

A Translation of the New Edition of the  
*Suśrutasamhitā*

Jason Birch      Dominik Wujastyk      Andrey Klebanov  
et alii

Draft of 8th June 2023  
© Jason Birch and Dominik Wujastyk

## Contents

<b>The manuscripts and editions used in the vulgate editions by Yā-</b>	
<b>davaśarman Trivikrama Ācārya</b>	<b>5</b>
The sources of the 1915 edition . . . . .	5
The sources of the 1931 edition . . . . .	5
The sources of the 1938 edition . . . . .	6
Evaluation . . . . .	7
The 1939 edition . . . . .	8
The sources for the Bhānumatī . . . . .	8
The sources for the Suśrutasaṃhitā . . . . .	10
Evaluation . . . . .	10
<b>Features of the manuscript transmission</b>	<b>12</b>
Palaeographical features . . . . .	12
Chart of characters . . . . .	12
<b>Sūtrasthāna, adhyāya 1</b>	<b>13</b>
<b>Sūtrasthāna, adhyāya 2</b>	<b>20</b>
Literature . . . . .	20
<b>Sūtrasthāna, adhyāya 13: On Leeches</b>	<b>21</b>
Literature . . . . .	21
Previous scholarship . . . . .	21
Translation . . . . .	21
<b>Sūtrasthāna, adhyāya 14: On Blood</b>	<b>28</b>
Previous scholarship . . . . .	28
Translation . . . . .	28
<b>Sūtrasthāna, adhyāya 16</b>	<b>35</b>
<b>Sūtrasthāna, adhyāya 28</b>	<b>43</b>
<b>Kalpasthāna, adhyāya 1</b>	<b>44</b>
Literature . . . . .	44
Manuscript notes . . . . .	45
Translation . . . . .	46

[Threats to the king] . . . . .	46
<b>Kalpasthāna, adhyāya 2</b>	<b>55</b>
Introduction . . . . .	55
Translation . . . . .	55
The effects of poisons . . . . .	60
Symptoms of tuber poisoning . . . . .	61
Slow-acting poison . . . . .	63
The stages of toxic shock . . . . .	64
Remedies for the stages of slow poisoning . . . . .	65
The invincible ghee . . . . .	67
Curing the ‘slow-acting’ poison . . . . .	67
<b>Kalpasthāna, adhyāya 3</b>	<b>68</b>
Introduction . . . . .	68
Translation . . . . .	68
The origin of poison . . . . .	72
Patients beyond help . . . . .	74
<b>Kalpasthāna, adhyāya 4</b>	<b>76</b>
Introduction . . . . .	76
Literature . . . . .	76
Translation . . . . .	77
<b>Uttaratantra, adhyāya 16 (17 in the vulgate)</b>	<b>80</b>
Literature . . . . .	80
Translation . . . . .	80
[Complications] . . . . .	89
[Characteristics of the probe] . . . . .	90
[Complications] . . . . .	90
<b>Uttaratantra, adhyāya 38</b>	<b>93</b>
Summary of the Content . . . . .	93
Placement of the Chapter . . . . .	93
Parallels . . . . .	94
Philological notes . . . . .	95
Metrical alterations . . . . .	95
The original opening verses . . . . .	95

Translation . . . . .	96
<b>Editions and Abbreviations</b>	<b>98</b>
<b>Index of Manuscripts</b>	<b>102</b>
<b>References</b>	<b>103</b>
<b>Glossary</b>	<b>125</b>
<b>Materia Medica Reference Works</b>	<b>130</b>
<b>Glossary and Index of Medical Substances</b>	<b>132</b>
On digital critical editions . . . . .	139

## The manuscripts and editions used in the vulgate editions by Yādavaśarman Trivikrama Ācārya

Yādavaśarman Trivikrama Ācārya produced three successive editions of the *Suśrutasaṃhitā* with the commentary of Ḍalhaṇa, in 1915, 1931 and 1938. These editions, especially the last, are generally considered the most scholarly and reliable editions of the work, and have been constantly reprinted up to the present day.<sup>1</sup>

The 1915 edition was based on three manuscripts. The 1931 edition used another seven plus two printed editions. For his final 1938 edition, Ācārya used a further three manuscripts.<sup>2</sup> These sources are described as follow, with an overview in Table 1.

### The sources of the 1915 edition

- 1 Calcutta, Royal Asiatic Society. Covers the *sūtra*, *nidāna*, *śārīra* and *kalpa sthānas*.
- 2 Jaipur, Pandit Gaṅgādharaḥṭṭaśarman, lecturer at the Royal Sanskrit University. Covers the *cikitsāsthāna* and the *uttaratantra*.
- 3 Bundi, my great friend the royal physician Paṃ. Śrīprasādaśarman. Covers the *uttaratantra*.

### The sources of the 1931 edition

- 1 Vārāṇasī, professor of literature, the great Gaurīnāthapāṭhaka. With the *Nibandhasaṅgraha*. Covers the *nidānasthāna* and *uttaratantra*.
- 2 Ahmedabad. My friend Sva. Vā. Vaidya Raṇachodālāla Motīlālaśarman. With the *Nibandhasaṅgraha*. Covers the *śārīrasthāna*.
- 3 From the personal library of my great friend Sva. Vā. Vaidya Murārājīśarman. Extremely old. No commentary. Covers the *śārīrasthāna*.
- 4 Pune, BORI library. With the *Nibandhasaṅgraha*. Covers the *śārīrasthāna*.<sup>3</sup>

---

1 See also the study of these editions by Klebanov (2021a: §1.2) and Wujastyk (2013b: 143–144).

2 The following account of the sources is paraphrased from Y. T. Ācārya and N. R. Ācārya's own account of his sources (Su 1938: 22).

3 Not one of the three MSS of the *śārīrasthāna* described in H. D. Sharma 1939.

- 5 Pune, BORI library. With the *Nibandhasaṅgraha*. Complete. With some damaged folia.
- 6 Bombay, Asiatic Society. Incomplete.<sup>4</sup>
- 7 Varanasi, the private library of Vaidya Tryambakaśāstrī. Covers the *cikitsāsthāna*. The variant readings of this MS were compiled by Prof.
- 8 A printed edition together with the commentary *Suśrutasaṁdīpana-bhāṣya* by Professor Hārāṇacandra Cakravārtti. Complete work. This is the 1910 Calcutta edition numbered “t” by Meulenbeld ([HIML: IB, 312](#)).<sup>5</sup>
- 9 A printed edition of the first 43 chapters of the *sūtrasthāna*, printed in Bengali script, with the commentaries *Bhānumatī*, *Nibandhasaṅgraha*, edited by Vijayaratnasena and Niśikāntasena. This is the 1886 Calcutta edition numbered “g” by Meulenbeld ([HIML: IB, 311](#)).<sup>6</sup>

### The sources of the 1938 edition

- 1 Gwalior, from the library of my great friend Paṁ. Rāmeśvaraśāstrin Śukla. Covers the *sūtra*, *nidāna*, *śārīra*, *cikitsā* and *kalpasthānas*.
- 2 Bikaner, from the library of the Royal Palace, supplied by Paṁ. Candrasekharaśāstrin. Contains the commentary *Nyāyacandrikāpañjikā-vyākhyā* by Gayadāsa. Covers the *nidānasthāna*. This is almost certainly MS Bikaner Anup 4390.<sup>7</sup>
- 3 Kathmandu, located in the private library of the Royal Guru Hemarāja Śarman. An extremely old palm-leaf manuscript. Readings from this MS were compiled by Paṁ Nityānandaśarman Jośī and sent to Ācārya. Covers from the beginning of the work to the end of the ninth chapter of the *cikitsāsthāna*. The siglum for this manuscript in footnotes was ता for तालपत्रपुस्तके.

4 Possibly MS Mumbai AS B.I.3 or MS Mumbai AS B.D.109 (Velankar 1925–30: v. 1, # 212 and 213). But both these have the *Nibandhasaṅgraha*. The first covers only the *śārīrasthāna*; the second may be complete, but Velankar calls it only “disorderly.”

5 Bhaṭṭācārya 1910–17.

6 Sena et al. 1886–93.

7 See Dominik Wujastyk, “MS Bikaner AnupLib 4390.” *Pandit*. <<http://panditproject.org/entity/108068/manuscript>>.

Manuscripts (●) and print editions (○)															
edition sthāna	1915			1931									1938		
	1	2	3	1	2	3	4	5	6	7	8	9	1	2	3
sū.	●							●	?		○	○ <sup>(1-43)</sup>	●		●
nī.	●			●				●	?		○		●	●	●
śā.	●				●	●	●	●	?		○		●		●
cī.		●						●	?	●	○		●		● <sup>(1-9)</sup>
ka.	●							●	?		○		●		
utt.		●	●	●				●	?		○				

Table 1: The sources of Yādavaśarman T. Ācārya's three vulgate editions.

## Evaluation

Estimates show that there are approximately 230 extant manuscript witnesses for the *Suśrutasamhitā*.<sup>8</sup> Many of these manuscripts cover only one or more of its chapters. Nevertheless, this is an order of magnitude more evidence than was considered by Ācārya for his vulgate editions.

While the descriptions provided by Ācārya of his source materials seems at first to be moderately comprehensive, Table 1 reveals the real paucity of textual basis for these editions. Apparently, fifteen manuscripts were consulted. However, we quickly find that two of the sources were other people's printed editions, and one of those covered less than a quarter of the work. That reduces the manuscript base to 13 manuscripts. Ācārya does not appear to have seen two of the manuscripts at all, having been sent collations prepared for him by others (7 of 1931 and 3 of 1938). Thus, Ācārya's final edition was based on the personal consultation of eleven manuscripts. One of them, no. 6 of 1931, remains mysterious. Only a single manuscript covers the whole of the *Suśrutasamhitā*, no. 5 of the 1931 edition. Manuscript 1 of 1938 is the next most complete, but it omits the *uttaratantra*, which comprises a third of the work. Manuscript 1 of the 1915 edition is next, but it still omits both of the longest chapters, and thus offers less than half the work. For the rest, the evidence is spotty, with each part of the work being supported by only between four and eight

<sup>8</sup> This figure is arrived at by summing the MSS mentioned in [NCC](#) and in the [NGMCP](#). The real figure could be many scores higher.

manuscripts, excluding the printed editions.

Two sources stand out for their historical importance. The first is no. 3 of 1931, which Ācārya calls “extremely old.” It covered the *śārīrasthāna* only, and unfortunately we know nothing of the later history of this manuscript. The second is no. 3 of 1938, which is one of the important Nepalese manuscripts being considered in the present project. Ācārya’s remarks and references to Hemarājaśarman’s introduction to the *Kāśyapasaṃhitā* allow us to identify this manuscript as MS Kathmandu NAK 5-333.<sup>9</sup> But that manuscript covers the whole work, not just up to the ninth chapter of the *cikitsāsthāna* as Y. T. Ācārya and N. R. Ācārya stated.<sup>10</sup> Perhaps the editors only received collations for this portion of the manuscript and did not know that it was a witness for the whole work.

