

History of Science in South Asia

A journal for the history of all forms of scientific thought and action, ancient and modern, in all regions of South Asia

A Model of the Universe in Kathmandu's Old Royal Palace

Gudrun Bühnemann

University of Wisconsin-Madison

HISTORY OF SCIENCE IN SOUTH ASIA

A journal for the history of all forms of scientific thought and action, ancient and modern, in all regions of South Asia, published online at http://hssa-journal.org

ISSN 2369-775X

Editorial Board:

- Dominik Wujastyk, University of Alberta, Edmonton, Canada
- Kim Plofker, Union College, Schenectady, United States
- Dhruv Raina, Jawaharlal Nehru University, New Delhi, India
- Clemency Montelle, University of Canterbury, Christchurch, New Zealand
- Fabrizio Speziale, School of Advanced Studies in the Social Sciences (EHSS), Paris, France
- Michio Yano, Kyoto Sangyo University, Kyoto, Japan

Publisher:

History of Science in South Asia

Principal Contact:

Dominik Wujastyk, Editor, University of Alberta

Email: \(\lambda\) wujastyk@ualberta.ca\(\rangle\)

Mailing Address:

History of Science in South Asia, Department of History and Classics, 2–81 HM Tory Building, University of Alberta, Edmonton, AB, T6G 2H4 Canada

This journal provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge.

Copyrights of all the articles rest with the respective authors and published under the provisions of Creative Commons Attribution-ShareAlike 4.0 License.

The electronic versions were generated from sources marked up in LaTeX in a computer running gnu/linux operating system. PDF was typeset using XaTeX from TeXLive. The base font used for Latin script and oldstyle numerals was TeX Gyre Pagella developed by gust, the Polish TeX Users Group.

A Model of the Universe in Kathmandu's Old Royal Palace

Gudrun Bühnemann

University of Wisconsin-Madison

The hanūmānphokā, the old royal palace of kathmandu is, along with other buildings on the Darbar Square, among the world heritage sites listed by unesco. The palace was built and rebuilt over a long period of time and thus contains sections belonging to different time periods. The section dating to the period of the Śāha kings (the second half of the eighteenth century) has long been accessible to the public. However, the sections dating originally from the Malla period (the twelfth to eighteenth centuries) have been strictly off-limits and inaccessible even to scholars. They were described by Vajrācārya (1976), published in Nepali. This scholar had access to the palace for a short time in the 1970s but was not allowed to take photographs. Thus, the sites have remained unstudied and undocumented in photographs. In early 2012, two courtyards became (partially) accessible to the public: (Man)mohan (also called Mohankālī) courtyard and Sundarī courtyard. Scholarly work is still difficult here; some shrines are closed and photography is not permitted.

Mohan courtyard (Fig. 1), the residential courtyard of the Malla kings and their families, was built in 1649 under King Pratāpa Malla of Kathmandu (r. 1641–1674). It was repaired and reconfigured in 1822 under King Rājendra Vikram Shāh and has undergone many renovations up to the present. In the centre of the courtyard is a sunken stepped fountain (Fig. 2), which boasts a large number of Tantric sculptures along its walls, which are mostly unidentified. The fountain was constructed in 1652 under King Pratāpa Malla, who contributed significantly to enhancing the royal palace with works of art.

The focus of this paper is one artifact in this courtyard (Fig. 3). It was commissioned and installed by King Pratāpa Malla in 1656, a few years after the fountain, as is attested in an inscription on the artifact. Two statues, identified as Gaṇeśa and Pārvatī, now flank the artifact. They were apparently moved here from another location and seem to belong to a group of sculptures of the Śiva family (śivaparivāra), which included Gaṇeśa, a seated Pārvatī with her hands forming the añjali gesture, Skanda and Nandī placed around a śivalinga.



Figure 1: Mohan courtyard in the Hanūmānḍhokā palace. Photo courtesy of N. Gutschow.

