Notes on Some Sanskrit Astrological Authors

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Notes on Some Sanskrit Astrological Authors

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1. INTRODUCTION

Any scholar engaging today with the history of astrology in India owes an enormous debt of gratitude to David Pingree (1933–2005), whose achievements in locating and cataloguing manuscripts of the vast body of relevant Sanskrit literature, and drawing up broad lines for dates and routes of transmission, were truly stupendous. On the level of individual authors and their works, however, mistakes are not infrequent in Pingree’s publications, several of which have become standard reference works in the field – including his five-volume Census of the Exact Sciences in Sanskrit (CESS) and his Jyotiḥśāstra: Astral and Mathematical Literature. The following notes, dealing with a handful of authors on Tājika or Sanskritized Perso-Arabic astrology from the fourteenth to the seventeenth century, constitute a small contribution towards greater precision in their dating and the typically scant information we have on their general background. Particular attention will be given to the date of Balabhadra, author of the encyclopaedic Tājika work Hāyanaratna of which I am currently preparing an edition and translation. The other authors discussed in this paper are all cited in the Hāyanaratna. On the most important of all Tājika authors, Samarasimha (thirteenth century?), I shall say nothing here, as I hope shortly to deal with his literary output and sources in a separate publication.

While providing a general overview of the history of Tājika is not the purpose of the present paper, it may be briefly stated that the word itself is derived from the Arabic tribal name Ṭayyiʾ, via the Middle Persian ṭāzīg “Arab,” and denotes a form of astrology that developed as a separate school in India in the early centuries of the second millennium CE. Although ultimately springing from the same Greek origins as pre-Islamic Indian astrology, Tājika comprises many technical elements not included in the first wave of astrological transmission from the northwest about a millennium earlier, and is thus the form of astrology in India that most closely resembles the medieval European variety, which similarly rests on Arabic foundations. A reasonably complete and coherent historiography of
the Tājika school will remain a desideratum until more in-depth studies of individual works and authors have been made, but some relevant introductory material has been published over the past two decades.¹

2. TEJAḤSIMHA (fl. 1337)

The earliest preserved Sanskrit work on Tājika following Samarasiṃha is the Daivajñālanākṛti authored by Tejaḥsiṃha, who is concisely described by Pingree as follows:

The son of Vikrama of the Prāgvāṭavaṃśa, a minister of the Cālukya monarch Śāraṅgadeva (ca. 1276/1296), and the brother of Vijayasiṃha, Tejaḥsiṃha composed a Daivajñālanākṛti in Saṃ. 1393 = AD 1336.²

Although not stated by Pingree, Balabhadra mentions in passing that Tejaḥsiṃha had also written a gloss (ṭīkā) on a work by Samarasiṃha (āha samarasimhah...tattīkāṛtejaḥsimha ‘pi). Pingree gives the closing verses of the Daivajñālanākṛti from an unspecified source, which differs in places from the two manuscripts that I have had the opportunity to examine.³ The readings of Pingree’s source are generally preferable, and I reproduce them below with only minor corrections on the basis of manuscript evidence and with my own translations. The first five verses read:

```plaintext
lakṣmīr yasya pratene svayam acalam ihācandratāraṃ niveśaṃ
yasmin muktāḥ phalanti praguṇataragaṇā doṣapaṅktyā vimuktāḥ |
yasmin viśrāmabhājaḥ paramapṛthutaraśrenayāḥ sajjanānāṃ
so ‘yaṃ prāgvāṭavaṃśo jagati vijayate ‘nalpaśākhāviśālī|| |
```

Victory in the world to that Prāgvāṭa dynasty, great with numerous branches, for which Lakṣmi herself provided an enduring dwelling-place for as long as the moon and stars shall last, here where pearls ripen in most excellent multitudes, free of any blemish, and where the most abundant guilds (śrenī) of good men enjoy their peace!

¹ See Pingree 1997; Sarma 2000; Gansten and Wikander 2011; Plofker 2011; Gansten 2012, 2014.
² Pingree 1970–1994: A3 89a. The same information is repeated in Pingree 1981: 99, 130, 1997: 82.
³ These are Kerala 7758 (K), the earliest manuscript listed by Pingree, copied on 7 December, 1525, and a Nepalese manuscript microfilmed by the Nepalese-German Manuscript Preservation Project (NGMPP), microfilm A414/21 (N), not listed by Pingree, undated.
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There Śrī Vikrama was born, vanquisher of his enemies and [his] minister’s true friend, the peerless vessel of a host of virtues, who with ease attained the further shore of all undertakings by the blessings of the lotus feet of the glorious King Śāraṅgadeva, whose fame had become the head-ornament of the kings born in the illustrious Cālukya dynasty.

Then [his] minister was born, taking from him the title Siṃha prefixed by the word Vijaya; possessing that moonlight of speech which brings joy to the night lotuses of the hearts of the learned; having attained the further shore of all sciences, shining with literature, logic, rhetoric and so forth: a peerless vessel of happiness whose praise was sung on account of his modesty, propriety and other virtues.

