



HAL
open science

Rock art research in Murgi Tokpo, Nubra Valley in Ladakh

Laurianne Bruneau, Quentin Devers, Martin Vernier

► **To cite this version:**

Laurianne Bruneau, Quentin Devers, Martin Vernier. Rock art research in Murgi Tokpo, Nubra Valley in Ladakh. Purakala. The Journal of the Rock Art Society of India (RASI), 2011, 20-21, pp.91-98. halshs-00747733

HAL Id: halshs-00747733

<https://shs.hal.science/halshs-00747733>

Submitted on 24 Jan 2024

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

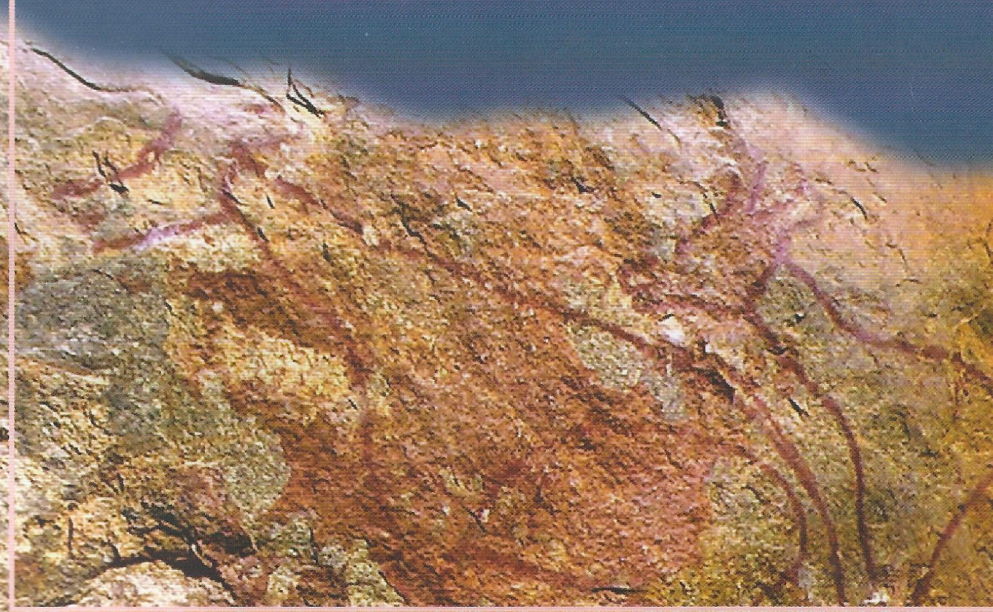


Distributed under a Creative Commons Attribution - NonCommercial - NoDerivatives 4.0 International License

THE JOURNAL OF ROCK ART SOCIETY OF INDIA

ശ്രീമദ്
മുഖകാല

VOLUME 20 -21, 2010-11



Early sambar doves in fine lines at Madathala
in east Anamalai valley, Kerala.
For details please see Benny Kurian, pp 73-86.

MEMBER OF
INTERNATIONAL FEDERATION OF
ROCK ART ORGANISATIONS
(IFRAO)

PURAKALA

THE JOURNAL OF
ROCK ART SOCIETY OF INDIA
(RASI)

VOLUME 20 - 21, 2010 - 11

The Board of Editorial Advisors

Dr A. Sundara, Dr R.C. Agrawal
Dr V.H. Sonawane, Shri S.B. Ota
Dr N. Chandramouli, Shri R.K. Pancholi
Mr Robert G. Bednarik, Prof Dario Seglie
Dr S. Pradhan

Founding and Chief Editor : Giriraj Kumar
Assistant Editor : Arakhita Pradhan
Assistant Editor (Art) : Shivendra Singh