## The 1939 edition

In 1939, Yādavaśarman Trivikrama Ācārya and Nandakiśora Śarman co-edited an edition of the *sūtrasthāna* of the *Suśrutasaṃhitā* that was published by the Swami Laxmi Ram ayurvedic centre in Jaipur, and printed at the famous Nirṇayasāgara Press in Mumbai.<sup>11</sup> The text was edited on the basis of the following sources.

### The sources for the Bhānumatī

1. A printed edition. Covered the *Bhānumatī* up to chapter Su.sū.40. The siglum was 𑀧 for *mudrita*.<sup>12</sup>

<sup>9</sup> Su 1938: 22; Hemarāja Śarman 1938: 56–57. Discussed by Klebanov (2021a: §1.1, 2.3). See also HIML: IIB, 25–41; Wujastyk 2003b: 161–169.

<sup>10</sup> Su 1938: 22.

<sup>11</sup> Su 1939. The description of the sources below is based on Yādavaśarman T. Ācārya’s remarks in his introduction (pp. 3–4). See also the remarks on this edition by Klebanov (2021b: 7). On the Swami Laxmi Ram centre, see Hofer 2007.

<sup>12</sup> Sena et al. 1886–93. The manuscript on which this edition was based is probably in the library of the Calcutta Sanskrit College, and described in H. Sastri and Gui 1895–1917: v. X.1, which is not available to me. See also HIML: IB, 495, n. 57 for mention of this manuscript. The reference at Rama Rao et al. 2005: 217 to CACL accession number 97 in Bengali script may be this manuscript.



चरके—“लभोपायो हि शस्तानां रसावीनां रसायनम्” (च. चि. अ. १ पा. १) । पारिशेष्याद्वाजीकरणतन्त्रम् । अवाजिनं वाजीकुर्वन्ति येन तद्वाजीकरणम् । ‘अन्येषामपि दृश्यते’ (पा. अ. ६।३।१३७) इति धीर्घत्वम् । येन वाऽत्यर्थं स्त्रीषु व्यज्यते तद्वाजीकरणम् । तदुक्तं चरके—“येन नारीषु सामर्थ्यं वाजिवल्लभते नरः । प्रजेन्नाप्यधिकं येन वाजीकरणमेव तत्” (च. चि. अ. २, पा. ४) इति ॥ ५ ॥

अथास्य प्रत्येकाङ्गलक्षणसमासः—तत्र, शल्यं नाम विविधतृणकाष्ठपाषाणपांशुलोदलोष्टास्थिवालनखपूयास्त्रावदुष्टव्रणान्तर्गर्भशल्योद्धरणार्थं षष्ठ्या विधानैः, यन्त्रशस्त्रक्षाराग्निप्रणिधानव्रणविनिश्चयार्थं च; शालाक्यं नामोर्ध्वजत्रुगतानां श्रवणनयनवदनघ्राणादिसंश्रितानां व्याधीनामुपशमनार्थं; कायचिकित्सा नाम सर्वाङ्गसंश्रितानां व्याधीनां ज्वररक्तपित्तशोफोन्मादापसारकुष्ठमेहातिसारादीनामुपशमनार्थं; भूतविद्या नाम देवांसुरगन्धर्वयक्षरक्षःपितृपिशाचनैलग्रहाष्टुपष्टचेतसां शान्तिकर्मबलिहरणादिग्रहोपशमनार्थं; कौमारभृत्यं नाम कुमारभरणघात्रीक्षीरदोषसंशोधनार्थं दुष्टस्तन्यग्रहसमुत्थिनां च व्याधीनामुपशमनार्थम्; अगदतन्त्रं नाम सर्पकीटलृतामूषकादिदृष्टविषव्यञ्जनार्थं विविधविषसंयोगोपशमनार्थं च; रसायनतन्त्रं नाम वयःस्थापनमायुर्मेधाबलकरणं रोगापहरणसमर्थं च; वाजीकरणतन्त्रं नामारूपदुष्टक्षीणशुष्करेतसामाप्यार्थेनप्रसादोपचयजनननिमित्तं प्रहर्षणजननार्थं च ॥ ६ ॥

शल्यग्रविशेषाश्च शालुं प्रतिलक्षणं संक्षेपेणाह—अथास्येत्यादि । एकमेकमङ्गं प्रति लक्षणानां समासः संक्षेपः प्रत्येकाङ्गलक्षणसमासः । तृणादीनां, तथा दुष्टव्रणस्य, तथाऽन्तर्गत(र्भशल्य)स्य उद्धरणार्थमिति प्रत्येकमुद्धरणशब्दः संबध्यते । दुष्टव्रणस्यान्तस्तृणाद्याहरणार्थमित्यन्ये । षष्ठ्या विधानैरिति द्विव्रणीयोचैरपतर्पणाद्यै रक्षाविधानान्तैः; इत्थंभूतलक्षणे तृतीया । जत्रु ग्रीवामूलं, जत्रुण ऊर्ध्वमूर्ध्वजत्रु । घ्राणादीत्यादिग्रहणाच्छिरःकपालादिग्रहणम् । उत्तरतन्त्रे प्रतिपादितक्रमप्राप्त्या ज्वरानन्तरमतीसारः पठितः, तस्यान्ते पाठोऽतिसारस्य सर्वाङ्गीणदोषारब्धत्वात्, अन्येषामपि तन्मध्यपाठेन सर्वाङ्गीणदोषारब्धत्वप्रतिपादनाभ्यतिक्रमं वदन्ति । शान्तिकर्म बलिहरणादिना ग्रहाणां देवादीनामुपशमो यस्तदर्थः; यदि वा ग्रहणं ग्रहो देवानामावेशस्तदुपशमार्थम् । दुष्टस्तन्यग्रहसमुत्थितानामिति दुष्टस्तन्येन

१ ‘सर्वशरीरावस्थितानां’ व्याधीनामुपशमकरणार्थं, ज्वरशोफयुग्मरक्तपित्तोन्मादापसारप्रमेहातीसारादीनां च’ इति ता. । २ ‘देवदानव’ इति ता. । ३ ‘विनायकनागग्रहोप-सृष्टचेतसां’ इति ता. । ४ ‘विषवेगोपशमनार्थं’ इति ता. । ५ ‘शुक्राप्यायन’ इति ता. । ६ ‘घ्राणादीनां शल्यान्तानां’ इति सु. । ७ ‘अन्ये तु तस्यान्ते पाठेन’ इति पा० । ८ ‘ग्रहणाद्’ इति सु. ।

Figure 1: A page of the 1939 *Bhānumatī* edition, showing the variant readings in the footnotes.

2. A manuscript in the India Office Library library provided through the Bhandarkar Oriental Research Institute in Pune.<sup>13</sup> This manuscript covered the *Bhānumatī* b up to the end of the *sūtrasthāna*. The siglum was ह for हस्तलिखित.<sup>14</sup>

### The sources for the *Suśrutasamhitā*

1. A palm leaf manuscript from Hemarājaśarman's personal library.<sup>15</sup> The siglum was ता for ताडपत्र.
2. His own published edition. The siglum was ड for डल्हणसंमतः पाठः.<sup>16</sup>
3. Hārānacandra Cakravartī's published edition with his own commentary.<sup>17</sup> The siglum was ह।.

### Evaluation

The main innovation of this publication was to present the only surviving part of the commentary on the *Suśrutasamhitā* by the great eleventh-century medical scholar Cakrapāṇidatta, namely the *Bhānumatī*.<sup>18</sup> A secondary purpose was to present the text of the *sūtrasthāna* as read in MS Kathmandu NAK 5-333, that had recently been brought to the editors' attention. In their judgement, the Kathmandu manuscript presented a text that was closer to what Cakrapāṇidatta had before him than the text according to Ḍalhaṇa. This was the first *Suśrutasamhitā* edition in which Ācārya used sigla to identify the sources from which variant readings were reported, so while it has limitations, it for the first time enables us to get some idea of origins of the text (see Figure 1).

Ācārya noted in his introduction that the manuscripts containing the Ḍalhaṇa's commentary all came together with the root-text of the *Suśrutasamhitā*, and thus the main *Suśrutasamhitā* text reflected the readings

---

13 At this time, manuscripts from Britain were routinely lent to scholars in India and vice versa.

14 MS London BL H. T. Colebrooke 908 ([PanditProject #109978](#), consulted on July 03, 2021).

15 I.e., MS Kathmandu NAK 5-333.

16 [Su 1938](#). It is noteworthy that Ācārya refers to his 1938 edition as representing "the Ḍalhaṇa recension."

17 Bhaṭṭācārya [1910–17](#).

18 [HIML](#): IA, 374–375 and IB, 495–496.

chosen by Ḍalhaṇa. But the manuscripts of the *Bhānumatī* contained the commentary alone, without the root-text, and had many explanations based on different readings of the root-text than those of Ḍalhaṇa. In many of these cases it was hard to know what the text that Cakrapāṇidatta had before him. But Ācārya noted that Cakrapāṇidatta had a text before him that had much in common with the text of the Nepalese manuscript.<sup>19</sup>

There is compelling evidence that Cakrapāṇidatta's *Bhānumatī* commentary once covered the whole text of the *Suśrutasamhitā*.<sup>20</sup> The loss of the rest of the work ranks amongst the greatest disasters in Āyurvedic literature. Remarkably, the whole *Bhānumatī* may still have existed in the early twentieth century. In 1903, Palmyr Cordier reported being privately informed of a complete copy of the work in a personal manuscript collection in Benares.<sup>21</sup>

---

<sup>19</sup> Su 1939: 3–4. See discussion by Klebanov (2021b: 7).

<sup>20</sup> HIML: IA, 375.

<sup>21</sup> Cordier 1903: 332.

## Features of the manuscript transmission

### Palaeographical features

- śrita for śṛta.
- ś and s in KL 699.

### Chart of characters

[[[Put a chart from QuickPalaeographer here.]]]

## Sūtrasthāna, adhyāya 1

- 1 Now I shall narrate the chapter on the origin of this knowledge.<sup>22</sup>
  - 2 Now, as is well-known, Aupadhenava, Vaitaraṇa, Aurabhra, Puṣkalāvata, Karavīra, Gopurarakṣita, Bhoja, Suśruta and others addressed Lord Divodāsa, king of Kāśi, the best of the immortals, who was in his ashram surrounded by an entourage of sages.<sup>23</sup>
  - 3 “O Lord, distress arose in our minds after witnessing people thrashing about with cries, assailed by different kinds of pain and injury (*vedanā-bhigāta*), feeling helpless in spite of having friends, because of diseases arising from the body, the mind and external sources.
  - 4 “To quell the illnesses of those who seek happiness and for our own purpose of prolonging life, we desire the science of life (*āyurveda*) that is being taught. Welfare, both in this world and in the next, depends upon it. Therefore, we have come to the Lord in pupillage.”
  - 5 The Lord said to them:  
“Welcome to you! My children, all of you are beyond reproach and worthy to be taught.
  - 6 “As is well known, Ayurveda is the name of what is said to be the subsidiary part of the Atharvaveda. Before creating people, Svayambhū composed it in hundreds of thousands of verses and a thousand chapters and, after observing the short lifespan and low intelligence of people, he presented it again in eight parts.<sup>24</sup>
  - 7 “Surgery, treatment of body parts above the clavicle, general medicine, knowledge of spirits, care of children, and the disciplines of antidotes,
- 
- 22 Ḍalhaṇa understood the word “knowledge (*veda*)” as specifically “medical knowledge.” He said that the word “longevity” (*āyur*) had been elided. After this opening statement, later manuscripts and commentaries include the attribution, “as the venerable Dhanvantari stated.” The absence of this statement in the early Nepalese manuscripts is highly significant because it removes the outer narrative frame of the *Suśrutasaṃhitā* (Wujastyk 2013b: 148; Klebanov 2021a: § 3.1.2; Rai 2019; Birch, Wujastyk, Klebanov, Parameswaran, et al. 2021). On the figure of Dhanvatari in medical literature, see HIML: IA 358–361.
- 23 On these persons, see HIML: IA 361–363, 369 ff. The authority Bhoja does not appear in the list as published in the vulgate edition (Su 1931: 1), and was not included in HIML amongst “authorities mentioned in the *Suśrutasaṃhitā*.” Meulenbeld gathered textual evidence about Bhoja at HIML: IA 690–691. Klebanov (2021b) has discussed these authors in the context of an anonymous commentary on the *Suśrutasaṃhitā* that cites them.
- 24 Svayambhū is another name for Brahmā, the creator.

