A Comprehensive Survey of Rock Art in Upper Tibet.
Volume II. Central and Western Byang thang

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Central and Western Byang thang

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Cover: Overlooking the north side of Da rog mtsho. The large peninsula that seems to be named Sle dmar chen is on the right side of photograph and the island of Do rta sga is on the left. Both these locations support archaic residential edifices and other types of early structures, all of which are now in a state of ruin. This photograph was taken in the winter when the lake surface was frozen. Spine: Outline of Inv. no. S30_L1_C44: wild yak. Iron Age. Cat35.

Text and photographs by John Vincent Bellezza

Maps by Brian Sebastian and John Vincent Bellezza

Rock art locator diagrams by Brian Sebastian and John Vincent Bellezza

This volume has undergone minor revisions and corrections since its initial printing.

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As an independent researcher and explorer with little recourse to university and corporate sponsorship, every act of kindness shown to me by friends, colleagues and strangers alike, whether it was material or informational in nature, assumes special significance. Nonetheless, I have enjoyed much intellectual liberty in my quest to elucidate the ancient cultural make-up of Tibet, managing to be free of burdensome teaching assignments and faculty obligations. Operating independently has also allowed me to remain vigilant regarding the pet theories of others and the latest socio-political trends in academia. Yet I am always cognizant that the liberty I have attained is largely empowered by the generosity and goodwill of others.

I am most fortunate to have been guided and befriended by many Tibetans over the course of launching expeditions to uppermost Tibet. This volume is the fruit of fieldwork and exploration in Tibet initiated in 1986, none of which would have been possible without the assistance of literally thousands of shepherds, farmers, monks, scholars, and government officials in Tibet. The drivers, cooks and guides who helped run many of my expeditions often had to endure difficult conditions and they command my respect. Although even those Tibetans whom I remember most must remain unnamed for the time being, their contributions are needless to say much appreciated. I also want to heartily thank the dear friends who accompanied me on expeditions to Tibet. Of special note is the late C. Ashely McAllen M.D., who participated in and helped fund fieldwork in 1999 and 2004–2007. His memory is cherished. Special thanks go out to R. Claire Bellezza who helped make the 1994 expedition to Upper Tibet especially productive and pleasurable. Many friends have offered moral and material encouragement over the decades of exploration and research on which this work rests. It is with much satisfaction that I salute them all. Family members have been steadfast in their support of my labours and have helped me as best they could. Expressing the debt of gratitude owed and affection I have for them is beyond my powers as a writer to express.

Despite any shortcomings in this book, as surely there are, I sincerely hope that all those who have assisted me (directly or indirectly) in writing it will not see their efforts as having been made in vain.

Precis

This volume comprehensively documents rock art in Upper Tibet,[1] the second of five books planned on the subject. Rock art, the alteration of natural rock surfaces as cultural productions, is typically one of the most durable of archaeological assets worldwide. The territory referred to as Upper Tibet in this work occupies much of the western half of the Tibetan Plateau, the highest part of the highest plateau on earth.[2] The Tibetan Plateau is strategically situated in the heart of Asia and covers an area of *c.* 2,400,000 km². To the west and south lies the Indian Subcontinent and Burma, while cultural China occupies the east, and Inner Asian territories are in the north. The pictographs (rock paintings) and petroglyphs (rock carvings),[3] rock art sites, and descriptions and analyses presented in this work are the direct result of intensive fieldwork conducted by the author in Upper Tibet between 1995 and 2016. By organizing rock art, as well as related findings collected on eighteen major expeditions into a single research framework,[4] a coherent exposition of this area of inquiry is achieved. The present volume and others in the series, examine the physical, aesthetic and semantic characteristics of rock art in Upper Tibet. These paintings and carvings are subject to archaeological, historical and ethnographic investigation, which lays the foundation for systematically exploring various questions regarding the role of rock art in forging Tibet's past. As is conveyed here and in the companion volumes, Upper Tibetan rock art serves as a kind of cultural bridge spanning some 3000 years. Hence this corpus of primary materials is uniquely placed chronologically, enabling the distant past to set the stage for gaining new perspectives on the more familiar Tibetan legacies of later times.

The study of rock art is of much value, for it provides a great wealth of information on ancient settlement and culture in Tibet (as it does worldwide). These paintings and carvings on stone represent a continuous record of habitation and cultural development over a wide swathe of the Tibetan Plateau, beginning no later than the Late Bronze Age and continuing until *c.* AD 1400 and even to the present day. The origins of the large fund of rock art in Upper Tibet can be traced back to the Late Bronze Age (*c.* 1200–700 BC) and persisted as an interrelated cultural, regional, and technological expression in the Iron Age (*c.* 700–100 BC) and Protohistoric period (*c.* 100 BC – AD 600). The rock art of this Late Prehistoric era (*c.* 1200 BC – AD 600) is primarily characterized by zoomorphic depiction and close interactions between animals and humans in both hunting and non-hunting contexts. In the Early Historic period (*c.* AD 600–1000), the rock art of Upper Tibet began to chronicle numerous encounters between Buddhist and non-Buddhist religions and sometimes appears alongside Tibetan rock inscriptions. As this book and others in the same series demonstrate, it is in the rock art of Upper Tibet that some of the most widespread icons and symbols adopted by the two Lamaist religions (Buddhism and Yungdrung Bon) first manifested. Yet there was no complete break with the past, and hunting displays and anthropomorphic and zoomorphic portraiture continued to fascinate rock art makers in the Early Historic and Vestigial periods (*c.* AD 1000–1400). The old tradition of carving and painting natural rock surfaces in Upper Tibet, often relying upon pre-established themes and scene architecture, continued until as late as *c.* 14th century AD, before largely disappearing from the archaeological record (Bellezza 2020b). Nonetheless, there is also a smaller body of rock paintings and carvings that belongs to the Later Historic period (*c.* AD 1400–1950), which extends traditional legacies of figuration to within living memory.

In addition to Volume I and the present work, three other volumes are planned for this series which, when brought to fruition, will constitute the most extensive survey of rock art conducted in Upper Tibet to date. All five volumes

[1] This territory falls under the jurisdiction of the Tibet Autonomous Region of the People's Republic of China. In premodern times, it was part of lands ruled by the Lhasa government (Sde pa gzhung).

[2] West of Upper Tibet, the 'Western Tibetan Plateau' includes the regions of Ladakh and Spiti under Indian jurisdiction, Baltistan in Pakistan, and Transhimalayan areas of Nepal (Humla, Dolpo, Mustang, etc.). There are manifold commonalities in the content of rock art on the Western Tibetan Plateau. Adjacent tracts to the east of Upper Tibet, in what are now the Mtsho nub and Yul shul prefectures of Qinghai province on the Eastern Tibetan Plateau, also share an interrelated physical and cultural environment with the Western Tibetan Plateau.

[3] Pictographs (rock paintings) are also known as cave paintings, cave drawings, rock paintings, and rupestrian paintings. Synonyms for petroglyphs include rock engravings/etchings, and rupestrian carvings/engravings/etchings.

[4] These expeditions were planned and executed by the author, with local residents acting as guides and providing logistical support on a voluntary basis. Friends of the author also accompanied him on several of the campaigns to survey rock art, sometimes participating in its documentation. In expeditions launched after 1998, paid staff was a critical element of most missions. Staff members were engaged in the operation and maintenance of transport vehicles, cooking and other camp chores, and as liaisons with government officials. The expeditions in which rock art was surveyed are as follows: Divine Dyads Expedition, year two (1995), Changthang Phase II Expedition, year one (1997), Changthang Phase II Expedition, year two (1998), Changthang Circuit Expedition (1999), Upper Tibet Circumnavigation Expedition (2000), Upper Tibet Antiquities Expedition (2001), High Tibet Circle Expedition (2002), High Tibet Antiquities Expedition (2003), High Tibet Welfare Expedition (2004), Tibet Upland Expedition (2005), Tibet Ice Lakes Expedition (2006), Tibet Highland Expedition (2006), Wild Yak Lands Expedition (2007), Sky Lake Expedition I (2008), Upper Tibetan Rock Art Expedition I (2010), Upper Tibetan Rock Art Expedition II, year one (2011), Sky Lake Expedition II (2012), and Upper Tibetan Rock Art Expedition II, year two (2013). Each of the expeditions in which rock art was catalogued was between one and six months in length. As well as these expeditions, rock art was documented on two shorter excursions to Upper Tibet in 2014 and 2016.

are contracted for publication by Archaeopress (Oxford) and are expected to appear in print over the next three years. This second volume inventories rock art in the Central and Western Byang thang (pronounced Changthang).[5] Like Volume I, it consists of detailed surveys of rock art and is geographically organized from east to west. The first volume is devoted to the rock art of the Eastern Byang thang (Bellezza 2023), while the third and fourth volumes will examine the rock art of Stod in the far west of Tibet. In total, around 12,000 rock art subjects are expected to be inventoried individually through the compilation of standardized sets of data. Basic information on rock art technique, subject identification, thematic class, mode of presentation, physical condition, estimated age, and relative location, etc. are supplied for each piece of rock art. Besides the datasets, the first four volumes of the series offer rock art site descriptions and assess the cultural, religious and artistic traits of these locations. In each of the inventory volumes, collateral archaeological sites (residential, ceremonial and funerary) are also scrutinized. When viewed in combination with these monumental assets, the social and economic context of rock art production in Upper Tibet comes into sharper focus. The fifth and final volume of the series contains the bulk of the text, a rigorous look at the ideological, technical, chronological, statistical, and cross-cultural comparative aspects of rock art in Upper Tibet. This multi-dimensional framework contributes to an enhanced understanding of the cultural and historical development of the Tibetan Plateau more widely during the Late Prehistoric era and Early Historic period. In turn, this synthesis facilitates a more thorough appraisal of the place of Tibet in the archaeological mosaic of Eurasia. Finally, there are methodological and theoretical discussions planned for the fifth volume, which situate the rock art of Upper Tibet in a broader academic and artistic ambit.

[5] In this work the most widely used system of Roman transliteration of Tibetan terms, which is referred to as modified Wylie, is uniformly employed for consistency and accuracy. Without the degree of linguistic precision offered by the correct rendering of Tibetan terms, the cultural and historical analyses undertaken in this volume and others in the series would be seriously compromised. To avoid unwieldy repetitions, it was decided that phonetic equivalents of Tibetan terms would not be included in the work. However, Tibetan words that have been adopted into the English language (e.g. lama, Lhasa) appear as they do in English. It should be emphasized that the system of transliteration employed in this work differs greatly from Sinicized designations of Tibetan terms that are now frequently used in science publications worldwide. For example the Tibetan word for lake *mtsho* (pronounced *tsho*) is often written as *co* in technical articles. It is the opinion of the author that the confusion engendered by disparate systems of transliteration is best overcome by embracing Tibetan linguistic traditions.

Section I

General Introduction

Ia. A Geographic, Environmental and Administrative Review

Upper Tibet consists of two major regions traditionally known to Tibetans as Byang thang and Stod.[1] The larger Byang thang (literally: Northern Plains), a sprawling expanse of mountain ranges and plains, occupies the eastern two-thirds of the territory, while the valleys, mountain ranges and badlands of Stod are in the far west. The physiographic boundary between the Byang thang and Stod is not clearly demarcated; rather they overlap as the high tablelands of the former give way to the lower elevation of the valley systems of the latter. In fact the Western Byang thang is often seen as an integral part of Stod, because it too was, and still is, administered by Mnga' ris (now a prefecture of the Tibet Autonomous Region). The Byang thang is set north of the two main Transhimalayan ranges. In geographic parlance, these two ranges have come to be called Gnyan chen thang lha (eastern subdivision) and Gangs ti se (western subdivision), which are spelled in a variety of ways in scientific literature.[2] In the west, the northern boundary of Upper Tibet is formed by the Kunlun Mountains, which demarcates sectors of the border between the provinces of TAR (Tibet Autonomous Region) and Xinjiang in the PRC (People's Republic of China). In the east, the northern bounds of Upper Tibet are formed by the Gdang la (Tanggula) range, which divides the TAR and Qinghai provinces. Byang thang is a descriptive geographic term that refers to the topographic characteristics of the region and does not carry weight as political geographic nomenclature. It has often been used by residents of primarily agrarian Central Tibetan (in places such as Lhasa and Shigatse) to mean rather ambiguously the homeland of their stock rearing northern neighbours. This is also the case with Byang, a toponym that refers rather inexactly to the vast northern regions of the herders. From this word comes *byang ba* (northerner), which denotes the herders or *'brog pa* of the north.[3] Although the term Byang thang does not appear to be of very ancient origins, the use of the word Byang to denote some or all of the Byang thang has a long historical pedigree.[4]

