector chapel (*mgon khang*). The two rooms (only one of which still has its roof) of the south suite were living quarters.

Site 4. Monlam Dzong (*Smon lam Rdzong*: Supplication Fortress)

Monlam Dzong (elevation 4740 m) is situated just south of a long string of ancient cave shelters known as Ne Kunsang (*Gnas kun bzang*: Sacred Place All Goodness). These archaeological sites overlook Lake Dang chung, which at 4475 m is a



Fig. 24



Fig. 25



Fig. 26



Fig. 27



Fig. 28



Fig. 29



Fig. 30



Fig. 31



Fig. 32

low spot in the central Changthang. Preliminary surveys of Gonpa Monlam were undertaken in 2001 and 2013 (for more information about the site, see Bellezza 2002). There are actually two all-stone corbelled residential complexes at Monlam Dzong called 'upper' (*stod ma*) and 'lower' (*'og ma*). Like most ancient ruins in Upper Tibet, the upper complex has been reduced to a crumbling hulk. The much better preserved lower complex contains a single multi-roomed building around 18 m in length.

According to a Bon religious text, circa the 11th century CE, an adept named Yungdrung Rinchen (G.yung drung rin chen) had his secret place of meditation at Monlam Draksa (Supplication Rock Formation Place). According to the local oral tradition, however, this same Monlam Dzong long predates the time of Yungdrung Rinchen. It is said by local luminaries (both Buddhist and Bonpo) that the entire upper complex and basement of the lower complex were constructed in the time of the Zhang Zhung kingdom. The existence of many caves ideal for habitation and modified accordingly nearby does in itself suggest a long period of occupation for the site.

According to local monastic tradition, the lower complex was rebuilt for use as a Buddhist retreat center sometime between the 15th and 17th centuries CE. It is said that one of the four Trowo (Khro-bo: a local lineage of Dang chung monastery) lamas reconstructed a multi-floored superstructure on top of the corbelled basement. This building was razed during the Chinese Cultural Revolution. In the 1980s, Monlam Dzong was rebuilt in

a much more rudimentary manner by the abbot of Dang chung monastery, the 17th member of his line. The modern building consists of three small rooms laid out in a U-shaped pattern. Structural extensions on both the north and east sides of Monlam Dzong indicate that the ancient building was significantly larger than the subsequent Buddhist hermitage. This monument is now in a state of disrepair. The province of an elite social component, the original functions of Monlam Dzong remain to be ascertained.

Recently, a project to collect waters from a local spring was initiated by the Chinese government. This has led to much excavation of the erstwhile pristine environs around Monlam Dzong.

THE RELIGIOUS AND CULTURAL BACKGROUND OF CORBELLED AND BUDDHIST ARCHITECTURE

As noted, Buddhist temple and palace architecture starkly contrasts with the antecedent tradition of all-stone corbelled buildings in Upper Tibet, for they arose out of very different cultural milieux. Buddhist era buildings are characterized by high façades, straight walls regularly interrupted by windows and doorways and appended with balconies, ceilings perforated by skylights, and roofs and cornices incorporating many ornamental elements. The plan of such structures is marked by axial arrangements in which galleries, ancillary chapels, circumambulatory passageways, central halls with pillars, and innermost cellae predominate. Buddhist facilities are often walled, dividing the mundane space outside from the sacred realm



Fig. 33



Fig. 34



Fig. 35

Fig. 30:

The walled lower complex of Monlam Dzong (also called Gonpa Monlam: dGon pa smon lam / Monlam Draksa: Smon lam brag sa). The perimeter wall is a more recent Buddhist feature and is topped with inscribed plaques of stone. The structure in the middle of the wall on the right of the image is an incense brazier (*bsang khung*). Behind the complex an excavation and long trench are visible. These were dug in 2013, in order to exploit a local spring and transport the water to housing facilities in the basin below.

Fig. 31:

The edifice of Monlam Dzong from the east. A modern township installation spreads out in the basin below. The marshy lakeshore and Lake Dang chung (Dang chung: Little Ocean) are also visible.

Fig. 32:

The random rubble walls of the north side of Monlam Dzong. This building has a complex plan and different extensions, suggestive of a structure that underwent modification several times. Also note the variable texture of the upper right wall. This may also be indicative of different phases of construction.