PURAKALA

VOLUME 20 - 21, 2010 - 11

CONTENTS

- 002 **Editorial**
- 005 **Mission Rock Art**
(Dr V.S. Wakankar Memorial Lecture, RASI Congress, Goa-2011)
By Giriraj Kumar
- 023 **What representations tell us about the way we see**
By Livio Dobrez, with comments by Robert G. Bednarik and author's reply (Australia)
- 043 **Archaeology of rock art in Peninsular India**
(Keynote Address, RASI Congress, Goa-2011)
By N. Chandramouli
- 073 **Rock art in east Anamalai valley**
By Benny Kurian
- 087 **Study of the natural process of removal of encrustations covering early rock art underneath at Bhimbetka**
By J. Manuel
- 091 **Rock art research in Murgi Topko, Nubra Valley in Ladakh**
By Laurianne Bruneau, Quentin Devers and Martin Vernier (France)
- 099 **Fossil Fever: Early Australian rock art studies in historical context**
By Patricia Dobrez (Australia)
- 111 **Professional and Institutional practices of rock art vandalism**
By Robert G. Bednarik (Australia)
- 129 **Notes and News**
- 139 **Mesolithic artistic women figures in Indian rock art (in Hindi)**
By Sunita Sharma
- 145 **Impressive animal forms in Indian rock art (in Hindi)**
By Ashvini Kumar Sharma
- 157 **Rock paintings of Geruiya Pahar, district Allahabad in Uttar Pradesh**
By D.P. Tewari and Deepshikha Srivastava
- 169 **Discovery of rock art sites in Bastar Division in Chhattisgarh**
By J. R. Bhagat, A. K. Pradhan, S. N. Yadav and D. Goswami
- 186 **Discovery of Bhartipur Ghana rock art site in Palakmati river valley, Madhya Pradesh**
By Ashok Shah

- 138 **Discovery of religious petroglyphs from Datri in central Jharkhand**
By Seema Mamta Kujur (Minz)
- 140 **Discovery of a petroglyph site at Malayadipatti hamlet in Pudukkotti district, Tamilnadu**
By Ramesh S. Mulimani
- 142 **Discovery of rock art and associated Neolithic assemblage in the southwest coast of Karnataka**
By T. Murugeshi and Prashanth Shetty.
- 145 **The rock art in coastal Karnataka and their special features**
By A. Sundara
- 146 **Rock art sites of coastal Orissa**
By Dibishada Brajasundar Garnayak
- 147 **Orientation**
- 147 A brief report on RASI Congress Goa-2011
- 151 A brief report on RASI Congress Rewa-2009
- 156 **RASI-IFRAO News**
- 156 IFRAO Report - 44, 45 and 46 and 16th RASI Congress, Lucknow-2011.
- 162 **Audited RASI Accounts**
- 164 **Statement about the ownership of Purakala**
- Guidelines for publications in *Purakala* and RASI Introduction on inside of the front and back cover page respectively.**



Rock Art Society of India
C/o Faculty of Arts, Dayalbagh Educational Institute, Dayalbagh, Agra-282005. India
Mobile : +91 94122 60827. e-mail : girirajrasi.india@gmail.com

Purakala is published by the Rock Art Society of India, a non profit earning academic non govt. organization.

ROCK ART RESEARCH IN MURGI TOKPO, NUBRA VALLEY IN LADAKH

Laurianne Bruneau, Quentin Devers and Martin Vernier

Abstract: Rock art recently documented in Nubra valley, Ladakh is discussed in this paper. Out of the nine rock art sites studied in the valley Murgi Tokpo, because of its quantity and diversity, stands out as the main one. The paper presents the setting of the site, our field work and a study of the rock art and more particularly and how its content is relevant for the Bronze Age!. The importance of the rock art of Murgi Tokpo in reconstructing the prehistory of Ladakh, hence the need to protect it, is also discussed.

Introduction

Ladakh is situated in the Himalayas in the north in Jammu & Kashmir (India). It borders the western boundary of China and more particularly Xinjiang (Uyghur Autonomous Region) and Xizang (Tibet Autonomous Region) respectively lying to the north and southeast. In the west Ladakh borders the northern territories of Pakistan (Gilgit-Baltistan province) and in the south the Lahul and Spiti district of the Indian state of Himachal Pradesh (Fig. 1). Ladakh lies within a vast area of high altitude semi-desert and steppe, often described as a 'cold desert', through which flows the Indus. The altitudes range from 2560 m to the 7672 m high Saser Kangri peak in the Karakoram. These elevation variations contribute to the inhospitable expression of the area.

Up to the 10th century AD, date at which the history of Ladakh begins in the written royal chronicles, almost nothing is known about the material culture of the region (Petech 1977). No large scale excavations have been carried out. Researches in the bordering areas, namely the northern Areas of Pakistan (Gilgit-Baltistan province) and the district of Rutog (Tibet Autonomous Region), showed the existence of a rich carved patrimony (Fig. 1). Its study demonstrated the role played by these mountainous regions as cultural crossroads from the Prehistory to the Medieval Period. Therefore, we assumed that a study of rock art in Ladakh should enable us to form an idea of its 'prehistory'. The existence of carvings in

Ladakh is known since 1902 thanks to the drawings and comments of August Hermann Francke (Francke 1902). More than a century later attention was drawn upon engraved inscriptions but very little on the images. A preliminary study of selected engravings by Francfort demonstrated that Ladakh could be 'fully related or at least connected' to the cultures of the steppic Bronze and Iron Age (Francfort et al. 1992: 173). In the late 1990s field reports from the Archaeological Survey of India (ASI) mentioned the survey of rock art sites all over Ladakh (Director General of the Archaeological Survey of India 1997: 36-38, 2004: 49-59; Mani 1998, 2000-2001). Guided by those discoveries and the successful results of rock art research in the neighbouring regions, the authors initiated a joint project on the rock art of Ladakh in 2006. Through this project 15,000 images have been systematically documented and recorded in a database while 5,000 more were surveyed. Almost 150 rock art sites have been identified (Bruneau 2007; Vernier 2007; Bruneau and Vernier 2010). The largest, that of Murgi Tokpo, is located in the Nubra valley (Fig. 1).