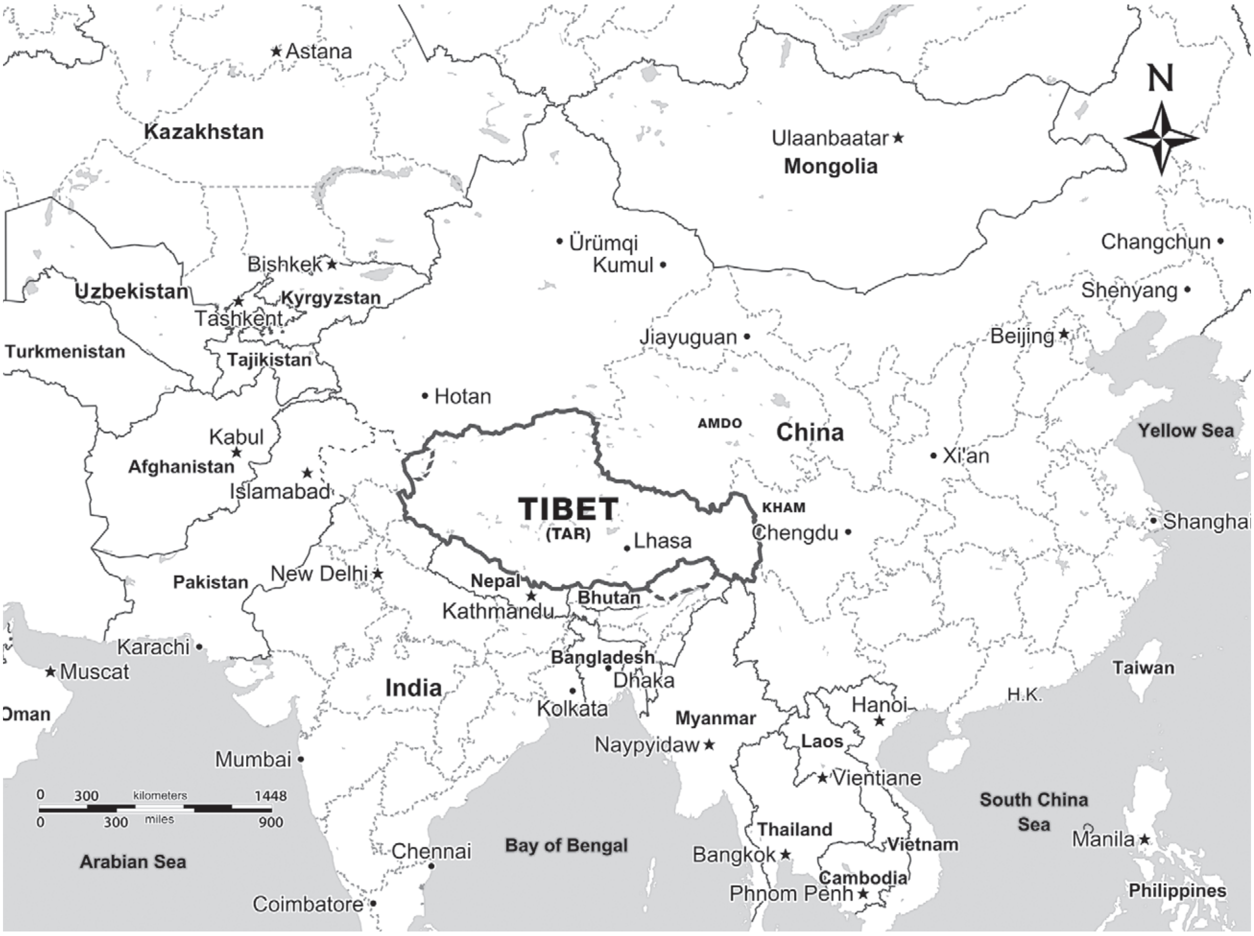
This second volume in the series on the rock art of Upper Tibet is dedicated to the pictographs and petroglyphs of the middle portion of Upper Tibet, which in this work is referred to as the Central Byang thang and Western Byang thang (hereafter: Central and Western Byang thang). For the purposes of this study, the demarcation of the Eastern and Central Byang thang is fixed around 88.4° E (decimal degrees), which coincides with the Rgyal sgang ri (a meridian range of lofty peaks) and Ske ring mtsho (a large salt lake). These two physical features are in Shan rtsa County. The Central Byang thang extends as far west as the 85th meridian, near the western extremity of

[1] The earliest known documents and inscriptions in Tibetan date to the 7th and 8th centuries AD, where it already appears as a highly sophisticated language that exhibits a mature grammar and syntax and an extensive vocabulary. Clearly the origins of the Tibetan language lie in a much earlier period, having evolved over many centuries. Therefore an understanding of Tibetan is a vital tool in the investigation of the cultural context of Upper Tibetan rock art, especially for that produced after the 7th century AD. According to Tibetan written sources, prior to the 7th century AD and the annexation of Upper Tibet into the Tibetan empire, two other Tibeto-Burman languages were spoken there: Zhang zhung (in the west) and Sum pa (in the east). Extant lexicons in Zhang zhung are scanty and what are purportedly terms of Sum pa language origin occur mostly in Yungdrung Bon liturgical texts. Words and passages in these two languages have been written using the Tibetan script, mostly postdating the 11th century AD, and admit of lexical and orthographic innovations arising subsequent to their use as spoken languages in Upper Tibet, which beclouds their earlier vernacular forms. On the Zhang zhung language, see, e.g. Martin 2010; Hummel 2000; Dagkar 2003: 10–41.

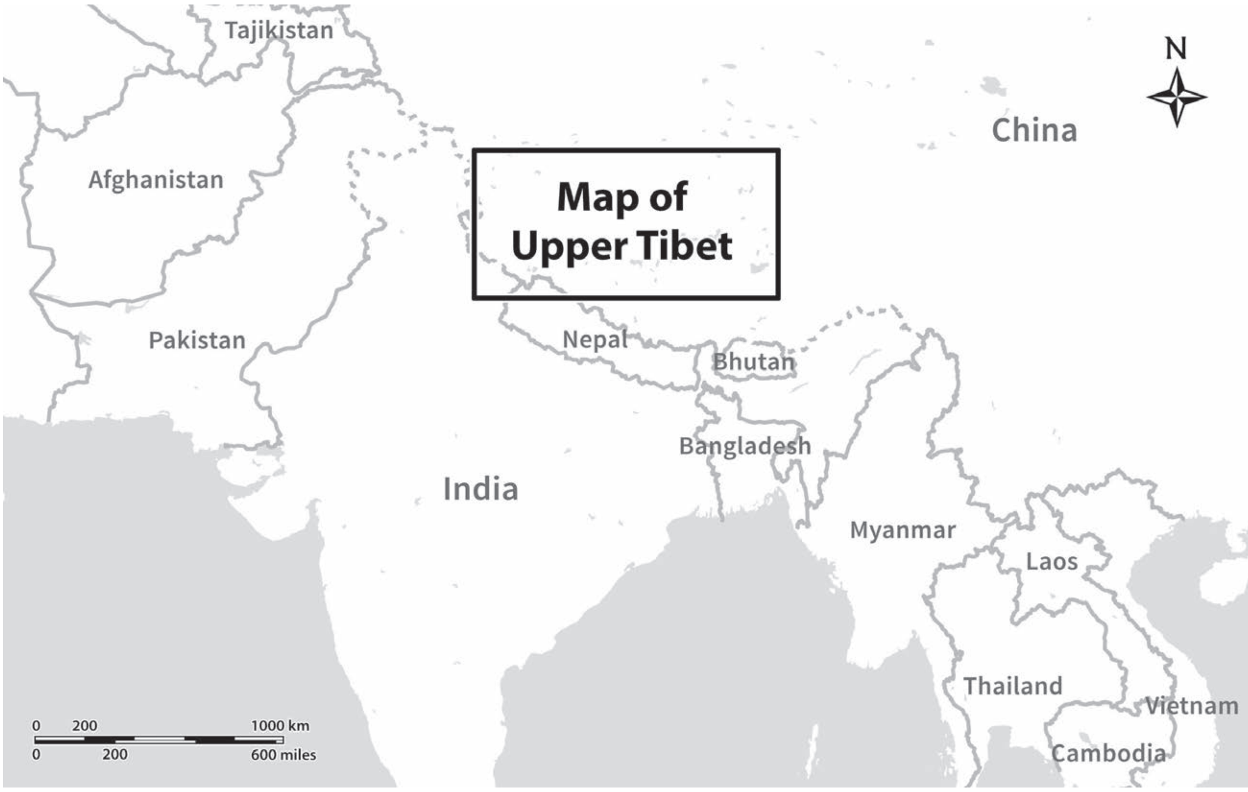
[2] In the English language, the Transhimalayan (also Trans-Himalayan) range of Gnyan chen thang lha is frequently rendered phonetically as Nyenchen Tanglha, while the established Chinese spelling is Nyainqêntanglha. The Transhimalayan range of Gangs ti se appears in various forms with Gangdise, Gangdese, and Gangdisi commonly encountered, but also as Gangdisê in pinyin (official system of transliteration used in the PRC).

[3] On the culture and way of life of the *'brog pa*, see, e.g. Bellezza 1997; 2014b: 47–73; Norbu 1997; Goldstein and Beall 1990; Ekvall 1968.

[4] One ancient recorded form is Byang 'brog (Pastures of the North/ Wilderness of the North), which is closely associated with the hunting of wild yaks and deer in several Old Tibetan historical and funerary and curative ritual manuscripts dating to the Early Historic period. Another form found in Tibetan manuscripts of the Early Historic period is Byang ka snam brgyad, a region of eight parts (*snam brgyad*, Classical Tibetan: *rnam brgyad*), which appears to be synonymous with some or all of the Byang thang. On these Old Tibetan terms, see Bellezza 2008: 519, 520; 2010: 69; 2013: 210, 238, 239. Byang ka, meaning 'north' or perhaps more precisely 'expanse of the north', parallels other geographic terminology; e.g. *thang ka* (plain) *sna ka* (prow of a ridge).



Map 1. Map of the Tibetan Plateau and adjoining countries. The TAR (Tibet Autonomous Region) is highlighted in the middle of the map. This region corresponds with what is sometimes called Outer Tibet.



Map 2. Location of Upper Tibet, see Map 3 for site locations.

Nag chu prefecture. It is now divided between Nyi ma County in Nag chu prefecture (which constituted the western half of the district of Nag tshang in premodern Tibet) and Mtsho chen County in Mnga' ris prefecture (the erstwhile Tibetan district of Phyogs bcu). The Central Byang thang is dotted with numerous lakes, most of which are brackish or saline. The five largest lakes are 'Ur ru mtsho (343 km^2), Stag rtse mtsho (245 km^2), Ngang rtse mtso (462 km^2), Dang ra g.yu mtsho (835 km^2), and Bkra ri gnam mtsho (997 km^2). The contiguous Western Byang thang is defined as extending from the 85th meridian to 80.50° W. The Western Byang thang also boasts many lakes, the two largest being Da rog mtsho (486 km^2) and Ngang la ring mtsho (513 km^2). Although the Central and Western Byang thang stretches all the way north to the Kunlun Mountains, the rock art surveyed in this work is concentrated in the southern tier of the region (reaching no further north than 33.83° N.). The Western Byang thang is divided between Mnga' ris prefecture (Mtsho chen, Sger rtse, Dge rgyas and Ru thog Counties) and Gzhis ka rtse prefecture ('Brong pa County). In the premodern political geography of the Lhasa government (Sde pa gzhung), the Central and Western Byang thang were apportioned into several major and many minor regions owned by various aristocratic, abbatial and monastic estates, or ruled directly by Lhasa. The basic geographic unit and taxation entity of each district in old Upper Tibet consisted of amalgamations of pastoral encampments known generally as *tsho pa* and *shog kha*, which for simplicity's sake are called 'confederated areas' in this work. In the premodern administrative scheme, 'Brong pa County and a small portion of southeastern Sger rtse County were parts of the 'Brong pa tsho dgu District, while the rest of Sger rtse County was under Rngo ro skor mched and the anciently settled more southerly lands known as Seng 'khor. Dge rgyas County, also an amalgamation of various traditional entities, once included the district of Gzhung pa ma tshan as well as confederated areas, e.g. Dge rgyas lho ma, 'Brong pa, Yag ra, Byang smad, and Byang stod.[5] Only the western portion of Ru thog County (largely corresponding with the old district of Ru thog) is included in the Western Byang thang. This part of Ru thog coincided with the confederated areas that included Steng rtse and Rtsa phug. In addition to Western Byang thang tracts, rock art has been discovered in one site in the upper Gtsang po drainage basin (S43). This site is now in Bar yang Township, 'Brong pa County, but was formerly part of the Gro shod District. The rock art here is closely aligned with that in other parts of Upper Tibet. The archaic residential, ceremonial and burial monuments of the upper Gtsang po drainage basin west of the 86th meridian are of the same types as those found north of the Trans-Himalayan ranges.