- rejuvenation and aphrodisiacs.
- 8 “Now, a collection of the characteristics of each component of Āyurveda.
- 9 “Among them, [the component] called surgery has the goal of extracting various grasses, wood, stone, dust, iron (?), soil, bone, hair, nails, discharge of pus, malignant wounds and foreign bodies inside the womb, and of determining the application of surgical instruments, knives, caustics and fire by means of sixty definitions.
- 10 “[The component] named the doctrine of treating body parts above the clavicles has the aim of curing diseases situated above clavicles that is, diseases located in ears, eyes, mouth, nose and so on.
- 11 “[The component] called general medicine has the goal of curing illnesses established in the whole body and [diseases] such as fever, tumour, swelling, hemorrhagic disorders, insanity, epilepsy, urinary diseases, diarrhoea and the like.
- 12 “[The component] called knowledge of spirits is for appeasing demons by pacification rites and making food offerings for those whose minds have been possessed by gods, their enemies,<sup>25</sup> Gandharvas, Yakṣas, demons, deceased ancestors, Piśācas, Vināyakas, <sup>26</sup> Nāgas and evil spirits that possess children.
- 13 “[The component] called care of children is for bearing children and purifying defects in a wet-nurse’s milk, and curing diseases that have arisen from bad breast milk and demons.
- 14 “[The component] called the discipline of toxicology is for [knowing] the signs of poison from snake and insect bites and for neutralising various combinations of poisons.<sup>27</sup>
- 15 “[The component] called the discipline of rejuvenation is maintaining youth, bringing about a long life and mental vigour and for curing diseases.

---

25 Dānavas. The insertion marks (*kākapadas*) below the text at this point appears to be by the original scribe.

26 The vulgate doesn’t have *vināyakas* but does add *asuras*, probably under the influence of Ḍaḷhaṇa. Cite Paul Courtright, Ganesha book.

27 The scribal insertion marks (crosses) above the line at this point in MS K appear to be in a later hand and their referent is lost in the damaged part of the folio. Although MSS MS Kathmandu NAK 1-1079 and MS Kathmandu NAK 5-333 include spiders (*lūtā*) and creepy-crawlies (*sarīsrpa*) in the list, it does seem that MS K had a shorter list, and the vulgate edition adds rodents (*mūṣika*).

- 16 “[The component] called the discipline of aphrodisiacs brings about the increase, purity, accumulation and production of semen for those whose semen is minimal, bad, depleted, and dry [respectively] and for inducing an erection.
- 17 “Thus, this Āyurveda is taught with eight components.”  
“Among these [components], tell us which is for whom.”
- 18 They said, “After you have conveyed the knowledge of surgery, teach us everything.”
- 19 He said, “so be it.”
- 20 They then said, “Having considered the view of all of us, when we are unanimous, Suśruta will question you. We too will learn what is being taught to him.”
- 21 He said, “so be it.
- 22 “Now, as is well-known, the aim of Āyurveda is eliminating the disease of one who have been assailed by disease and protecting the healthy; āyurveda is [that knowledge] in which they find a long life, or that by which long life is known. Learn its best component (i.e., surgery), which is being taught in accordance with tradition, perception, inference and analogy.
- 23 “For this component is first, the most important, because it is referred to first; it cures wounds and joins together the most important thing, Yajña’s head. For, just as it has been said of old, ‘the head that had been cut off by Rudra was joined again by the two Aśvins.’
- 24 “And also, of the eight disciplines of Āyurveda, [surgery] alone is the best because of the quick action of its procedures (*kriyā*), its application of blunt instruments, knives, caustics and fire, and it is common to all disciplines.
- 25 “Therefore, [surgery] is eternal, meritorious, leads to heaven, brings renown, bestows a long life, and affords a livelihood.
- 26 “Brahmā said this, ‘Prajāpati learned it. From him, the Aśvins. From the Aśvins, Indra. From Indra, I. In this world, I will transmit to those who desire it for the benefit of people.’  
[There a verse about this].<sup>28</sup>
- 27 *For, I (i.e., Brahmā) am Dhanvantari, the first god, the remover of old age, pain and death of mortals.*

28 This is an expansion of the scribe’s abbreviation *bha* for *bhavati cātra ślokaḥ* “There is a verse about this” (sometimes plural).

*Having understood surgery, the best of the great knowledge systems,  
I arrived on earth again to teach it here.*

- 28 In this context, as far as this discipline is concerned, a human being (*puruṣa*) is called an amalgam of the five elements and the embodied soul. This is where procedures (*kriyā*) apply. This is the locus.

Why?

Because of the duality of the world, the world is twofold: the stationary and the moving. Its nature (*ātmaka*) is twofold, depending on the preponderance of Agni and Soma.<sup>29</sup> Alternatively, it can be considered as being fivefold. The multitude of beings in it are fourfold: they are termed “sweat-born, stone-born, caul-born and egg-born”.<sup>30</sup> Where they are concerned, the human being is the main thing; others are his support. Therefore, the human being (*puruṣa*) is the locus.

- 29 Diseases are said to be the conjunction of the person and suffering (*duḥkha*). There are four of them: invasive, bodily, mental and inherent. The invasive ones are caused by an injury. The bodily ones are based on food, caused by irregularities (*vaiṣamya*) in wind, bile, phlegm and blood.<sup>31</sup>

The mental (*mānasa*) ones, caused by desire (*icchā*) and hatred (*dveṣa*), include: anger (*krodha*), grief (*āśoka*), misery (*dainya*), overexcitement (*harṣa*), lust (*kāma*), depression (*viśāda*), envy (*īrṣyā*), jealousy (*asūyā*), malice (*mātsarya*), and greed (*lobha*).

The inherent (*svābhāvika*) ones are hunger, thirst, old age, death, sleep and those of the temperament (*prakṛti*).

These too are located (*adhiṣṭhāna*) in the mind and body.

Scarification (*lekhana*), nourishment (*bṛṇhana*), purification (*saṃśodhana*), pacification (*saṃśamana*), diet (*āhāra*) and regimen (*ācāra*), properly employed, bring about their cure.

- 30 Furthermore, food is the root (*mūla*) of living beings as well as of strength (*bala*), complexion (*varṇa*) and vital energy (*ojas*). It depends on (*āyatta*) the six flavours (*rasa*). Flavours, furthermore, have substances as their substrate (*āśrayin*). And substances are remedies (*oṣadhī-*).<sup>32</sup> There are two types: stationary (*sthāvara*) and moving

29 See Wujastyk 2004.

30 This fourfold classification of beings is paralleled with closely-related vocabulary in *Bhelasamhitā* 4.4.4 (Bhela 2000: 206; Bhela 1921: 81).

31 Note that four humoral substances are assumed here.

32 Pāṇini 6.3.132 provides that the final vowel of the noun *oṣadhi* may be lengthened



- (*jaṅgama*).
- 31 Of these, there are four types of stationary ones: fruit trees (*vanaspati*), flowering trees (*vrkṣa*), herbs (*oṣadhi*) and shrubs (*vīrudh*).<sup>33</sup> Amongst these, the “fruit trees” have fruit but no flowers.<sup>34</sup> The “flowering trees” have flowers and fruit. The “herbs” die when the fruit is ripe. “Shrubs” put out shoots.
- 32 As is well known, moving remedies are also of four types: those born in in a caul (*jarāyuja*), those born from eggs (*aṇḍaja*), those born of sweat (*svedaaja*), and shoots (*udbhid*). Amongst these, those born in a caul include animals (*paśu*), humans, and wild animals (*vyāla*). Birds, creepy-crawlies (*sarīrpa*) and snakes are “born of eggs.” Worms (*kṛmi*), small insects (*kunta*) and ants (*pipīlika*) and others are born of sweat.<sup>35</sup> Shoots include red velvet mites (*indragopa*) and frogs (*maṇḍūka*).<sup>36</sup>
- 33 In this context, among the stationary remedies, skin (*tvak*), leaves (*patra*), flowers (*puṣpa*), fruits (*phala*), roots (*mūla*), bulbs (*kanda*), sap (*kṣīra*), resin (*niryāsa*), essence (*sāra*), oil (*sneha*), and juice extract (*svarasa*)<sup>37</sup> are useful; among the moving remedies pelt (*carman*), hair, nails, and blood (*rudhira*) and so forth.
- 34 And earth products (*pārthiva*) include gold and silver.<sup>38</sup>
- 35 The items created by time (*kālakṛta*) are clusters (*samplava*) as far as wind and no wind (*nivāta*), heat and shade, darkness and light and the cold, hot and rainy seasons (*varṣā*) are concerned. The divisions of

---

(→*oṣadhī*) under certain conditions. These conditions require that the word be used in a Vedic mantra and not in the nominative. Neither condition is met in this passage, yet the author uses the form *oṣadhī*. This form is in fact not uncommon in medical literature as well as in epics, purāṇas, smṛtis, and other parts of Sanskrit literature.

33 Ca.sū.1.71–72 also describes these four types of medicinal plant in similar terms but with slightly differing names: *oṣadhi* is a plant that ends after fruiting, *vīrudh* is a plant that branches out, *vanaspati* is a tree with fruit, and *vānaspatya* is a tree with fruit and flowers.

34 The MSS agree in reading *phalavantyaḥ* “having flowers” which is grammatically non-standard. This form is also found in the *Viṣṇudharmottarapurāṇa* (1.92.27, 1.92.27 *Viṣṇudh.*: 56r).

35 The word *kunta*, though marked as “lexical” in most dictionaries, is in fact found in literature, commonly as a compound with *pipīlika*; the compound sometimes seems to be understood a type of ant (*tatpuruṣa* compound) rather than as a pair of insects (*dvandva* compound).

