

## HISTORICAL NOTES

### KALI CHRONOGRAMS OF NĀRĀYAṆA BHAṬṬĀTIRI (15<sup>TH</sup>-17<sup>TH</sup> CENTURIES AD)

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Nārāyaṇa Bhaṭṭatiri (son of Māṭṛdatta) is one of the greatest scholar-poets of Kerala. He composed many works on diverse subjects both literary as well as technical in Sanskrit. He was a Nambutiri Brāhmin hailing from the family of Melputtur situated not far from the bank of the river Bharatappula. According to his grammatical work (see below), he learned *mīmāṃsā* from his father, Vedas from Mādhava, logic from Damodara and grammar from Acyuta who was a great authority in the subject of *vyākaraṇa-sāstra*.

In addition to grammar, Acyuta (a member of the Piṣāraṭi Community), was a scholar of astronomy, astrology, poetics and medicine. He was a pupil of Jyeṣṭhadeva the author of the famous Malayalam work *Yuktibhāṣā* on astronomy and mathematics, and was patronised by the king Ramavarman of Prakasavisaya who ruled from 1595 to 1607 of the Common Era (=AD).

Acyuta Piṣāraṭi wrote *Praveśaka* on grammar, *Horāsāroccaya* on astrology, a Malayalam commentary on *Veṅvāroha* of Mādhava of Saṅgamagrāma (= Mādhava mentioned above), and half a dozen works on astronomy. Pingree's *Census*\*\* descriptively mentions these as (i) *Karaṇottama* (with auto-commentary), (ii) *Uparāga-kriyākrama*, (iii) *Sphuṭanirṇaya*, (iv) *Chāyāṣṭaka*, (v) *Uparāgaviṃśati*, and (vi) *Rāśīgolasphuṭānī ti*.

Of these, the concluding verse of the *Uparāgakriyākrama* contains the Kalichronogram (Sarma, p. 16) प्रोक्तःप्रवयसो ध्यानात् (*Proktaḥ pravayaso dhyānāt*) which gives (in the usual *kaṭapayādi* system) in number 01714262.

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\*\*Full references are given at the end.

This has been taken (as explained in a commentary) to yield the date of composition of the work on the Kaliday 1714262 (of the present *Kali yuga*). Ever since Iyer (p. 44) took this to correspond to 1593 AD, many scholars (such as Pingree and Sarma) accepted it, but K.K. Raja (*Adyar Library Bulletin* No. 27, p. 157) mentioned it as 1592 which is correct. The exact date worked out by the writer (RCG) of the present article comes out to be Monday, July 10, 1592 (Julian). This working is based on assuming the usually accepted date Friday, February 18, 3102 BC as the first day of present Kali Yuga.

According to a popular Kerala tradition, when Acyuta died, his pupil Nārāyaṇa composed a *caramas̄loka* (obituary verse) in his memory, There is slight difference in the text found in various sources (e.g. Pingree, p. 37 and Raja, p. 125), but the quoted fourth line

विद्यात्मा स्वरसर्पदद्य भवतामाधारभूरच्युतः ॥

(*vidyātmā svarasarpadya bhavatāmādhārabhūracyutaḥ*) has the common Kalichronogram

*Vidyātmā svarasarpāt*

(‘that learned soul passed to heaven’).

The chromogram represents the Kaliday number 1724514 thereby mentioning the definite date of Acyuta’s death. Unfortunately, here also the corresponding year is wrongly given as 1621 AD by various scholars such as Iyer, Pingree, Raja, Sarma etc.

The correct date works out to be Friday, August 4, 1620 (Julian) or August 14, 1620 (Gregorian) as difference being 10 days here.

Nārāyaṇa’s *Nārāyaṇaiyam* is his most popular work and is one of the finest religious lyrics in Sanskrit literature. It deals with the themes of the famous *Bhāgavata* (including its *sāṃkhya* doctrine) as well as *Rāmāyaṇa*. Its date of composition is expressed by the following interesting Kalichronogram given at the end

आयुरारोग्य सौख्यम्

*āyurārogya saukhyam*

This on one hand is a wish or prayer for longevity (*āyur*), health (*ārogya*) and happiness (*saukhya*), on the other hand it represents the Kaliday number

1712210 expressed in the usual *Kaṭapayādi* system.\* The corresponding Julian date is November 27, 1586 as correctly given by Raja (pp. 126 and 130), the week day being Sunday.

Nārāyaṇa was not only fond of forming such chronograms but was an expert in creating them with literary gymnastics. A popular tradition in Kerala ascribes him the following verse (Raja p. 130 with slight correction):

नदी पुष्टिरसह्यानु,  
 नह्यसारं पयोजनि ।  
 निजात् कुटीरात् सायाहने,  
 नष्टार्थः प्रयुर्जनाः ॥

*Nadīpuṣṭīrasahyā nu,*  
*Na hyasāram payo'jani /*  
*Nijāt kuṭīrāt sāyāhne,*  
*Naṣṭārthaḥ prayurjanāḥ //*

The verse describes the catastrophe of the devastating flood in the Bharatappula river in the following words:

“The flood in the river was unbearable and there came down an abundance of water. By the evening, the people (living nearby) fled from their huts, having lost all their belongings.”