The entire artifact is a model of the universe likely based on Purāṇic concepts. The text inscribed on the uppermost disk (Fig. 4) refers to it as $bh\bar{u}gola$, a word whose literal meaning is "earth ball", that is, the terrestrial globe. The word $bh\bar{u}gola$ is glossed as $prthv\bar{\iota}$, earth, in the inscription and bhuvana ("world, earth") in a ritual text, which post-dates the artifact and can be attributed to the eighteenth century. This term is applicable to the uppermost disk which is round and inscribed with the names of different continents, as discussed below.

The model shows, at the bottom, seven disks (Fig. 5) each featuring a wavy band, the traditional design symbolizing water. On one side (Fig. 6) (the side where Varāha's foot points forward) the wavy line is interrupted and the names of the seven parts or *lokas* of the subterranean region are inscribed, one on each disk, starting from the lowermost one: $p\bar{a}t\bar{a}laloka$, $ras\bar{a}talaloka$, $tal\bar{a}talaloka$

Viṣṇu's boar $avat\bar{a}ra$ (Varāha) is positioned on its back with his legs in the militant ($\bar{a}l\bar{\iota}dha$) stance. His left foot is placed on the tortoise's head. According to Indian mythology Varāha rescues the earth from the cosmic waters. Here he

sūtala rokam, vitala rokam and atala rokam.

¹ The names are written as pātāla rokam, rasātalo rokam, talātala rokam, māhātala rokam,



Figure 2: Sunken stepped fountain and model of the universe. Photo courtesy of S. Dongol.

is shown with a boar's head, a human body and a long garland of forest flowers $(vanam\bar{a}l\bar{a})$ around his neck. He is shown in the form of a four-armed Bhūvarāha, who holds a disk (cakra) and a lotus in his upper hands and a club and a conch in the lower hands. The deity supports the earth goddess $(Bh\bar{u})$ on the upraised elbow of his upper left arm. The back of the sculpture of Varāha is adorned with a floral design (Fig. 8), which indicates that the artifact was meant to be viewed from all sides. The earth goddess holds a large disk, the $bh\bar{u}gola$, aloft with the palm of her proper left hand. She sits in $lalit\bar{a}sana$, with her right leg folded and her left leg hanging down. The outer rim of the disk is encircled by the body of a divine serpent $(n\bar{a}ga)$.

The lower disks, the tortoise, the figure of Bhūvarāha and the *bhūgola* are made of brass. The artifact measures about 26cm in height and the upper disk, the *bhūgola*, 44 cm in diameter.

(2019: 515–16), especially the four-armed Bhūvarāha from Bhaktapur (von Schroeder 2019: 524, plate 169B).

² For the iconography of Varāha, see, for example, Gail (1977) and Rangarajan (1997: 34–46). For Varāha sculptures in the Kathmandu Valley, see von Schroeder



Figure 3: Model of the universe. Photo courtesy of S. Dongol.

The upper disk bears detailed inscriptions, including the names of the principal rivers and mountains with their dimensions and extensions on the seven continents $(dv\bar{\imath}pa)$, the names of the oceans surrounding the continents and the names of the cities $(pur\bar{\imath})$ surrounding Mount Sumeru. The yellow and red powders applied to parts of the disk show that the artifact has become an object of worship.

An untitled eighteenth-century ritual text written in the Newari language and catalogued as "The method for making fire offerings to the [deities in the] fountain of Mohancuka on its anniversary" details invocations made for a ritual

ible through the Nepalese-German Manuscript Cataloguing Project (NGMCP), reel no. A 1252/16. The manuscript may date back to the eighteenth century. The second manuscript of the text was formerly in the private collection of Ram Jvalanand Sharma, Patan and now belongs to his son Niran

³ The name of the ritual text has been reconstructed in Sanskrit as *Mohanacukapraṇā-likāvarṣavardhanāhutividhi. The text is known from two manuscripts. The more important of the two is a concertina-type paper manuscript (thyāsaphū) preserved in the National Archives of Nepal in Kathmandu (MS Kathmandu NAK 8/1994) and access-



Figure 4: Uppermost disk. Photo courtesy of S. Dongol.

performed on the anniversary of the consecration of the fountain in the centre of the courtyard. This text includes the model of the universe as one object of worship among a large number of Tantric deities whose sculptures are installed in the fountain. This fact may indicate that in the eighteenth century the model, considered a divinity, was positioned closer to the fountain.