36 On *indragopa*, see Lienhard 1978.

37 On juice extract (*svarasa*) see CS 1.1.73, 1.4.7; Ḍalhaṇa on 4.10.12 (*Su* 1938: 450).

38 The flow of concepts in the treatise seems to be interrupted here.

time are the blink of the eye (*nimeṣa*), a trice (*kāṣṭhā*), minutes (*kalā*), three-quarters of an hour (*muḥūrta*), a day and night (*ahorātra*), a fortnight (*pakṣa*), a month (*māsa*), a season (*ṛtu*), a half-year (*ayana*), a year (*saṃvatsara*), and yuga (*yuga*).<sup>39</sup>

- 36 These naturally cause accumulation (*sañcaya*), irritation (*prakopa*), pacification (*upaśama*) and alleviation (*pratīkāra*) of the humours (*doṣa*). And they have practical purposes (*prayojanavat*).

[There are verses about this:]<sup>40</sup>

- 37 *This fourfold category is taught by physicians as a cause for the agitation and quelling of bodily diseases.*<sup>41</sup>

- 38 *There are two kinds of invasive diseases. Some certainly<sup>42</sup> affect (ni√pat) the mind, others the body. Their treatment (kriyā) is of two kinds too.*

- 39 *For those that affect the body there is physical (śārīravād) therapy, whereas for those that affect the mind there is the collection (varga) of desirable sensory experiences like sound that bring comfort (sukha).*

- 40 Along these lines (*evam*), this brief explanation of the four factors (*caturṣṭaya*) is given:

- human being (*puruṣa*),
- disease (*vyadhi*),
- remedies (*oṣadhi*),
- the time for therapies (*kriyākāla*).

In this context,

- from the mention of the word “human,” the collection of substances that arise from it, such as the elements, and the particulars (*vikalpa*) of its major and minor parts (*aṅga*) such as skin (*tvak*),

39 These units are presented at 1.6.5 (Su 1938: 24) and discussed by Hayashi (2017: § 59).

40 See footnote 28.

41 On the topic of the “group of four,” the commentator Ḍalhaṇa considers them to be “food, behaviour, earthen products and items created by time.” He refers to the author of the lost commentary entitled *Pañjikā*, and to Jejjāṭa (HIML: IA, 372–3, 192). In his view, these early commentators do not agree that the fourfold grouping (*caturvarga*) refers to the quartet of stationary (*sthāvara*), moving (*jaṅgama*), earthen products (*pārthiva*) and items created by time (*kālakṛta*) (Su 1938: 9a).

42 The text uses an archaic interjection here, *ha*.

flesh (*māṃsa*), ducts (*sirā*), sinews (*snāyu*), bones (*asthi*) and joints (*sandhi*) are meant.

- From the mention of “diseases,” all diseases caused by wind, bile, phlegm, congested humours (*sannipāta*), external factors (*āgantū*) and inherent factors (*svabhāva*) are intended (*vyākhyāta*).
- From the mention of “remedies,” there is the teaching of substances, tastes, potencies, post-digestive tastes.
- From the mention of “procedures (*kriyā*),” therapies (*karman*) such as oiling and excision (*chedya*) are taught.
- From the mention of the word “time,” every single teaching about the times for procedures is meant.

[There is a verse about this:]<sup>43</sup>

41 *This seed of medicine has been declared in brief. Its explanation will be given in one hundred and twenty chapters.*<sup>44</sup>

42 There are one hundred and twenty chapters in five sections (*adhyāya*).<sup>45</sup> In that regard, having divided them, according to their subject matter, into the Ślokaśthāna, the Nidāna, the Śārīra, the Cikitsita and the Kalpa, we shall mention this in the Uttaratantra.<sup>46</sup>

[There is a verse about this:]<sup>47</sup>

43 *Someone who reads this eternal proclamation of the King of Kāśī, that was declared by Svayambhu, will have good karma on earth, will be respected by kings and upon death will achieve the world of Śakra.*

---

43 See footnote 28.

44 This is the number of chapters in the first five sections of the work, namely the *Sūtra*-, *Nidāna*-, *Śārīra*-, *Cikitsā*- and *Kalpa*-*sthānas*. These have 46, 16, 10, 40 and 8 chapters respectively. The *Uttaratantra* has 66 chapters.

45 On *viṃśa* in the sense of “greater by 20” see P.5.2.46 *śadantaviṃśateś ca*.

46 The end of this sentence reads oddly. The vulgate edition adds an object: “[we shall mention] the remaining topics [in the Uttara]” which smooths out the difficulty, but this is supported in none of the Nepalese MSS. At the start of the *Uttaratantra* (**susr-trikamji3**) there is indeed a statement that picks up the point about there being 120 chapters.

47 See footnote 28.

## Sūtrasthāna, adhyāya 2

### Literature

[HIML](#): IA, 204; Preisendanz [2007](#); Wujastyk [2012](#): 82–83, *et passim*.

1

## Sūtrasthāna, adhyāya 13: On Leeches

### Literature

#### Previous scholarship

Meulenbeld offered an annotated overview of this chapter and a bibliography of studies on Indian leeches and their application.<sup>48</sup>

A Persian version of this chapter of the *Suśrutasamhitā* was included in *Sikandar Shāh's Mine of Medicine* (*Ma'dīn al-shifā' i Sikandar-Shāhī*) composed in 1512 by Miyān Bhūwah b. Khawāṣṣ Khān.<sup>49</sup>

More recently, Brooks has explored the sense of touch in relation to leeching and patient-physician interactions.<sup>50</sup>

### Translation

- 1 And now we shall explain the chapter about leeches.
- 3 The leech is for the benefit of kings, rich people, delicate people, children, the elderly, fearful people and women. It is said to be the most gentle means for letting blood.
- 4 In that context, one should let blood that is corrupted by wind, bile or phlegm with a horn, a leech, or a gourd, respectively. Or, each kind can be made to flow by any of them in their particular way.<sup>51</sup>
- 5x And there are the following about this:

48 HIML: IA, 209; IB, 324, n. 131.

49 Siddiqi 1959: 96–109; Azeez Pasha 1971; Storey 1971: 231–232; HIML: IB, 324, n. 128; Speziale 2019: 8–9.

50 Brooks 2020a,b,c.

51 This sentence is hard to construe grammatically, although its meaning seems clear. In place of विशेषस्तु, Cakrapāṇidatta and Ḍalhaṇa both read विशेषतस्, which helps interpretation (Su 1939: 95, Su 1938: 55). It is noteworthy that the critical syllable स्तु is smudged or corrected in both MS Kathmandu NAK 1-1079 and in 1-1146, a much later Devanāgarī manuscript.

There is an insertion in the text, printed in parentheses in the vulgate at 1.13.4 (Su 1938: 55) as विशेषतस्तु विस्त्रव्यं शृङ्गजलौकालाबुभिर्गृहीयात्. This insertion is not included in the earlier edition of the vulgate, but is replaced by स्निग्धशीतरूक्षत्वात् (Su 1931: 54). Ḍalhaṇa noted that, “this reading is discussed to some extent by some compilers (निबन्धकार), but it is definitely rejected by most of them, including Jejjhaṭa.”

- 1.13.5 The horn of cows is praised for being unctuous, **smooth**, and very sweet. Therefore, when wind is troubled, that is good for bloodletting.<sup>52</sup>
- 1.13.5a Having a length of seven fingers and a large body the shape of a half moon, should first be placed into a cut. A strong person should suck with the mouth.<sup>53</sup>
- 6 A leech lives in the cold, is sweet and is born in the water. So when someone is afflicted by bile, they are suitable for bloodletting.<sup>54</sup>
- 7 A **gourd** is well known for being pungent, dry and sharp. So when someone is afflicted by phlegm it is suitable for bloodletting.
- 8 In that context, at the scarified location one should let blood using a horn wrapped in a covering of a thin bladder, or with a **gourd** with a flame inside it because of the suction.<sup>55</sup>
- 9 Leeches are called “*jala-ayu-ka*” because water (*jala*) is their life (*āyur*).<sup>56</sup> “Home” (*okas*) means “dwelling;” their home is water, so they are called “water-dwellers (*jalaaukas*).”
- 10 There are twelve of them: six are venomous and just the same number are non-venomous.
- 11 Here is an explanation of the venomous ones, together with the therapy:
- Black (*kṛṣṇā*)
  - Mottled (*karburā*)
  - Sting-gush (*alagarddā*)<sup>57</sup>

52 The vulgate replaced “smooth” with “hot.”

53 This passage is not found in the vulgate, but it is similar to the passage cited by Ḍalhaṇa at 1.13.8 (Su 1938: 56) and attributed to Bhāluki. Bhāluki was the author of a *Bhālukitantra* that may have predated Jejṇa and might even have been one of the sources for the *Suśrutasaṃhitā* (HIML: IA, 689–690 *et passim*). The editor Ācārya was aware of this reading in the Nepalese manuscripts; see his note 4 on 1.13.5 (Su 1938: 55, note 4).

54 Note that the particular qualities (*guṇas*) of the leech in this and the following verses counteract the quality of the affliction. See Brooks 2018: 113, table 1.

55 There are questions about the wrapping or covering of the horn. Other versions of the text, and the commentator, propose that there may be two coverings, or that cloth may be a constituent. Comparison with contemporary horn-bloodletting practice by traditional Sudanese healers suggests that a covering over the top hole in the horn is desirable when sucking, to prevent the patient’s blood entering the mouth (PBS 2020). Our understanding of this verse is that the bladder material is used to cover the mouthpiece and then to block it, in order to preserve suction in the horn for a few minutes while the blood is let.

56 This is a folk etymology.

57 Treating गर्दा as गल्दा and translating as in RV 8.1.20, with Jamison and Brereton

- Rainbow (*indrāyudhā*)
- Oceanic (*sāmudrikā*)
- Cow-praising (*govandanā*)<sup>58</sup>

Amongst these,

- The one called a Black is the colour of kohl and has a broad head;
- The one called Mottled is like the Indian mottled eel, long with a segmented (*chinna*), humped belly.
- The one called Sting-gush is hairy, has large sides and a black mouth.
- The one called Rainbow is coloured like a rainbow, with vertical stripes.
- The one called Oceanic is slightly blackish-yellow, and is covered with variegated flower patterns.
- The one called Govandana is like a cow's testicles, having a bifurcated form on the lower side, and a tiny mouth.

When someone is bitten by them, the symptoms are: a swelling at the site of the bite, excessive itching and fainting, fever, a temperature, and vomiting. In that context the Great Antidote (*mahāgada*) should be applied in drinks and liniments (*ālepana*), etc.<sup>59</sup> A bite by the Rainbow leech is not treatable. These venomous ones have been explained together with their remedies.

12 Now the ones without venom.<sup>60</sup>

- Tawny (*kapilā*)
- Ruddy (*piṅgalā*)
- Dart-mouth (*śaṅkumukhī*)
- Mouse (*mūṣikā*)
- Lotus-mouth (*puṇḍarīkamukhī*)
- Sāvarikā (*sāvarikā*)

Amongst these,

---

(2014: 1023, verse 20 and cf. commentary). But if गर्द is to be taken from  $\sqrt{\text{गर्द}}$  then we might have “crying from the sting.”

58 The manuscripts all read गोवन्दना against the vulgate's गोचन्दना.

59 The “Great Antidote” is described in the Kalpasthāna, at 5.5.61–63ab (Su 1938: 578). Ḍalhaṇa and the vulgate included errhines in the list of therapies, and Ḍalhaṇa added that “etc.” indicated showers and baths too.

60 The translations of the names of these leeches are slightly whimsical, but give a sense of the original; *sāvarikā* remains etymologically puzzling.