Setting of the site

The Nubra valley is the largest of the five districts of Ladakh. It lies southward along the boundary of Xinjiang (China). The Nubra river, flowing south from the Karakoram range, is a tributary of the Shyok river, which flows in turn east to meet the Indus further downstream in Baltistan (Pakistan).

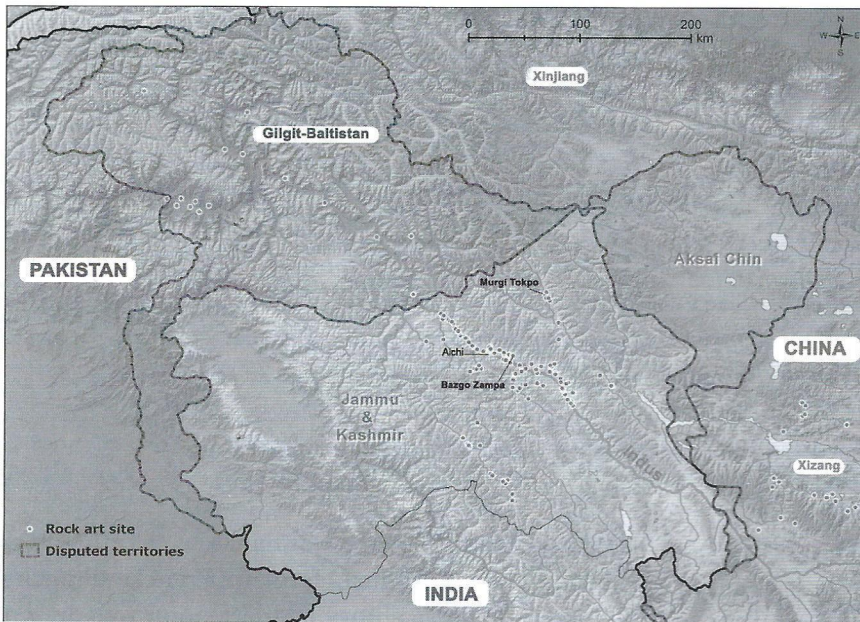


Fig. 1. Location of rock art sites in Ladakh and surrounding areas.

Guided by the field reports of the ASI the authors documented nine rock art sites in the Nubra valley. Among these the site of Murgu Nala, only site surveyed by ASI and briefly referred to, turned out to be the richest one (Director General of the Archaeological Survey of India 1997: 37 & 2004: 59; Mani 1991: 71, 2000-2001: 103).

Murgu Topko is located in the alluvial fan of a torrent on the right bank of the Nubra river, about 5 km



Fig. 2. General view of the rock art site of Murgu Tokpo, Nubra valley, Ladakh with the six zones identified for documentation.

before the Line of Control with China. Its name is due to the neighbouring village of Murgu. We chose the Ladakhi 'tokpo', synonym of the hindi 'nala' ('stream'), for our documentation. The inhabitants of Murgu appropriately know the place under the name 'Rda nag', literally meaning 'concentration of black rocks', as it is formed of granite boulders covered with a red-brown crust. Due to the peculiar colour of the rocks in the alluvial fan, the site clearly stands out in the surrounding landscape (Fig.2). The concentration of boulders used to be one and the same hill but at some point the torrent flowed within and created two distinctive mounds separated by a 27 m deep gorge. These are the two main zones (II and III) out of the five zones of the rock art site identified for documentation (Fig.2).

Field work

Out of the five zones of the site of Murgu Topko, Zones I and II were systematically documented in 2007, counting almost 1800 petroglyphs on about 600 boulders. The systematic documentation of the rock art of zone III to VI was carried out in May 2011 and 1450 petroglyphs were recorded on a little more than 300 boulders. Each boulder was photographed and mapped. Besides a photographic record, varied information such as size, patina, orientation, inclination and engraving technique were noted down for each petroglyph. For the most noticeable ones, copies using transparent plastic sheets were made. Apart from publication purposes, drawings in situ are especially important to apprehend complex scenes (i.e. the relationship between figures engraved on a same surface) and for better understanding of the technique and process of realization of the petroglyphs.

