


Two new high-altitude petroglyph localities in the Tsomoriri and Phirse Pho valleys, southeast Ladakh, India

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Introduction

his report records two new localities at which ancient petroglyphs have been found on boulders in the valleys of the Tsomoriri (lake) and Phirse Pho (river). These lie in an area in which there is no previous record of petroglyphs (Aas, 2017; Bellezza, 2017a, b; Bruneau & Bellezza, 2013; Bruneau & Vernier, 2010; Devers et al., 2015; Jamwal & Thangspa, 2011; Orofino, 1990; Singh et al., 2017; Tshangspa, n.d.; Vernier, 2016; Vernier & Bruneau, 2017). The information recorded here was collected during a hiking trek in August 2018, following the discovery of the first locality by some of us on a previous hiking trek (September 2016). The second locality noted in this report is a new locality, discovered in passing during the 2018 trek. As in the nearby region of Spiti, it appears that these localities are associated with long-established pathways (Bellezza, 2017b).

The area in which these petroglyphs are found is part of the Changtang, the high altitude Tibetan Plateau. The Ladakh section of the Changtang includes the Changtang Cold Desert Wildlife Sanctuary. The Sanctuary is designated to protect and conserve many high elevation flora and fauna, including more than 200 species of plants, several rare and endangered species, and one of the few Indian populations of kiang (Tibetan wild ass). The study locality lies south of the Indus River, close to the 120 km² Tsomariri lake and its lakeside village, Korzok (variously spelt Karzog, Karzok, etc.). Korzok is reputed to be the world's highest year-round inhabited village and highest arable agricultural area (c. 4,560m above sea level). The terrain all lies above 4,500m, comprising broad valleys, steep-sided gorges and ranges, and many mountains over 6,000m. The study locality is arid with little vegetation growth and negligible rainfall and snowfall.

Locality 1: Kyangdam c. 78°18.5'E 32°46.5'N

This locality lies 3km south of the locality of Kyangdam at the southern end of the lake Tsomoriri on the western slopes of the valley side, in two lateral valleys some 40m above the valley floor (Figure 1). According to the available topographic maps (Pointet, 2005; Banerjee, 2016), and GPS measurements of location made at the sites on a camera GPS, the sites lie around an elevation of 4,600m above sea level in an area surrounding 78°18.5'E 32°46.5'N.

The petroglyphs are pecked or scratched onto boulders of mostly fine-grained metamorphic slate, phyllite and some schist, with the petroglyphs mostly on weather-varnished surfaces. Typically, the petroglyphs avoid irregularities on the rock surface, and only overlap cracks in the rock where these appear to post-date the petroglyph. This pattern of placement accords with a previous assessment of the role of boulders in communicating rock art in Ladakh (Aas, 2017). Aas notes that the rocks should be understood to be communication devices between hunters and supernatural beings, with the message being delivered through the rock surface. Interestingly, Aas suggests that irregularities on the surface play no role in the communication, and that they are generally avoided. While this report cannot test this assumption, the observations provided here support it.

The petroglyphs have been formed either by pecking, probably by stone, or by being scratched onto the boulder surface, again using stone. Most of the images, with three exceptions, are outlines, with no infilling. Some are linear images, while most present realist outlines of the objects being depicted. All the images are of the order of 10-15cm across, with the exception of a possible mandala or sun disc and an image of a tiered shrine or chorten, which are about 30cm across and 30cm high respectively.

The bedrock in this area is part of the Tsomoriri crystalline complex, comprising metamorphics and granite; the Korzok Range at this locality is dominated by Precambrian-Palaeozoic metasediments (Steck et al., 1998; de Sigoyer et al., 2004; Mishra et al., 2015). It is from this bedrock that the boulders are derived as rockfall and colluvium from the mountain slopes to the southwest above the locality. The lower slopes upon which these boulders lie comprises glacial lateral moraine deposits plastered along with lower valley slopes, interspersed with small alluvial fans (Hedrick et al., 2011; Mishra et al., 2015). The locality is spread across a ridge and its neighbouring mountainside valleys in the alluvial fans defined by the runoff from the mountain slopes. The valleys drain the slopes towards the east (slightly north of east) down to the main valley of the Phirse Pho and Tsomoriri. Sites 1 to 5 are on the southerly side of

the northern valley, while sites 6 to 9 are to the south of sites 1 to 5, on the ridge and the northern side of the next valley; site 10 was only noticed in passing and its exact location was not recorded.



Figure 1: Kyangdam petroglyph locality, looking south towards the Phirse Pho valley; the floodplain to the east drains northwards into Tsomoriri, which is out of sight to the left of this scene. The boulder in the middle of the image has people around it. Many of the boulders in the ridge ahead have petroglyphs. (Photo: W.E. Boyd).