- The one called Tawny has sides that look as if they are dyed with realgar and is the colour of glossy mung beans on the back.<sup>61</sup>
- The one called Ruddy is a bit red, has a round body, is yellowish, and moves fast.
- The one called Dart-mouth is the colour of liver, drinks fast and has a long mouth.
- The one called Mouse is the colour and shape of a mouse and has an undesirable smell.
- The one called Lotus is the colour of mung beans and has a mouth that looks like a lotus.
- The one called Sāvarikā has the colour of a lotus leaf and is eighteen centimetres long. But that one is used when the purpose is an animal.

The non-venomous ones have been explained.

13 Their lands are Yavana, Pāṇḍya, Sahya, Potana and so on.<sup>62</sup> Those in

61 The compound *स्निग्धमुद्गवर्णा* is supported by all the manuscript witnesses and is translated here. Nevertheless, the reading of the vulgate, that separates *स्निग्धा*, f., “slimy” as an adjective for the leech, seems more plausible: “it is slimy and the colour of a mung bean.”

62 This passage is discussed by Karttunen (2015: 109–110, 388–389). At the time of the composition of the *Suśrutasaṃhitā*, Yavana would most likely have referred the Hellenistic Greek diaspora communities in Bactria and India (Law 1984: 136–137; Mairs 2013; 2014). Unproblematically, the Pāṇḍya country is the extreme south-eastern tip of the Indian subcontinent (Schwartzberg, Bajpai, et al. 1978: E8, p. 20 *et passim*), and Sahya refers to the Western Ghats (Schwartzberg, Bajpai, et al. 1978: D5–7, p. 20 *et passim*). The vulgate reading “Pautana” is not a known toponym. Potana was the ancient capital of the Aśmaka Mahājanapada mentioned in Pali sources and in inscriptions at Ajāntā and elsewhere, and identified by Law (1984: 142, 179) and P. Gupta (1989: 18) with Pratiṣṭhāna, modern Paithan on the Godavari river. The recurring ancient epithet describing the Aśmaka kingdom is that it was on the Godāvarī, and Paithan is flanked to the south west and south east by this river.

Some scholars have identified the name with modern Bodhan in Telangana (Sircar 1971: 189; Schwartzberg, Bajpai, et al. 1978: E6, p. 14, 140 *et passim*; Sen 1988: 102), but this implausible identification is traceable to a speculative suggestion by Raychaudhuri (1953: 89, n. 5, 143) based on a variant form “Podana” found in some early manuscripts of the *Mahābhārata*: “This name reminds one of Bodhan in the Nizam’s dominions,” “possibly to be identified with Bodhan.”

Ḍaḷhaṇa on 1.13.13 (Su 1938: 57) anachronistically identified “Yavana” as the land of the Turks (तुरुष्क) and “Pautana” as the Mathurā region. He also noted, as did Cakra-pāṇidatta (Su 1939: 97), that this passage was not included by some authorities on the grounds that the habitats of poisonous and non-poisonous creatures are defined by



- particular have large bodies and are strong, they drink rapidly, consume a lot, and are without venom.
- 14 In that context, the venomous leeches are those originating in decomposing venomous insects, frogs, urine, feces and in polluted water.<sup>63</sup> The , non-venomous ones originate in decomposing *sacred lotus, blue water-lily, white water-lily, fragrant lotus, pondweed* and in pure waters.
- 15 There is a verse on this:
- These ones move about in sweet-smelling habitats that are abundant with water. Traditionally, they do not behave in a confused manner or lie in the mud.*<sup>64</sup>
- 16 They can be caught with a fresh hide or after being caught in other ways.<sup>65</sup>
- 17 Then these should be put into a large new pot furnished with mud and the water from lakes or wells. One should provide what they need to eat. One should grind up *pondweed, dried meat*, and aquatic tubers, and one should give them grass and aquatic leaves to lie on, and every three days water and food. Every week, one should transfer them into a different pot.
- 18 And on this:

*One should not **nurture** those that are thick in the middle, that are*

other criteria.

- 63 The vulgate on 4.13.14 (Su 1938: 57) includes fish in this list.
- 64 Ḍalhaṇa on 1.13.14 (Su 1938: 57) discussed why the leeches would not “behave in a confused manner” (सङ्कीर्णचारिन्), saying that they do not “eat a diet that is unwholesome because of poison etc.” (विषादिविरुद्धाहारभुजः). The use of विरुद्ध is odd here, but cf. Ḍalhaṇa’s suggestion at 4.23.4 (Su 1938: 485) that विरुद्ध refers to the chapter on wholesome and unwholesome foods (हिताहिताध्याय, 1.20 (Su 1938: 94–99)).
- 65 “Fresh hide” (आर्द्रचर्मन्) may suggest that the animal skin still includes meat or blood that is attractive to a leech.
- The Nepalese witnesses all read गृहीत्वा “having (been) caught” for the vulgate’s गृहीयात् “one may grasp (by other means).” This is hard to construe clearly.
- Ḍalhaṇa on 1.13.15 (Su 1938: 57) quoted “another treatise” (तन्त्रान्तरवचनात्) that said that autumn is the time to collect leeches. He also explained that “other methods” of collecting leeches included smearing a leg or other limb with cream, butter or milk, etc., or using a piece of flesh from a freshly killed animal.

*injured,<sup>66</sup> or **thin**, those that are not born in the proper habitat, those that will not attach, that drink little or those that are venomous.*

- 19 First of all, get the patient who has an ailment that is treatable by leech-bloodletting to sit or lie down. Then, dry **any diseased opening** with powders of earth and cow-dung. Then make them free from impurities, with their bodies smeared with **Indian mustard** and **turmeric** and moving about in the middle of a cup of water. After all this, the physician should make them attach to the site of the ailment. Now, for those that are not attaching, he should provide a drop of milk or a drop of blood. Alternatively, one should make some śastrapada (*marks with a knife*).<sup>67</sup> And if it still will not attach, make other ones attach.
- 20 He can know that it is attached when it fixes on, hunching its neck and making a mouth like a horse's hoof. Then, he should cover it with a wet cloth and keep it there.
- 21 Now, if the physician knows, from the arising of pricking and itching at the bite, that clean blood is being taken, he should take it off. Then, if it does not release because of the scent of blood one should sprinkle its mouth with powdered **rock salt**.
- 22 Then he should coat it with **rice-grain chaff**, rub its mouth with sesame oil and salt and cause it to vomit by holding its tail in one's left hand and very slowly rubbing it with the thumb and finger of his right hand in the proper direction as far as the mouth until it is properly purged. A properly purged leech placed in a goblet of water moves about, wanting to eat. If it sinks, not moving, it is badly purged; one should make it vomit once again. A badly purged leech develops an incurable disease called Indramada.<sup>68</sup>
- One that suddenly wraps itself with an unhappy head, foot and body and makes hot pain is traditionally said to have Indramada. Thus, one should keep such a one as before.<sup>69</sup>
- 23 After observing the proper or improper condition of the person who has been bled, one should press or bind honey to the leech's mouth.

66 Pace Dalhaṇa on 1.13.18 (Su 1938: 57) who glossed अमनोद्गर्शन as "nasty looking."

67 On पद as a "mark," "imprint," or "place of application," cf. 4.1.29 (Su 1938: 399), 5.4.15 (Su 1938: 571), etc. See footnote 287.

68 The word इन्द्रमद is a hapax legomenon. Some Nepalese witnesses read इन्द्रपद/इन्द्रापद as this name.

69 The vulgate includes "well purged" as the object in this sentence, which makes better sense.

One may smear it with ointments that are astringent, sweet, oily and cold.<sup>70</sup>

24 There is one about this:

*†When it is just drunk by the leeches, one should moisten with ghee. And by those that should be strengthened with blood one should moisten the blood.†*

25 *Someone who knows habitats, the capture, feeding and bloodletting of leeches is worthy to treat a king*

---

70 The vulgate expands this passage with several other techniques.

## Sūtrasthāna, adhyāya 14: On Blood

### Previous scholarship

Meulenbeld offered both an annotated summary of this chapter as well as a study specifically on the place of blood in Ayurvedic theory.<sup>71</sup>

### Translation

- 1 Now we shall speak the chapter describing blood.
- 2
- 3 The most intangible/subtle essence of the food that is of four types<sup>72</sup>, endowed with the six tastes, made of the five elements<sup>73</sup>, having either two or eight potencies, endowed with many qualities<sup>74</sup>, and properly transformed, is called chyle. It is of the nature of the quality of the fire element. It is situated in the heart. From the heart, it enters into the twenty-four arteries—ten upward arteries, ten downward, and four sideways—and doing so day after day owing to the reaction of past activities that is caused by the invisible<sup>75</sup>, it satisfies the entire body, enlivens it, prolongs it<sup>76</sup>, and makes it grow. The speed of the entity that flows throughout the body should be understood by inference. That speed causes deterioration and growth.
- The inquiry into the chyle that flows through all the limbs, humours, body tissues, and excretory organs of the body is of the form “Is it gentle or fiery?” On its being mobile due to fluidity, it is understood to be

---

71 [HIML](#): IA, 209–201 and Meulenbeld 1991. Meulenbeld’s footnotes on this chapter in [HIML](#): IB, 325 ff. refer often to “Hoernle’s note.” This appears to be a reference to Hoernle’s copious notes to his translation of this chapter (Hoernle 1897: 87–98).

72 Dāhāṇa says that the four types of food refer to eatable, breakable?, lickable, and drinkable.

73 Earth, water, fire, air, space

74 अनेकगुणोपयुक्त can also be understood as “suitable because of possessing many qualities” or “suitable and possessing many qualities”.

75 अदृष्ट (unseen): Doing any righteous or unrighteous action produces good merit and demerit respectively. This good merit and demerit are called अदृष्ट (invisible) because they cannot be directly known but can only be assumed through logical deduction.

76 In the sense of prolonging its lifespan

gentle<sup>77</sup> due to attributes such as lubrication, enlivening, satisfaction, holding, etc.

- 4 That watery chyle is then reddened after reaching the liver and spleen.  
5 Here are verses in this regard.

*The untransformed fluid that is reddened by the fire element in its proper state within the body of living beings is known as blood.*

- 6 *It is only due to chyle that women's blood called menses exists. It increases from the twelfth year and decreases after the fiftieth year.*  
7 The menstrual blood, however, is called fiery<sup>78</sup>.  
8 That is due to the embryo being fiery and gentle.<sup>79</sup> Others state the embryo as constituted of the five elements and the preceptors call it the living blood.

Here are verses regarding it.

- 9 *That is because the qualities of earth, etc. such as a fleshy smell, fluidity, redness, pulsation, and thinness are seen in blood.*  
10 *Blood is formed from chyle, flesh from blood, lymph from flesh, bone from lymph, marrow from bone, semen from marrow, and progeny from semen.*  
11 There, the essence (chyle) of food and drink is the nourisher of these body tissues. Here is a verse in this regard.  
12 *A living being should be known as born from chyle. One should diligently preserve<sup>80</sup> chyle by administering food and drink, being nicely disciplined with food<sup>81</sup>.*  
13 The verbal root *rasa* means movement.<sup>82</sup> Because it keeps moving day

77 Dalhaṇa interprets "gentle" to mean "similar to phlegm". Monier Williams glosses सौम्य as cool and moist (opp. to आग्नेय, 'hot and dry').