The ritual text directs the priest(s) to make fire offerings to the $bh\bar{u}gola$ by uttering the names of the seven subterranean regions $p\bar{a}t\bar{a}la$, $ras\bar{a}tala$, $tal\bar{a}tala$, $mah\bar{a}tala$, sutalatala, vitalatala, atalatala, followed by the names $k\bar{u}rma$ (tortoise), Varāha (Boar) and $prthv\bar{\iota}$ (Earth).

The brief passage runs as follows:

ततो भुवन⁴यात॥ पाताललोकाय नमः॥

Jvalanand (Rajopadhyaya) Sharma. Mr. Sharma made a photocopy of the manuscript available to me after removing the seed syllables (not to be shown to the non-initiated) in the text with a white correction fluid. This late-nineteenth-century concertina-type paper manuscript (thyās-aphū) is probably a copy of the first ma-

nuscript. Shrestha (2013) reproduced the Patan manuscript, in which the mantras had been removed with white correction fluid. He also transcribed the text of the manuscript from the Newari into Devanāgarī script but offered no analysis or translation.
4 The scribe wrote মুবল instead of মুবন.



Figure 5: Seven disks with water design. Photo courtesy of G.V. Vajracharya.

रसातललोकाय नमः॥ तलातललोकाय नमः॥ महातललोकाय नमः॥ सुतलतललोकाय नमः॥ वितलतललोकाय नमः॥ अतलतललोकाय नमः॥ अतलतललोकाय नमः॥ कूर्म॥ वराह॥ पृथिवी॥

"Then [an offering] for the '[model of the] universe' (bhuvana).

Obeisance to pātālaloka.

Obeisance to rasātalaloka.

Obeisance to talātalaloka.

Obeisance to mahātalaloka.

Obelsaile to manatatatora.

Obeisance to sutalatalaloka.

Obeisance to vitalatalaloka.

Obeisance to atalatalaloka.

Tortoise, Boar, Earth,"



Figure 6: Names of the seven parts (loka) of the subterranean regions. Photo courtesy of S. Dongol.

The names invoked in the ritual text are identical with the ones in the final section of the text inscribed on the uppermost disk of the artifact, the $bh\bar{u}gola$. They are:⁵

पृथ्वी वराह कूमं वितललोकं सुतललोकं महातललोकं तलातललोकं रसातललोकं पाताललोकम्,⁶

"Earth. Boar. Tortoise. *Vitalaloka, sutalaloka, mahātalaloka, talātalaloka, rasātalaloka, pātālaloka.*"

रोकं, महातल रोकं, तलातल रोकं, रसातल रोकं and पाताल रोकं.

⁵ Vajrācārya 1976: 217.

⁶ The inscription as published by Vajrācārya (1976: 217) reads: वितल रोकं, सुतल



Figure 7: Tortoise, Varāha (Boar) and Earth Goddess. Photo courtesy of S. Dongol.



Figure 8: Back of the figure of Varāha with floral design. Photo courtesy of S. Dongol.

One name, atalatalaloka, has been omitted, which could be a printing error or an oversight on the part of Vajrācārya.

Compared to the brief passage in the ritual text, the inscription on the disk, written in the Newari language (with some Sanskrit), is much more detailed than the ritual text. It was published by Vajrācārya (1976: 212–17 (inscription 25)). Already in the 1970s parts of the text could no longer be deciphered and are indicated by dots in the publication. The inscription has further deteriorated since then and the disk is now affected with rust.

From the inscribed text we learn that the artifact was commissioned by King Pratāpa Malla in 1656. The text inscribed on the disk is arranged as a chart which contains lotus petals, squares and circles but no engraved figures. It awaits a detailed study based on high-quality photographs.⁷

We do not know the source(s) for the text inscribed on the disk. Material from the Purāṇa literature is likely to have been used. The inscription states that King Pratāpa Malla had the $bh\bar{u}gola$ (glossed as $prthv\bar{\iota}$) inscribed after consulting personally the "śāstras".⁸

Questions that can be raised are: Why did the king commission this artifact? What was its use before the eighteenth century, when the ritual text included it as one of the objects venerated in courtyard? Was its function purely religious, educational or related to royal prestige?