Like the Eastern Byang thang, the Central and Western Byang thang was almost all given over to a pastoralist economy and semi-nomadic way of life. It is a cold, arid region with dramatic diurnal temperature fluctuations due to the extremely high elevation. However the intensive cultivation of barley takes place in the Lake Dang ra g.yu mtsho basin in the Central Byang thang and, at a much more restricted scale, in two relatively low-lying enclaves of the Western Byang thang, Ma mig and Sha sha. Local herders known as *'brog pa* raise yaks, sheep, goats, and horses, eking out a livelihood in very harsh conditions. The Byang thang averages more than 4700 m in elevation, ranging from 4450 m in the most depressed lake basins to 5300 m on the plains of the north and northwest. It is beset by unpredictable and fast-changing weather conditions as well as stiff winds much of the time. The region enjoys a summer season of only around eight weeks in length. Sub-freezing temperatures must be contended with for the remainder of the year. Even in the middle of the summer blizzards may hit, sometimes wiping out great numbers of livestock. The Central and Western Byang thang are drier than the Eastern Byang thang, as part of a wider gradient of decreased precipitation and temperatures from the southeast to the northwest on the Tibetan Plateau. This trend is accounted for by increased continentality, higher elevation and higher latitude in a southeast to the northwest direction. The climate of this very elevated landmass is strongly influenced by the Indian summer monsoon, this being particularly true of the Eastern Byang thang. Interactions of the westerlies with the Indian southwestern monsoon are pivotal forces in the climate of the Byang thang. The 300 mm annual precipitation isoline is found west of Shan rtsa, while Lake Dang ra g.yu mtsho receives *c.* 250 mm of precipitation annually and Bkra ri gnam mtsho (further west on the Central Byang thang) sees *c.* 200 mm of rainfall and snowfall (Lu *et al.* 2019). The 150 mm annual precipitation isoline runs through the Western Byang thang. The Byang thang, an integral biogeographical zone, is noteworthy for its many brackish, saline and freshwater lakes. The two largest lakes in the region are Gnam mtsho (slightly brackish) and Zi leng mtsho (saline), both of which are on the Eastern Byang thang. The Tibetan Plateau contains 52% of the lakes (covering an area of *c.* 40,000 km^2) of the PRC, (Wu *et al.* 2014), the majority of which are found on the Byang thang. Due to glacial loss (overall *c.* 15% in last 30 years), rising temperatures, and generally more precipitation, some lakes of the Byang thang lakes are among the fastest growing in world. More than 80% of Tibetan lakes have increased in size since the 1970s (Zhang *et al.* 2014).

[5] In the premodern political geographic scheme, the final two places listed, Byang stod and Byang smad, were two administrative divisions (*zur sde*) under Ru thog rdzong (Vitali 1999: 11; Korpon Lobsang Khenrab 2000: 35).

The cold, semi-arid southern tier of the Byang thang is comprised mainly of so-called alpine grasslands, an ideal resource for the keeping of livestock. Much of the Central and Western Byang thang hosts alpine meadow (pasture) and alpine steppe vegetation, with Kobresia pygmaea predominating in the former and Stipa purpurea being the dominant perennial grass in the latter biome.[6] In addition to Kobresia pygmaea pastures and Stipa purpurea steppe, high alpine plants occur in the Transhimalaya and the meridian ranges, while Kobresia schoenoides (humock swamps) extend as far west as Bkra ri gnam mtsho (Miehe *et al.* 2008).[7] In line with increased aridity, vegetative patterns change from southeast to northwest on the Byang thang, with high-cold meadow and scrub in the east, high-cold steppe and desert in the central areas and high-cold desert in the extreme northwest (Chang 1983). Arid tracts in the west and north of the Byang thang are characterized by subalpine dwarf-shrub desert, alpine cushion dwarf-shrub desert, and areas with no vegetation (Ni and Herzschuh 2011: 431).[8] While there are trees, flowers and perhaps other vegetation depicted in the rock art of Upper Tibet, their identification is uncertain.

The zoomorphic rock art of Upper Tibet is characterized by wild ungulates, large carnivores and birds that are mostly native to the territory. Thanks to its immense wild pasturelands, the Byang thang once supported large populations of wild herbivores including the now endangered wild yak (*Bos grunniens*), the endemic white-lipped deer (*Cervus albirostris*; currently restricted to the eastern margin of the Eastern Byang thang), Tibetan wild ass (*Equus hemionus*; the largest species of wild ass in the world), Tibetan antelope (*Pantholops hodgsoni*), argali (*Ovis ammon hodgsoni*; the largest wild sheep species in the world), blue sheep (*Pseudois nayaur*), and Tibetan gazelle (*Procapra picticaudata*), all of which seem to be represented in the rock art of Upper Tibet. Other common but smaller mammalian species in the territory, e.g. the Tibetan woolly hare (*Lepus oiostolus*), Himalayan marmot (*Marmota himalayana*), and black-lipped pika (*Ochotona curzoniae*) are little seen in the rock art bestiary.[9] Large carnivores on the Byang thang are the brown bear (*Ursus arctos*), snow leopard (*Panthera uncia*), wolf (*Canis lupus*) and lynx (*Felis lynx*). Large wild carnivores, consisting of indigenous species together with the tiger, are fairly common portrayals in Upper Tibetan rock art. The Tibetan sand fox (*Vulpes ferrilata*) and red fox (*Vulpes vulpes*) occur on the Byang thang but they appear to be little depicted in rock art. It is reported that 67 species of birds breed on the Byang thang and 156 species in the far west of Tibet, which are mostly comprised of Palearctic species but with some Sino-Himalayan species as well (Vaurie 1972: 110–144).[10] Bar-headed Goose (*Anser indicus*), followed by Brown-headed Gull (*Larus brunnicephalus*), Ruddy Shelduck (*Tadorna ferruginea*) and Great Black-headed Gull (*L. ichthyaetus*) made up 81.2% of all the waterbirds counted on an extensive survey carried out in the southern tier of the Byang thang (Zhang *et al.* 2015). Ravens, tit warblers, snow finches, ground choughs, snowcocks, sand grouse, larks, and desert wheatears are also common in the southern Byang-thang (Yeshe De Project: 1986: 56). Black-necked Cranes (*Grus nigricollis*) were counted at 39 lakes in Nag chu and Mnga' ris prefectures (Zhang *et al.* 2015). A wide range of raptors fly in the skies of the Byang thang including those belonging to the families of Falconidae, Strigidae and Accipitridae. Many taxa of birds, especially birds of prey, grace the rock art of Upper Tibet.

It is widely accepted that the formation of the Tibetan Plateau was mainly the result of the collision of the Indian and Eurasian tectonic plates during the Cenozoic and the subsequent subduction of the Indian plate beneath the Eurasian plate.[11] The Tibetan Plateau has had a huge bearing on shaping the global climate and in the distribution of biogeographical zones in Eurasia. The Tibetan Plateau is the youngest example of continent-to-continent collision, subduction and spreading, which was initiated 50–70 million years

[6] Around 60% of the entire area of the Tibetan Plateau is composed of alpine steppe (S. purpurea and Carex high-cold steppe), alpine meadow (Kobresia and forb high-cold meadow), and alpine sparse vegetation (Ni and Herzschuh 2011: 431). Miehe *et al.* (2011) estimate that grasslands belonging to the Poaceae and Cyperaceae families and cushion plants in the central and western highlands of Tibet cover *c.* 800 000 km². Kobresia pastures form the largest pastoral alpine ecosystem in the world, the main component of which is an endemic dwarf sedge, Kobresia pygmaea, which creates a tough cover of turf secured by a felty root mat, which on the southern Byang thang extends west to the 82nd meridian (Miehe *et al.* 2019). Paleo-environmental evidence and growth simulations suggest that the present carpets of Kobresia pygmaea represent a synanthropic ecosystem that developed through selective free-range grazing of livestock (Miehe *et al.* 2011). The typical alpine steppe community of S. purpurea is sparse, with plant coverage not more than 20% (Chang: 1981).

[7] On information and botanical samples provided by the author, Miehe *et al.* 2008 notes that among the Juniperus relicts on the Byang thang (some overaged and with low regeneration rates, due to desiccation and grazing pressures) is one on the eastern shore of Lake Dang ra. According to the local reports collected from elders 25 years ago, the last juniper trees were destroyed by an invading Mongol army in the 18th century AD.

[8] *Carex moorcroftii* and *Ceratoides compacta* are the dominant species in the northernmost tier of the Byang thang (Chang 1981).

[9] For a general study of large mammals on the Byang thang, see Schaller 1998; 'Animal Diversity Web (ADW)': https://animaldiversity.org/. Selected wildlife of Upper Tibet will be examined in more detail in Volume V of this study.

[10] For a list of bird species found on the Tibetan Plateau, see 'Avibase – The World Bird Database': https://avibase.bsc-eoc.org/checklist.jsp?region=cnti.

[11] Nevertheless, it is not yet known precisely when Cretaceous sedimentary formations associated with the orogenic cycles responsible for the Tethys Sea closure on the Byang thang formed. Dates range from the early to late Cretaceous. On questions related to the Tethys Sea closure, see Liu *et al.* 2018.

ago (Liu *et al.* 2019). The modern deformation regime was established 8–15 million years ago (Royden *et al.* 2008). The plate tectonic forces that formed the Tibetan Plateau occurred in stages, producing six nearly east–west oriented crustal blocks or terranes that are accreted to Eurasia. The Tibetan orogenic belt consists of (from south to north) the Himalayan, Lhasa, Qiangtang, Songpan-Ganzi-Hoh-Xil, Kunlun-Qaidam, and Qilian blocks, each of which is separated from one another by suture zones (Liu *et al.* 2019; Spicer *et al.* 2021). Upper Tibet is composed of the Himalayan block and two terranes, Lhasa and Qiangtang (each measuring more than 1000 km in length and 200–400 km in width), which are separated from one another by the Indus-Yarlung suture zone (consists of a depression with two axial rivers flowing in opposite directions) and the Bangong-Nujiang suture zone (running north of Ru thog, Sger rste, Nyi ma and Nag chu) respectively. The Qiangtang terrane was accreted to the Songban-Ganzi terrane in the north along the Jinsha Suture during the late Triassic or early Jurassic, while the Lhasa terrane was accreted to the Qiangtang terrane along the Banggong Suture during the early Cretaceous (Dewey *et al.* 1988; Liu *et al.* 2015). The Qiangtang terrane is covered in Mesozoic strata with outcrops of granitoids and volcanic rocks, while the Bangong-Nujiang suture zone is composed of scattered ophiolitic fragments and Jurassic flysch, the remnants of the Bangong-Nujiang Tethys (Liu *et al.* 2018). The Lhasa terrane, which underthrusts the Qiangtang block, is bounded on the south by the Gangdese (Transhimlayan) belt of magmatic rocks. South of that is the Himalayan orogenic belt. The Lhasa terrane is distinguished by the huge Early Jurassic-Middle Eocene Gangdese magmatic belt in the south and by Palaeozoic-Mesozoic strata in the centre and north (Liu *et al.* 2018). The Gangdese magmatic belt is thought to have formed during the north-dipping subduction of the Indus-Yarlung Tethyan lithosphere, or alternatively, after the collision of the Indian and Eurasian plates along the Indus-Yarlung suture (Liu *et al.* 2018). The Byang-thang has ample reserves of soda, borax, asbestos, graphite, iron, gypsum, quartz, and gold (Yeshe De Project 1986: 56).

Ib. Ancient Cultural Characteristics of the Central and Western Byang thang

This résumé of the ancient cultural characteristics of the Central and Western Byang thang serves as a prelude to more extensive treatment of the subject planned for Volume V of the series. It is designed to equip the reader with an archaeological and historical orientation to the region, thereby placing the rock art inventoried in this volume in a broader context. The introduction to the Tibetan genome furnished in this work follows that in Volume I of the series.

Still little archaeological exploration has been conducted on the Central and Western Byang thang, save for the present author's surveys of ancient monuments.[12] As noted in Volume I, the southern part of the Eastern Byang thang has long been settled by human beings, with the earliest occupation potentially dating to the Upper Palaeolithic some 20,000 to 40,000 years ago.[13] Although traces of early human settlement

[12] Aldenderfer (2011; 2007) records no Palaeolithic or Neolithic sites on the Central Byang thang or Western Byang thang. However, Aldenderfer and Zhang (2004: 17) note one provisionally identified Paleolithic site (based on surface finds of stone implements) on the Central Byang thang they call Duogeze (4830 m elevation). The same authors also identify one unnamed microlithic site of unknown age in the upper Gtsang po river valley (Aldenderfer and Zhang 2004: 24). This microlithic site appears to be in 'Brong pa County, one of numerous places with microlithic flakes and cores scattered around Upper Tibet. To my knowledge no systematic survey of these sites has yet been made. Recently, a cave called Sding chung, which contained multiple burials, was surveyed by Chinese archaeologists (Lu *et al.* 2022). This site is in the upper Gtsang po basin, in 'Brong pa County. It consists of two large chambers interconnected by a narrow passageway, which contained large quantities of human and animal bones and a few artefacts (e.g. wooden cup, bronze goblet, ceramic sherds, textiles, bamboo weaving fragments, wooden sticks). The authors observe that the human remains (perhaps more than 100 individuals represented) may possibly represent secondary burials. The skeletal remains of caprids were most common among the animal remains but those of equids, bovids and felids were also present. In one portion of the upper chamber five complete equid skeletons were discovered, which suggests that they were transported there as integral animals or carcasses. In total it is believed that at least 350 animals were deposited in Sding chung. Calibrated radiocarbon dates for 12 samples consisting of bones, wood and textiles were obtained, which indicates that burials at the site occurred between *c.* 300 BC and AD 300. The authors report that osteological and genetic analyses of the human and animal remains are planned. See, as above, Lu *et al.* 2022. Sding chung is the first cave with large numbers of burials to come to light in Upper Tibet. Based on a single radiocarbon assay, a far less extensive cave burial on the Western Byang thang has been provisionally dated to *c.* 5th century AD (Bellezza 2020a: 32 (n. 68); 2014a: 515). T'ang sources note that burial in caves was a custom of Yang t'ung (Zhang zhung; Bushell 1880: 527 (n. 9); Haarh 1969: 345, 347). Given that bovids, caprids and equids are the most common sacrificial creatures and psychopomps reserved for interment in Tibetan archaic funerary texts, it is probable that at least some of the animal represented in Sding chung functioned in an analogous manner. The ritualistic character of the osteological evidence is strengthened by the deposition of articulated equid skeletons in the cave.