78 Dalhaṇa comments that this is to distinguish the menstrual blood from regular blood that is gentle.

79 अग्नीषोमीय is a particular Vedic sacrifice which is related to the deities of fire (अग्नि) and moon (सोम). Dalhaṇa comments that the embryo is called such because the menstrual blood is fiery and the semen is gentle (सौम्य). The word सौम्य is derived from the word सोम, where it means that which has the qualities of the moon, i.e. that which is gentle.

80 All three manuscripts have रक्षेत which is an incorrect form. रक्षेत is the correct form.

81 आहारेण - The third case is used. The semantic property of the third case used here is unclear. Unclear regarding if there is any rule in the Aṣṭādhyāyī justifying this usage.

82 kunj-1907

- after day, it is called *rasa* (chyle).<sup>83</sup>
- 14 Chyle stays in every body tissue for 2548 ((25\*100)+48) *kalās* and nine *kāṣṭhas*. As such, it becomes semen after a month. For women, it becomes menses.
- 15ab-cd Here are verses regarding it.
- According to similar and dissimilar treatises, the quantity of kalās in this group<sup>84</sup> is 18,090.*
- 15ef-gh *This is the particular transformation period regarding chyle that lasts for a person with mild fire<sup>85</sup>. For a person with developed fire, one should know it to last for the exact same time<sup>86</sup>.*
- 16 Resembling the expanse of sound, flame, and water, that entity moves along in a minute manner throughout the entire body<sup>87</sup>.
- 17 The aphrodisiac medicines, however, being used like a purgative due to their excessively strong characteristics, evacuate the semen.
- 18 Just as it cannot be said that the fragrance in a flower bud is present in it or not, but accepting that there is the manifestation of existing entities<sup>88</sup>, it<sup>89</sup>, however, is not experienced only due to its intangibility. That same entity is experienced at another time in the blossomed flower. In the same way regarding children also, the manifestation of semen happens because of the advancement of age<sup>90</sup>. For women, the manifestation is

83 In the list of verbal roots of Pāṇini, the verbal root रस(*rasa*) means taste and moistening. It does not mean movement.

84 duration of chyle in all the body tissues as a whole

85 Perhaps this refers to the digestive fire.

86 Although the vulgate does not have this verse, there is an argument presented in Ḍalhaṇa's commentary (Su 1938: 63) to Ch. 14 text no. 16 that for a person with intense fire, chyle becomes semen after eight days, and for a person with mild fire, chyle becomes semen after a month. Ḍalhaṇa says that this opinion is refuted by Gayadāsa Ācārya in many different ways. Ḍalhaṇa then says that the proper understanding is that for a person with a strong fire, chyle becomes blood in a little less than a month, and for a person with a mild fire, chyle becomes blood in a little more than a month.

87 Ḍalhaṇa comments (Su 1938: 63) that the expanse of sound indicates the sideways movement of chyle, the expanse of flame indicates the upward movement of chyle, and the expanse of water indicates the downward movement of chyle.

88 This is the doctrine of pre-existence of the effect (सत्कार्यवाद, *satkāryavāda*) first propounded by Sāṅkhya philosophers.

89 fragrance

90 Since chyle becomes semen in a month's time, a question arises "Why then is semen absent in young children?". The reply is given in this passage.

- different as rows of hair, menses, etc.
- 19 That very essence of food does not nourish very old people due to their decaying bodies.
- 20 These entities are called body tissues (*dhātu-s*) because they bear the body<sup>91</sup>.
- 21 Their decay and growth are due to blood. Therefore, I will speak about blood. In that regard: The blood that is foamy, tawny, black, rough, thin, quick-moving, and non-coagulating is vitiated by air. The blood that is dark green, yellow, green, brown, sour-smelling, and unpleasant to ants and flies is vitiated by bile. The blood that is orange, unctuous, cool, dense, slimy, flowing, and resembling the colour of flesh-muscles is vitiated by phlegm. The blood having all these characteristics is vitiated by the combination of all three of them. The blood that is extremely black is vitiated by blood<sup>92</sup> just as bile. The blood that has the combined characteristics of vitiations of two humours is vitiated by two humours.
- 22 The blood that is of the colour of insect cochineal, not thick, and not discoloured should be understood to be in its natural state.
- 23 I will speak of the types of blood that should be let out in another section.
- 24 Now, I speak of those that should not be let out. The swelling appearing in all the limbs of the body of a weak person that happens due to consuming sour food. The swellings of people with jaundice, piles, large abdomen, emaciation, and those of pregnant women.
- 26 In that regard, one should quickly insert the surgical instrument that is simple, not very close, fine, uniform, not deep, and not shallow.
- 26a One should not insert the instrument into the heart, lower belly, anus, navel, waist, groins, eyes, forehead, palms, and soles.
- 26b In the case of swellings filled with pus, one should treat them in the same way as stated earlier.
- 27-27a There, when the swelling is not pierced properly, when phlegm and air have not been sweated out, after having a meal, and due to thickness, the blood does not ooze out or oozes out less. Here is a verse regarding

91 The etymological meaning of the Sanskrit word धातु (*dhātu*) is "that which bears [the body]". Thus, the body tissues are called *dhātu-s* because they bear the body. This means that the body tissues are the elements that make up the body and sustain it.

92 Y. T. Ācārya and N. R. Ācārya ([Su 1938: 64](#)) quote Cakrapāṇidatta in a footnote: "This is the symptom when the blood vitiated in one part of the body vitiates the blood in another part."

- it.
- 28ab-cd      *Blood does not ooze out of humans when in contact with air, passing stool or urine, and when intoxicated, unconscious, fatigued, sleeping, or in cold surroundings.*
- 29      That vitiated blood when not taken out increases the disease.
- 30      The blood that is let by an ignorant physician in cases of very hot surroundings, profuse perspiration, and excessive piercing, flows excessively. That profuse bleeding causes the appearance of acute headache, blindness, and partial blindness, or it quickly causes subsequent wasting, convulsions, tremors, hemiplegia, paralysis in a limb, hiccups, coughing, panting, jaundice, or death.
- 31ab-cd      The physician should let out the blood when the weather is not very hot or cold, when the patient is not perspiring or heated up, and after the patient has had a sufficient intake of gruel.
- 32ab-cd      After coming out properly, when the blood stops automatically, one should know that blood to be pure and drained properly.
- 33ab-cd      The symptoms of the proper drainage of blood are the experience of lightness, alleviation of pain, a complete end of the intensity of the disease, and satisfaction of the mind.
- 34ab-cd      Defects of the skin, tumours, swellings, and all diseases caused by blood never arise for those who regularly drain their blood.
- 35      When the blood does not flow out, the physician should rub cardamom and camphor on the opening of the boil with three or four or all among crêpe ginger (*Cheilocostus speciosus*), butterfly gardenia (*Ervatamia coronaria* Stapf), *pāṭhā* (*Stephania Hernandifolia*), *bhadradāru* (*Pinus deodora*), *viḍaṅga* (*Embelia ribes*), *citraka* (*Plumbago zeylanica*), the three spices (black pepper, long pepper, and dry ginger), *āgāradhūma*, turmeric, sprouts of *arka* (*Calotropis gigantea*), and fruit of the *naktamāla* (*Pongomia glabra*), according to availability, with excessive salt. By doing so, the blood flows out properly.
- 36      When there is an excessive flow of blood, the physician should sprinkle the opening of the boil with dry powders of *lodhra* (*Symplocos Racemosa*), liquorice, *priyaṅgu*, *pattāṅga*, red chalk, *rasāñjana*, seashell, barley, *māṣa*, wheat, and resin of the Sāla tree, and then press it with the tip of a finger. One should tightly bind it with powdered barks of Sāla, *sarja*, *arjuna*, *arimeda* (Sweet acacia), *granthi*, *dhava* (*Anogeissus*



latifolia), and *dhanvana* (Camelthorn), or a linen cloth<sup>93</sup>, or *vadhyāsita*, or bone of cuttlefish, or powdered lac, along with the binding materials mentioned. After the piercing, the physician should pierce it again. The physician should serve cool clothing, food, a dwelling place, a bath, cooling ointments, and plastering. Or, one can cauterize<sup>94</sup> it with heat. Or, as mentioned, one should give a decoction of *kākolī*, etc. sweetened by sugar and honey to drink. Or, one should consume the blood of black buck, deer, ram, buffalo, rabbit, or pig, accompanied by milk, green gram soup and meat soup<sup>95</sup>. The physician should treat the pains as mentioned.

- 36a Here are verses in this regard.
- 37ab-cd *When blood flows out due to the decay of body tissue, fire becomes weak<sup>96</sup> and the wind becomes highly agitated because of that endeavour.*
- 38ab-cd *The physician should serve the patient food that is not very cold, light in digestion, unctuous, increases blood, slightly sour or not sour at all.*
- 39ab-cd *This is the four-fold method of hindering blood: joining, coagulation, haemostasis<sup>97</sup>, and cauterization.*
- 40ab-cd *The astringent substance joins the opening, the cold substance coagulates the blood, the ash stops the blood, and cauterization contracts the blood vessel.*
- 41ab-cd *If the blood does not coagulate, the physician should employ joining. If the blood does not stop by joining the opening then he should employ haemostasis.*
- 42ab-cd *The physician should endeavour by employing these three methods according to the procedure. If these methods are unsuccessful then cauterization is highly desirable.*
- 43ab-cd *If the blood remains impure, the disease does not aggravate. The*

93 Su 1938: 66 has क्षौमेण वा ध्मापितेन - "with linen reduced to ashes". Presumably, it is this ash that is also referred to in item 40.

94 Cauterization: The use of heat to destroy tissues or close minute bleeding vessels. (Reference: <https://medical-dictionary.thefreedictionary.com/cauterization>)

95 Based on Ḍalhana's comment as found in Su 1938: 66

96 This refers to the digestive fire.

97 Deliberate arrest of bleeding by local compression or clamping of bleeding vessels... (Reference: <https://medical-dictionary.thefreedictionary.com/haemostasis>)

*physician should then make the blood pure<sup>98</sup> and not drain blood in excess.*

44ab-cd *Blood is the basis of the body. It is sustained by blood only.*

44ef *Blood is called life. One should therefore save blood.*

45ab-cd *If the air in the person who underwent blood-letting is aggravated due to a cold shower, etc., the swelling with pricking pain should be sprinkled with lukewarm clarified butter.*

---

<sup>98</sup> Ḍalhaṇa comments (Su 1938: 66) that one should purify the blood again by sedation, etc.