To him a son was born, greatly esteeming his kinsmen, bearing the name beginning with Tejas and ending with Siṃha; always subservient to good teachers, having gained a little knowledge by the blessings of the lotus feet of scholars of great intelligence; a recipient of the kindness of good men, endowed with modesty and propriety, fearing the censure of the world.
He composed this [work] not wrongly famed under the name Daiva-
jñālaṃkṛti (The astrologer’s ornament), [comprising] the entire result of
the year, for the welfare of all people. Those astrologers who carry [it]
in their heart and soul, considering [it] an adorning jewel, will forever
enjoy the attention, wealth, dignity and friendship of the royal court.

From these verses it is clear that the summary given by Pingree needs cor-
correcting: Tejaḥsiṃha was not “the son of Vikrama […] and the brother of Vijaya-
simha,” but the son of Vijayasimha (no brother is mentioned). Further, it was
Vijayasimha who served as a minister (mantrin) of Vikrama, who appears to have
been a vassal ruler or higher official of some sort under Sārāngadeva. These re-
lations were apparently clear to the scribe of Pingree’s earliest listed manuscript
(Kerala 7758, hereafter K), the colophon of which reads: iti śrīmaṃtrīvijayasiṃha-
sutamaṃtrītejasiṃhena kṛtaṃ daivajñālaṃkṛti nāma varṣaphalaṃ samāptaṃ (thus des-
nignating both Tejaḥsimha and Vijayasimha as mantrins).4

The Prāgvāṭas eulogized by Tejaḥsimha are a mixed Jain and Hindu kinship
group, known today as Porwad or Porwal and generally considered to belong
to the Baniya or merchant community. While Tejaḥsimha does not in so many
words claim membership of this group, it seems a safe enough assumption to
make. We may note that about two generations earlier, his Tājika predecessor
Samarasiṃha, who explicitly identifies as a Prāgvāṭa, similarly mentions a family
connection to the rulers of Gujarat in a ministerial capacity.5

In the quotation above, Pingree seems to have taken at face value the iden-
tification of Sārāngadeva as a “Cālukya;” as noted in his later publications, the
Caulukyas (not in fact related to the earlier Cālukya dynasty of the Deccan) had

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4 Even the descriptive label on the cover of
the manuscript gives the author’s name as
Tejaḥsimhaḥ Vijaya simhasutaḥ. The colophon
of N, by contrast, reads: iti prāgvāṭa-
vaya vijayasimhamānya bandhutejajāraji(?)
simhaviracitā daivajñālaṃkṛtī samāpta,
ap
apparently as a result of Tejaḥsimha’s phrase
tanu janir ajani having been corrupted into
the metrically impossible tadanur ajani and
mānyabandhu interpreted as a karmadhāraya
compound.

5 Pingree (1981: 121 f.) remarks that a num-
ber of authors on jyotiṣa in Caukukya-era Gu-
jarat were “state officials” and Prāgvāṭas,
while others were Jains, and includes Te-
jaḥsimha in the former group. The similar-
ity of the names Samarasiṃha, Vijayasimha
and Tejaḥsimha – both in the suffix and in
their general martial tenor – is also worth
noting.
by this time been succeeded by the Vāghelās, of which Śāraṅgadeva was the “last reasonably successful” king.  

The subsequent verse gives the date of the text. Pingree offers the following reading, noting that it is “somewhat corrupt:’

śrībhūbhṛdvikramasya trinidhiśikhidharāsamitite 'bde tapasye
māse 'jyarkṣe kavau x sitamadanadine 'trāgatam sadguror yat |
pāramparāyādhṛte 'pi svayamanubhavagranthājārthaṃ samyak
pūrṇābdīyāṃ phalam sadgrahaganitaścāvidāṃ mantriṃeṇoh prasādam |

Pingree’s source and the manuscripts examined by me all being to some extent defective, a certain amount of conjecture is called for in emending this verse; but the only serious difficulty is presented by the second pāda, where an “x” marks a missing (metrically long) syllable in Pingree’s version.  

It is doubtful what word could be meaningfully inserted here. Furthermore, the suggested [a]jyarkṣe conveys no meaning; ījyarkṣe would do so, but would demand a double sandhi to fit the metre (māse ījyarkṣe > māsa ījyarkṣe > māsejyarkṣe, without the apostrophe) – not unheard of, but substandard and perhaps unlikely in a carefully crafted closing stanza.