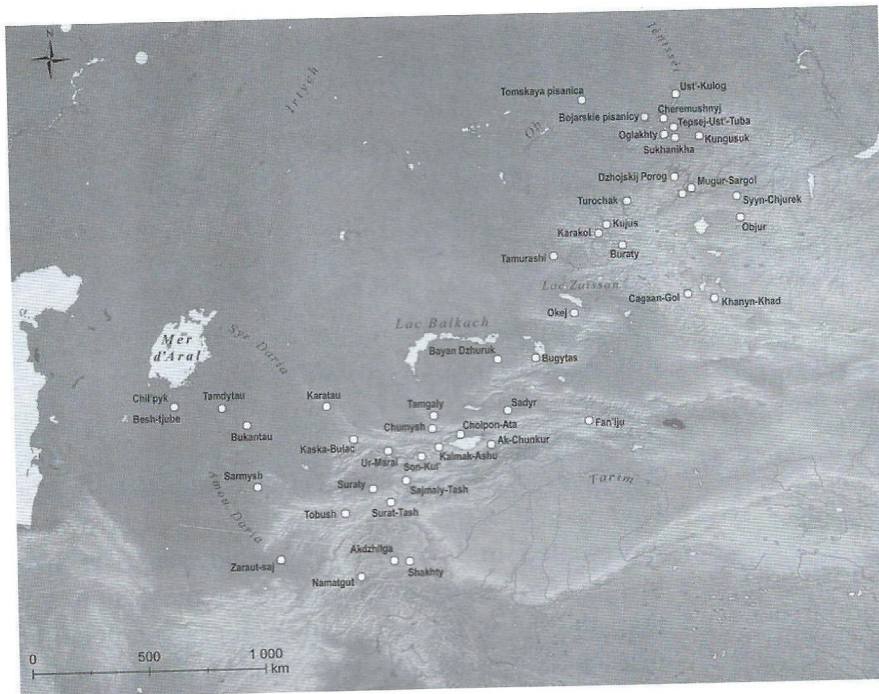


Fig. 3. Location of main rock art sites in Central Asia.

Thematic and stylistic study of the petroglyphs More than 3000 petroglyphs on about 1000 boulders were recorded, which makes Murgu Tokpo the largest known rock art site of Ladakh. Its study is meaningful for the archaeology of Ladakh because of its richness, themes and styles. Some of the



Fig. 4. Yak with rounded-shaped tail, Murgu Tokpo, Bronze Age !.

characters of these petroglyphs are close to those of Central Asia (from Uzbekistan to South Siberia, via Kazakhstan and Mongolia) and are commonly associate with the Bronze Age, although not related to any specific culture (Fig. 3). Yak, the emblematic animal of Himalayan regions is easily identifiable in the petroglyphs of Murgu Tokpo by the rendering of horns and the hump on its back. On some figures we note a rounded-shaped tail (Fig. 4). This type of tail is well-known on petroglyphs representing aurochs in Central Asia. For comparison, one can look at panels from Ust'-Tuba (Minusinsk basin, south Siberia) or Tsagaan Gol (Mongolia) (Blednova et al. 1995: 36, 39; Jacobson-Tepfer et al. 2006: fig. 504, 701, 738, 819).

The rounded-shaped tail is considered in those regions as a stylistic feature of the Bronze Age. As we can see on another panel from Murgu Tokpo, it is not applied to yaks only but also to dogs (Fig. 5). Out of three dogs, the one biting the foreleg of the ibex has clearly a rounded-shaped tail. Except this stylistic feature on the yak and dog, there are two other features that enable us to relate this ibex-hunting scene to Central Asian ones. The way the path of the arrow is engraved and a rounded-shaped end object at the waist of the archer are considered typical of Bronze Age representations in Central Asian rock art (Kubarev 2004: 73-74). Moreover, the theme of ibex-hunting itself is common all over Central Asia whereas it is not encountered eastwards in Tibetan rock art. The position of the dogs, drawn at right angle under the prey, is also peculiar of the period.

Among the human representations archers are engaged in hunting and fighting. There are scenes of archers fighting a duel (Fig.6). Once more, the depiction of the path of the arrows is



Fig. 5. Hunting scene, Murgi Tokpo, Bronze Age I.

highly distinctive. In the duel scene we can note the rounded-end object at the waist of the right archer. Also distinctive of this period are anthropomorphs with arms upwards with huge spread out hands and flatten heads (Fig. 7). In Central Asian rock art the latest are described as resembling a 'mushroom' (Kubarev 2004: 75). Whether these are representations of extraordinary beings, or humans wearing headdresses or masks is still an open question.