Ten sites are noted at this locality. The recoding was limited by time available (this was not an expedition to record these sites, and so recording was limited by the opportunity of a half day available during the hike). The group noted that there were more similar boulders at this locality, mostly downslope, that were not examined. The individual sites are spread over quite a large area, and other boulders were seen in passing that may also have petroglyphs. The locality may prove to be somewhat richer than is recorded here. None of the local nomadic horsemen, based in the nearby location of Korzok on the west shore of Tsomoriri, who accompanied our trekking group, knew of the petroglyphs previously. They explained that there was no tradition in their community of making such images on rock. The monastery at Korzok is around 300 years old, as is likely to be the community living around it.

Site 1: This site comprises a large slate boulder containing many petroglyphs on one face and one on a side face (Figure 2). The main set of images face northeast, while the other one faces more northerly. Images include a possible face (it is a mask- or face-like shape with features inside the oval), a horse with possible person on its back (cf. Bellezza, 2017b, Figure 10), and two swastikas.

One of the swastikas is angular, while the other is curved. A third swastika, on the side face, is angular. The first swastika has a curve extension to one arm (top right, Figure 2). It is possible that this and the curved swastika represent a class of swastika recorded by Bellezza (2017a) that links the swastika motif with sun and moon motifs. The swastika motif is, according to Bellezza (2017a) the most common sign or symbol in Upper Tibetan rock art, and he suggests that it plays a significant role in ritual and other forms of abstract communication through the prehistoric period and into historical times (1000 BCE through to 1000 CE).

There are also indeterminate shapes on the main face, some seemingly random, but others with clear order to their shape.



Figure 2: Kyangdam Site 1: Top left, the boulder; top right, horse with possible person plus angular swastika; bottom left, angular swastika; bottom middle, possible face; bottom right, rounded swastika. (Photos: W.E. Boyd).

Site 2: This is a small boulder of schist (Figure 3). One petroglyph appears to have shape, possibly representing a curved body with three legs. An alternative interpretation is that it is an image of a standing bird; Jamwal & Thangspa (2011, Figure 8) illustrate what they call a rock carving of an eagle, albeit with clearer ornamentation and definition than this one. The pose is reminiscent of Vernier & Bruneau's (2017, Figure 21.3) front type C bird image. It appears to have been scratched onto the rock surface rather than pecked.

Site 3: This is a small boulder of slate with an elongate petroglyph comprising single lines (Figure 3). This may be possible long thin animal, a horizontal line with four shorter lines perpendicular to it (possibly legs), an extension in one direction (a short tail) and a head-like outline at the other. The head-like outline has a cat-like appearance; it compares with Vernier's (2016, Figure 111.12) illustration of a "tiger/feline representation", although lacks the body detail. This petroglyph may, nevertheless, represent a snow leopard. Snow leopards are known in this district. This is also an image that has been scratched onto the rock surface rather than pecked.



Figure 3: Kyangdam Sites 2 and 3: Left, site 2, possible animal; right, site 3, possible snow leopard. (Photos: W. Meertens [left] & W.E. Boyd [right]).

Site 4: The site comprises a cluster of boulders, three of which have petroglyphs.

Boulder A: This boulder is a shale boulder that has been split in two due to the effect of freeze and thawing; the two parts of the rock have separated slightly. The splitting of the boulder has divided one of the most distinctive images into two parts. The petroglyphs are on two faces, a side surface facing to the south, and an upper top surface facing towards the east.

The south face contains three animal images (Figure 4). One is a horse with a person on it. The second is clearly an ibex. The third is unclear, and may represent two animals; curved horns are clear but are in the middle of the 'back' of the animal. There is also an indeterminate oval shape. The ibex appears to be of the fully formed form *sensu* Jamwal & Thangspa (2011, p.286), of Vernier's (2016, Figure 3) stylistic group 3. This contrasts the image of the horse and person, which is of Vernier's group 1 linear style.

The east face contains several indeterminate shapes; they comprise various curves and other shapes that clearly have form (Figure 4). One angular swastika is present, with three and a half legs (i.e. one end return is absent). There is an image of a deer with clear antlers.

This is the face that has been split by freezing and thawing, resulting in part of the boulder moving away from its parent by some centimetres. The two parts contain halves of a single image. The original image is complex, with two concentric circles surrounded by five or six lateral and attached curved rectangles (Figure 4, bottom right; this photo has been taken from an angle to allow the complete image to be seen without its separation). This image appears to be in the form of a mandala of some type, but also bears some resemblance to an image of a painted "solar disc" published by Devkota & Bellezza (2017, Figure 13). Devkota & Bellezza describe their image thus: "In the middle of the panel there is a large solar orb with diamond-shaped rays that appear to be nine in number. ... This pictograph is assigned to the Protohistoric period ... The sun symbols of Spiti and Lo Mustang have decorative elements inside the central disc (including one or more concentric rings). In both peripheral plateau regions of the WTP [West Tibetan Plateau], these large sun symbols with nine rays occupy a prominent position among a panel of pictographs" (pp. 16-17). While the context of the circular image recorded here is not central to the panel, it may be considered to be associated with other images. To its right there appears to be a stepped shrine or chorten. The image comprises five rectangles upon each other, with some possible ornamentation at the top; it is hard to see if there is much other detail or ornamentation, but the image seems to be quite unornamented. Bellezza (2017a & 2017b), Singh et al. (2017, Figure 10), Devers et al. (2015, Figure 9), Devkota & Bellezza (2017, Figure 28), and Orofino (1990, Figures 2 & 3) all illustrate similar stepped shrines elsewhere in the region. This image does not have the intricate design found at other sites (Bellezza, 2017a).