Without knowing Pingree’s source text, it is impossible to say whether kavau is in fact his emendation based on reconstruction from the other data given. We may note, however, that manuscript K shows no trace of this word, reading instead māse mejyarkṣe vāre. While that reading is in itself unsatisfactory in both metre and meaning, it suggests to me the following possibility:

śrībhūbhṛdvikramasya trinidhiśikhidharāsamitite 'bde tapasye
māse 'dyejyarkṣavāre sitamadanadine 'trāgatam sadguror yat |

The remaining two pādas require only minor corrections, supplied chiefly by K:

pāramparāyād rte 'pi
svayam anubhavanād
granthājārthaṃ samyak
pūrṇābdīyāṃ phalam sadgrahaganitaścāvidāṃ anmhrīrenoh prasādāt |

aN: upatam?
bMy conjecture; both manuscripts are one syllable short. K: anubhavād; N: anubhavād.
cN: anīgrhi-, with identical meaning.
dN: prasādāb.

6 Pingree 1997: 82. Earlier, he had referred to Śāraṅgadeva as “Caulukya [Vāghela]” (Pingree 1981: 130).

7 The long syllable similarly left out of the third pāda (following anubhava) has been left unmarked.
In the year of King Vikrama numbering one-three-nine-three, in the month of Tapasya, today under the asterism and on the weekday of Bṛhaspati, on the thirteenth day of the bright [fortnight], that result of the entire year which, even without the mediation of a good teacher, [I have proved] correct by my own experience with tenets from books, was concluded here by the blessing of the dust from the feet of true knowers of planetary calculation.

Even disregarding the more uncertain elements of this verse, the Daivajñālaṃkṛti can be dated to within a day: the śūkla-trayodaśī of the month of Phālguna (Tapasya) in Vikrama samvat 1393 corresponds to 13–14 February, 1337 ce.8 The tithi or lunar date in question – determined by the longitudinal separation of the sun and moon – began on Thursday afternoon and ended on Friday morning. Pingree’s reading kavau “on [the day of] Venus” is thus possible in and of itself; but if the “asterism of Ijya [= Bṛhaspati or Jupiter]” (ījyarkṣa) is to be included, this means the nakṣatra Puṣya, which ended on Thursday evening. Either way, the date of the Daivajñālaṃkṛti needs to be moved forward from 1336, as stated by Pingree, to 1337.

The two manuscripts that I have examined contain a final verse not given by Pingree. While it provides no additional information about the text as such, it does tell us something about the self-perception of its author and the society in which he lived and worked. The stanza as preserved in both manuscripts is once more slightly corrupt; I give my tentative emendation below:

śūdrasyāṅgodbhavena grathitam idam ato nātra śaithilyabuddhya\textsuperscript{a}
viprendair daitwaitdhir grahagativeduśām uttamaip apanavit
\textsuperscript{b}
dhāryā\textsuperscript{c} yasmāt suvidyāpy avaraprisato\textsuperscript{d} grhyate hy uddhṛtam ṭad
granthābdhes tājakāyā mṛtaphaṇimāṇīvad\textsuperscript{e} vitsu sāphalayam etu\textsuperscript{f} ||

\textsuperscript{a}K: saithilyam etat.
\textsuperscript{b}N: bhāryā, with identical meaning.
\textsuperscript{c}My conjecture. K: suvidyātha para-; N: suvidyā pravara-.
\textsuperscript{d}My conjecture. K: smṛtaphala-; N: smṛtaphaṇi-.
\textsuperscript{e}N: eti.

This was composed by the son of a śūdra. Let not even eminent Brahman astrologers here, foremost in understanding of the courses of the planets, think little of it for that reason and hold it in contempt, for

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8 This and other datings discussed in the present paper were made partially with the help of Michio Yano’s excellent on-line application Pancanga (v. 3.14), available at: http://www.cc.kyoto-su.ac.jp/~yanom/pancanga/.
good knowledge is [to be] accepted even from lowly men. May that [work], extracted from the ocean of books on the Tājika [science], be of use to the learned, like a jewel [extracted] from a dead cobra.

Three points seem to merit comment here. First, despite the prominent social position of the Prāgvāṭa community under the Caulukyas and Vāghelās, Tejāsimha seems acutely aware of his non-Brahman status, expressed here in terms of exaggerated humility. Second, even if some works have been lost, it is unlikely that an “ocean of books on Tājika” existed in Sanskrit by the early fourteenth century; it is possible, therefore, that Tejāsimha is referring to Arabic-language manuals on astrology (although his own work is demonstrably dependent in large part on that of Samarasimha). Third, the snake-jewel analogy recurs about two centuries later in Gaṇeśa Daivaṭa’s Tājikabhūṣaṇa, in the slightly different context of a general defence of Brahmans studying Tājika astrology.

3. TUKA (fl. 1549–50)

Our next author is not, as far as I have been able to find, mentioned in any of Pingree’s works, despite being quoted more than thirty times in Balabhadra’s Hāyanaratna and remarked on by Weber. It is thus a question in this instance of complementing rather than correcting the existing record of Tājika writers.