In the rock art of Murgi Tokpo we find masks engraved as independent motifs. They are recognizable by their rounded or bell shaped form marked by one, two, three or four inner triangles. Sometimes the eyes, in shape of a circle, from which tears can be running, are clearly visible. A line is often engraved at the eye level (Fig. 8). Comparable engraved masks are found in the neighbouring province of Gilgit-Baltistan in Pakistan. These are compared to the so-called 'mascoïds' representations of the Okunevo type found in Central Asian rock art

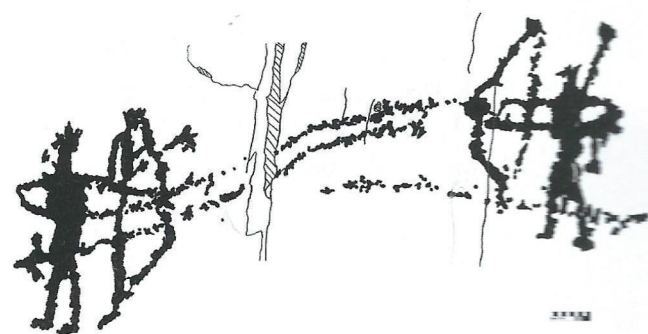


Fig. 6. Archers fighting a duel, Murgi Tokpo, Bronze Age I.

(Jettmar 1982: 298-302; Francfort 1991: 127-132). The Okunev culture developed in the Minusinsk basin (South Siberia) where such representations on slabs are cautiously dated from the end of the 3rd millennium/beginning of the 2nd millennium BC (Blednova 1995: IV). The common hypothesis concerning mascoïds is that they represent real masks or tattooed faces. We may assume that the masks of Murgi Tokpo are connected to hunting. We say so because on three mascoïds images from Murgi, feet are clearly represented: in one case a bow is shown as if the masked person was shooting and in the other case a straight line is drawn at the eye level (Fig. 9 & 10). We have seen that this is the way the path of arrows is represented in Bronze Age petroglyphs. The two images of mascoïds with feet and bow enable us to say that the lines touching other representations of mascoïds are arrows. Whether the masks are connected



Fig. 7. Human figure with flatten head, Murgi Tokpo, Bronze Age I.



Fig. 8. Mascoïd, Murgi Tokpo, Bronze Age !.

to real or ritual hunting it is difficult to say. About a hundred masks are found at Murgi Tokpo, similar images are known from the neighbouring sites of Ensa and Sasoma in the Nubra valley whereas they are very rare in the rest of Ladakh (less than a dozen).

The subjects and style of the petroglyphs of Murgi Tokpo reveal an artistic connection with Central Asian rock art. It indicates that the engravings of the Nubra valley share some stylistic traits and themes with Bronze Age petroglyphs of Central Asia. This period fits into the primitive phase identified by Indian researchers for the rock art of Ladakh (Mani 2000-2001: 107).

Spatial distribution of the petroglyphs

We carried out a spatial analysis on the largest zone of Murgi Tokpo, zone II, taking into account all

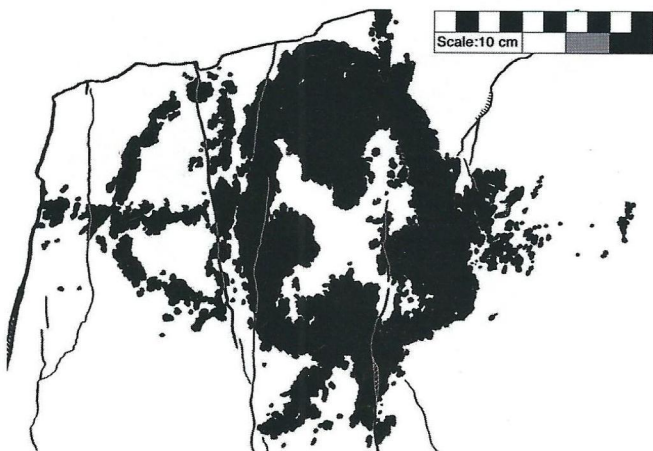


Fig. 9. Mascoïd with feet and a bow, Murgi Tokpo, Bronze Age !.

petroglyphs, not exclusively Bronze Age ! ones. The results presented should be considered as preliminary. The map of zone II shows that the engraved boulders are far from being distributed uniformly across the site. There are clusters with high density of engravings whereas other areas have only a sparse number of engraved boulders. There are five main clusters of different densities in zone II: A, B, C, D and E. The three clusters with the highest densities are A, B & C (Fig. 11). Without going into details we can have an overview of the different characteristics of the clusters. Cluster A is remarkable for its high proportions of zoomorph figures, and by the variety of animals depicted; cluster C, with 24 mascoïds, has the highest concentration of such figures for the site and also for Ladakh as a whole; cluster C has a high proportion of anthropomorph motifs as well as battle scenes; cluster B is an interesting mix of clusters A and C, with both variety of animals depicted and a good proportion of anthropomorph