But the more interesting part in the verse is that its each four lines (*pādas*) represent the same number 01721180 in the *Kaṭapayādi* system. However, here we have to note that while the usual right to left convention is followed in the first and third *pādas*, the opposite left to right conversion is to be observed in the other *pādas*. This is a good example showing that the same person may follow different conventions at the same time! The Julian date of the tragic even corresponding to the above 1721180<sup>th</sup> Kaliday was Wednesday, June 19, 1611

The *Prakriyā-sarvasva* stands at the top of the scientific works (i.e. those devoted to *Śāstras* or technical Sanskrit) of Nārāyaṇa. It is said to be an

\* In *The Concept of Śūnya* (Delhi, 2003, p. 41), the number appears wrongly as 171211 (paper by K.V. Sarma), and the same also in *IJHS*, 34(4) (1999), p. 274.

original recast of Paṇinian *sūtras* on the Sanskrit grammar (*Aṣṭādhyāyī*). According to Raja (p. 129), two Kalichronograms found in one of its introductory verses are:

यत्नः फलप्रसूः स्यात् (*yatnaḥ phalaprasūḥ syāt*)

and कृतरागरसोद्य (*kṛtarāgarasodya*)

The first of these represents the Kaliday 1723201 and the second the Kaliday 1723261, their difference being only of 60 days. The corresponding Julian dates are Monday, 30 December, 1616 and Friday, 28 February, 1617. In Gregorian these date will fall in January and March in 1617 and not in 1616 as Raja states. Regarding ancient dates, there has to be always a clear mention or understanding as to whether they are in Julian or Gregorian to avoid confusion. It may be mentioned that although in Italy the Gregorian reform was adopted in 1582, it was adopted much later (in 1752) in England.

Nārāyaṇa is also said to have coined the chronogram *Bālakalatram Saukhyam* (बालकलत्रम् सौख्यम्) as printed in Raja's book (p. 121). This gives Kali Day 1723133 and corresponds to the Julian date 23 October, 1616 (Wednesday). However, there seems to be some confusion apparently because Raja mentions the Kali Day number as 1729133 which will correspond to the date 28 March, 1633 (Thursday). Of course, the latter number can be easily obtained by taking the second *la* (ल) in the above chronogram as *Īa* (ः) of the Malayalam as this denotes 9 (instead of 3) in the extended *Kaṭapayādi* system. The story goes that when Acyuta asked Nārāyaṇa to give an alternative chronogram, the pupil formed the new one as

लिङ्ग व्याधिरसह्यः

(*Liṅga vyādhirasahyaḥ*)

which represents the same Kali Day 1729133. The date of 1633 might had been the then proposed date for completion of *Prakriya-sarvasa*.

Nārāyaṇa composed *Caturaṅga-slokas* on the game of chess (Raja, p. 148) whose oriental name *śataraṅja* is clearly derived from the Sanskrit name. His *Sukta-slokas* are said to give various statistics about the *Ṛgveda*. The technique used in described in the opening verse and is based on the *Kaṭapayādi* system with some changes. Here the letter *na* means 10 (and not

the usual 0) and the conjoint letter *kṣa* (क्ष) means 12 (not 6). This shows that variation in the system already started. The famous *Vedic Mathematics* by Sw. Trithaji uses  $kṣa = 0$ .

Above, the dates in AD of many Kali chronograms have been given. The converse problem of finding Kali Day of chronogram for a given date is also there. On a current N<sup>th</sup> Kali Day, the *gata ahargaṇa* (elapsed number of Kali Days) is (N-1). For example, the epoch of *Karaṇa-kutūhala* is Thursday, the 24 February, 1183 (Julian) which corresponds to the Kali Day Number N=1564738 and on this Kali Day the (*gata*) *Ahargaṇa* is 1564737 (Rao and Uma, p. S171). Of course the *Ahargaṇa* Number also represents the (N-1<sup>th</sup>) Kali Day and so on. In essence day by day counting of civil days from the first day of Kali Yuga is involved.

Important Indian astronomical works contain methods of finding *ahargaṇa* on any lunar *tithi*. Minor deviations or errors can be corrected if week day is known. But often mistaken results are found. For instance D.A. Somayaji (*IJHS*, Vol. 20, 164-165) finds the *ahargaṇa* upto *Aṣādhā bahula amāvasyā*, Śaka 1906 as the number 1857473. But according to Rao and Uma (pp. S171 to S174) the *ahargaṇa* for the said Gregorian date 28 July, 1984, comes out to be 1857444 days! How Nārāyaṇa got the Kali Day numbers for forming his chronograms is also worth finding.

#### REFERENCES

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3. K.K. Raja, *The Contribution of Kerala to Sanskrit*. University of Madras, Chennai 1980 (This is his Ph.D. Thesis, 1943-47, first published in 1958).
4. S.B. Rao and S.K. Uma (ed. & transl.), *Karaṇakutahala*. *IJHS* Supplement Vol. 43, No. 3 (2008), pp. S151-S216.
5. K.V. Sarma (ed. & transl.), *Rāśīgolasphuṭānīti*. V.V.B.I., Panjab University, Hoshiarpur, 1977.
6. K.S. Shukla (ed. & transl.), *Laghubhāskarīya*. Lucknow University, Lucknow, 1963 (especially pp. 1-4).