The Tājikamuktāvali, consisting of 102 consecutively numbered stanzas of varying metres, is available to me in two manuscripts; its contents are fundamentals of Tājika astrology and, in particular, annual horoscopy. The opening verses read:

sāṅgaśrutisṛtipurnānakathetihāsasāhitya mahāmahimne |
anetväsīganavarititasargasānyā namo ‘stu bhavate ‘stu sadā śivāya |
śrīmanmahādevagurum prasādyā guṇādhikā tāntrikabhūṣaṇāya |
muktāvalī tājikapūrvikeyaṃ viracyate daivavidā tukena ||

An anonymous reviewer has suggested that śūdrasyā- should read kṣudrasyā- “of a low man,” as Tejāsimha ought properly to be considered “a vaiśya with pretensions to kṣatriya status.” While I am wary of imposing normative perspectives on a text that may be reflecting a different social reality, such an emendation is not impossible. However, there is so far no manuscript evidence to support it.

Tājikabhūṣaṇa 1.4, also quoted by Balabhadra near the beginning of the Hāyanaratna. The “snake-jewel” or nāgamani is a bone found in the head of a snake, believed to be efficacious against snake bites.

Weber 1853: 251.

The Hāyanaratna does cite a number of other works and authors not listed by Pingree, but none so apparently influential; see my forthcoming edition and translation.

Both manuscripts are from the NGMPP, microfilm 413/13, no date (they also appear, in different order, as microfilm 1065/2).
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To him who was the abode of the śruti with its ancillary [disciplines], the smṛti, the purāṇas, stories and itihāsas, literature and songs; the one of great glory whose virtues are praised by his host of students – let there be homage to that father, to you; let there ever be [homage] to Śiva.

Seeking the blessing of his teacher, the illustrious Mahādeva, Tuka Daivavid composes this Muktāvalī (Strand of pearls) prefixed by Tājika, of great merit, for adorning the expert.14

The closing verses make it clear that the name of the author’s father is Śiva (rather than Sadāśiva, although the ambiguity is probably intended), and that Mahādeva is his elder brother:

\[
\begin{align*}
iti \text{ tājakamautkāvaliṃ samahādevaśivaprasādataḥ} & | \\
saguṇāṃ samalamkṛtyakṣamām akṛta śrītukasamjñapāṇditaḥ | & \\
gārgīyadaivajñasāmanvājñamajena śrīmanmahādevavoḍo ‘nunjena | & \\
suṣrītyamuktaśvalikā kṛteyam vidbhīr dhrīrā syāt purusārthasiddhyai | & \\
śrīvajapeyāhdikayajakrdbhīr vidvadhvedindūrās bahubhih śrutena | & \\
nikumbhavamsākanarpeśvarasya śrīprippalagrāmavarnā kṛteyam | & \\
śāke pūrṇendusaṃyuktasvaravedendusammite | & \\
saumye saumyena varṣe ‘sau krtā tājakapaddhatiḥ | & \\
prāg granthaṭīkāgrahacitrahorāmuktāvalīsattithicandrikādīn | & \\
vidhāya yah prāpa padaṃ munīnāṃ śīvāya pitre praṇato ‘smi tasmai | & \\
\end{align*}
\]

Thus the scholar called Śrī Tuka has, by the blessings of Śiva and Mahādeva, authored the excellent Tājakamautkāvalī, fit for adorning [its readers]. Let this Strand of pearls, authored in beautiful verses by the son of Śiva Daivajña of the Gārgīya [gotra], by the younger brother of the illustrious scholar Mahādeva, be worn by the learned for accomplishing the ends of men.

This [work] was authored by one known to many eminent and learned Brahmans performing sacrifices such as the Vājapeya in the beautiful Śrī Pippalagrāma of the peerless sovereign of the Nikumbha dynasty. In the year Saumya, numbering one-four-seven-one in the Śaka era, this handbook of Tājika was authored by the Soma sacrificer (saumya).15

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14 Or, possibly, “the Tāntrika” (in a technical religious sense).
15 Or simply “by the good man.” In either case, the word is a pun on the name of the year; but I believe it also alludes to the Vājapeya Soma sacrifice just mentioned.
He who, having first composed commentaries on books and [works] such as *Graha citra*, *Horāmuktāvali* and *Sattithicandrikā*, reached the abode of sages – to that Śiva, my father, do I pay homage.

The Śaka year 1471, corresponding to 1549–1550 ce, was indeed named Saumya in the *cāndramāna* variant of the sixty-year prabhāvādi cycle (sometimes called Jovian years, but not, in this instance, calculated from the mean position of Jupiter). The author’s name and the connection to the Nikumbha lineage point in the direction of Maharashtra, where several places named Pipalgaon or Pimpalgaon are still found.16

There further exists a metrical *Tājikamuktāvalitippanī* of unknown authorship, possibly an autocommentary, the colophon of which describes it as a “book of corrections to the *Tājikamuktāvali* composed by Tuka Jyotirvid, son of the illustrious Śiva Daivavid’ (*śrīmac chiva daiva vit sūnu tukajyotirvidracitāyās tājakamuktāvaleḥ sodhakapustakam*). This too is available to me in two manuscripts (one incomplete); the text runs to 91 verses, excluding several folios setting forth some of the more technical material in tabular form.17 Balabhadra does not distinguish between the *mūla* text and the *tippanī* but quotes from both under the single title *Tājika[muktāvali].* Balabhadra also makes repeated references to Tuka’s commentary on Samarasiṃha’s seminal *Tājikaśāstra* (apparently no longer extant).18