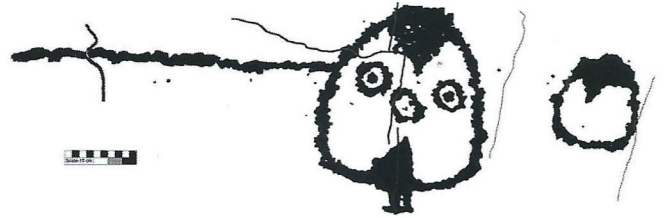


Fig. 10. Mascoïd with feet and arrow, Murgi Tokpo, Bronze Age !.

motifs; cluster D does not have any particular distinction and finally, cluster E has surprisingly high proportion of hunting scenes. There are different factors accounting for the disparities of distributions. They are essentially topographic and have influenced the place where petroglyphs were carved. For cluster C, two elements seem to be decisive: the proximity of the path, and the bordering of the ravine. For cluster B, it seems to be the presence of the ravine as well, and the fact that it is at the slope break. When ascending from cluster C, one can stop in area B at the top of the slope. On the other hand, when coming from area A, one can stop there before descending the hill. Cluster A has the clear advantage of being on the flat top area of the site. In this part of zone II boulders are not on top of each other: they are spaced out, it is possible to easily move between them and walk around them. There are large parts where the ground is not covered with boulders: as such it is the only area where one can seat, set a fire or

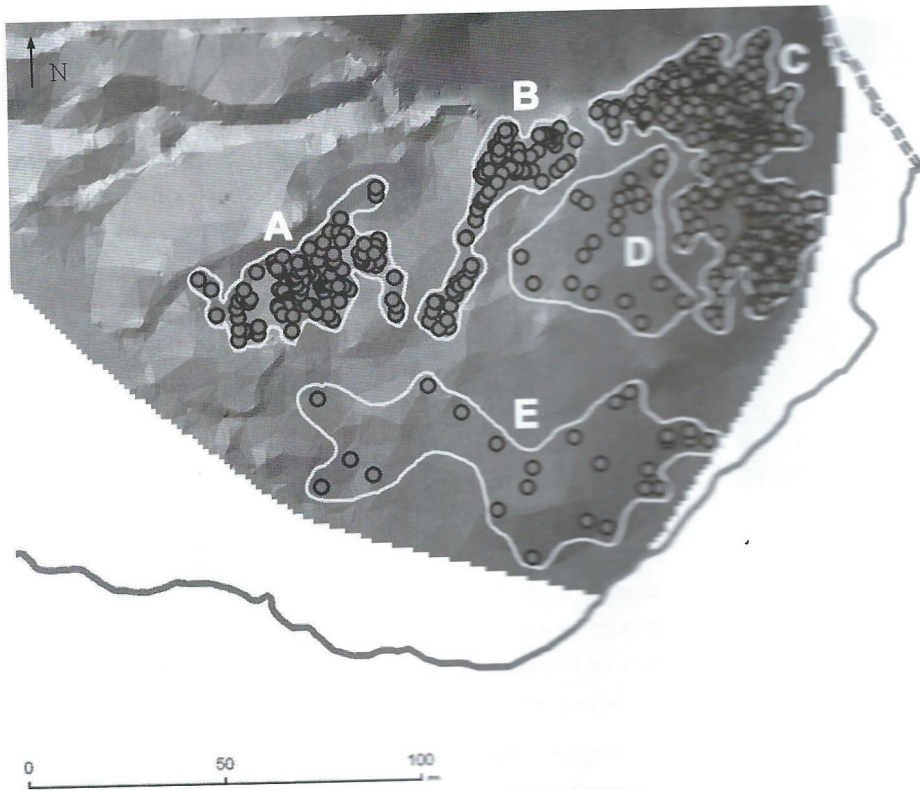


Fig. 11. Plan of zone II of Murgi Tokpo with identified clusters.

camp. Cluster D seems to benefit of its position between B and C, whereas cluster E seems to have the benefit of its peripheral location. It is interesting to notice that at the exact centre of geometry of the zone, right in the middle of the area, there are no petroglyphs at all. The centre of geometry of a shape is the spot where one has the least chances to reach when coming from the edges. Therefore it is very intriguing to note that the spot where one has the least chances to arrive coincides with the area where no one came to engrave a figure.