## Sūtrasthāna, adhyāya 16

- 1 Now we shall expound the method for piercing the ear.<sup>99</sup>
- 2 One may pierce a child's ears for the purpose of preserving and decorating. During the bright fortnight, when the child is in the sixth or seventh month, on renowned days, half days, hours and constellations, the physician, with a calming presence, sits the boy, who has received a benediction and the recitation of a blessing,<sup>100</sup> on the lap of a wet-nurse.<sup>101</sup> Then, he should pull the ear with his left hand and pierce

99 The topic of piercing the ear (कर्णव्यध) is not discussed in the *Carakasamhitā* (HIML: IB, 326, n. 175), but it is mentioned in some texts that followed the *Suśrutasamhitā*, such as the *Kaśāpyasamhitā* (HIML: IIA, 30). Also, the instrument for piercing the ear is described in the *Aṣṭāṅgaḥṛdayasamhitā* 1.26.26 (Ah 1939: 321). In the versions of the text known to Ḍalhaṇa (Su 1938: 76) and Cakrapāṇidatta (Su 1939: 125), the heading of this chapter is “the method of piercing and joining the ear” (कर्णव्यधवन्धविधि), instead of the Nepalese version's “the method of piercing the ear” (कर्णव्यधविधि). The topic of joining the ear (कर्णवन्ध) is discussed in passages 17–20 of the Nepalese version. However, it appears that only subsequent redactors reflected its importance by including it in chapter headings.

The Nepalese version also omits the opening remark on Dhanvantari that appears in subsequent versions of the text. For a discussion of the frame story in the Nepalese version, see Birch, Wujastyk, Klebanov, Parameswaran, et al. 2021.

When commenting on this statement, Ḍalhaṇa (Su 1938: 76) and Cakrapāṇidatta (Su 1939: 125) observed that only the ears of healthy people should be pierced, and they quoted the lost authority Bhoja to affirm this: “When piercing the ears of children who are free of disease at these times, their ear flaps and apertures, as well as limbs, increase” (1.16.1 (Su 1938: 76)).

Some texts use the adjective कर्ण-वेधनी rather than व्यधनी.

100 The causative form व्यधयेत् is known in Classical Sanskrit (Whitney 1885: 166).

The compound कृतमङ्गलस्वस्तिवाचनं “who has received a benediction and the recitation of a blessing” is an emendation based on the similar text at 3.2.25 (Su 1938: 346). Cf. also 3.10.8, 24 (Su 1938: 388, 390) that have slightly different formulations.

101 The versions of 1.16.3 known to Cakrapāṇidatta (Su 1939: 126) and Ḍalhaṇa (Su 1938: 76) have the additional compound कुमारधराङ्के (“on the lap of one who holds the child”) after धात्र्यङ्के. The gender of कुमारधर is made clear by Ḍalhaṇa's gloss “a man who holds the child.” Also, both versions add बालक्रीडनकैः प्रलोभ्य (“having enticed with children's toys”) to indicate that the child should be tempted with toys to stay on the assistant's lap. According to Ḍalhaṇa on 1.16.3 (Su 1938: 76), the toys include replica elephants, horses, bulls and parrots. Ḍalhaṇa further mentions that others read भक्ष्य-विशेषैर्वा (“or by special treats”) before बालक्रीडनकैः, but we see no trace of these small kindnesses in our witnesses.

- straight through with his right hand at a naturally-occurring cleft.<sup>102</sup> For a boy, do the right ear first; for a girl, do the left one. Use a needle on a thin ear; an awl on a thick one.<sup>103</sup>
- 3 One may know that it was pierced in the wrong place if there is excess blood or too much pain. The absence of side-effects is a sign that it has been pierced in the right place.<sup>104</sup>
  - 4 In this context, if an ignorant person randomly pierces a duct there will be fever, burning, swelling, pain, lumps, paralysis of the nape of the neck, convulsions, headache or sharp pain in the ear.<sup>105</sup>
  - 5 Having removed the wick (वर्त्ति) because of the accumulation of humours or an unsatisfactory piercing at that location,<sup>106</sup> he should smear

102 The versions of 1.16.3 of Cakrapāṇidatta (Su 1939: 126) and Ḍalhaṇa (Su 1938: 76) add that this naturally-occurring cleft is illuminated by a ray of sunshine (आदित्यकरावभासिते).

The syntax of this slightly long sentence is unusual because of the dual object तौ “the two (ears)” at the start of the sentence, which is remote from the main verb. The other singular accusatives referring to the ear being pierced are governed by absolutes.

103 Ḍalhaṇa on 1.16.3 (Su 1938: 76) clarifies that the awl is a shoe-maker’s knife for piercing leather. He also cites the authority of “the notes of Lakṣmaṇa” (*Lakṣmaṇa-tippaṇaka*) on the issue of the thickness of the needle. *The Notes of Lakṣmaṇa* is not known from any earlier or contemporary sources and was presumably a collection of glosses on the *Suśrutasaṃhitā* that was available to Ḍalhaṇa in twelfth-century Bengal. See Meulenbeld (HIML: IA, 386).

104 At this point, MS Kathmandu KL 699 is missing a folio, so the rest of this chapter is constructed on the basis of witnesses MS Kathmandu NAK 5-333 and MS Kathmandu NAK 1-1079.

105 This passage is significantly augmented in Cakrapāṇidatta’s and Ḍalhaṇa’s versions, to outline the specific problems caused by piercing three ducts called कालिका, मर्मिका and लोहितिका (1.16.4 (Su 1939: 126) and 1.16.5 (Su 1938: 77) respectively). In fact, the order of the problems mentioned in the Nepalese version has been retained in the other versions and divided between each duct. Cakrapāṇidatta’s commentary on 1.16.4 (Su 1939: 126) cites several verses attributed to Bhoja on the problems caused by piercing these three ducts in the ear flap: ‘लोहितिका, मर्मिका and the black ones are the ducts situated in the earflaps. Listen in due order to the problems that arise when they are pierced. Paralysis of the nape of the neck and convulsions, or sharp pain arise from piercing लोहितिका. Pain and lumps are thought to arise from piercing मर्मिका. Piercing कालिका gives rise to swelling, fever and burning.’

106 In addition to these reasons, Ḍalhaṇa at 1.16.6 (Su 1938: 77) added “because of piercing with a painful, crooked and unsatisfactory needle” (क्लिष्टजिह्वाप्रशस्तसूचीव्यधात्) and “because of a wick that is too thick” (गाढतरवर्तित्वात्). Ḍalhaṇa was aware of the reading in the Nepalese version because in his commentary on 1.16.6 (Su 1938: 77) he noted

it with barley, liquorice, [Indian madder](#), and the root of the [castor oil tree](#), thickened with honey and ghee. And when it has healed well, he should pierce it again.<sup>107</sup>

- 6 He should treat the properly-pierced ear by sprinkling it with raw sesame oil. After every three days one should make a thicker wick and do the very same sprinkling.<sup>108</sup>
- 7 Once the ear is free from humours or side-effects, one should put in a light dilator (प्रवर्धनक) in order to enlarge it enough.<sup>109</sup>
- 8 *A person's ear enlarged in this way can split in two, either as a result of the humours<sup>110</sup> or a blow.  
Listen to me about the ways of joining it can have.*
- 9 Here, there are, in brief, fifteen ways of mending the ear flap.<sup>111</sup> They are as follows: Rim-join (नेमीसन्धानक), Lotus-splittable (उत्पलभेद्यक), Dried Flesh (वल्लूरक), Fastening (आसङ्गिम), Cheek-ear (गण्डकर्ण), Take away (आहार्य), Ready-Split (निर्वेधिम), Multi-joins (व्यायोजिम), Door-hinge (कपाटसन्धिक), Half door-hinge (अर्धकपाटसन्धिक), Compressed (संक्षिप्त), Reduced-ear (हीनकर्ण), Creeper-ear (वल्लीकर्ण), Stick-ear (यष्टीकर्ण), and

---

that some read “because of the accumulation of humours” rather than “because of piercing with a painful, crooked and unsatisfactory needle or because of a wick that is too thick.” On the concept of humoral accumulation (समुदाय), see the important analysis by Meulenbeld (1992).

- 107 The description of the drug is ambiguous: the word “root” could be taken with each plant, or just with the last. The vulgate reads just “castor oil root” so we assume that is the traditional interpretation.
- 108 Describing ear and nose operations similar to those here, Celsus described the use of a quill (Latin *pinna*) where the Sanskrit authors use a cotton wick (*De Medicina* VII ¶10–11, Spencer 1935–38: 3, 366–367).
- 109 Cakrapāṇidatta on 1.16.6 (Su 1939: 127) and Ḍalhaṇa on 1.16.8 (Su 1938: 77) pointed out that the dilator can be made of wood, such as that of the [prickly chaff-flower](#), the [neem tree](#) and [tree cotton](#). Ḍalhaṇa added that it can also be made of lead and should have the shape of the [datura](#) flower. The manuscripts have variant readings for लघुप्रवर्धनकमामुञ्चेत् at this point that include a scribal emendation, none of which construe plausibly. It is possible that the unusual verb form आ+√मुञ्च puzzled the scribes and caused the implausible scribal readings and emendations.
- 110 Ḍalhaṇa on 1.16.9 (Su 1938: 77) notes that the word दोष here can refer to either a humour, such as wind, as we have understood it, or a disease generated from a humour.
- 111 The Nepalese version uses the word सन्धान to refer to joining a split in an ear flap, which is consistent with the terminology in the verse cited above (8). However, 1.16.10 of Ḍalhaṇa's version (Su 1938: 77) uses the term बन्ध here and at the very beginning of the chapter (i.e., 1.16.1) to introduce the topic of repairing the ear.

Crow's lip (काकौष्ठ).<sup>112</sup>

In this context, among these,

- Rim-join: both flaps are wide, long, and equal.
- Lotus-splittable: both flaps are round, long, and equal.
- Dried flesh: both flaps are short, round, and equal.
- Fastening: one flap is longer on the inside.
- Cheek-ear: one flap is longer on the outside.<sup>113</sup>
- Take-away: the flaps are missing, in fact, on both sides.
- Ready-split: the flaps are like a dais (पीठ).
- Multi-joins: one flap is small, the other thick, one flap is equal, the other unequal.
- Door-hinge: the flap on the inside is long, the other is small.
- Half door-hinge: the flap on the outside is long, the other is small.

These ten options for joins of the ear should be bound. They can mostly be explained as resembling their names.<sup>114</sup> The five from compressed (संक्षिप्त) on are incurable.<sup>115</sup> Among these, “Compressed” has a dry ear canal and the other flap is small. “Reduced ear” has flaps that have no base and have wasted flesh on their edges. “Creeper-ear” has flaps that are thin and uneven. “Stick-ear” has lumpy flesh and the flaps are stretched thin and have stiff ducts. “Crow-lip” has a flap without flesh with compressed tips and little blood. Even when they are bound up, they do not heal because they are hot, inflamed, suppurating, or swollen.<sup>116</sup>

112 For an artist's impression of these different kinds of joins in the ear flap, see Majno 1975: 290 (reproduced as Figure 3.2 in Wujastyk 2003b: 154).

113 For an artist's impression of this join, see Majno 1975: 291 (reproduced as Figure 3.3 in Wujastyk 2003b: 155).

114 Cakrapāṇidatta on 1.16.9–13 (Su 1939: 128–129) and Ḍalhaṇa on 1.16.10 (Su 1938: 77–78) provide examples of how the names of these joins describe their shapes. For example, the rim-join (नेमीसन्धानक) is similar to the join of the rim of a wheel (चक्रधारा).