### 4. YĀDAVASŪRI (fl. 1616?) AND BĀLAKṚṢṆA (fl. c. 1650?)

Yādavasūri was the author of a fairly large work entitled *Tājikayogasudhānidhi*,19 of which Pingree states that its date is “apparently” 1616, and that Yādavasūri wrote an autocommentary (*vivaraṇa*) on it.20 While I have been unable to find a source for this date in the *mūla* text, I have not seen the *vivaraṇa*;

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16 I am indebted to Ashok Aklujkar and Madhav Deshpande for these suggestions (personal communication).
17 The manuscripts of the *tippanī* are found in the same NGMPP microfilms as the *mūla* (413/13 and 1065/2) and are likewise undated.
18 Interestingly, the *tippanī* itself refers to “the opinion of Balabhadra” (3.19: *bala-bhadramatoktānām*), which must be either a later interpolation or a reference to a different Balabhadra. Although Pingree’s CESS lists several authors of this name, none except the author of the *Hāyana ratna* is stated to have written on Tājika.
19 The author’s own figure for the number of verses is 547 (*agajaladhiśara*; see 16.28), which he further equates with 844 *anuṣṭubh* stanzas (or *granthas*; in other words, approximately 6752 syllables). The primary manuscript examined by me (see below) comprises 555 verses.
20 Pingree 1981: 99, 1970–1994: A5 335b. The earliest manuscript cited by Pingree was copied in 1667, but Balabhadra (1649; see below) quotes the *Tājikayogasudhānidhi* frequently.
possibly the date is stated or implied there. Pingree further claims that the author “belonged to a family dwelling at Prakāśa in Gujarat,” for which he gives no source (but cf. the verses excerpted from Bālakṛṣṇa below). The repeated statements that Yādavasūri was a resident of Vāī (once, “Vāī on the Krṣṇā River’) are, however, based on a metrically and syntactically corrupt reading of the antepenultimate verse of his main work as excerpted (or emended?) by Pingree:

śrīvatsasamjñād dvijapuṅgavādyah śrīvāīnāmni supure ca sādhvī|
śrīyādavena vyaracīha tena sudhānidhis tājikayogapūrvaḥ |

On examination of the two complete manuscripts available to me, the doubly unmetrical reading śrīvāīnāmni supure “in the good town named Vāī” is found to be unsupported; in its place we find the name of the author’s mother:

śrīvatsasamjñād dvijapuṅgavād yaṃ śrbhāyināmnī suṣuve ca sādhvī|
śrīyādavena vyaracīha tena sudhānidhis tājikayogapūrvaḥ |

The Sudhānidhi prefixed by Tājikayoga was composed by that Śrī Ya- dava whom the good lady named Śrī Bhāyi bore to the bull among the twice-born called Śrīvatsa.

Apart from invalidating any association between Yādavasūri and any of the places in India known as Vai, and hence also the idea that he was instrumental in “the southward spread of tājika”, this verse throws an intriguing light on the metrical colophon appearing at the end of each of the Tājikayogasudhānidhi’s sixteen chapters:

śrībhāyipādajalajātakṛpātavidyaśrīyādavena racite svaguruprasādāt|
tārtīyayaogasusudhānidhināmadheye … ||

[This concludes chapter so-and-so] in the [work] named Tārtīyayogasusudhānidhi, composed through the blessings of his teacher by the Śrī Yādava who received his knowledge by the grace of the lotus feet of Śrī Bhāyi.25

21 Pingree 1997: 84.
22 Tājikayogasudhānidhi 16.27; Pingree 1970–1994: A5 335b.
23 The first is a manuscript from the Acharya Shri Kailasa Sagarsuri Gyan- mandir in Koba, numbered 16650, copied on 26 July, 1804; the second is another NGMPP manuscript, microfilm A412/11 (N), undated. Neither is listed by Pingree.
24 Pingree 1997: 84.
25 Tārtīya (with variants) is not uncommon as a synonym of Tājika. Possibly it means “Tataric” in the generalized sense of “Muslim.” The name śrībhāyi is occasionally written śrībhāi.
Whether the “teacher” and “Śrī Bhāyi” are one and the same is not entirely clear, but either way it appears that Yādavasūri considered his mother to have been his first guru in the field of Tājika — surely an unusual circumstance in the seventeenth century, and one that raises questions about the mother’s family background.