The application of GIS to zone II of Murgi Tokpo is experimental but it is hoped that such spatial analysis will help us to better understand the location of rock art sites in Ladakh, that is to say why particular locations were chosen or preferred.

Conclusion

The thousands of petroglyphs discovered in Ladakh and more specifically in the Nubra valley legitimate the hypothesis of the links between Ladakh and Central Asia (Francfort et al. 1992). The role of the

Nubra valley along the trade route between Yarkand and Leh in the 18th, 19th and first half of the 20th century is well-known and documented (Rizvi 1999). The rock art site of Murgi Tokpo is of primary cultural significance. It establishes the antiquity of the road, and the Nubra valley appears as an important gateway between the Indian subcontinent and Central Asia, via present-day Xinjiang, probably since the Bronze Age !. Artistic motifs and stylistic traits could well have been handed on through migrations and exchanges. For the time being, there is no archaeological material other than rock art in Ladakh to ascertain or refute this hypothesis. Trial excavations by Indian researchers in the region showed the existence of Palaeolithic and Neolithic phases but no site from

the Bronze Age has been identified (Ota 1993; Sharma et al., 1989; Sharma 2000).

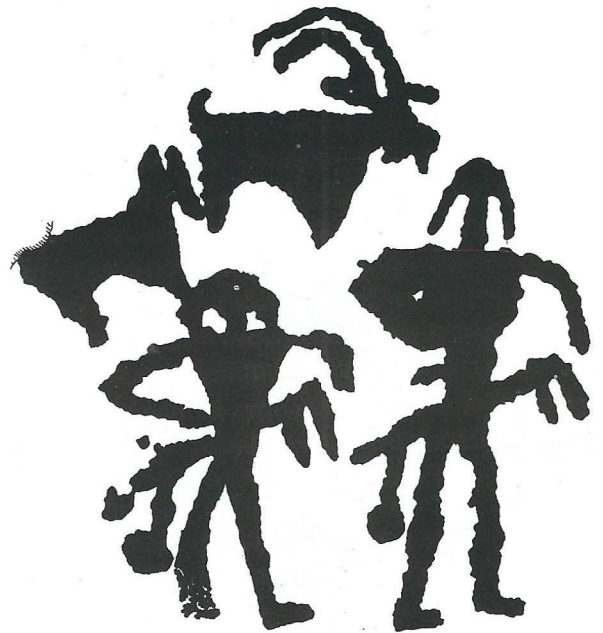


Fig. 12. Scene from the rock art site of Bazgo Zampa, Bronze Age ! to be flooded.

Images similar to the ones of Murgi Tokpo are found all over Ladakh. Briefly, let us mention a scene from the rock art site of Bazgo Zampa depicting two anthropomorphs accompanied by two animals (Fig. 12). As discussed above, such human figures with flatten heads and round-ended objects at the waist might be dated from the Bronze Age !. This particular boulder and the whole rock art site will be flooded in 2016 by the Nimoo-Bazgo hydroelectric project. In Ladakh, many rock art sites are being destroyed either totally or in part by various development works, most importantly road building. For example, at the time of its discovery in the early 20th century the historical site of Alchi, characterized by representations of stūpa accompanied by Tibetan dedicatory inscriptions (which are the earliest Tibetan inscriptions -8th/9th centuries AD - known in Ladakh), counted about 500 inscribed boulders, nowadays there are less than 200. At the present state of research rock art is the only reliable material to reconstruct the past of Ladakh and its protection is crucial.

Acknowledgments

The authors wish to thank the following institutions for funding of the fieldwork over the years: Fondation Jeunesse Internationale; Ecole Française d'Extrême-Orient; Fondation Carlo Leone and Mariena Montandon; Archaeological Research Centre for Indus, Central and Eastern Asia; Project for Indian Cultural Studies and Association Française des Femmes Diplômées d'Université.

Dr Laurianne Bruneau

Archaeological Research Centre for Indus, Central and Eastern Asia
Panthéon Bouddhique, 19 avenue d'Iéna, 75116 Paris. France.
E-mail: bruneaulaurianne@yahoo.com

Quentin Devers

Phd candidate in archaeology Ecole Pratique des Hautes Etudes, Paris.
E-mail: quentin.devers@gmail.com

Martin Vernier

Independent scholar on Ladakhi archaeology and history
E-mail: zskvernier@gmail.com

