HISTORICAL NOTE

NANDIGRĀMA OF GAṆEṢĀ DAIVAJṆA

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One of the tasks of the history of science in India, or of any other history for that matter, is to lift the veil of legend and myth and ascertain solid facts. We shall probably never know what exactly Aryabhaṭa’s relation to Kusumapura was or where exactly the Aśmaka region lay. It is of course legitimate to attempt to find new material or new interpretation of these issues within the realm of reasonable probability, but must one keep on repeating ad nauseam that Aryabhaṭa was the Vice-chancellor of Nalanda University or the Director of Nalanda Observatory?

1. In his Gaṇakataraṅgini, published in the last decade of the nineteenth century, Sudhakara Dwivedi collected valuable biographical material on several important gaṇakas (astronomers, astrologers and mathematicians) of India. About the same time Shankar Balakrishna Dikshit brought out his comprehensive history of the astral science in Marathi, where he provided additional biographical information. In recent times David Pingree enlarged this material in manifold ways with copious references to original sources. By discussing the teacher-pupil lineages within a family and even outside, Pingree showed how the Jyotihšāstra was cultivated and transmitted throughout India. Thanks to the efforts of these scholars, gaṇakas do not remain any more mythical figures like Kalidāsa, but become real historical personages. In fact, today we know more about the lives and works of the writers of Jyotihšāstra than about the writers of any other branch of Sanskrit learning. It must be added that unlike other Sanskrit writers, many gaṇakas mention in their works the years of their birth or epochs that are closer to their own times. Moreover, in the medieval period, gaṇakas began to add, in the concluding chapters of their works, short accounts of their families and places of residence.

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2. One of the celebrated gaṇakas of the sixteenth century is the polymath Gaṇeśa Daivajña (b. 1507) of Nandigrāma. In the concluding chapter (Upanāthardhikāra) at the end of his immensely popular Grahalāghava (composed in Śaka 1442 = AD 1520), Gaṇeśa gives an account of himself and his family. His descendants and those of his pupil Divākara of Golagrāma likewise describe briefly the life and work of Gaṇeśa. In particular, his pupil and nephew Nṛśimha (b. 1546) enumerates seventeen titles authored by Gaṇeśa.

On the basis of this information, David Pingree prepared the entry on Gaṇeśa for the Dictionary of Scientific Biography. His Census of Exact Sciences in Sanskrit (CESS) contains enormous amount of valuable material on Gaṇeśa’s works and their manuscripts with copious citations. He also explained the main features of the Gaṇeśapakṣa or Gaṇeśa’s school of astronomy in his History of Mathematical Astronomy in India. Here and elsewhere, Pingree identifies Gaṇeśa’s Nandigrāma with Nandod in Gujarāt. This identification is rather problematic and needs re-examination.

Gaṇeśa mentions that his ancestors and he himself lived at Nandigrāma in the kingdom/country of Aparānta (nandigrāma ihāparāntaviṣaya). Pingree apparently took aparānta-viṣaya as the entire west coast of India and placed Gaṇeśa at Nandod in Gujarāt. In this he appears to have followed the view of J. F. Fleet, to be cited below. But this identification goes against the other statements made by Gaṇeśa and his descendants in their various works regarding their place of residence, statements which Pingree collected meticulously and made available to us in his monumental CESS.

Though it literally means western extremity or border, aparānta specifically designates the Konkan. Apparently J. F. Fleet thought that aparānta meant the Konkan, Northern Gujarāt, Kathwār, Kutch and Sind, but P. V. Kane contests this view on the evidence of several ancient works and declares: “That aparānta usually means the Konkan admits of little doubt”.

But as far as Gaṇeśa’s aparānta is concerned, we have an unambiguous identification with the Konkan by a near-contemporary Nṛśimha Daivajña (b. 1586), who was the grandson of Gaṇeśa’s pupil Divākara of Golagrāma. In his Vāsanāvārttika commentary (Śaka 1543 = AD 1621) on the Siddhāntaśiromani of Bhāskara, Nṛśimha refers to his own grandfather Divākara as śrīmat-kōṅkaṇavāśi-keśava-sūta-prātipāvabodha, “one who received enlightenment (avabodha) from the illustrious son of Keśava (i.e Gaṇeśa), the resident of Konkan.”
3. Moreover, Gāṇeṣa and other members of his family repeatedly state that their Nandigrāma is situated on the eastern shore of the western sea, which is known today as the Arabian Sea. These statements are reproduced below. Note that these are all gleaned from David Pingree’s CESS.

Gāṇeṣa, Buddhivilāsinī, a commentary (Śaka 1467 = AD 1545) on the Lilāvati of Bhāskara, penultimate verse (CESS 2, p. 104): kṣārambudheḥ praktaṇe nandigrāma ihāvasan ...

Gāṇeṣa, Vivahadi pīkā, a commentary (Śaka 1476 = AD 1554) on the Vivahavivrdavāna of Kesāvārka, the penultimate verse (CESS 2, p. 105): saṃgarapūrvavarttiśaṇī grāme 'tra nandiyadime ...

Kesāva (Gāṇeṣa’s father), Grahakautuka (Śaka 1418 = AD 1496), last verse (CESS 2, p. 66): nandigrāma ihāparadadhitaṇe ...

Nṛṣimha (b. 1548) (Gāṇeṣa’s nephew and pupil), Grahakaumudi 4.11 (CESS 3, p. 203): sahaśādrer adhārāparānāravadiśaye kṣārambudheḥ praktaṇe grāme nandipurādime ...