Pingree connects “Yādava Bhaṭṭa or Sūri” with another Tājika author, Bālakṛṣṇa[bhaṭṭa], whom he identifies as the son of the former, and whose floruit he puts at c. 1625/1650 without stating any source. I have not so far had the opportunity to examine any complete manuscript of Bālakṛṣṇa’s Tājikakaustubha, but from the closing verses excerpted by Pingree it does not seem to mention a date. The same verses do, however, preclude the possibility of Bālakṛṣṇa being the son of Yādavasūri. Pingree’s versions, with my own tentative corrections and translations, read as follows:

\[
yā tāpyutta travarasamśrayavatī khyaṭā prakāśā purī
yāś cāśū iha yājñavalkya tilakah śrīrāmajit panditaḥ |
ṣaṭśāstrādhyayanādhirāt samabhavan nārāyanas tatsutatas
tatsūnur nāyavedavat samabhavad yo rāmakṛṣṇābhidhah |
tadāṅgajayo yādavabhaṭṭanāmā nānāgamārthākalito babhūva
sāhityapīyūṣasupoṣitāṅgaḥ śritaḥ prakāśo
iha yādavabhaṭṭajātajanmājanakāṅghryambujāṣatpadas tatāna
sa hi tājikakaustubhābhidhānaṁ kamaniyaṁ bhucī bālakṛṣṇābhaṭṭaḥ |
\]

\[\text{Pingree: nānāgamārthākalito.} \]
\[\text{Pingree: śritaḥ prakāśo.} \]

In the town known as Prakāśā, nestling on the northern bank of the Tāpī, lived Śrī Rāmajit Paṇḍita, ornament of the Yājñavalkya [lineage]. Nārāyaṇa was born as his son, mastering the study of the six sciences; as his son was born the knower of law and the Vedas named Rāmakṛṣṇa. His son was named Yādavabhaṭṭa, versed in the meanings of various works, his body well-nourished by the nectar of literature, residing in Prakāśa [but] celebrated in the world. Now Bālakṛṣṇa bhaṭṭa, born to Yādavabhaṭṭa and being a bee at his father’s lotus feet, has brought the pleasing [work] called Tājikakaustubha into the world.

26 Pingree 1970–1994: A4 243 f. To the best of my knowledge, the author of the Tājika-yogasudhāṇidhi is nowhere referred to as Yādavabhaṭṭa.

27 The early estimate of c. 1625 may possibly be due to the Tājikakaustubha being cited in Balabhadra’s Hāyanaratna, which Pingree mistakenly dated to 1629; see below.
While Yādavasūri gives the name of his father unambiguously as Śrīvatsa, Bālakṛṣṇa thus states that his father, Yādavabhaṭṭa, was the son of Rāmakṛṣṇa. This further means that there is no connection between Yādavasūri and Bālakṛṣṇa’s ancestral home in Prakāśa/Prakāśā.

5. BALABHADRA (fl. 1649–1654)

As discussed by Pingree, Balabhadra composed two voluminous nibandhas or “meta-commentaries,” the Hāyana ratna on Tājika and the Horāratna on Indian astrology in the classical (pre-Islamic) style. The dating of the former is somewhat complex: it appears at the very end of the work in the form of a mathematical riddle, and the stanza (a partial pastiche of Bhāskara’s Siddhāntārthaśāstra 5.8) has been very imperfectly preserved in the manuscript tradition, presumably due to its unintelligibility to many of the scribes who copied it. The latter half-stanza, giving the year, is unfortunately entirely omitted by the two earliest manuscripts available to me.

The version of this stanza cited by Pingree is the one found in the printed edition of 1905 to which he refers elsewhere. Although it is reproduced without comment, this version is in fact too corrupt for any information beyond the year to be salvaged from it:

\[
\text{yo me māsakṛteḥ samaḥ karahato yogas tithih syāt tathā} \\
\text{trir vārān iti tah sahārdhasadrśam bham sarvayoge punah} | \\
\text{bhūvānākṣakubhir bhaved upamititr granthasya tāvad dhi yas} \\
\text{taṃ manye gaṇitadvayajñakamalaprodhovat bhāskaram} | \\
\]

My edited version, based on six manuscripts which retain the stanza wholly or in part, is as follows:

\[
\text{yogo māsakṛteḥ samah karahato yogas tithih syāt tithis} \\
\text{trighnā vāramitis tadardhasadrśam bham sarvayoge punah} | \\
\text{bhūvārākskubhir bhavat chakamitir granthasya tām vetti yas} \\
\text{taṃ manye gaṇitadvayajñakamalaprodhovat bhāskaram} | \\
\]

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28Pingree 1970–1994: A4 234 ff. 1981: 99, 1997: 85 ff. For the place of the nibandha in the taxonomy of Sanskrit commentarial literature, see Ganeri 2010.

29Pingree 1970–1994: A4 236a.

30Pingree 1997: 86 n. Pingree equates the edition’s Śaka 1826/Vikrama 1961 with 1904 ce but neglects the month stated, Māgha, which began only on 22 January (pūrṇimānta) or 5 February (amānta), 1905 ce.