[13] It is still not known when the earliest homo sapiens colonizers reached the Tibetan Plateau. A paucity of ancient human remains in secure archaeological contexts has impeded an understanding of the population history of this huge territory. Lu *et al.* (2016) conclude that the genetic origins of the Tibetans are considerably more ancient and more complex than previously thought, pushing them back to at least 40,000 years ago. The evidence presented in the Lu *et al.* study indicates the existence of both Palaeolithic and Neolithic ancestries in the Tibetan gene pool (paternal and maternal lineages), establishing continuities between the prehistoric inhabitants and those of today. Based on the findings of various other studies as well as their own, Liu *et al.* (2022) conclude that the Tibetan genetic patrimony rests on a substratum of Palaeolithic Eurasian ancestry (making up as much as 20% of the Tibetan lineage), but most of their ancestry is held in common with Late Neolithic populations of the Upper Yellow River basin, particularly those belonging to the Qijia culture. Nevertheless, Liu *et al.* (2022) hold that genetic links between Tibetans and lowlanders probably cannot be fully accounted for by wholesale migration emanating from the Upper Yellow River basin, which served as a vehicle for the spread of barley cultivation and domestic animals on the Plateau, *c.* the early to middle second millennium BC. Based on major differences in the archaeological cultures of the Tibetan Plateau and Upper Yellow River basin and the distribution of adaptive alleles related to hypoxia, Liu *et al.* (2022) consider that the Tibetan genetic pool potentially formed well before 2000 BC.

have been discovered in the northern part of the Eastern Byang thang, it is the south of the region (below the 32nd parallel) that was and is most amenable to colonization. The south is warmer, wetter and on average lower in elevation than the north (much of the northern Byang thang is covered in permafrost). Hence, it comes as no surprise that the more amenable southern tier of the Byang thang is where the rock art and associated structural remains of the Late Prehistoric era are distributed. At a place called Nwya Devu, in the southern portion of the Eastern Byang thang (Shan rtsa County, Gzhung smad Township), the first excavation of a stratified site on the Tibetan Plateau believed to be of Paleolithic antiquity was conducted between 2013 and 2018 (Nwya Devu is not far from rock art sites S21 and S22). Relying upon optically stimulated luminescence (OSL) dating techniques, the earliest of the three strata excavated at Nwya Devu and by extension the lithic assemblage it contained, which is marked by relatively advanced prismatic core and blade technology (blade cores, flake cores, blades, flakes, and others), are estimated to date from 30,000 to 45,000 years ago (Zhang *et al.* 2018). While this forgoing study requires much follow-up work, including the discovery of other stratified sites potentially predating the Last Glacial Maximum (18,000–24,000 years ago), it is indicative of the longstanding nature of human activity in Upper Tibet.[14]

Wang *et al.* (2020) show that the Central Tibetans are closely related genetically to the inhabitants of Chokhopani (*c.* 800–600 BC), Mustang.[15] A more extensive study of ancient genomes from Transhimalayan regions of Nepal pushes the formation of the Tibetan gene pool back to *c.* 1500–1300 BC, at least 500 years earlier than findings from Chokhopani (*Liu et al.* 2022). This study is based on genome-wide data obtained through DNA extracted from dental materials belonging to 38 individuals in seven burial sites in the Mustang and Manang regions of Nepal, which range in age from *c.* 1500 BC – AD 650.[16] These are highly significant findings because they indicate that the demographic composition of Tibetans has been relatively stable since no later than the Late Bronze Age. Thus it appears that the rock art corpus of Upper Tibet was primarily the production of individuals possessing a Tibetan genetic profile. It follows that the thematic, artistic and technical developments in the rock art of the territory can mostly be assigned to endogenous cultural processes rather than to extraneous factors such as major demographic shifts in the population. That historic Tibetans are largely of the same ancestry as their Late Prehistoric era forebears goes some way to explaining the manifold continuities exhibited in the content of rock art, not just in Upper Tibet but across much of the Plateau (this topic will be discussed in Volume V of the series). Relatively little is still known about the Neolithic in Upper Tibet, a time before rock art production began in that territory.[17] The cultural and linguistic relationships between their Neolithic predecessors and the creators of early rock art in Upper Tibet remain shrouded in mystery.[18] It is

In addition to examining the phylogenetic data of other East Asian populations, He *et al.* (2021) collected genome-wide data of 78 modern Tibetans that they differentiate into 11 geographic regions, as well as genomic data from eight genetically related ancient humans discovered in burials of the Mustang region of Nepal (in Chokhopani, Mebrak and Samdzong), which date between *c.* 800 BC – AD 500. The He *et al.* (2021) study holds that modern Tibetans can be divided into several population substructures: Central Tibetans have predominant Paleolithic and Neolithic ancestries derived from indigenous hunting-foraging groups stemming from early Eurasian lineages and the upper Yellow River basin respectively, while Amdo Tibetans on the northeast part of the Plateau have an admixture of 2% or 3% western Eurasian haplotypes, and Kham Tibetans in the southeast have strong Neolithic Southeast Asian affinities. Presumably, for the purposes of their study, He *et al.* (2021) subsume adjoining parts of Upper Tibet under Central Tibet, but nowhere is this made manifest. Another study of genome-wide SNP data by Ma *et al.* (2022) suggests that the general pattern of allele and haplotype sharing between Tibetans living in eastern Nag chu (Sbra chen County), Lhasa, Shigatse, and Chamdo is characterized by a significant degree of genetic homogeny. Thus this study refers to these overlapping groups or clade as 'core Tibetans'. The Ma *et al.* (2022) study reaffirms that the so-called core Tibetans share much of their genetic ancestry with the prehistoric populations in Mustang noted above. The scope of genetic drift and admixture and its implications for an understanding of Tibetan population history discussed in the studies outlined in this note are still to be reckoned with fully. The sampling of larger quantities of ancient nuclear and mitochondrial DNA is sorely needed if the historical and spatial relationships between the prehistoric and contemporary populations of Tibet are to be more accurately fixed.

[14] On potential Palaeolithic sites more generally on the Tibetan Plateau, see Aldenderfer and Zhang 2004; d'Aploim Guedes and Aldenderfer 2020.

[15] There are also strong genetic affinities between modern-day Tibetans and Sherpa and members of the Bsam rdzong (Samdzong) culture in Mustang (*c.* AD 400–700). See Aldenderfer and Eng 2016.

[16] Genetic profiles were obtained from (Suila (1494–1317 BC), Lubrak (1269–1123 BC), Rhirhi (805–767 BC), Kyang (695–206 BC), Chokhopani (801–770 BC), Mebrak (500 BC – AD 1), and Samdzong (AD 450–650), all of which have been shown to be closely related to contemporary Tibetans and Sherpas. Genetic differentiation from lowland populations and the formation of the Tibetan gene pool is now traceable through dental materials from Suila and Lubrak to *c.* 1500–1300 BC. However, due to a lack of DNA predating 1500 BC, it is still not known when the Tibetan genome was first constituted. A Tibetan genetic cline extending from northeastern Tibet to the Himalaya has been identified, which is theorized to be the result of population and linguistic dispersal originating in the northeastern fringes of the Plateau. See, as above, Liu *et al.* 2022. There is still no broad consensus among historical linguists regarding the timeline of the Bodish language subclade (from which Tibetic languages were derived). Based on a phylogenetic reconstruction of Sino-Tibetan languages relying on Bayesian computational methods, one study holds that Bodish languages first appeared on the northeast part of the Tibetan Plateau c. 5000 years ago before spreading across the Plateau some 3600 years ago, along with barley cultivation and the rearing of sheep (Zhang *et al.* 2020).

[17] Aldenderfer (2007) reviews archaeological evidence for Neolithic settlement in three major regions of the Tibetan Plateau: Amdo (Qinghai Plateau), Kham and Central Tibet. Neolithic sites in these three regions have been provisionally dated using chronometric means to a maximum of 6700, 5800, and 3800 years ago respectively. I estimate that *c.* 40 sites identified as Neolithic have been discovered on the Tibetan Plateau by Chinese archaeologists since the 1980s. On the Neolithic in Tibet, also see Chayet 1994: 34–55; Aldenderfer and Zhang 2004: 26–40; d'Aploim Guedes and Aldenderfer 2020.

[18] It appears that it was the native inhabitants of Upper Tibet who incorporated bronze and iron technologies from North Inner

very likely though that some sites in which rock art occurs were exploited by antecedent Neolithic hunting and foraging peoples (who do not appear to have left behind vestiges of permanent dwellings or other fixed structures). At any rate, that Upper Tibetans in the Late Bronze Age and Iron Age chiefly arose endogenously from Neolithic hunting, foraging, agrarian and/or pastoral societies is supported by genomic findings, indicating that there was no fundamental demographic break in Tibetan populations after the Late Neolithic (*c.* 2000–1500 BC).

The Central and Western Byang thang share very similar cultural, ecological, and topographical traits. The analogous rock art and monumental records demonstrate that their populations have been intimately tied together since no later than the Late Bronze Age. Despite some variations in the archaeological record, the Central and Western Byang thang was (and still is) closely allied in geographical and human terms to other parts of Upper Tibet. This is a very sparsely populated region and only in the modern period have a few towns sprung up around government facilities of the PRC. Local inhabitants have long depended heavily on stock rearing (yaks, sheep, goats, horses) for their subsistence. In addition to pastoralism, agriculture and hunting have played a relatively small but significant role in the local economy. Except in the old agricultural, monastic and administrative centres, inhabitants of the Central and Western Byang thang have traditionally resided almost exclusively in black yak hair tents (*sbra*). Rock art notwithstanding, the monumental record furnishes the most comprehensive body of evidence for understanding the cultural complexion of the Central and Western Byang thang in the Late Prehistoric era now at our disposal. However as little archaeometric data are available currently for dating early residential, ritual, ceremonial, and burial structures in the region, historical, architectural and cross-cultural comparative approaches to understanding their origins and development are mostly relied upon. These informed methods yield only broad estimates of the chronology of the first phases of monument construction in Upper Tibet and these remain unverified and open to revision (more on the dating of archaic monuments is found in Volume III, Section Ib, of this series). Large-scale, freestanding residential structures, various kinds of fortifications, dispersed settlements, troglodytic communities, and a diverse array of tombs and other types of funerary structures, which exhibit archaic morphological features, supply a continuous record of habitation and cultural development in the territory from the Late Bronze Age until the Vestigial period. These types of structures are also distributed in Stod but not so much on the Eastern Byang thang. Curiously, the building feats achieved in aggregate on the Central and Western Byang thang before the advent of Buddhism rival or surpass those of the Historic era, when the most ambitious construction projects consisted of small Buddhist temples and monasteries and the relatively modest permanent residences of local headmen and government representatives.

The archaic residential, ceremonial, burial structures established on Central and Western Byang thang indicate that, beginning in the Late Bronze Age or Iron Age, this vast territory had progressed well beyond segmented societies consisting of roving bands of herders and hunters.[19] The large strongholds and necropolises found here demonstrate that a high degree of economic integration and socio-political consolidation had been achieved in the Late Prehistoric era. Relatively advanced technological capabilities in other areas of craft and design would have been a corollary to the sophisticated monumental infrastructure of the Central and Western Byang thang, as perhaps were wide-ranging trade networks and intellectual exchanges. Ambitious construction projects established for the exercise of political control and social influence strongly suggest a hierarchical society had taken root. However it is still not known whether the region prior to the Imperial period was organized as one or more chiefdoms or had progressed to the level of an early state ruled by monarchs (Bellezza 2020c: 296–298). The most well-developed sedentary communities sprung up around Lake Dang ra g.yu

Asian sources into their cultural matrix in the Late Bronze Age and Iron Age (Bellezza 2020a; March 2016 *Flight of the Khyung*: www.tibetarchaeology.com/march-2016/). This indigenous adaptation of Eurasian technological advances coincided with other innovations that led to more socially and economically complex societies in Late Bronze Age and Iron Age Upper Tibet (Bellezza 2020c). Cao *et al.* (2022) observe that the repertory of copper and arsenical copper tools and ornaments from burials of Gepa Serul (*c.* 1600–1100 BC), in far western Tibet, have strong affinities with those of bronze cultures of the Eastern Steppe and Northern Zone (Northwest China). Lead isotope values of most objects from Gepa Serul are characterized as highly radiogenic lead (HRL) but differ markedly from HRL ores used in the Central Plains, Hexi Corridor and Xinjiang; therefore, direct transmission of metallurgical technologies and objects to far western Tibet is not likely (Cao *et al.* 2022). That Tibetan copper alloy objects of the Late Prehistoric era are derivative and not simple copies of those belonging to the Northern Zone and Xinjiang is supported by the typological study of a wide range of metallic objects (Bellezza 2020a; 2020c). Yet, this does not rule out foreign groups through invasion, migration or bride sharing as having contributed to the cultural florescence of Upper Tibet in the Late Prehistoric era. Any such interactions may have involved introgression or perhaps the mixing of novel haplotypes into the Upper Tibetan gene pool but this remains to be determined. The welter of clans and tribes, some of foreign origins, stated in Tibetan literature to have settled in Upper Tibet does suggest a process of demic augmentation in the region over the long haul. The timescale of this process, however, is unclear in the texts. Our understanding of the phylogenetic evolution of human populations in Upper Tibet will remain speculative until ancient DNA recovered from the territory is genetically analyzed.