Close to the shrine are two slightly overlapping images, perhaps composed together, of birds. Whether these are intended to be associated with the shrine image is unclear. This image (to the right of the shrine image, Figure 4, bottom left) appears to be of two non-

raptor birds. Drawn side on (cf. Vernier & Bruneau's, 2017 Figure 21.3, side group G style), they appear to be typical of images of partridges, quails and affiliated birds; these are drawn typically in profile standing on short legs and feet, with a rounded body and head and beak visible (Bruneau & Bellezza, 2013). Vernier & Bruneau (2017, pp.325-326) note that these characteristics "enable us to hypothesize the representation of snowcocks, partridges, geese or ducks, without being more specific". Three characteristics of these images strongly suggest that they are images of partridge- or quail-like birds: (i) the shape of the bodies; (ii) lack of ornamentation (cf. Bruneau & Bellezza, 2013, Figure IV.13); and (iii) lack of a curved beak (signifying, according to Vernier & Bruneau (2017), possible identification as a goose or duck).

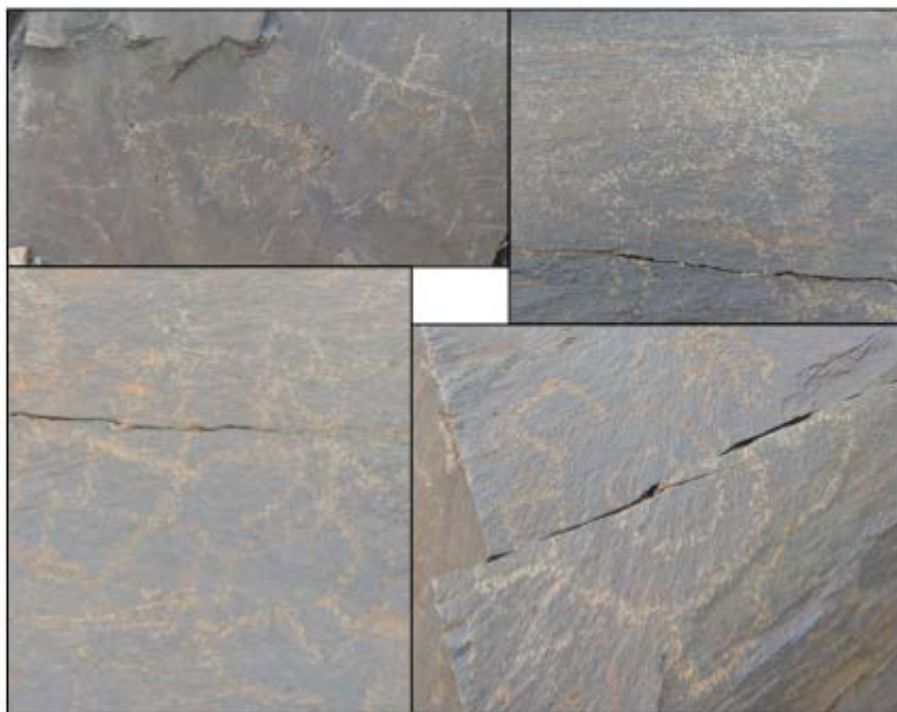


Figure 4: Kyangdam Site 4, Boulder A: Top left: the south face, showing a person on a horse (top right), an ibex (lower left) and less determinable images further to the left. Top right: the east face, a deer, located above the images of the shrine or chorten and mandala or sub disc image. Bottom left: the east face, showing a stepped shrine and possible bird images to its right. Bottom right: the east face, showing the mandala or solar disc image. (Photos: W. Meertens [bottom] & W.E. Boyd [top]).

Boulder B: This slightly schistose boulder has three petroglyphs, one on a more or less vertical east-facing side, and two on an upper

surface inclined towards the north (Figure 5). The east face has an image resembling an ibex or yak, more likely the latter. It is cut into the strike face of the boulder, across the rock bedding. The upper surface contains an image of sheep, plus an angular swastika. These images have been scratched onto the rock surface.



Figure 5: Kyangdam Site 4: Top: Boulder B, with image of a sheep and an angular swastika on the upper surface (left) and yak on the side surface (right). Bottom: Boulder C, showing two of the three sheep images. (Photos: W. Meertens).

Boulder C: This boulder has images of three sheep, also on the strike faces of the boulder, two very clearly showing the distinctive shape of their horns (cf. Vernier, 2016, Figure III.6), the third less clearly so (Figure 5).