References

- BLEDNAVA, N., H.-P., FRANCFORT and N., LEGTCHILLO ET AL. 1995. Sibérie du Sud 2: Tepsej I-III, Ust'-Tuba I-IV (Russie, Khakassie), Répertoire des pétroglyphes d'Asie Centrale, Mémoires de la Mission Archéologique Française en Asie Centrale, vol. 2, Paris: Diffusion De Boccard.
- BRUNEAU, L. 2007. Âge du Bronze et Âge du Fer au sud des Kunlun: nouvelles données de l'art rupestre au Ladakh (Jammu & Cachemire, Inde). Paper given on 29th of September 2007 at the 3rd Congress of the Asia Network published online at: <http://www.reseauasie.com>
- BRUNEAU, L. AND M., VERNIER. 2010. Animal style of the steppes in Ladakh: a presentation of newly discovered petroglyphs. In Olivieri, L. M., L. Bruneau and M. Ferrandi (Ed), Pictures in Transformation: Rock art Researches between Central Asia and the Subcontinent. BAR International Series 2167, Oxford: ArchaeoPress: 27-36.
- Director General Archaeological Survey of India. 1997. Jammu and Kashmir (31. Exploration in Upper Indus Valley, Disctrit Leh). Indian Archaeology: a review 1992-1993, Delhi: Archaeological Survey of India: 36-38.
- Director General Archaeological Survey of India. 2004. Jammu and Kashmir (17. Exploration in Ladakh; 18. Exploration in District Ladakh). Indian Archaeology: a review 1998-1999, Delhi: Archaeological Survey of India: 49-59.
- FRANCFORT, H. P. 1991. Note on some Bronze Age petroglyphs of Upper Indus and Central Asia. Pakistan Archaeology 26: 125-135.
- FRANCFORT, H. P., D., KLODZINSKI AND G., MASCLE. 1992. Archaic Petroglyphs of Ladakh and Zanskar. In Lorblanchet, M. (Ed), Rock Art in the Old World: papers presented in Symposium A of the AURA Congress, Darwin (Australia), 1988. New Delhi: IGNC: 147-192.
- FRANCKE, A. H. 1902. Notes on rock-carvings from Lower Ladakh. Indian Antiquary 31: 362-363.
- JACOBSON, E., V. D., KUBAREV AND D., TSEEVENDORJ. 2001. Mongolie du Nord-Ouest, Tsagaan Salaa/Baga Oigor, Répertoire des pétroglyphes d'Asie centrale, Mémoires de la Mission archéologique française en Asie centrale, vol. 6, Paris: Diffusion De Boccard.
- JACOBSON-TEPFER, E., V. D., KUBAREV AND D., TSEEVENDORJ. 2006. Mongolie du Nord-Ouest, Haut Tsagaan Gol, Répertoire des pétroglyphes d'Asie centrale, Mémoires de la Mission archéologique française en Asie centrale, vol. 7, Paris: Diffusion De Boccard.
- JETTMAR, K. 1982. Petroglyphs and early history of the upper Indus valley: the 1981 expedition-a preliminary report. Zentralasiatische Studien 16: 293-308.
- KUBAREV, V. D. 2004. The weaponry of early nomads in Altai rock art. Archaeology Ethnology & Anthropology of Eurasia 3 (19): 65-81.
- MANI, B. R. 1998. Rock Carvings and Engravings in Ladakh: New Discoveries. Pragdhara 9: 65-74.

MANI, B. R. 2000-2001. Rock Art of Ladakh: Glimpses of Economic and Cultural Life. *Purakala* 11-12: 93-108.

OROFINO, G. 1990. A Note on some Tibetan Petroglyphs of the Ladakh Area. *East and West* 40: 173-200.

OTA, S. B. 1993. Evidences of Transhumance from Ladakh Himalayas, Jammu and Kashmir, India. In Ganjoo, R. K. and S. B., Ota (Ed), *Current Advances in Indian Archaeology*, vol. 1. Nagpur: Dattsons: 91-110.

PETECH, L. 1977. The Kingdom of Ladakh c.950-1842 A.D. *Serie Orientale Roma* 51. Rome: Istituto italiano per il medio ed estremo oriente.

RIZVI, J. 1999. Trans-himalayan Caravans Merchant

Princes and Peasant Traders in Ladakh. Oxford: Oxford University Press.

SHARMA, A. K. 2000. Early Man in Jammu Kashmir & Ladakh. Delhi: Agam Kala Prakashan.

SHARMA, K. K., G., RAJAGOPALAN AND V. M., CHOUBEY. 1989. Radiocarbon Dating of Charcoal from Pre-Indus Civilization Fireplace, Upper Indus Valley, Ladakh. *Current Science* 58 (6): 306-308.

VERNIER, M. 2007. Exploration et documentation des pétroglyphes du Ladakh 1996-2006. *Quaderni Fondazione Carlo Leone et Mariena Montandon*, Como: NodoLibri.

Pura 20-21 : 06 □