One possible function may be suggested by *dharmaśāstra* texts that discuss the merits of gift giving (*dāna*). They recommend that a king give the gift of the earth to Brahmins as part of a meritorious ritual. Such a gift is already described in section 10 titled *bhūmidāna* of the *Atharvaveda-Pariśiṣṭa*. A description of the ritual is also found in *Matsya-Purāṇa* 284.1-21 and cited in the 'section on gifting' (*dānakāṇḍa*) of Lakṣmīdhara's *Kṛtyakalpataru*. This latter text was composed in the first half of the twelfth century in central North India. According to this textual material, the king should make a golden replica of the earth that includes Jambūdvīpa with its parts such as Mount Meru and the nine subcontinents (*varṣa*). As *Kṛtyakalpataru*, Dānakāṇḍa 4.11.1-2 states (citing the *Matsya-Purāṇa*):

अथातः संप्रवक्ष्यामि धरादानमनुत्तमम्। पापक्षयकरं नृणाममङ्गल्यविनाशनम्॥ 4.11.1

⁷ Due to the inaccessibility of the artifact and the difficulties involved in reading the inscription it is not possible to provide a detailed analysis at this time.

⁸ See Vajrācārya 1976: 213: ... जयप्रतापमछदेव प्रभु ठाकुरसन थम शास्त्रस सोयाव पिकायाव थ्व भूगोल

पृथ्वी चोस्य विज्याङा जुरो ... and p. 217: ... जयप्रतापमल्लदेवेन स्वयमेव सर्व[–lacuna–]मवलोक्य लिखापितभूगोलमिति॥

⁹ See Brick (2015: 336–39 (text) and 115–17 (translation)) for this ritual.

कारयेत्पृथिवीं हैमीं जम्बूद्वीपानुकारिणीम्। मर्यादापर्वतवतीं मध्ये मेरुसमन्विताम्। लोकपालाष्टकोपेतां नववर्षसमन्विताम्॥ 4.11.2¹⁰

I shall now explain the unsurpassable Gift of the Earth, which destroys men's sins and obliterates inauspiciousness. (1)

A man should have a golden Earth built that contains a replica of Jambūdvīpa, including the Border Mountains, Mount Meru at its center, the eight World-Protectors, and the nine Subcontinents." $(2)^{11}$

The uppermost disk of King Pratāpa Malla's artifact, the $bh\bar{u}gola$, is indeed a golden colour and appears to correspond to that description. However, the objection can be raised that if the artifact was indeed a case of a $bh\bar{u}mid\bar{a}na$, why is it still in the palace of the donor and not with the donee?

Pratāpa Malla's artifact may have also functioned as a symbol of power and prestige. Sumathi Ramaswamy has written extensively on the significance and role of globes in Mughal India as symbols of world rulership, authority, power and prestige. Her picture album "Going Global in Mughal India" includes representations of Mughal kings holding globes in their hands or standing on them or using them as a footstool. Many of these globes date from the time of Shāh Jahān, the mid-seventeenth century, which is also the time when Pratāpa Malla's $bh\bar{u}gola$ was made.

The globes held or stepped upon by the Mughal kings are spherical European globes. Several spherical globes based on concepts from the Purāṇas have also been noted.¹³ The oldest Purāṇic globe is the one made by one Kṣemakarṇa, whose date corresponds to 1571 CE. It is now in the Museum of the History of Science at Oxford¹⁴ and was studied by Digby (1973). The piece is actually a storage box with an attached hinge and locking clasp.

There is apparently no artifact comparable in shape to King Pratāpa Malla's model of the universe with its lower disks, the figures of the tortoise, Viṣṇu's Boar manifestation supporting the earth goddess holding the $bh\bar{u}gola$. It is quite possible that the king, who is considered an innovator and somewhat of an eccentric in Nepalese history, ¹⁵ was the first to commission this object. Since the artifact contains not just a sculpture of the earth goddess, but of Varāha rescuing the goddess it may also allude to Pratāpa Malla rescuing his country.