[19] On the socio-political development of the region and of Upper Tibet more generally in the Late Prehistoric era, see Bellezza 2008: 569–572; 2020c: 239–303.

mtsho in the Central Byang thang. A series of agrarian villages were established on terraces rising high above the lake, particularly along the eastern shore.[20] Approximately half of these farming villages are still viable today, while the rest have been abandoned for a lack of water for irrigation and other vital needs. In addition to the agrarian communities of Lake Dang ra, with their compartmentalized residences, the remains of elite forms of architecture are situated around its waters. On elevated landforms all along the eastern shoreline are the remains of nucleated residential centres, including hilltop installations and what are thought by local informants to have been religious premises as well as troglodytic settlements (these more exclusive residential facilities were established in side valleys and on high terraces).[21] Many of the archaic residential structures founded at Lake Dang ra were built entirely of stone and had massive corbelled roofs.[22] All-stone corbelled buildings at Lake Dang ra and other parts of Upper Tibet employed bridging stones and stone sheathing to produce flat roofs. These extremely heavy roofs were supported by a series of thick walls and buttresses that formed ground plans with irregular contours. The system of corbelling used around Lake Dang ra and other Upper Tibetan sites was only suited to the creation of small rooms (the corbelled arch was not perfected in the territory). At least twenty sites with all-stone corbelled edifices at Dang ra formed extensive complexes with multiple buildings, which potentially functioned as citadels, fortresses, palaces, and temples. In the local oral tradition, the archaic residential sites of Lake Dang ra are associated with the Zhang zhung kingdom. Reference to Zhang zhung is found in Tibetan and Chinese textual sources; however its territorial extent and duration remain obscure (Bellezza 2011; 2018). Whatever polity Lake Dang ra might have belonged to, it was clearly one of the premier hubs of demographic and economic activity in Upper Tibet during the Late Prehistoric era. Settlements comprised of all-stone corbelled structures, with their unique design and construction traits, extend to other areas of the Central and Western Byang thang as well as to Stod and the western fringe of the Eastern Byang thang. The pattern of settlement associated with them in Upper Tibet is spread over a contiguous area extending from 88.2° E in the east to the western borders of Mnga' ris (Bellezza 2011).[23] Examples of this form of architecture are also found further west in Ladakh.[24]

What appear to be primarily funerary ritual and burial monuments manifesting in various forms are well accounted for on the Central and Western Byang thang. These structures are distributed over the same areas as the all-stone corbelled edifices and are of two basic types: walled enclosures and walled mounds.[25] These superficial structures vary greatly in size, intricacy of design, and quality of construction. Although not all of these diverse monuments are necessarily mortuary or funerary ritual structures, many appear to have functioned as such (Bellezza 2008: 69–141; 2014a). They belong to a cultural tradition of burials and archaic death rites that can be traced back to *c.* 900 or 800 BC and which persisted in one form or another in Upper Tibet until *c.* 900 AD.[26] Like archaic residential structures, the enclosures and mounds define the monumental profile of the Central and Western Byang thang in the Late Prehistoric era, which contrasts sharply with the architectural make-up of the territory that emerged with the spread of Buddhism in the Early Historic and Vestigial periods. The existence of

[20] For a description of these settlements and the temples and monastic communities that they have supported, see Bellezza 1997: 363–419; March 2014 *Flight of the Khyung*: www.tibetarchaeology.com/march-2014/.

[21] On these various archaic residential sites, as well as early ceremonial and burial sites around Lake Dang ra, see Bellezza 1996; 1997; 2001; 2002a; 2011; 2014a; 2014a; 2014b; 2014c; March 2017, June 2014, April 2014, and March 2014 *Flight of the Khyung*: www.tibetarchaeology.com/march-2017/; www.tibetarchaeology.com/june-2014/; www.tibetarchaeology.com/april-2014/; www.tibetarchaeology.com/march-2014/.

[22] For a description of the architectonic traits of this form of construction, see Bellezza 2008: 32–37; 2014c: 1–3; 2020c: 276–282.

[23] For a list of these sites and their locations, see tables and maps in Bellezza 2014a: 563–640. Four complexes of all-stone corbelled edifices have also been surveyed at Bkra ri gnam mtsho (Bellezza 2001:231–246; June 2014 *Flight of the Khyung*: www.tibetarchaeology.com/june-2014/), four at Da rog mtsho (Bellezza 1999; 2014c), and one on the large island in Ngang la ring mtsho (Bellezza 2014c: 478–483). Three strongholds on the Western Byang thang (in Dge rgyas County), which may have been of all-stone corbelled construction, were established in highly defensible locations: Zhing chen mon mkhar, Shang klu yi pho brang mon mkhar and Mon mkhar ser nag. They are described in Bellezza 2001 and 2002a. Two all-stone corbelled edifices sitting atop rock formations are in the upper Gtsang po basin, in 'Brong pa County (Bellezza 2014c: 32–35; 113–115). A very large citadel partly of all-stone corbelled construction, which appears to be the fabled Gad gi byi ba mkhar of the Zhang zhung kingdom mentioned in Yungdrung Bon sources, is in the upper Gtsang po basin, in 'Brong pa County (Bellezza 2014c: 38–40). What seems to be a religious installation built in the same manner and called Rta mchog kha 'bab dgon pa is at the source of the Gtsang po river (Bellezza 1993). For three other potential religious facilities also of all-stone corbelled construction in the upper Gtsang po basin, see Bellezza 2014c: 292–295; 340–347.

[24] On the all-stone corbelled installations of Ladakh, see Devers 2016; 2014; June 2013 and September 2012 *Flight of the Khyung*: www.tibetarchaeology.com/june-2013/; *Flight of the Khyung*: www.tibetarchaeology.com/september-2012/. Two sites with all-stone corbelled edifices have also been documented in Mang mkhar, in Lha rtse (Central Tibet; see September 2010 *Flight of the Khyung*: www.tibetarchaeology.com/september-2010/.

[25] For a list of these sites and their locations, see tables and maps in Bellezza 2014a: 563–640. On the morphological and cultural characteristics of these monuments and the description of individual sites, see Bellezza 2001; 2002a; 2008; 2014a; 2014c. Another class of burial structures found on the Central and Western Byang thang and Stod surveyed by the author are cubic tombs erected on the summits of mountains up to a height of 5600 m.

[26] On the oldest Mon dur type tomb in Upper Tibet to yield a calibrated radiocarbon age, see Bellezza 2008: 91; 2014a: 133, 134; 2020c: 259, 260. On the termination of the custom of burial in elaborate tombs, see Bellezza 2013: 119.

large funerary ritual facilities and burial grounds are a good indicator of the magnitude of intellectual and technological progress attained in the Late Prehistoric era. Yet, to the best of this present author's knowledge, no controlled excavations of these structures on the Central and Western Byang thang have yet been undertaken. Hence the material cultural assemblages and mortuary patterns of deposition associated with the walled enclosures and walled mounds are all but unknown. In the oral tradition of the local inhabitants, these monuments are commonly called Mon dur (graves of the Mon) and Mon ra (enclosures of the Mon). The Mon is supposed to have been an ancient tribe that inhabited all of Upper Tibet west of the 89th meridian sometime before the coming of Buddhism. Although legends regarding the Mon are attached to many types of ancient funerary sites in the territory, as already explained, paleogenetic studies indicate that the forbears of the current Upper Tibetan population were anchored in the territory throughout the Late Prehistoric era. Thus, the attribution of ancient monuments to a foreign people may be largely apocryphal. It appears that the Mon attribution had become a means to intellectually and emotionally distance local residents from their often-reviled pre-Buddhist past (Bellezza 2008: 116). It is still possible, however, that a ruling elite, or another demographic sliver of the ancient population of Upper Tibet, came from outside the Plateau.

There are two other important classes of archaic monuments on the Central and Western Byang thang that also extend west into Stod. These two types of structural features are based on the prolific use of menhirs/monoliths, which are called long stones (*rdo ring*) or registers (*tho*) by Upper Tibetans. They consist of menhirs erected inside quadrate enclosures and rows of menhirs appended to what appear to be temple-tombs.[27] These two classes of monuments are high-water marks of indigenous cultural development in the Late Prehistoric era and geographically distinguish the bulk of Upper Tibet from other regions of the Tibetan Plateau and surrounding territories on the Indian Subcontinent and in North Inner Asia. The walled-in menhirs are comprised of one or more (up to 50) long stones planted near the west edge of a quadrate enclosure that consists of four masonry walls embedded in the ground (the original height of these walls is uncertain). The walled enclosures are typically oriented in or close to the cardinal directions. They seem to have had funerary ritual and possibly commemorative functions as well. Around 70 sites containing this type of monument have been surveyed by the author on Central and Western Byang thang, some of which are flanked by the kinds of superficial funerary ritual and burial structures known as Mon dur. More imposing still are the rows of long stones arrayed just east of a well-built edifice that seems to have functioned as both a burial space and ritual venue. Where sufficient structural evidence is assessable, these all-stone, windowless buildings were constructed with flat corbelled roofs, just like some archaic residential structures in Upper Tibet. Twenty-three sites have been documented, each containing one to six arrays of long stones with appended temple-tombs. They range in size from arrays with around 100 miniature menhirs and edifices 3 m to 5 m in length, to sites boasting up to six complexes, each with many hundreds of menhirs and temple-tombs 55 m long. The largest among them is Yul kham bu, on the Western Byang thang, one of the most impressive sites featuring menhirs anywhere in Inner Asia (Bellezza 2001: 179–181; 2008: 84–87; 2014b: 148–150; 2020c: 249). Radiocarbon data from an associated tomb suggest that the arrays of long stones and appended edifices may have been founded as early as the 10th or 9th century BC (Bellezza 2020c: 259–262; 2008: 91). In a recent work, I have referred to these monuments as 'long stone grid necropolises' and consider how they reflect sociopolitical consolidation and economic expansion in Upper Tibet during the Iron Age (2020c: 264–270). In assessing the role played by long stone grid (LSG) necropolises in ushering in fundamental changes in the cultural complexion of Upper Tibet, comparative analysis of the better studied deer stone-khirigsuur (DSK) sites in Mongolia and Southern Siberia has proven to be of much utility. We conclude that the LSG necropolises embodied the most advanced architectonic and organizational features of their time and signify a remarkable concentration of political and economic resources. Undoubtedly, interment in these monuments and their ritual regulation were reserved for members of society enjoying high status and rank. Moreover, as they possess a unique suite of design, constructional and situational traits, the LSG necropolises and walled-in pillars serve as *sui generis* geographic markers of a distinctive material cultural order that once overlaid much of Upper Tibet (Bellezza 2011). Except in its most westerly reaches, the Eastern Byang thang did not support the establishment of all-stone-corbelled edifices, LSG necropolises, walled-in pillars, or mountaintop cubic tombs. Moreover, the spectrum of other funerary structures is much narrower in most of the Eastern Byang thang than it is in more westerly tracts of Upper Tibet. The monumental evidence suggests that the Eastern Byang thang was peripheral in terms of early political and economic achievement. Nonetheless, the rock art of all parts of Upper Tibet was very closely aligned, as seen in its parallel content, techniques of production, and topographic placement. This cognate rock art furnishes evidence for an interwoven cultural fabric covering all parts of Upper Tibet.

[27] On these two classes of standing stones and their morphological and cultural characteristics, see Bellezza 1996; 1997; 2001; 2002a; 2008; 2011; 2014a; 2014c; 2020c.

As for differences in the monumental assemblages of the Eastern Byang thang and other parts of Upper Tibet, we have put forward that they may support the division of the territory into the two interrelated polities and paleocultural formations known as Zhang zhung and Sum pa, which are mentioned in Yungdrung Bon (G.yung drung Bon) historical records (Bellezza 2011; 2008: 6, 80, 81, 116).

The existence of a highly developed monumental infrastructure in Upper Tibet in the Late Prehistoric era indicates that it had achieved a level of cultural, social, economic, and political advancement commonly associated with what is popularly called 'civilization' (albeit at a preliterate stage of development).[28] Hence Upper Tibetan rock art of the Late Prehistoric era was the fruit of a civilized people, even if the stations in life of the makers did not necessarily embody the highest ideals and practices of their times. It is in this context, with its various implications for the human experience in the region, that rock art of the territory in the Late Prehistoric era must be considered. Of course, the exact nature of the relationships that rock art makers had to elite architecture would have been dependent on their social prestige, economic position, and political stature. The rock carvings and paintings of the Late Prehistoric era were made by a people that, at a minimum, were aware of the cultural and technological innovations unfolding around them. More likely, though, they were participants in these momentous activities in some capacity or other. It can be asserted that rock art producers themselves lived in, built, worked at, or at least knew of the grand residential complexes in the general vicinity of the sites where they carved and painted. Similarly, rock carvers and painters either constructed, presided over, toiled in, or were otherwise aware of the large ceremonial and burial centres that sprang up around them. The accessibility of the rock art medium and the tools required to create it, the variable quality of execution, and the depiction of both mundane and extraordinary themes in rock art suggest that a wide spectrum of ancient society may have been involved in its production. A high degree of social inclusiveness would have served to broaden the relationships that rock art makers had with elite monuments. A lack of firm dates for both rock art and monumental sites assigned to the Late Prehistoric era precludes a more fine-grained analysis of the chronological links and social relationships incumbent in the artistic and monumental assemblages.