Fig. 33:

A view of the corbels, bridging stones and stone sheathing of the roof in the semi-subterranean basement (*'og dong*). The entranceway to the basement, the core structure of Monlam Dzong, is located on the east side of the structure. There are three small chambers in the basement, whose walls are oriented in the cardinal directions. The chambers have a floor to ceiling of 1.8 m to 2 m. The partition walls dividing the basement are all load-bearing masses for the superstructure. These walls support heavy stone roofing members around 1.5 m in length.

Fig. 34:

The remains of a semi-subterranean room on the north side of Monlam Dzong. The inner wall is lined with corbels counterbalanced by the overlying wall. One in situ corbel has also survived on the outer wall of the room. The long length and massiveness of these corbels and the manner in which the room was built into the ground indicate that this structure had an all-stone roof fashioned in the archaic manner of construction.

Fig. 35:

The two east-facing entrances accessing the basement and an upper level room have stone lintels, while the entrance on the left side of the photograph (north facing) has a wooden lintel; it was installed as part of a reconstruction process (by which the roof was rebuilt with small timbers). On the right side of the photograph there is a small window opening in another refurbished room.



Fig. 36



Fig. 37

inside. The demarcation of the worldly and otherworldly is further enforced by the presence of walled courtyards, arcades and vestibules.

The innate symmetry (real or imagined) of Buddhist temples is recapitulated in the stupa, the Buddhist era's most important ceremonial monument. As pointed out by Crouch and Johnson (2001: 12) and Tucci (1973: 113–120), as well as others, the architectural idiom of the stupa is characterized by a defined center, a vertical axis, orientation to the compass points, a precise geometry, and the symbolic use of basic forms (square, circle, cube and sphere).

The use of prominent understructures to station Buddhist temples has the effect of elevating interior spaces well above ground level. A lack of focus on the subterranean dimension is reflected in ritual means taken to subdue the spirits believed to exist underground. The most celebrated instance of this subjugation pertains to a supine demoness (*srin mo*) thought to underlie much of Tibet. In the 7th century CE, King Songsten Gampo established 13 Buddhist temples in order to pin her down. This ritual immobilization of the demoness relying on architecture was carried out to bring order in the world and to usher in civilization (for an in-depth analysis of this myth, see Gyatso 1988).

Tibetan Buddhist architecture encapsulates Buddhist teachings and ideals, serving as a physical representation of them. As is well known, Buddhist temples are frequently based on or likened to mandalas, geometric models representing the cosmos or a divine realm (for an overview of the domestic and monastic architectural canon of Tibet, see Larsen and Sinding-Larsen 2001: 43–60). This is especially true of Tibetan temples of the 8th to 13th century (cf. Denwood 1998: 143, 145–146). According to Tucci (1989: xxiii–xxiv), the Indian mandala symbolizes the palace of the universal monarch, which is derived from Iranian concepts of the ideal metropolis and modeled on the terraced towers surmounted by a temple of the Babylonian kings. Vitali reminds us that (1990: Preface) Buddhist temples, as part of a tripartite system of the Buddha's body, mind and speech (*sku gsum*), represent his 'body receptacle'.

Denwood (1998: 144) holds that the cubic form of western Tibetan Buddhist temples was inspired by farmhouses, with their flat roofs and terraces, massive outer walls of rammed earth, mud brick or stone. Denwood (*ibid.*, 145) adds that Buddhist temples, like Tibetan farmhouses, but on a larger and more elaborate scale, relied upon local laborers using indigenous materials and techniques, thus they have a robust and folkish presentation. While

the architectural affinities between domestic and religious architecture outlined by Denwood above are undeniable, their squat forms, flat roofs, terraces and heavy outer walls are architectonic traits that may well have been inspired by the corbelled buildings of pre-Buddhist times. Traditional domestic architecture is probably historically derivative in the same way.

Tucci (1989: 7–10) maintains that Buddhist missionary activity of the celebrated lama Rinchen Sangpo (Rin chen bzang po) in the 11th century CE went hand in hand with the sustained penetration of Indian artistic motifs into western Tibet. The same observation can be made for Buddhist architecture in the region: it steadily displaced the indigenous tradition of corbelled buildings. The replacement of the native architectural idiom by the Indian influenced one was completed in the same general period as the artistic transformation of Tibet.