Site 5: This site comprises a single large schistose boulder, with modern carvings on one vertical face. On the east-facing surface, inclined slightly towards the north, however, are some ancient pecked petroglyphs typical of the others in this locality (Figure 6). They comprise a dynamic image of two yaks facing each other, possibly fighting. There is much detail, including eyes and raised tails, with the ball tails and other detail typical of Vernier's (2016, Figures 3 & 4) stylistic third group. These stand out as examples of Vernier's observations (p. 79) that "they reflect a high sense of observation and a sharp knowledge of the ... animal specificities ... portray[ing] very accurately the animals in their most characteristic

postures". There are marks above the heads that resemble clouds of dust, plus lines extending northwards towards a further dynamic component of this image, a standing person. The person is holding a bow and arrow, facing the yaks. This scene appears to be a carefully composed scene rather than a collection of individual images, a characteristic that differentiates this site from most of the others. The lines above the animals may be variously interpreted as representing the sky or mountains in the background. This scene is not dissimilar to typical scenes of a hunter on foot hunting a yak from elsewhere in the region (Bruneau & Bellezza, 2013, Figure V.8.). Tshangspa (n.d.) notes that hunting scenes are common, and that they may date from throughout antiquity, still being made in places until recently.



Figure 6: Kyangdam Site 5: Dynamic scene of yaks and person with bow and arrow. There may be dust or clouds above the heads of the yak, and lines connecting the animals with the person. (Photo: P. Slavich).

Site 6: This site comprises a group of boulders on a ridge on the northern side of a valley, six of which are recorded here to have petroglyphs.

Boulder A: This is a single boulder of slate with a number of images on one horizontal surface. It appears to contain dynamic images of people (Figure 7). There is one small image of a person-like shape, arms with clearly marked hands (spread fingers) extended outwards and upwards, one leg vertical and one leg bent sideways. This is a finely pecked image, with fine detail. It has a weathering patina over it, and so may be relatively older than the other images. It appears to be dynamic, showing movement of some type, perhaps dancing. Tshangspa (n.d.) provides similar images from Domkhar Sanctuary II, claimed to date from what Tshangspa identifies as the

Achaemenid period (550-330 BCE). Such antiquity accords with the degree of weathering over this image.

There are two larger similar images, made with coarser pecking that this first image (Figure 7). The impression is that these may be derivative of the smaller image, perhaps copied from them at a later date. They may have extra legs, and it may be that at least one of the images is either conflating a person and an animal, or represents a person on an animal. They appear to be in a dynamic pose, and are probably wearing headdresses. These zoomorphic images of possible hybrid animal-person beings may be representing some form of priest or spirit. Bellezza (2017a, Figure 13) illustrates what he calls “a lone figure with avian and anthropomorphic qualities”. Is it possible these two images also represent such animal-person hybrids? Bellezza (2017a, p.22) explains that the “carved motifs lend themselves to comparison with traits of ancient priests enumerated in Yungdrung Bon and Old Tibetan literature”, although cautions that none of the identifications are certain. It may be, nevertheless, that the association between the dancing person and these apparently hybrid animal-people or priestly figures is deliberate.



Figure 7: Kyangdam Site 6, Boulder A: People in dynamic poses. Left, moving or dancing person; this was particularly hard to photograph due to the weathering patina on the rock surface. The two right hand ones appear to have possible headdresses. (Photos: W. Meertens [left] & K. Negi [centre and right]).

There are various other images on this boulder, including some less obvious shapes. Animal images include ibex, sheep and deer. This also contains a possible dynamic scene with a person on horse with bow and arrow hunting a yak (Figure 8, bottom right); there may be a smaller second person on a horse with a bow and arrow nearby, and perhaps a third horse and person (very faint) to the left of two circles. Bruneau & Bellezza (2016, Figure V.9) show a similar scene. There is

a line drawing that resembles a running horse, with the mane depicted.