Seven main pictographic sites (including two not visited by the present author, as well as one not included in the tally of major sites) have been documented on the Central Byang thang, and three on the Western Byang thang. The remainder of rock art sites in the region accommodate petroglyphs.[29] The topography of rock art sites of the Central and Western Byang thang is characterized by natural parietal structures, rock panels on open cliff faces, and individual boulders. Like the Eastern Byang thang, caves, overhangs, fissures and niches in limestone (*rdo thal*) outcrops and escarpments were favoured for the production of pictographs. Many pictographs are symbolic in nature and were invested with religious significance (e.g. swastikas, sunbursts), which suggests that some parietal structures may have functioned as sanctuaries and cult venues (this identification is strengthened by the structural modification of some caves and overhangs for habitation). As such, the pictographic sites of the Central and Western Byang thang were part of a cultural and religious continuum extending to the Eastern Byang thang and with outliers further west in Stod and Spiti. The makers of petroglyphs were drawn to cliff faces and boulders. Sedimentary formations (some slightly metamorphized) were habitually chosen by carvers, who gravitated towards regular and fairly smooth textured expanses of rock. As a rule, carvers worked rock surfaces near ground level or more elevated ones that were easily accessible. Formations consisting of multiple rock panels were especially attractive to carvers, who used them to align petroglyphs in varying directions and inclinations. Multiple rock panels also created natural steps and ramps that were exploited to reach higher areas on the formations. The placement of rock carvings in accessible locations indicates that they were made to be viewed easily by others. One such site (S30) straddles a well-trodden route between two major basins, while most other sites appeared in more isolated locations. Boulders (sedimentary, volcanic) ranging from less than 1 m across to 4 m in length formed the basic material for carvers at other rock art sites of the Central and Western Byang thang. These boulders often form large fields dispersed over wide areas (e.g. S35, S44). Most boulder fields with rock art occupy relatively secluded locations that are removed from major transportation routes. Therefore most such sites appear to have been specially created as purpose-built theatres or havens. In many examples, the petroglyphs of a discrete boulder were the handiwork of a single artist or group of artists working in concert. Such boulders served as an exclusive venue for showcasing the independent expression of an individual or closely related persons. We might infer from this that carvers were motivated to articulate or assert their personal qualities and exploits

[28] On some of the defining criteria of this civilization, see Bellezza 2008; 2014b; 2014c; 2020a; 2020c.

[29] Some inhabitants of Upper Tibet recognize that petroglyphs and pictographs are an important historical resource made in the past by their ancestors. Nonetheless, many local herders and farmers believe that rock art was self-formed (*rang byon*) and reflects the holiness and magical qualities of the parent sites. See Bellezza 2001: 200, 201; 2002b: 348. Other local residents attribute rock art to a binary class of spirits known as the *lha 'dre*.

(e.g. hunting and combat) in relation to a greater social whole. Whether the observing side of this social equation embraced the entire society to which the petroglyph makers belonged, or just to certain sections of it, cannot be determined from the graphic evidence. Hunting is a case in point: were venatic scenes created to just gain the attention of other hunters or were they intended for non-hunters too?

Twenty-three rock art sites that have been surveyed separately on the Central and Western Byang thang appear in the map and table in Section Ic. Yet four other sites in the region (including two not visited by the present author) are also considered in this work. A total of 2297 rock art subjects have been inventoried separately in the 23 sites,[30] each of which is treated individually in the inventory that follows. These include 130 pictographs (5.6% of the total), a much smaller proportion of rock paintings as compared to the Eastern Byang thang. However, *c.* 70 additional pictographs from four further sites are described and illustrated, with most being found at Lake Dang ra. Of all the rock art inventoried individually in the 23 highlighted sites of the Central and Western Byang thang, 1946 subjects (85% of the total) occur at just four places: Bshag bsangs (S30), Sngon gdong (S35), Ri rgyal (S44), and Dkyil sgrum (S45), all of which house petroglyphs. Produced from the Late Bronze Age to the Modern period, a timeframe of roughly three millennia, the rock art of the Central and Western Byang thang varies greatly in subject matter, style and execution. Nevertheless, in content and form it is very closely allied to rock art in other areas of Upper Tibet. This permits us to speak of an integral tradition of rock art production extending from Gnam mtsho in the east to Gu ge and Ru thog in far western Tibet. The Upper Tibetan tradition of rock art betokens vibrant cultural, social, and economic links encompassing the entire territory, which emerged in the Late Bronze Age and persisted throughout the rest of the Late Prehistoric era and in the Historic era. Notwithstanding a deeply entrenched artistic and technological groundwork in the Upper Tibetan rock art zone, there are many unique and idiosyncratic rock art creations heralding the skills, proclivities and imagination of individual artists and groups of artists.[31] Furthermore, Upper Tibetan rock art exhibits stylistic and thematic affinities with adjoining territories of the Tibetan Plateau and Himalayan rimland and progressively weaker links to North Inner Asia (these will be explored in depth in Volume V).

Upwards of 80% of rock art subjects inventoried individually on the Central and Western Byang thang are assigned to the Late Bronze Age (*c.* 1200–700 BC), Iron Age (*c.* 700–100 BC) and Protohistoric period (*c.* 100 BC – AD 600).[32] Rock art belonging to the Late Prehistoric era is well distributed throughout the region, particularly in more northerly sites. This contrasts with the Eastern Byang thang, where only around 25% of rock subjects potentially dates to the Late Prehistoric era. The profusion of wild ungulate hunting-themed petroglyphs accounts for a large proportion of rock art predating the Early Historic period on the Central and Western Byang thang. The rock art of the Late Prehistoric era in all parts of Upper Tibet is characterized by several major themes that shaped the thrust of most compositions. These include 1) solitary and group portraits of animals and birds, 2) hunting scenes, 3) natural predation scenes, 4) alternative scenes featuring anthropomorphs and zoomorphs in close association, 5) solitary and paired anthropomorphic portraits, and 6) symbolic subjects, of which the swastika is paramount. Unidentified and more minor compositions (e.g. simple geometrics, desultory lines, scribbles, etc.) aside, more than 90% of all rock art compositions attributed to the Late Prehistoric era in Upper Tibet is counted among these six overarching themes. The fairly restricted range of compositions in the Late Prehistoric era is indicative of systems of social organization and economic production that were not as diverse as those prevailing in the Historic era.

Probably the largest group among the six major categories of depictions in early rock art is zoomorphic portraiture and is comprised of compositions in which a solo animal, and sometimes two or more examples, are portrayed in isolation. By far the most common animal shown is the wild yak, but deer, wild sheep, equids, antelopes, carnivores, and birds are also represented. Many of the animals limned are probably mundane creatures, but in other compositions they may portray archetypes or paragons of the likened species as well as numinous variants. That some animal portraits presumably represent more than mere biological specimens is supported by the lavish depiction of wild yaks with draped belly fringes and exaggeratedly long

[30] In this work, each individual piece of rock art is called a 'subject'. The rock art of Upper Tibet is divided into two major categories of depiction: animate and animate. Animate subjects are subdivided into two major groups: anthropomorphic and zoomorphic (with therianthropic subjects also represented), while inanimate subjects include geometrics, architectural structures, symbols, and various minor compositions. Rock art is broadly classified chronologically as either belonging to the Late Prehistoric era (*c.* 1200 BC – AD 600) or Historic era (AD 600–1950). The basic terms, categories and chronology of rock art are defined in Section IIc of the work.

[31] Furthermore, there are several regional groupings of anthropomorphic depictions (mascoids, bi-triangular bodied) and zoomorphic (arcuate body ornamentation) in Upper Tibet found only in Ru thog.

[32] Discrepancies in the number of subjects belonging to any one period reflects uncertainties inherent in the chronological system of rock art classification used in this work. Therefore some subjects are attributed to two periods instead of one. For a discussion of this matter, see Section IIc.

horns or stags with intricate antlers.[33] Compositions featuring solo raptors with spread wings and sometimes horns also seem to be redolent with meaning that transcends their biological station. Certain compositions sporting wild ungulates are adorned with swastikas, sunbursts and crescent moons, which suggests that mythological and cosmological reckonings played a role in their depiction.

Except for site S12, compositions flaunting hunting skills are not very common in the rock art of the Eastern Byang thang. There are, however, many dozens of hunting scenes on the Central and Western Byang thang and many in Stod as well (a statistical analysis of subjects and compositions is planned for Volume V). According to the rock art record, hunting was conducted on foot and on horseback and almost exclusively with bows and arrows.[34] However, a few hunters are shown equipped with lassos or supplementary implements. Both mounted and ambulatory hunters are frequently accompanied by sleek-bodied hunting dogs. Quarry consists primarily of wild yaks but also deer, wild sheep and antelopes are being pursued. Standing archers are often shown in a perspective where they appear to be positioned perpendicular to their prey, which seems to signify that they are lying in wait or launching a surprise attack. In other compositions, archers on foot confront wild yaks and other wild ungulates head on in what appear to be brazen demonstrations of skill and valour. Mounted archers are sometimes presented attacking prey from all angles as they close in for the final kill. Many hunting compositions show archers drawing their bows, which either represents taking aim or the very instance an arrow is being released. With the graphic evidence available it cannot be determined which action is intended. Nevertheless, as a successful outcome seems to underlie venatic scenes as a convention, it is more plausible that hunters are being depicted in the act of slaughtering animals, rather than in the more equivocal stage of simply aiming an arrow. In some hunting scenes archers on horseback turn to face the rear of their mount when shooting. This manoeuvre is commonly referred to as the 'Parthian shot'; however, the rock art record demonstrates that it was already known in Upper Tibet by the Iron Age. Like many other motifs in rock art, the depiction of the bow and arrow tends to be cursory in nature or highly stylized, but more fully formed examples often picture the S-shaped bends of the recurve bow, an improved weapon type that appears to have been developed in North Inner Asia in the Late Bronze Age.[35] Some compositions revel in the gory details of game in the throes of death, which are illustrated bleeding from the mouth or other parts of the body. The bodies of wild yaks and other wild herbivores are also sometimes exhibited already struck by arrows. That artists did not shy away from sanguinary aspects of the hunt exudes a certain pride in the killing abilities of hunters (Bellezza 2020c: 271). The tactical prowess of ancient hunters is on display in many rock art sites on the Central and Western Byang thang and in Stod. The outflanking, double envelopment and encirclement of fast-moving game animals such as the wild yak required careful planning, organization and execution, which in turn demanded advanced capabilities in reconnaissance, multilateral deployment of horsemen and ambulatory huntsmen, synchronization of approach, and concerted assault (cf. Bellezza 2020c: 482). That hunting rock art served as a mechanism of social cohesion and group identification seems probable. Its prosaic economic and social functions like providing meat and showcasing the virility of hunters aside, hunting compositions in Upper Tibet were probably imbued with deeper abstract connotations. However, as the conceptual and imaginary elements of hunting scenes are not explicit to modern observers, any assertion of their subtle nature remains speculative. A discussion of possible abstract functions revolving around ritualistic, cosmological and mythological themes is to be explored in Volume V. The prototype for big game hunting scenes in Upper Tibet emerged out of the Late Bronze Age, which was preceded by analogous themes in Ladakh of the Late Neolithic/Bronze Age. Late Bronze Age and Iron Age compositions featuring the slaughter of large herbivores are also prevalent in the rock art of the grasslands of northeastern Tibet. The fundamental scene architecture of big game hunting on the Tibetan Plateau owes much to North Inner Asian cultural precursors.

Parallel to hunting scenes, and even sometimes part of the same compositions in Upper Tibet, are natural predation scenes. These compositions feature wild ungulates (wild yaks, wild asses, stags, wild sheep, etc.) being pursued and attacked by wild carnivores (wolves, felids). The identity of the wild ungulates involved in compositions are often unambiguous, but wild carnivores can be hard to recognize. In many compositions the rendering of carnivores was done in a more rudimentary fashion than wild ungulates. This

[33] In Bellezza 2008 (171, 173–175) we consider that solo zoomorphic portraits may variously have been made as aesthetic or recreational exercises; magical charms designed to increase the fertility of game; thaumaturgic instruments for the successful outcome of hunts; tributary offerings or expressions of thanksgiving, religious and social symbols pertaining to ancestral, clan, territorial, and other types of protective deities; divine emissaries of the afterlife; and as transformative forms of adepts and priests.

[34] On hunting rock art in Upper Tibet, see July, August and September 2016 *Flight of the Khyung*: www.tibetarchaeology.com/september-2016/; www.tibetarchaeology.com/august-2016/; www.tibetarchaeology.com/july-2016/.