A principle idea in the world of ancient sacred architecture is that it models the cosmos or embodies specific aspects of it (on this principle, see Wightman 2007: 906–909; Giedion 1981: 502). The vertical and horizontal planes and space itself of ancient architecture is bound up in the movement of heavenly bodies, diurnal cycles, and other rhythms of the physical world. As pertains to Tibet, there is the axis mundi of the world mountain Rirab Lhunpo (Ri rab lhun po), forming a bond between the sky and earth, around which the heavenly bodies revolve. Traditionally, actual sacred mountains are also seen as penetrating the two or three vertical tiers of the universe, each of which is inhabited by special classes of elemental spirits. According to Tibetan literary tradition, this and other kinds of cosmological modeling was present in the architecture of pre-Buddhist shrines, temples and castles. A case in point is the 15th century description of the Zhangzhung capital, Khyunglung Ngulkhar (khyung lung dngul mkhar). However that may be, the vestiges of shrines in close proximity to corbelled buildings at many sites, allude to cosmological aspects. As with the Buddhist stupa, the Bon religious tradition maintains that various levels of archaic shrines recapitulate the five elements, the three levels of the cosmos, and the four cardinal directions. Pre-supposing the existence of cosmological themes replayed in the plans and elevations of corbelled structures, allows us to view them as essentially paradigmatic or symbolic in character, their practical functions notwithstanding.

Cosmological considerations may also possibly be typified in the lofty locations of many corbelled structures. This physical aspect suggests a celestial orientation, a seminal theme in the archaic

Fig. 36:

A row of abbreviated corbels in the uppermost room of Monlam Dzong. This type of corbel, the unitary cater-cornered bridging stone (partly visible on left side of photograph) and wall sockets (not shown) of this structure may suggest that the roof was composed primarily of wooden rafters. Composite roofs of this kind have been observed in another complex of the same region, which is dated in historical texts to the 11th century CE (see Bellezza 2014). The placement of the corbels at an intermediate elevation seems to indicate that this structure was two stories in height, making Monlam Dzong a three-story building in total, as maintained in the oral tradition.

Fig. 37:

A refurbished lower level chapel, Monlam Dzong. The roof timbers are interlinked with stone slabs, a style of construction that persisted in the region until at least the 15th century CE and perhaps considerably later. The oldest houses in surrounding villages have the same type of roof.

cosmogonic and eschatological traditions of Tibetan literature. These mythic traditions speak of the sky and space as the ultimate source of living beings, cultural foundations, and the physical structures of the world. Likewise, the semi-subterranean aspect of some of the same structures suggests an identification with the chthonic. This telluric orientation is enhanced by underground niches, recesses and chambers in the rear walls of certain corbelled buildings. The windowless walls in the mantle surrounding such spaces suggests that the cave is the prototype of this kind of architecture. Indeed, in many troglodytic sites, niches and recesses were likewise hewn out of the rear wall of caves. In some instances, the immured spaces of corbelled buildings may have been used for ritual functions but corroborating archaeological evidence is still pending.

A strong affinity with the physical environment is also borne out by the manner in which corbelled buildings incorporate naturally occurring boulders and rock faces into their walls. The absence of formalism and symmetry in their plans also indicates an organic or less regimented approach to interior space than that of the Buddhist temple. These fundamental differences in the conception and constitution of archaic and Buddhist structures can be used to formulate or contribute to various hypotheses concerning the social and cultural makeup of both eras.

Derived from native cultural traditions, corbelled buildings in Upper Tibet seem to epitomize a tradition in which natural phenomena and objects are expressed in architectural elements in quite a literal fashion. In Upper Tibet, mountains and rock formations carrying the epithet 'castle' or 'fortress' mark the passage of time until the modern era. Similarly in Tibetan texts of the early historic period, rivers and crossroads serve to delineate the position of stars. We might suppose therefore that the modalities of archaic built structures serve as reference points to major elements of the physical universe. In order to test this hypothesis it may be possible to develop a system of geographic and celestial parameters that reflect the conceptions of space underlying corbelled edifices. By contrast, Buddhist architecture belongs to a cultural world in which an abstract universe contingent upon ethical concerns and mental phenomena prevails. Striving for liberation or nirvana, seen by Buddhists as something qualitatively different from the tangible world, replaced the broader sense of interrelatedness informing archaic structures as the arbiter of architectural expression.

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