¹⁰ Brick 2015: 336.

¹¹ Brick 2015: 115.

¹² See Ramaswamy 2019.

¹³ Schwartzberg 1992: 352-58.

¹⁴ Accession no. 10/27-10, no. 2191 of the

late L. Evans Collection. See also Gole 1989: 26,74 and Schwartzberg 1992: 352, 426 (plate 26).

¹⁵ Slusser 1982: v. 1, 191.

ACKNOWLEDGEMENTS

I would like to thank M. A. Geslani, T. L. Knudsen, G. J. R. Mevissen, S. R. Sharma, K. Tamot, K. G. Zysk and the anonymous referees of the journal for helpful suggestions.

INDEX OF MANUSCRIPTS

Kathmandu NAK 8/1994, 4

TEXT EDITIONS

Atharvaveda-Pariśiṣṭa Bolling, G. M. and von Negelein, J. (1909–10) (eds.), The

Pariśiṣṭas of the Atharva Veda. Vol. 1: Text and Critical Apparatus (Leipzig: Otto Harrassowitz), http://n2t.net/ark:/13960/t13p0r37q, (on 12 Apr. 2020).

Matsya Mahāpurāṇa Joshi, K. L., Nagar, S., et al. (2007) (eds.), Matsya

Mahāpurāṇa. An Exhaustive Introduction, Sanskrit Text, English Translation, Scholarly Notes and Index of Verses. Translated into English by a Board of Scholars (Delhi:

Parimal Publications).

REFERENCES

- Brick, D. (2015), Brahmanical Theories of the Gift: A Critical Edition and Annotated Translation of the Dānakāṇḍa of the Kṛtyakalpataru (Cambridge, MA: Department of South Asian Studies, Harvard University).
- Digby, S. (1973), 'The Bhugola of Ksema Karna: A Dated Sixteenth-Century Piece of Indian Metalware', *Art and Archaeology Research Papers*, 4: 10–31.
- Gail, A. (1977), 'Viṣṇu als Eber in Mythos und Bild', in H. Härtel (ed.), *Beiträge zur Indienforschung. Ernst Waldschmidt zum 80. Geburtstag gewidmet* (Berlin: Museum für indische Kunst), 127–68.
- Gole, S. (1989), *Indian Maps and Plans. From earliest Times to the Advent of European Surveys* (New Delhi: Manohar).
- Ramaswamy, S. (2019), 'Going Global in Mughal India', Duke University, https://sites.duke.edu/globalinmughalindia, (on 29 June 2019).
- Rangarajan, H. (1997), Varāha Images in Madhya Pradesh. An Iconographic Study (Mumbai: Somaiya Publications).
- Śākya, H. (1995), Lalitpur maṅgalbajār sthita sundarīcok tusāhiti = Lalit Festival (lalit mahotsav), April 18–24, 1995 (Patan: s.n.); 3 pages.

- Schwartzberg, J. E. (1992), 'South Asian Cartography', in J. B. Harley and D. Woodward (eds.), *The History of Cartography. Volume 2, Book 1: Cartography in the Traditional Islamic and South Asian Societies* (Chicago: The University of Chicago Press), 293–509.
- Shrestha, S. S. (2013), 'Busadhana Manuscript of Mohanchowk Hiti', in M. Aryāl et al. (eds.), *Smārikā* 2069 (Kathmandu: Hanumānḍhokā darbār saṃgrahālaya vikās samiti (Hanumandhoka Royal Palace Museum Development Committee)), 11–9.
- Slusser, M. S. (1982), Nepal Mandala: A Cultural Study of the Kathmandu Valley, 2 vols. (Princeton, NJ: Princeton University Press).
- Vajrācārya, G. (1976), *Hanūmānḍhokā rājadarbār* (Kāṭhmāḍauṃ: Nepāla ra Eśiyālī Adhyayan Saṃsthān, Tribhuvan-Viśvavidyālaya); in Nepali.
- Von Schroeder, U. (2019), Nepalese Stone Sculptures. Volume 1: Hindu (Weesen, Switzerland: Visual Dharma Publications).