[35] On the introduction of the recurve bow in Tibet, see Bellezza 2020c: 213, 226–228, 271.

bias extends to hunting scenes where, for example, significant effort was frequently made to carve wild yaks, while accompanying hounds are smaller and cruder undertakings. Therefore, it is frequently unclear whether a wolf or a felid (tigers, snow leopards, lynxes) is intended by compositions featuring natural predation. In some cases long-tailed carnivores are striped or spotted, which recalls the tiger and snow leopard respectively. Subjects with tails that curl over the back are also reminiscent of felids. The gaping jaws, pricked ears and claws of certain specimens, and their close proximity to wild ungulates, are other tell-tale traits of wild carnivores. Yet in some compositions it cannot be determined whether a subject represents a carnivore or equid. As the majority of carnivores in the rock art of Upper Tibet have long, thin bodies and tails, bears do not appear to figure prominently in hunting spectacles. Moreover, foxes with their bushy tails are hardly represented. Knowledge of the ecological cycle of prey and predator was central to rock art expression, but the deeper meaning attached to predation scenes remains difficult to discern. The preoccupation of ancient artists with predation mirrored their fascination with the workings of the natural world around them (Upper Tibet is still home to relatively large populations of wild carnivores and herbivores). By virtue of frequently being part of the same composition or group of compositions in which venatic themes are present, it appears that animal attack scenes acted as exemplars or prototypes for hunting by humans. In this regard, huntsmen seemed to have drawn inspiration from or emulated the fierce meat-eating creatures with which they shared their homeland. The intimate relationships between humans and carnivores recorded in the Tibetan textual and oral traditions support this hypothesis, in that meat-eating animals functioned as ancestral figures, clan symbols and tutelary spirits.

Other kinds of human-animal interactions are also depicted in Upper Tibetan rock art of the Late Prehistoric era, where these two forms of life are shown in close proximity to one another in non-threatening aspects. Wild ungulates were sources of nutrition and useful products and objects of wonder since time immemorial. Thus some of these scenes may have been made as paeans or dedications to the animal world. Other compositions seem to document economic activities, e.g. the capture and taming of wild yaks (e.g. see inventory entries S34_L6_C1, S35_L13_C1, S35_L58_C1, S35_L76_C1). Nevertheless, the dynamic between humans and wild herbivores in some cases does not readily admit of utilitarian functions (e.g. S30_L4_C1, S44_L30_C1, S44_L155_C19, S45_L75_C8, S46_L1_C1). More abstract calculations seem to be veiled behind such rock art compositions. The close physical association of animals with humans potentially underpins the depiction of ritualistic, mythic and mystic phenomena. While not readily apprehensible in the lineaments of compositions, such religion-related functions are in line with the multifarious roles accorded wild animals in the textual and oral traditions of Tibet. Although these written and spoken traditions belong to the Historic era, some of their fundamental motifs appear to be of much greater antiquity (zoolatrous traditions will be explored in Volume V).

Solitary anthropomorphs in various styles and aspects, some of whom are shown holding implements, are one of the most evocative components of the rock art record in Upper Tibet in the Late Prehistoric era. However, these subjects are not common on the Central and Western Byang thang. Only around a dozen examples have been documented in the region. Some anthropomorphs, not obviously engaged in hunting, wield bows and arrows, and one figure holds a linear motif overhead which may represent a sword or club (S44_L70_C1). Of special note is a figure grasping a drum-like object (S30_L2_C2a), one apparently presiding over a ritual scene (S30_L3_C126), and two others brandishing what appear to be lassos (S35_L64_C1, S35_L72_C1). There is also a composition featuring a pair of anthropomorphic figures, one of whom may be playing a flute (S44_L21_C11). There are just one or two compositions on the Central Byang thang that may display combat with bows and arrows (S35_L55_C1, S35_L79_C1). The portrayal of martial activities is rare in Upper Tibet except at the two extremes of the territory, where it is somewhat more common. Poised between Upper Tibet and other territories, the crossroads status of Bkra shis do in the east, and far western sites in Ru thog, may have contributed to the heightened depiction of conflict there. Likenesses of anthropomorphs presented on horseback are better represented on the Central and Western Byang thang than ambulatory specimens. There are around two dozen riders belonging to the Late Prehistoric era not shown explicitly engaged in hunting. Some of these horsemen are depicted armed or holding other implements while others appear to be unequipped or merely holding the reins of their mounts.

The symbolic repertory of rock art on the Central and Western Byang thang closely matches other parts of Upper Tibet. A subject occurring with a relatively high frequency in the Late Prehistoric era is the swastika, a symbolic device of great consequence depicted throughout Upper Tibet in all periods of rock art production. Upwards of 60 solitary examples oriented in both directions have been inventoried on the Central and Western Byang thang. At least in some instances, these swastikas appear to be solar symbols. Another symbolic composition characteristic of rock art of the Central and Western Byang thang is the paired swastika and crescent, which probably signifies the sun and moon. In a few of the perhaps 12 early compositions recorded these paired heavenly bodies are interconnected while in others they are spaced apart (e.g. S30_L3_C112, S35_L41_C1a, S35_L41_C1b). More elaborate still is the sun-moon-swastika triad (S45_L70_C1g to S45_L70_C1i). In this type of composition, the swastika assumes the central position, which appears to indicate that it was invested with a more fundamental cosmological status than either the sun or crescent moon. A more literal variation of the sun and moon is the conjoining of a solar disc with a lunar crescent. The five or six examples documented in the region corroborate the use of this subject long before it gained popularity as a tantric symbol in the Early Historic period (e.g. S30_L3_C42a, S44_L92_C1). The conjoined sun and moon symbol was also used by the Scytho-Siberians in the middle of the first millennium BC (Bellezza 2008: 555), as well as by other Eurasian cultures of antiquity, i.e. Sasanians. As many as 21 likenesses of solitary sunbursts were produced on the Central and Western Byang thang in the Late Prehistoric era, another conspicuous subject to which symbolic meaning was very likely attached (e.g. S36_L2_C1b, S44_L129_C1). Other sunbursts are paired with the crescent moon. Many sunbursts occur in conjunction with animals, which is suggestive of the life-giving properties of the sun. Seven or eight examples of trees round out the symbolic repertory of prehistoric rock art in the region (e.g. S30_L3_C42c, S444_L99_C8h). In an Early Historic-period context, trees functioned as cosmological motifs and ritual objects, but how this lore may might be applicable to antecedent rock art is difficult to ascertain.

Rock art of the Historic era makes up only around 20% of all subjects on the Central and Western Byang thang. Rock art of the Early Historic or Vestigial periods consists of a maximum 383 subjects, while 91 are assigned to the Vestigial or Late Historic periods, 54 to the Late Historic period only, and 27 dating to either the Late Historic or Modern periods. Rock art assigned to the Late Historic period is decidedly less common on the Central and Western Byang thang than it is on the Eastern Byang thang and occurs at far fewer sites (S30 is the biggest source of rock art dating to the Late Historic period in this volume). Rock art of the modern period is uncommon in all parts of Upper Tibet (only four sites on the Central and Western Byang thang may host any of it). Upper Tibetan rock art of the Late Prehistoric era often acted as a magnet, pulling in artists of the Historic era to make successive contributions in the same locations. Just as on the Eastern Byang thang, most rock art of the Central and Western Byang thang produced during the Early Historic and Vestigial periods continued to conform to modes of subject and scene selection established in the Late Prehistoric era. Zoomorphic and anthropomorphic portraiture, hunting scenes, combat and/or martial sporting scenes on horseback, and cosmic symbolism bridged the prehistoric-historic divide throughout Upper Tibet. Ancient traditions of figuration continued even in the Late Historic period with artists often remaining true to earlier subjects and themes. These perdurable aesthetic continuities in the artistic output indicate that a peculiar mix of cultural, social and economic forces continued to mold rock art production for a very long time. Nevertheless, by the close of the Vestigial period rock carving and painting was in steep decline. The heavily curtailed production in the Late Historic period was a mere echo of antecedent artistic traditions.

Although the thematic continuity exhibited by much rock art on the Central and Western Byang thang and in other parts of Upper Tibet in the Early Historic and Vestigial periods demonstrates that there was no large tear in the pre-existing cultural groundwork, a new body of religiously themed rock art appeared. This novel religious art would prove historically very significant. That Upper Tibet had entered a more advanced social, economic and political regime in the Early Historic period is borne out by the appearance of a broader rock art repertory (figurative and symbolic). This is mirrored in the historical record, for in the 7th century AD much of the Tibetan Plateau came under imperial rule. The Tibetan empire expanded its political and territorial grip in Inner Asia until reaching its greatest extent in the 8th century AD and first half of the 9th century AD. The formation of the Tibetan empire and its multifarious contacts with foreign peoples inexorably altered the cultural fabric of Upper Tibet and other territories on the Tibetan Plateau. Among the greatest cultural feats of the Imperial period (*c.* AD 600–850) was the invention of a system of Tibetan writing and the introduction of Indian Buddhism. Rock art of the Early Historic period reflects these two major cultural achievements, as Buddhist-inspired religious symbolism and Tibetan inscriptions appeared in sites throughout Upper Tibet (Bellezza 2020b). The proliferation of new channels of religious belief and devotion added an exceedingly influential dimension to the rock art corpus of Upper Tibet in the Early Historic and Vestigial periods. Although not as well distributed or as diverse as on the Eastern Byang thang or in Stod, the religious rock art that came up on the Central and Western Byang thang in the Early Historic and Vestigial periods underlines distinct sectarian affiliations (these are conspicuous in S30 and S45). The study of Tibetan historical literature buttressed by the rock art and epigraphic records attests to the presence of two major religious orders surfacing in Upper Tibet in the Early Historic period: Buddhism and non-Buddhist entities. Very much has been written about the introduction of Buddhism in Tibet and its doctrinal and ecclesiastic underpinnings and readers wanting to learn more are encouraged to consult the voluminous literature. The category of non-Buddhist religion, however, requires further explanation because it is not so well appreciated. As used in this work, the term 'non-Buddhist' refers to various religious traditions and adherents known to Tibetans as *bon* or *bon po*.[36] A blanket native category, *bon* embraces disparate priesthoods, beliefs and ritual practices believed to have circulated in the Late Prehistoric era (how these personnel and their doctrines and institutions may have been organized and supported remains obscure). The term *bon* is also used in the written and oral traditions to denote the successors of pre-established religious customs and lineages that operated in the Early Historic period. As an alternative and largely indigenous religious system, the *bon po* operated independently and in parallel with Buddhism in the Early Historic period, at least at first. Nevertheless, over time there was much intellectual and artistic crossover between Buddhism and those still identifying as non-Buddhists, which culminated in the late 10th and 11th centuries AD in the emergence of a syncretistic religion known as Yungdrung Bon.[37] The rock art and epigraphy of Upper Tibet constitute two of the most complete bodies of evidence documenting the Buddhist and non-Buddhist systems of religion and the interactions that took place between them in the Early Historic and Vestigial periods.

Like elsewhere in Upper Tibet, in sites S30 and S45 the two fundamental kinds of religion, Buddhist and non-Buddhist, were articulated through the manner in which swastikas were oriented. Swastikas facing in both counter-clockwise (non-Buddhist) and clockwise (Buddhist) directions added to the same rock surfaces in a disorderly or ad hoc fashion are uncommon in the region (e.g. S30_L1_C37 and S30_L1_C38), in contradistinction to the Eastern Byang thang where this is a widespread occurrence. Sectarian distinctions associated with the orientation of the swastika can be traced to the Imperial period, a byproduct of ideological differentiation between Buddhists and those maintaining a religious order based on older indigenous or hybridized traditions. On the Central and Western Byang thang there are only four or five representations of religious stepped structures (*mchod rten* and *gsas mkhar*), all of which can be assigned to the non-Buddhist tradition. These likenesses of non-residential religious monuments are in Bshag bsangs (S30_L3_C32), Dar chung (L31_C1), Brag khung mdzes po (S38_C1a), and Lha khang dmar chags (S42_L4_C1). The best source of non-Buddhist symbolic subjects in the region is the graffiti of Lha khang dmar chags (S42). Otherwise, sectarian markers such five-pointed stars, conches and endless knots are rare on the Central and Western Byang thang. Discerning the sectarian orientation of religiously inspired rock art is very much aided by Tibetan rock inscriptions, which in some instances were made as part of the same compositions as sacred symbolism (they are most plentiful in S30 and S42). However, rock inscriptions are much less frequent on the Central and Western Byang thang than they are on the Eastern Byang thang or in Stod (Bellezza 2020b: 62 (n. 154)). The paucity of epigraphs, stepped structures and most other religious icons suggests that the Central and Western Byang thang was a kind of cultural cul-de-sac in the Early Historic and Vestigial periods. While the Eastern Byang thang and Stod were susceptible to the advance of Buddhism, the more geographically insulated Central and Western Byang thang appears to have been slower to respond to the religious agents of change buffeting the outer parts of Upper Tibet. Lake Gnam mtsho in the Eastern Byang thang served as a gateway to Central Tibet, and Stod is adjacent to Ladakh and Spiti (regions bordering the Indian Subcontinent). After *c.* AD 1000, Buddhism consolidated its control over much of the Tibetan Plateau. By the close of the Vestigial period most followers of Yungdrung Bon and any surviving archaic *bon* cultists had been converted to the prevailing faith in most parts of Upper Tibet. The status of Buddhism as the paramount religion in Upper Tibet more or less coincided with the end of the bulk of rock art production there. In what ways the disappearance of archaic *bon* traditions and Yungdrung Bon might have contributed to the demise of rock art remains unclear. Buddhist esoteric ritual practices are the theme of two compositions in the Bshag bsangs site (S30_L1_C2, S30_L1_C3). These practices feature the use of the sword and bow and arrow and are emblematic of the decisive religious transition underway in Tibet in the Vestigial period.[38]

Three-quarters of rock art sites on the Eastern Byang thang occur in or near built parietal structures or close by them in the same rock formations. The most common archaic manmade parietal structures were cliff shelters (also called rock shelters and cave shelters), which typically consist of a façade, a masonry front that served to insulate the interior from the elements. On the Central and Western Byang thang far fewer rock art sites were housed in cliff shelters. However, the twinning of these two archaeological resources does occur at Lake Dang ra (S32, S33, etc.), Lha khang dmar chags (S42), and Stong shong brag khung. The oral traditions and architectural and artistic characteristics of the built parietal structures at Lake Dang ra sites and Lha

[36] There is a growing body of scholarly literature on the ancient *bon po*. For bibliographic information and further background, consult this author's various publications. See also, *Bon Bibliography* by THL: https://collab.its.virginia.edu/wiki/bibliographies/Bon%20 Bibliography.html; *Bon Bibliography* by Dan Martin (2020): https:// sites.google.com/view/bonbiblio/home.