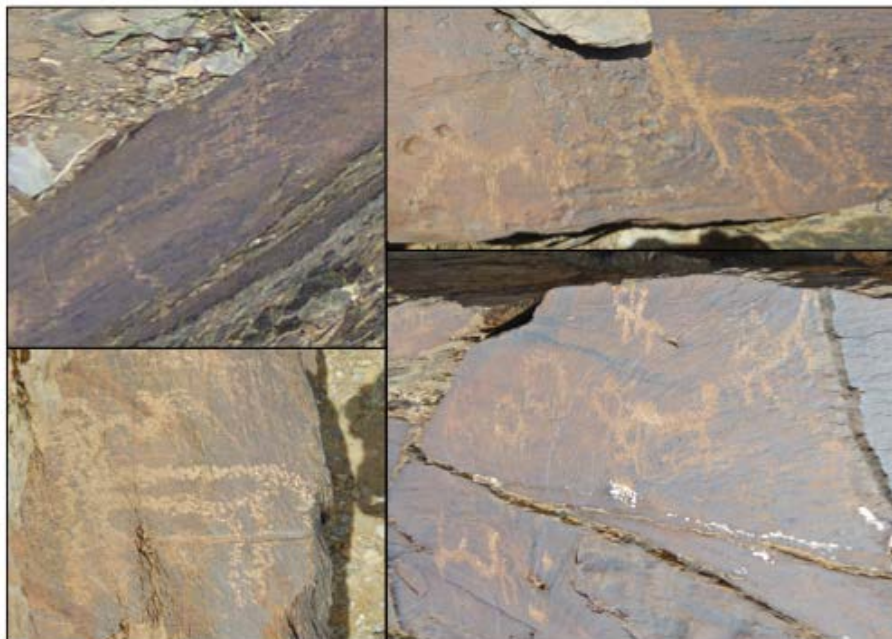


Figure 8: Kyangdam Site 6, Boulder A: Top left, moving horse; bottom left, deer. Top left and right, a variety of animals, including possible ibex and sheep. Near the top of bottom right is a possible dynamic scene with a person on horse with bow and arrow (and possibly a second person on a horse) hunting a yak; there may be a third horse and person to the left of the two circles. Below the crack is a yak image in linear form (Photos: W. Meertens [bottom left and top & bottom right] & P. Slavich [top left]).

Boulder B: This is a large slate boulder further up the hill slope from Boulder A. It has five images, on an upper surface, of yaks, plus three swastikas (Figure 9). One is an angular swastika, while the second is a hybrid angular-curved swastika. This latter swastika has two angular legs, one curved leg and one slightly curved corner, and may represent type of swastika that is linked with sun and moon motifs (Bellezza, 2017a), with the curved arm extensions representing the moon crescent. The third swastika only has three legs. There are also seemingly random pecking marks on this boulder.

Boulder C: This boulder is at the highest elevation at this locality (Figure 9). It contains images of three people, with some detail, including hands and feet. One may be holding an object in one of its hands. All are scratched onto a horizontal surface.



Figure 9: Kyangdam Site 6. Top: Boulder B: two of the swastikas with one of the images of yaks. Bottom: Boulder C, showing three three images of people. (Photos: K. Negi).

Boulder D: This is a small boulder with an image of a possible person holding a bow.

Boulder E: This is a north-facing schistose boulder with a single pecked image of a yak (Figure 10). The image differs from most of the others recorded at this locality, in that its body is filled in rather than just being an outline, and contains detail. It represents Vernier's (2016, Figure 3) stylistic group 3B. There may be another animal behind the horns of this one.

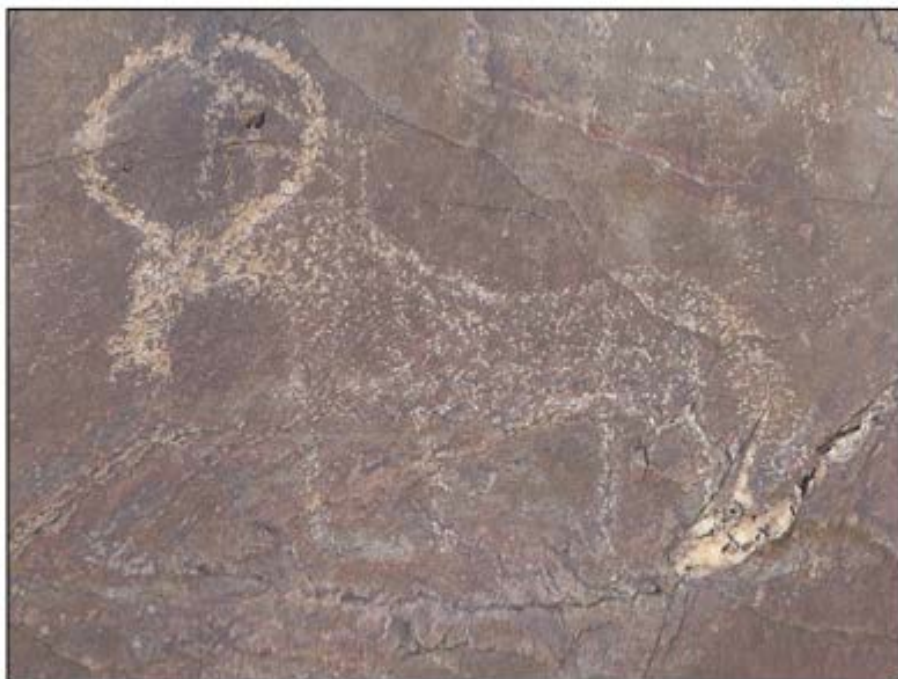


Figure 10: Kyangdam Site 6. Top: Boulder E, with a single image of a yak; unusually for this locality the image is infilled. (Photo: P. Slavich).