31See my forthcoming edition for details.
The *yoga* is equal to the square of the month; the lunar date is the *yoga* divided by two; the lunar date multiplied by three is the number of the day; the asterism equals half of that; and when all is added to one-five-seven-one, the Śaka date of the book results. Whoever understands that, I consider him to be a sun to make the lotus flowers [that are] the knowers of the two [kinds of] mathematics blossom.\(^{32}\)

The elements of the Indian calendar are given here in numerical form: the synodic month (*māsa*), lunar date or phase (*tithi*, of which there are 30 in a month), day of the week, asterism occupied by the moon (*naksatra*, normalized as 27 equal divisions of the ecliptic), and *yoga*, which in this context means the sum of the ecliptical longitudes of the sun and moon counted from 0° sidereal Aries and arranged in a series of 27 divisions from 0° to 360°. The only element omitted is the *pakṣa* or fortnight, presumably because a numerical value assigned to it would be ambiguous: whether the month begins and ends at new moon (*amānta*, making the *śuklapakṣa* or waxing fortnight the first) or at full moon (*pūrṇimānta*, making the *krṣnapakṣa* or waning fortnight the first) is a matter of regional variation. The *tithis* must thus be understood as being numbered from 1 to 30 rather than from 1 to 15.

Balabhadra tells us that the *yoga* must be the square of some integer and divide by 2, which, with a maximum of 27, gives the possibilities 4 and 16. The month, which is the square root of the *yoga*, is therefore either 2 or 4; and the lunar date, which is half the *yoga*, is either 2 or 8. The day of the week must be 3 times the lunar date and, of course, no higher than 7; it must also divide by 2. The only possibility is 6, which is 3×2. Therefore the lunar date is necessarily 2, the *yoga* 4, and the month 2; and the asterism, the number of which should be half that of the day of the week, is 3. Converting these numbers into the more usual format, the date thus arrived at is the second lunar day (*dvitīyā*) of the month of Vaiśākha in the Śaka year 1571, in the asterism Kṛttikā and the *yoga* Saubhāgya.

As the moon has to be almost new in order to occupy the asterism Kṛttikā (in sidereal Aries/Taurus) in the spring month of Vaiśākha, it is evident that Balabhadra follows the *amānta* system; the *pakṣa* is thus *śukla*. The sixth day counted from Sunday – generally considered the first day of the week – would be Friday; but in the context of reconstructing a date, the day of the week was used as a control device to verify the correctness of other parameters, typically based on a day count (*ahargaya*) from the epoch of the current age or Kaliyuga.\(^{33}\) This

\(^{32}\) The word *bhāskaram* used here for “sun” is, in the original verse from the *Siddhāntaśiromaṇi*, a punning allusion to the name of the author.

\(^{33}\) See, e.g., Rao 2000: 73.
The one purely conjectural emendation in this reading, and its crucial element, is the phrase bhūvārākṣakubhir, expressing, in bhūtasamkhyā or word numerals, the Śaka year 1571 (reading, as always with numbers, right to left: bhū = earth = 1; vāra = day of the week = 7; akṣa = arrow [of Kāma], i.e., the senses = 5; ku = earth = 1). As already mentioned, the half-stanza containing this word is omitted by the earlier text witnesses; the later manuscripts, as well as the edition used by Pingree, all read bhūvāṇakṣakubhir (vāṇa = arrow = 5) and even add, in explicatory numerals, “1551.” This reading, corresponding to 1629 CE, is accepted by Pingree, who cites it repeatedly.34 There are, however, at least four reasons to doubt its correctness.

First, the calendric elements do not fit together: it is impossible to get a perfect match for the tithi, nakṣatra and yoga in the year 1629. The discrepancy is not a huge one – an error of 4° to 5° in the longitude of the moon would give a window of a few hours – but such an error would be unexpectedly large, and even more so in an author of Balabhadra’s standing.35

Second, Balabhadra enjoyed the patronage of the Mughal prince Shāh Shujāʿ (1616–1661, second son of the emperor Shāh Jahān), to whom he refers respectfully in the closing sections both of the Hāyanaratna and of his later Horāratna. Towards the end of the present work, Balabhadra casts a revolution figure (annual horoscope or varṣakuṇḍalī) for the prince’s thirty-third year of life, commencing in Śaka 1570 = 1648 CE. There seems to be no reason why he should have chosen for his example a date still nineteen years into the future; it is far more likely for the revolution in question to refer to the prince’s latest birthday at the time of writing.36 Moreover, a date of 1629 would make Shāh Shujāʿ no more than thirteen years old at the time of the completion of