[37] On the relationship between *bon* traditions and the Lamaist religion of Yungdrung Bon, see Kværne 1972; Karmay 1998; Bellezza 2008; 2013; 2014d.

[38] On these compositions, see also Bellezza 2020b: 249; 2020c: 501–503.

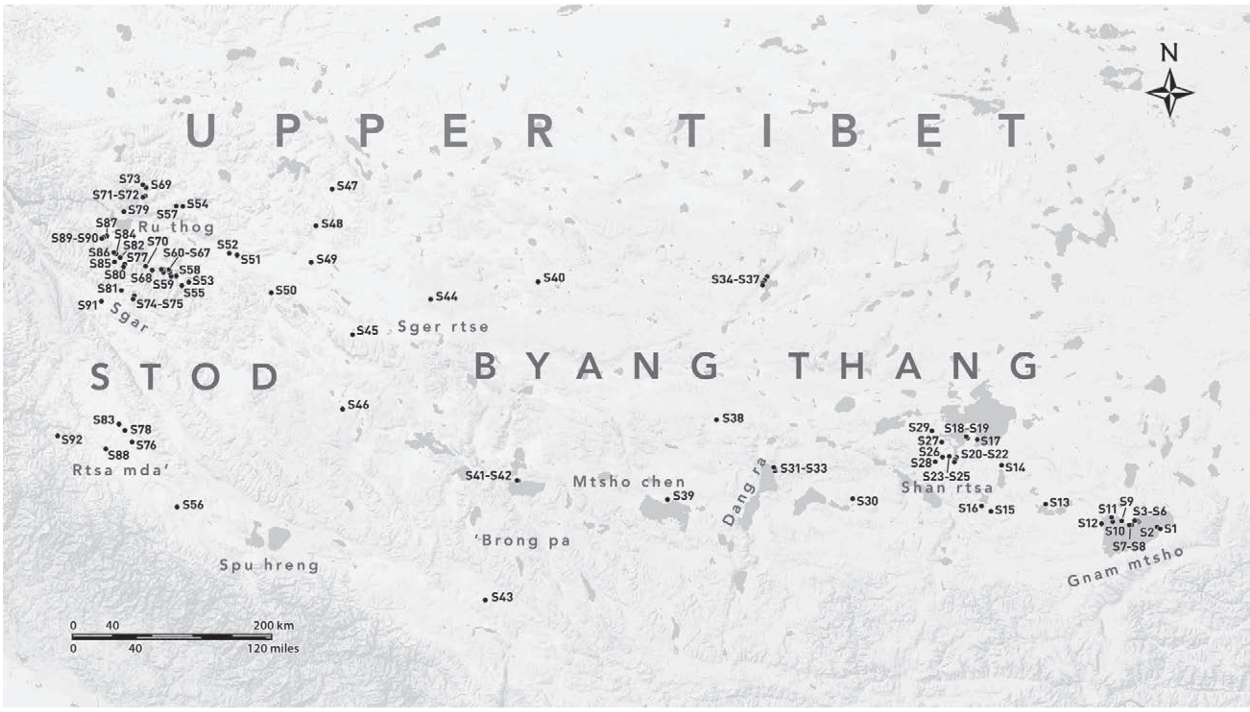
khang dmar chags indicate that they functioned as non-Buddhist religious centres of considerable importance in the Late Prehistoric era and Early Historic period. Mu ro ri (S39) on the north shore of Bkra ri gnam mtsho is geographically tied to both cliff shelters and outlying insular settlements, which date to the Late Prehistoric era. Some rock art sites on the Central and Western Byang thang, e.g. Sngon gdong (S35), Rgya rug (S36) and Ri rgyal (S44), as well as Rwa 'brog 'phrang (S65) and Sgog ra (S66) in Stod, are spatially related to the funerary ritual and burial structures known as Mon dur (tombs of the Mon). Also interspersed in the rock art of the upper zone of Ri rgyal (S44) are cubic tombs. The presence of superficial funerary structures and mountaintop cubic tombs in certain rock art sites suggests that they shared a complementary cultural relationship. Should it be established that the funerary structures and petroglyphs were created in the same timeframe, this could indicate that at least some rock art was made as a kind of funerary observance, one possibly having ritualistic, sacrificial, devotional, or commemorative dimensions. Yet, even if was to be proven that all of the rock art in a site was created prior to or subsequent to the construction of Mon dur and cubic tombs, an indirect link between the two cultural manifestations is still probably indicated. Funerary structures and rock art belonged to an interrelated stream of human endeavour in Upper Tibet at whatever points these two cultural manifestations may have surfaced. It is very unlikely that rock art makers and monument builders at the same sites pursued their craft without any awareness of the existence of the other. Indeed, the lack of archaeological and genetic evidence for major demographic intrusions or wholesale population replacement in Upper Tibet from the Bronze Age onwards encourages us to think along those lines. Any non-functional relationship between rock art and funerary structures may have been perceived in nominal terms of mutually reinforcing auspicious additions to the landscape. As two disparate anthropogenic modifications, rock art and funerary structures could still have been viewed in tandem through a mythological lens.

Ic. Rock Art Sites of Upper Tibet

To fix the locations of rock art sites as accurately as possible, GPS coordinates (latitude and longitude) are furnished for most in the Table below. For rock art sites occupying large areas, the coordinates provided are for a centralized location within them. A variety of handheld consumer-grade GPS (Global Positioning System) units have been employed in the field to obtain the GPS coordinates of rock art and other types of archaeological sites in Upper Tibet since 1999. GPS units have varying levels of accuracy. In general terms, the GPS coordinates of rock art sites provided should be accurate within a radius of *c.* 15 m – 30 m; however, the standard deviation for any specific set of coordinates provided in this work remains unknown. In addition to inherent technical limitations pertaining to receiver design and quality, other factors that help determine the accuracy of a GPS unit include satellite geometry, signal blockage, atmospheric conditions, and topography; reduced battery power can also affect the sensitivity of GPS readings. It must also be noted that GPS base stations were not established in the field (these are used to introduce a correction factor to the GPS signals received). All coordinates in this work are given in decimal degrees.

This volume covers Site 30 to Site 52. Additionally, there are four major rock art sites treated in the work not included in the table above. These include Stong shong brag khung, Lo bo brag, and two sites at Dang ra g.yu bun. The geocoordinates of these sites are given in the descriptions provided in the inventory at geographically appropriate intervals.

Site No	Site Name	North Latitude	East Longitude
Site 1	Bkra shis do chen	30.775956	90.867194
Site 2	Bkra shis do chung	30.766667	90.9
Site 3	Rta mchog ngang pa do	30.8325	90.67
Site 4	Just West of Ngang pa do	30.8419	90.655433
Site 5	Further West of Ngang pa do	30.842167	90.642333
Site 6	North of Khyi rgan gag pa do	30.842133	90.6252
Site 7	Lug do	30.801667	90.595
Site 8	Ra ma do	30.8	90.57
Site 9	Stong shong phug	30.839317	90.487217
Site 10	Se mo do/Srin mo do/Nang do	30.831667	90.391667
Site 11	Rigs lnga do	30.871667	90.38



Map 3. Locations (digital degrees) of all rock art sites in Upper Tibet surveyed in this work.

Site No	Site Name	North Latitude	East Longitude
Site 12	Lce do	30.813	90.273333
Site 13	Sha ba brag Thang stong phug	30.991667	89.675
Site 14	Kong chung	31.348233	89.204533
Site 15	Gnam g.yang phug	30.927083	89.090817
Site 16	Lha ris sgrub phug	30.975183	88.990533
Site 17	Slob dpon phug	31.582667	88.945167
Site 18	Sho lo phug	31.595333	88.8405
Site 19	Lha 'dre phug	31.61	88.826667
Site 20	Gzims phug btsan khang	31.420567	88.7227
Site 21	Dpal gzims phug	31.399	88.709333
Site 22	Rdo 'khor phug pa	31.377333	88.699867
Site 23	Dgon ro dmar lding/Lcags sgo brag	31.428	88.6525
Site 24	Lha 'dre tshogs khang	31.428167	88.6495
Site 25	Dar lung phug	31.4292	88.645383
Site 26*	Skyid sgrom sgo gru bzhi	31.423333	88.573333
Site 27	Sgar gsol brag phug	31.558667	88.565667
Site 28	Chu ro	31.379233	88.495267
Site 29	O rtsal phug	31.661733	88.4605
Site 30	Bshag bsangs	31.042133	87.613083
Site 31	Dar chung	31.297333	86.783
Site 32	Mgon bdag	31.321	86.7775

* The geocoordinates provided for S26 and S33 have not been GPS verified.

Site No	Site Name	North Latitude	East Longitude
Site 33*	Am nag	31.329333	86.769333
Site 34	Rong rde'u sna lhas	33.052983	86.699417
Site 35	Sngon gdong	33.019883	86.672567
Site 36	Gyam gdong	32.996067	86.653517
Site 37	Rgya rug	32.975917	86.6509
Site 38	Brag khung mdzes po	31.761667	86.158333
Site 39	Mu ro ri (L1)	31.03534	85.63404
Site 40	Rta ri brag phug	33.006667	84.251667
Site 41	'Phrang lam	31.2062	84.039767
Site 42	Lha khang dmar chags	31.20995	84.02606
Site 43	Rdzong pi phi	30.113333	83.686667
Site 44	Ri rgyal	32.849983	83.104217
Site 45	Dkyil sgrum	32.531067	82.269783
Site 46	Bong lhas brag near Skya bo klu khang	31.858333	82.161667
Site 47	Ba'o lhas	33.831667	82.051667
Site 48	Phru gu dbyar ka	33.506667	81.876667
Site 49	Sngor gyam	33.18	81.826667
Site 50	Steng rtse mtshams khang	32.908333	81.4
Site 51	Brag lung nub ma	33.245	81.035
Site 52	Kham pa rwa co	33.261667	80.951667
Site 53	Gong ra/Gong kha	33.003333	80.519667
Site 54	Chu mkhar gyam	33.68	80.455
Site 55	Skabs ren spungs ri	32.973167	80.443833
Site 56	Tham ka can	30.967167	80.393
Site 57	Rta pa gong g.yag	33.681983	80.3845
Site 58	Ser tshogs rdo ring	33.058017	80.38325
Site 59	Mchod rten sbug sna kha	33.5557	80.330533
Site 60	Brag gdong East	33.104183	80.318333
Site 61	Glog phug mkhar	33.091	80.314167
Site 62	Brag gdong West	33.115	80.302667
Site 63	Gyam rag (East)	33.114933	80.254917
Site 64	Rtswa med god sa mon dur	33.117033	80.252033
Site 65	Rwa 'brog 'phrang	33.101667	80.251333
Site 66	Sgog ra	33.091667	80.246667
Site 67	Skal khra mon dur	33.118717	80.22465
Site 68	Sna kha sogs and Mtha' rung	33.110333	80.127167
Site 69	Mtha' kham pa ri	33.843833	80.061867
Site 70	Nag skyom	33.146133	80.05715
Site 71	Rgyab lung	33.771667	80.053333
Site 72	Brag gtsug	33.76055	80.030067

Site No	Site Name	North Latitude	East Longitude
Site 73	Gna’ bo lung	33.8705	80.028
Site 74	Chu lung	32.881667	79.936667
Site 75	Gyam kham pa	32.85125	79.923367
Site 76	Rdu ru can	31.56	79.913333
Site 77	Ri mo gdong	33.165	79.835
Site 78	Sa snying	31.6659	79.835667
Site 79	Rno ba g.yang rdo	33.633167	79.824333
Site 80	Nag khung rdo ring	33.141667	79.821667
Site 81	Gri’u chu thang	32.93	79.798333
Site 82	She rang sna kha shar ma	33.222317	79.786167
Site 83	’Bri mo spo ba	31.72285	79.773417
Site 84	Rdzong chen	33.2575	79.741667
Site 85	She rang mkhar lung	33.1835	79.725333
Site 86	Rdzong chung	33.268667	79.7185
Site 87	Ru thog rdzong	33.416833	79.642
Site 88	Gser sgam	31.496667	79.631667
Site 89	Lu ring sna ka	33.401983	79.607617
Site 90	Mar lung	33.393333	79.588333
Site 91	Brag gyam	32.831667	79.585
Site 92	Rgyal la lding	31.616667	79.116667