Boulder F: This is a small east-facing boulder with several images in it (Figure 11). There is person on a horse on one north-facing vertical surface, and three yaks on a westerly facing near-vertical surface. The yaks, facing to the left, are of Vernier's (2016, Figure 3) stylistic group 3B. They may be composed into a scene. There is a probable horse and rider behind them, and a possible bird above them. There is one small squat animal-like image on the same surface, which may represent a marmot. Its legs are very short, and its head is close into the body. If this does represent a marmot, it is a rare occurrence, since marmots are not known to be represented in the petroglyph art of the region (Vernier & Bruneau, 2017).



Figure 11: Kyangdam Site 6. Boulder F, with with a dynamic scene of three yaks and possible horse and person behind them, and a bird above them (right). Top right, a horse and person on another face of this boulder, and bottom right depicts a possible marmot (Photos: W.E. Boyd [left and bottom right] & K. Negi [top right]).

Site 7: This site comprises two boulders with a rich collection of petroglyphs (Figure 12).

Boulder A: On the first slate boulder, petroglyphs are present on two surfaces (Figure 12). One small smooth southerly facing dip surface has three animal images on it. One is a deer stag, another resembles a sheep, and the third is difficult to identify. The latter has a dog-like appearance, and may represent a canid of some type; the long legs may suggest it is a wolf. The image is much fresher than the others and has been scraped onto the rock surface; it may be a recent or modern addition to the images. On a nearby similar surface there is another sheep. A northwesterly-facing vertical strike surface on the same boulder has four animal images, along with other patterns and shapes. Images each of one ibex and one deer look like all others at the locality, while one image of a yak looks much fresher and is probably a more recent addition. The ibex is, as elsewhere at this locality, of Jamwal & Thangspa' (2011) fully formed type. There is one image that has an appearance of a canid, and may represent a wolf or a fox. There is also a short-legged animal image that may represent a marmot. There is one possible bird image resembling a standing bird with its wings out and head and beak held upwards; it resembles a water bird such as a cormorant. In addition to these animal images, there are various indeterminate petroglyphs that

appear to be abstract or deliberate shapes, including one circle. They may be symbols. The combination of a rectangle and circle (right, Figure 12) may represent a stepped shrine (cf. Bellezza, 2017a, Figure 7), although this should be taken as a very tentative identification.

Boulder B: On the second boulder, on a vertical strike surface facing, there are two more dynamic animals (Figure 12). They have large tails, resembling images of yaks, although the bodies better resemble horses. One is associated with another image with the appearance of something standing behind it at its side. Whether this is another animal or a person is difficult to determine. These images are tentatively interpreted as moving horses, one with a rider.



Figure 12: Kyangdam Site 7: Left: Boulder A, showing a deer, a sheep and an unidentified animal (top left) and an ibex, a deer, a yak and a possible canid, plus other shapes (right). Bottom left: Boulder B, showing the dynamic scene of possible multiple animals and rider (Photos: W.E. Boyd [left] & P. Slavich [right]).

Site 8: This is a boulder in the vicinity of the others; its details were not recorded at the time, but a photograph was taken of it in passing (Figure 13). The image is a dynamic image of two yaks facing each other, with a possible person between them, and a fourth image to the right, a possible second person or a bird. The yak images are unusual at this locality in that they are filled in, and they fall into Vernier's (2016, Figure 3) stylistic group 3.



Figure 13: Kyangdam Site 8: Boulder with a dynamic scene of two yaks facing each other with one or two people; unusually, these images are shaded in. (Photo: W. Meertens).

Site 9: This is also a boulder in the vicinity of the others, and as for site 8, its details were not recorded at the time. However, a photograph was taken of it in passing (Figure 14). The image is of dynamic scene of one horse and rider and one person with a bow and arrow seemingly following a yak. All are facing right. These images are shaded in, and all fall into Vernier's (2016, Figure 3) stylistic group 3. While Jamwal & Thangspa (2011, p. 289) suggest that carvings showing "crude weapons such as ... bow and arrow" can be considered older than those with modern weapons, this dating method is not reliable.



Figure 14: Kyangdam Site 9: Boulder with a dynamic scene of one horse and rider and one person with a bow and arrow following a yak, all facing right; unusually, these images are shaded in. (Photo: D. Trezise).

Site 10: Several further boulders with petroglyphs were observed in passing, and while no notes were made of these images at the time, some were photographed (Figures 15 - 17).

These boulders contain two yaks (one boulder), and an indeterminate shape (not illustrated here). A second boulder also has a yak, along with a distinctive image that resembles a horse and rider (Figure 15, top right). The latter differs from other horse and rider images at this locality in that it appears to represent movement: the rider appears to be holding reins, the horse's legs are in a running position, and the tail is streaming out behind. Two boulders contain images of three sheep (Figures 15 & 16 both bottom right), while a fifth boulder has the image of an ibex (Figure 16 top right).

One boulder has an image of a chorten (Figure 15 bottom left); this comprises the outline of three rectangles, one upon the other, the middle one being narrower than the others, with some possible ornamentation at the top. Orofino (1990, Figures 17 & 18) illustrates similar images.