34 Pingree 1981: 99, 1997: 85.
35 Krishnamurthi Ramasubramanian has informed me (personal communication, 10 June, 2017) that in his extensive experience of planetary calculations using formulæ from traditional Sanskrit texts, the maximum error in lunar longitudes is of the order of 2°, and that too only for dates centuries later than the composition of the texts used. The overlap of calendric factors produced by an error of some 4° would occur in the early hours following sunrise on 25 April, 1629.
36 As early as 1853, Weber concluded that the year of this revolution figure could be used to date the Hāyanaratna, although he was confused by the reading “1577,” which, as he notes, does not match Shāh Shujāʿ’s stated age at the time (Weber 1853: 245f.). This reading seems to be a mistake confined to the single manuscript used by Weber (Berlin 881/Chambers 182, copied on 7 June, 1777; see Pingree 1970–1994: A4 234b); all other manuscripts examined agree on the reading “1570.”
the Hāyanaratna. This tender age seems unlikely in view of the admiration expressed by Balabhadra for the prince’s royal eminence and military prowess, even taking into account the typically hyperbolic nature of such statements (sakalabhūpālamārāhāmanīnirājitacaranakamalānāṃ bhūmaṇḍalākhaṇḍalānāṃ “vanquisher of the sphere of the earth, whose lotus feet are illuminated by the crown jewels of all its kings”). 37

Third, in the penultimate verse of the work, Balabhadra explicitly states that it was composed in the presence of, or in proximity to (-antike), Shāh Shujā in Rajmahal (in the present-day Jharkhand state of India, just on the border of West Bengal). This information is likely to have escaped Pingree, as the version that he reproduces from the 1905 edition is once more corrupt: 38

\[\text{prthvīpati mahāvīra śrīmatsāhisujāntike} | \text{śrīrājamahalasthena maṇā grantho vinirmitah} ||\]

The correct reading, again on the basis of manuscript evidence, is:

\[\text{prthvīpatimahāvīraśrīmatsāhisujāntike} | \text{śrīrājamahalasthena maṇā grantho vinirmitah} ||\]

Rajmahal, which had been established as the capital of the Mughal subah or province of Bengal in 1595, became the residence of Shāh Shujā on his appointment as governor (subahdār), which took place only in 1639. 40 In a later publication, Pingree interprets rājamahala as referring to “the royal palace, presumably in Agra”; 41 but it does seem a coincidence too many that Balabhadra should, in 1629, have opted to employ the Arabic loanword mahala as a generic term for “palace” (for which several indigenous Sanskrit words exist), despite the existence of a regional capital of the Mughal Empire specifically named Rājamahala (Rajmahal), and that, a decade later, his patron should have relocated to that same city.

Fourth and last, Balabhadra’s later opus, the Horāratna, is securely dated to January, 1654. 42 It appears more likely that some five years should have passed.
between the composition dates of these two nibandhas than a quarter of a century – particularly as the Horāratna, in listing Balabhadrā’s previous writings, mentions the Hāyanaratna last.

In view of the above considerations, I believe my emendation to be correct. Two supportive arguments may be adduced: first, the resemblance of the characters rā and nā in the so-called Calcutta or northern style of Devanāgarī; second, my admittedly subjective impression that, in practice, vāṇa “v” is more frequently encountered as a word numeral than vāra “v,” which, if correct, would further increase the likelihood of the latter being mistaken for the former.

With Balabhadrā’s floruit thus narrowed down to 1649–1654, and considering that of his teacher Rāma Daivajña (1590–1600), reasonable conjecture may place his year of birth between c. 1600 and 1615. The year of his death is unknown, as are the circumstances of his life after Shāh Shujāʿ was repeatedly defeated in the fratricidal struggles over the imperial throne that commenced in 1658.

6. CONCLUSION

In closing, our findings regarding the five Tājika authors discussed above may be summarized as follows.

Tejaḥsīṁha was the son of Vikrama’s minister (mantrin) Vijayasisma, all three apparently belonging to the Prāgvāṭa kinship group. Vikrama in his turn was a high official or intermediate ruler under the Vāghelā king Śāraṅgadeva. Tejaḥsīṁha’s Daivajñālaṃkṛti was completed in early 1337, most probably on 13 February.

Tuka, son of Śiva and student of his own elder brother Mahādeva, completed his Tājika muktāvali in 1549 or early 1550. He may or may not be the author of a metrical ṭippāṇī on the same text; Balabhadrā quotes from both works under the title of the mūla.

Yādavasūri, author of the Tājikayogasudhānidhi, did not, so far as we know, hail from Prakāśa in Gujarāt or live in Vāī, and there is nothing to suggest that he helped spread Tājika further south. He apparently learnt Tājika astrology from his mother, who was called Śrī Bhāyi. Yādavasūri was definitely not the father of the Bālakṛṣṇa who wrote the Tājikakausṭubha and whose family did live in Prakāśa. Neither the Tājikayogasudhānidhi nor the Tājikakausṭubha mentions its date of completion.

Despite prima facie manuscript support for the year 1629, the date of completion of Balabhadrā’s Hāyanaratna must be revised to 14 April, 1649, on the basis of both text-internal and text-external evidence: a horoscope cast for the year 1648; the harmonization of calendric elements; the dates of Balabhadrā’s patron Shāh Shujāʿ and his life events relative to the place of composition; and the date of Balabhadrā’s other main opus.
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