Nṛṣimha, Grahadasāphala, verse 86 (CESS 3, 203): parodadhheḥ pūrvagāti rasamsthah / śrī nandipurāyāḥ ...

Nṛṣimha, Harṣakaumudi, a commentary on the Grahalāghava of his uncle Gāṇeṣa, penultimate verse (CESS 3, p. 203): kṣārambhonidhipūrvatīrakagatāyāṃ nandipuryāṃ ...

All this shows clearly that Gāṇeṣa’s Nandigrāma was situated right on the coast of the Arabian Sea in the Konkan region and therefore cannot be equated with Nandod (Lat. 21° 87’ N, Long. 73° 31’ E) in Gujarāt which is far from the sea coast.

4. The correct identification of the Nandigrāma was made long ago by Shankar Balakrishna Dikshit. Writing about Gāṇeṣa’s father Kesāva, Dikshit stated: “he was a resident of Nandigrāma on the sea coast of Konkan. This is, at present, a village in the Janjeera state and is known as Nāndgāon. It lies about 40 miles to the south of Bombay.” 17 This Nandgāon on the Konkan coast lies at Lat. 18° 22’ 60” N, Long. 72° 55’ 0” E. 18

5. This identification of Nandigrāma with Nāndagāon on the Konkan coast is corroborated by the internal evidence 9 in Gāṇeṣa’s Pratodayantra which was edited, translated and annotated in an exemplary manner by Yukio
Ôhashi. The Prajñāpāramitā is a small work of 13 verses on the construction and use of the column dial. In his commentary on verse 7, Ôhashi remarks as follows: “It appears that Ganesā assumed that the midday altitude of the sun is 90° when the length of daytime is 32 nāḍīs, and that the observer’s latitude is 18°, because the zenith distance of the midday sun at the equinoctial day becomes (32 - 30) x 9 = 18° by this rule. This latitude agrees with the latitude of Nandigrāma where Ganesā resided, which is about 40 miles to the south of Bombay according to S. B. Dikshit.”

6. In Ganesā’s time, his village lay in the territory of the Sultanate of Ahmadnagar. Malik Amber (1546-1626), the Abyssinian slave who rose to be virtual ruler of Ahmadnagar erected an impregnable fort on a small island to the south-west of Nandigrāma. The island is called Janjeera or Janjira (from Arabic jāfiraḥ, lit. island). Later on, Janjira Fort and the surrounding areas, including Nandgaon, became part of the princely state that bore the same name.

The Gazetteer of Bombay Presidency, produced at the end of the nineteenth century, describes the Na’ndgaon as follows: “Na’ndgaon, which lies about four miles north of Janjira, is chiefly made up of detached houses in cocoa and betel gardens. It is about two miles long and a mile broad. The trade is small, mainly the export of timber and firewood to Bombay. It is the head-quarters of a mahalkari and has a school. A yearly fair in honour of Gadha Devi is held on the Chaitra (April) full-moon. It is attended by about 2000 persons and has a sale of sweetmeats, bangles, and toys.”

7. Today, after the abolition of the princely states, Nandgaon falls in the Raigad District in the state of Maharashtra. The Janjira Island Fort is now a tourist resort, and the tourist literature extols the nearby and Gaṅga for its pristine beaches.

End-Notes
1. In his Āryabhaṭīya 2.1, Āryabhata states that in his work he will present the [astronomical] knowledge honoured in Kuṣumapura. This Kuṣumapura is generally identified as modern Patna in the state of Bihar, but the questions remain whether he was born there, whether he studied astronomy there or whether he was merely teaching the astronomy of Kuṣumapura school.

2. In his commentary on the Āryabhaṭīya, Bhāskara 1 says repeatedly that Āryabhata was from Asmaka. Cf. Āryabhaṭīya of Āryabhata, ed & tr. Kripa Shankar Shukla and K. V. Sarma, New Delhi 1978, Introduction, pp. xvii-xix. But so far nobody has been able to explain satisfactorily where this Asmaka region lay.


12. Grahalāgāhava (Śaka 1442 = AD 1520), Upasaṇhārādhiṅkāra, verse 5 (CESS 2, p. 100).

13. P. V. Kane, “Ancient Geography and Civilization of Maharashtra,” The Journal of the Bombay Branch of the Royal Asiatic Society, 24 (1917) 613-657, esp. p. 632, n. 2: “…By Aparānta, Dr. Fleet understands the Konkan, Northern Gujarāt, Kathiawar, Kutch and Sind (J.R.A.S., 1910, p. 417). But this opinion of Dr. Fleet seems to ignore the indications offered by the Arthaśāstra, the Mahabhāratā, the Rāghuvirāṇya and the inscription of Rudradāman.”


15. The CESS reads erroneously kṣārāmbudhi, the mythical Ocean of Milk, instead of kṣārāmbudhi, the salt water sea.
16. The CESS has kṣīrāmbudhi for kṣārāmbudhi.

17. *English Translation of Bharatiya Jyotish Sastra (History of Indian Astronomy),* Part II, p. 128.

18. For the geographical coordinates of places in India, there is now an excellent online tool “Directory of Cities, Towns, and Regions in India” at http://www.fullingrain.com/world/IN/

19. I am highly obliged to Professor Takao Hayashi for drawing my attention to this internal evidence.