A further boulder has the partial image of an inscription (Figure 15, bottom middle). This appears to have been pecked with a round-ended metal object (the peck marks are circular and resemble the marks an awl would make) and is much fresher than other petroglyphs at this locality. It resembles completed inscriptions on collections of Buddhist Mani stones or stone plates that are common throughout Ladakh. There are linear mounds of these between this locality and the village of Korzok, and occasional mounds elsewhere in the valleys of this district. This is probably modern or recent.

One boulder contains a dynamic scene (Figure 16) in which two yaks appear to be facing a snow leopard. To the right of the yaks is the faint image of a person on a horse.

Further images (Figure 17) include four more yaks, one in the linear style, an ibex, and two zoomorphic images. One of the latter has the appearance of a canid, and may represent a wolf.



Figure 15: Kyangdam Site 10: Various boulders at Locality 1 with petroglyphs: Top left, two yaks. Top right, yak and moving horse and rider. Bottom left, chorten. Bottom middle, partial Mani inscription. Bottom right, sheep (Photos: P. Slavich).



Figure 16: Kyangdam Site 10, various boulders, continued: Top: A dynamic scene, with two yaks in the centre, facing a snow leopard, and, on the other side (faintly) a person on a horse. Bottom: ibex (left) and sheep (right). (Photos: P. Slavich [top] & K. Negi [bottom]).

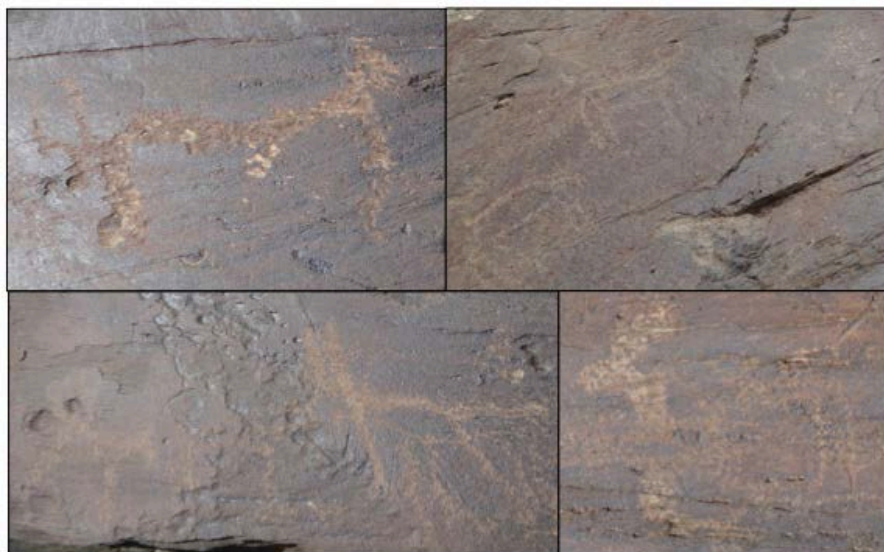


Figure 17: Kyangdam Site 10, various boulders, continued. Top right, three yaks. Bottom left, two zoomorphic images, the right hand one having a canid appearance. Bottom right, ibex. The image at top left is a close-up of the linear form yak at Site 2 Boulder A (Figure 8) (Photos: K. Negi).

Locality 2: Latho Gongma

This locality is close to a former nomadic trading post on the northeastern side of the floor of the Phirse Pho valley, close to a path. It lies at an altitude of approximately 4670 m above sea level and at the location $78^{\circ}12'E$ $32^{\circ}47'N$. The site sits on the lower slopes of a large alluvial fan, draining northeast to southwest from the nearby Korzok Range. At this location, the nearby mountain bedrock comprises the Precambrian-Palaeozoic metasediments component of the Tsomoriri crystalline complex (Steck et al., 1998; de Sigoyer et al., 2004; Mishra et al., 2015). The underlying bedrock in this area comprises the Tethys sediments of the Zanskar Spiti Basin, mostly marine sediments, but with alluvial and colluvial input from the crystalline rocks of the mountains to the northeast providing much of the alluvium and colluvium, including some of the boulders in this locality.

This site was only noted in passing as the trekking group passed through this area. The petroglyphs are found on deeply weathered (strong varnish) quartzitic boulders. Only brief observations were made, recording impressions of one yak, one ibex and other some indeterminate shapes.

Summary and overview

While identification of the intended image is uncertain in some cases, it is clear that the petroglyphs at these localities are deliberate depictions of animals, people, symbols and other objects. This is in keeping with interpretations of petroglyphs elsewhere in Ladakh (Aas, 2017; Bellezza, 2017a, b; Bruneau & Bellezza, 2013; Bruneau & Vernier, 2010; Devers et al., 2015; Jamwal & Thangspa, 2011; Orofino, 1990; Singh et al., 2017; Tshangspa, n.d.; Vernier, 2016; Vernier & Bruneau, 2017).

The following is a summary and tally of both confident and tentative identifications of the identified images at the Kyangdam locality.

Animals

- **Yak:** Twenty-four confident and one tentative identifications; four infilled and one in linear style; several are in dynamic scenes.
- **Horse:** Nine confident and four tentative identifications; eight of these with a person on it and four others may have a person. Only one is without a rider. None of the horses have the distinctive build and upright mane of the native kyang (cf. Bruneau & Bellezza, 2013, Figure V.25).
- **Sheep:** Nine confident and one tentative identifications; these may be blue sheep, although there are many ovicaprid species in the region.
- **Birds:** Four confident and four tentative identifications; the tentative identifications include one possible eagle, while the confident identifications are likely to be partridge- or quail-type birds, while one resembles a larger waterbird.
- **Ibex:** Five confident identifications.
- **Deer:** Four confident identifications.
- **Canid; wolf or fox:** Three tentative identifications. Vernier & Bruneau (2017) note the difficulty in differentiating wolves from foxes, although the long legs of one of the images suggests a wolf-like appearance, and build of a second also suggests a wolf-like appearance.
- **Snow leopard:** One confident and one tentative identification. Vernier & Bruneau (2017) note that these tend to be relatively easy to identify, commonly with long thin tails curled at the tip and having spots. Likewise, Bruneau & Bellezza's (2013, Figure III.5 and V.18) images of snow leopards or "spotted felines" are quite distinctive. The image tentatively identified

here is less clearly defined, while the confident identification clearly shows the body, head and long curved tail.

- **Marmot:** Two tentative identifications. If these are correct identifications, they may represent a new element to the zoomorphic fauna of the region. Vernier & Bruneau (2017) note that marmot (along with bear, hare and pika) is not represented amongst the petroglyph art of the region.
- **Uncertain:** Three images appear to be animals but are unclear as to what type of animal.

People

- **People:** Six confident and three tentative identifications; all are standing, and some may be moving, possibly dancing; two are dynamic with a bow and arrow, and a two more may be holding a bow and arrow.
- **People on horses:** See above; eight confident and four tentative identifications. Most of the images appear to be static, in some cases with the rider holding (or firing) a bow and arrow; in one case, the horse is moving and the rider appears to be holding reins.
- **Face or mask:** One tentative identification.
- **Hybrid animal-human zoomorphic forms:** Two images are distinctive, and may represent a hybrid animal-person, in dynamic pose with headdresses; these may represent priestly figures, and are associated with the one possibly dancing person.

Symbols

- **Swastikas:** Eight confident identifications; various styles are present, some angular, some curved, and others mixed. The curved swastikas may include sun or moon motifs.
- **Mandala or solar disc:** One confidently identified; the image is very clear and clearly a deliberately designed and ordered image; it may be associated with a stepped shrine or chorten.
- **Stepped shrine or chorten:** Two confidently identified and one tentatively identified. One may be associated with partridge-like bird images; this is on the same face as, and possibly associated with, the mandala image.
- **Unidentified image:** One very distinctive image may represent a spirit or other totemic image.

- ***Partial inscription:*** One confident identification of a partial inscription typical of Buddhist Mani stones. This may be recent or modern.

Miscellaneous shapes: In addition to the above, there are many seemingly random or abstract peckings, curves, ovoid or rectilinear shapes, and lines.

This assemblage aligns well with Vernier & Bruneau's (2017) assessment of the region, in that the majority of motifs tend to be zoomorphic. The order of abundance in this study differs slightly from theirs. The main forms identified here are yak and sheep, with a few ibex and deer. Vernier & Bruneau (2017) suggest that ibex are the most common, comprising about half of the zoomorphic images in the region. This difference may reflect the lower altitudes of many sites in the region. It is likely that fewer people will travel through this locality and at the altitude of the Kyangdam locality. They are likely to be predominantly yak herders or sheep herders, hence the predominance of yak and sheep images. There are no permanent settlements in this part of Ladakh, which may account for the lack of domestic animals other than horses.

Jamwal & Thangspa (2011, Table 1) list categories of rock art in Ladakh. It is notable that the domesticated or lower altitude animals in their list are absent in this assemblage (antelope, elephant, bison, dog and double humped camel). It is likely that there are images of heavenly bodies, and religious and other symbols present, but for the moment, only those identified as swastika, chorten and possible sun and moon images, along with the putative mandala (not listed by Jamwal & Thangspa) are noted here; some of the undetermined images are relatively simple (e.g. circles), and there is little evidence for symbols such as cupules and more complex signs. Human images are all either standing or hunting, with one possible dancing person. People in rituals, dancing, fighting or at worship appear to be rare, although the two potential priestly figures may represent the ritual category of images. The presence only of bows and arrows (and apparent absence of axes, swords, maces, shields, daggers or sticks) supports an interpretation of the assemblage of images being related to hunting in this high-altitude region.

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