115 Ḍalhaṇa on 1.16.10 (Su 1938: 77–78) mentions that some do not read the statement that only five are incurable, and they understand the causes of unsuccessful joins given below (i.e., heat, inflammation, suppuration and swelling) as also pertaining to the first ten when they do heal.

116 The version of 1.16.11–13 known to Ḍalhaṇa (Su 1938: 78) has four verses (श्लोक) at this point that are not in the Nepalese manuscripts. The additional verses iterate the types of joins required for ear flaps that are missing, elongated, thick, wide, etc. All four verses were probably absent in the version of the *Suśrutasaṃhitā* known to Cakrapāṇi-

- 10 A person wishing to perform a join of any of these should therefore have supplies specially prepared according to the recommendations of the “Preparatory Supplies” chapter.<sup>117</sup> And in this regard, he should particularly gather<sup>118</sup> **decanted liquor**, milk, water, **fermented rice-water**, and powdered earthenware crockery (कपालचूर्ण).<sup>119</sup>

Next, having made the woman or man tie up the ends of their hair, eat lightly and be firmly held by qualified attendants, the physician considers the joins and then applies them by means of cutting, splitting, scarification, or piercing.<sup>120</sup> Next, he should examine the blood of the ear to know whether it is tainted or not. If it is tainted by wind, the ear should be bathed with **fermented rice-water** and water; if tainted by choler, then cold water and milk should be used; if tainted by phlegm, then **decanted liquor** and water should be used, and then he should scarify it again.

After arranging the join in the ear so that it is neither proud, depressed, nor uneven, and observing that the blood has stopped, one should anoint it with honey and ghee, bandage each ear with **tree cotton** and gauze (श्लोत), and bind it up with a thread, neither too tightly nor too loosely. Then, the physician should sprinkle earthenware powder on it and provide medical advice (आचारिक). And he should supplement

---

datta. He cites the verses separately in his commentary, the *Bhānumatī* (Su 1939: 128–129), introducing each one as ‘some people read’ (के चित्पठन्ति). However, in Trikamajī Ācārya’s edition of the *Sūtrasthāna* of the *Bhānumatī*, the root text is largely identical to the one commented on by Ḍalhaṇa (Su 1938), even in instances like this where Cakrapāṇidatta’s commentary indicates that he was reading a different version of the *Suśrutasamhitā*. See further the discussion on p. ?? above.

- 117 *Suśrutasamhitā* 1.5 (Su 1938: 18–23), probably verse 6 especially, that lists the equipment and medications that a surgeon should have ready.
- 118 The reading in the Nepalese manuscripts of विशेषतश्चाग्नोपहरणीयात् has been emended to विशेषतश्चाग्नोपहरेत् to make sense of the list of ingredients, which is in the accusative case. Also, the repetition of अग्नोपहरणीयात् in the Nepalese version suggests that its second occurrence, which does not make good sense here, is a dittographic error.
- 119 The term कपालचूर्ण is unusual. Ḍalhaṇa (Su 1938: 79) defines it as the powder of fragments of fresh earthen pots and Cakrapāṇidatta (Su 1939: 129) as the powder of earthenware vessels.
- 120 There are syntactic difficulties in this sentence. We have adopted the reading in Ḍalhaṇa’s version (Su 1938: 78), which has च कृत्वा following सुपरिगृहीतं. It is likely that a verb, such as कृत्वा, dropped out of the Nepalese transmission.



with food as taught in the “Two Wound” chapter.<sup>121</sup>

- 11 *One should avoid rubbing, sleeping during the day, exercise, overeating, sex, getting hot by a fire, or the effort of speaking.*
- 12 One should not make a join when the blood is too pure, too copious, or too thin.<sup>122</sup> For when the ear is tainted by wind, then it is obstructed by blood, unhealed and will peel. When tainted with choler, it becomes pinched (गाढ), septic and red. When tainted by phlegm, it will be stiff and itchy. It has excessively copious suppuration and is swollen. It has a small amount of wasted (क्षीण) flesh and it will not grow.<sup>123</sup>
- 13 When the ear is properly healed and there are no complications, one may very gradually start to expand it. Otherwise, it may be inflamed (संरम्भ), burning, septic or painful. It may even split open again.
- 14 Now, massage for the healthy ear, in order to enlarge it.  
One should gather as much as one can the following: a [monitor lizard](#), scavenging and seed-eating birds, and creatures that live in marshes or water,<sup>124</sup> fat, marrow, milk, and sesame oil, and white mustard oil.<sup>125</sup> Then cook the oil with an admixture of the following: [purple calotropis](#), [white calotropis](#), [heart-leaf sida](#), [country mallow](#), [country sarsaparilla](#), [Indian kudzu](#), [liquorice](#), and [hornwort](#).<sup>126</sup> This should then be depos-

<sup>121</sup> *Suśrutasamhitā* 4.1 (*Su* 1938: 396–408).

<sup>122</sup> 1.16.17 of Ḍalhaṇa’s version (*Su* 1938: 79) reads “impure” for the Nepalese “too pure,” which would appear to make better medical sense. Emending the text to नाशुद्ध- for नातिशुद्ध- in the Nepalese version would yield the same meaning as Ḍalhaṇa’s version.

<sup>123</sup> In his edition of *Suśrutasamhitā*, Ācārya (*Su* 1938: 79 n. 1) includes in parentheses the following treatment for these conditions, which according to a footnote is not found in the palm-leaf manuscript he used: ‘One should sprinkle it with raw sesame oil for three days and one should renew the cotton bandage after three days’ (आमृतैलेन त्रिरात्रं परिषेचयेत्त्रिरात्राच्च पिचुं परिवर्तयेत्).

<sup>124</sup> For such classifications, see the analyses by Zimmermann (1999) and Smith (1994).

<sup>125</sup> Ḍalhaṇa’s version of 1.16.19 (*Su* 1938: 79) includes ghee. However, Ḍalhaṇa’s remarks on this passage and Cakrapāṇidatta’s on 1.16.18 (*Su* 1939: 130) indicate that they knew a version of this recipe, perhaps similar to the Nepalese one, that did not include ghee. Ḍalhaṇa also noted that others simply read four oils, beginning with fat and without milk, whereas Cakrapāṇidatta said that some say it is made with four oils and milk.

<sup>126</sup> The version of of this verse known to Ḍalhaṇa (vulgate (*Su* 1938: 79)) adds several ingredients to this admixture, including [prickly chaff-flower](#), [Withania](#), [milk-white](#), [sweet plants](#) and [Indian ipecac](#). Also, it has [beggarweed](#) instead of [Indian kudzu](#). When commenting on 1.16.19, Ḍalhaṇa (*Su* 1938: 79) noted that some do not read [sweet plants](#) and [Indian ipecac](#). Therefore, at his time there were other versions of this recipe circulating, with fewer ingredients, as seen in the Nepalese version.



ited in a well-protected spot.

- 15 *The wise man who has been sweated should rub the massaged ear with it. Then it will be free of complications, and will enlarge properly and be strong.*<sup>127</sup>
- 16 *Ears which do not enlarge even when sweated and oiled, should be scarified at the edge of the hole, but not outside it.*<sup>128</sup>
- 17 *In this tradition, experts know countless repairs to ears. So a physician who is very intent on working in this way may repair them.*<sup>129</sup>
- 18 *If an ear has grown hair, has a nice hole, a firm join, and is strong and even, well-healed, and free from pain, then one can enlarge it slowly.*<sup>130</sup>
- 19 *Now I shall describe the proper method of making a repair when a nose is severed. First, take from the trees a leaf the same size as the man's nose and hang it on him.*
- 20 *Next, having cut a slice of flesh (वघ्र),<sup>131</sup> with the same measurements, off the cheek, the end of the nose is then scarified.<sup>132</sup> Then the undistracted physician,*

---

127 For these aims (i.e., healing and enlarging the ear), the text known to Ḍalhaṇa (Su 1938: 79) had an additional verse and a half describing an ointment for rubbing the ear and *sesame oil* cooked with various medicines for massage. Cakrapāṇidatta (Su 1939: 131) did not comment on these verses, nor verse 15 of the Nepalese version, and so the version of the *Suśrutasaṃhitā* known to him may not have included them.

128 Ḍalhaṇa's version of 1.16.23 (Su 1938: 79–80) added another hemistich that stated more explicitly that the scarification should not be done on the outside of hole as it will cause derangement.

129 After verse 17, the 1938 edition of Ācārya (Su 1938: 80) has in parentheses nineteen verses on diseases of the ear lobes, treatments and complications. It is possible that these verses were in some of the witnesses used by Ācārya to construct the text as they occur in other manuscripts, such as MS Hyderabad Osmania 137-3(b). However, Cakrapāṇidatta (Su 1939: 132) and Ḍalhaṇa (Su 1938: 80) stated that some read about the diseases of the ear lobes in this chapter whereas others read about them in the chapter on various treatments (मिश्रकचिकित्स) (SS 5.25), which does indeed begin with a discussion of the disease परिपोट. Ḍalhaṇa went on to say that some believe that these verses were not composed by sages and, therefore, do not read them.

130 The order of verses 17 and 18 is reversed in Ḍalhaṇa's version (Su 1938: 80).

131 The version of 1.16.28b known to Ḍalhaṇa (Su 1938: 81) reads "bound, connected (बद्धम्)" instead of "slice of flesh (वघ्र)." This is a critical variant from the surgical point of view. If the slice remains connected, it will have a continuing blood supply. This is one of the effective techniques that so astonished surgeons witnessing a similar operation in Pune in the eighteenth century (see Wujastyk 2003b: 67–70).

132 Or 1.16.20 could be mean, '... off the cheek, it is fixed to the end of the nose, which has been scarified.' Unfortunately, the Sanskrit of the Nepalese version is not unambiguous on the important point of whether or not the flap of grafted skin remains connected to its original site on the cheek. However, Ḍalhaṇa (Su 1938: 81) clarified

- should quickly put it back together so that it is well joined.
- 21 Having carefully observed that it has been sewn up properly, he should then fasten it along with two tubes.<sup>133</sup> Having caused it to be raised,<sup>134</sup> the powder of sappanwood,<sup>135</sup> liquorice and Indian barberry should be sprinkled on it.<sup>136</sup>
- 22 The wound should be covered properly with tree cotton and should be moistened repeatedly with sesame oil. Ghee should be given to the man to drink. His digestion being complete, he should be oiled and purged in accordance with the instructions specific to him.<sup>137</sup>
- 23 And once healed and really come together, what is left of that slice of flesh (वघ्न) should then be trimmed.<sup>138</sup> If it is reduced, however, one should make an effort to stretch it, and one should make its overgrown flesh smooth.<sup>139</sup>

---

the meaning of the vulgate here by stating that one should supply the word “flesh” when reading “connected,” thus indicating that he understood the flesh to be connected to the face.

- 133 Ḍalhaṇa noted that the two tubes should be made of reed or the stalk of the leaf of the castor-oil plant (on 1.16.21 (Su 1938: 81)). They should not be made of lead or betel nut because the weight will cause them to slip down.
- 134 The Sanskrit term उन्नामयित्वा in 1.16.21 is non-Pāṇinian.
- 135 For पत्ताङ्ग (sappanwood), there are manuscript variants पत्ताङ्ग (MS Kathmandu NAK 5-333) and पत्तङ्ग (MS Kathmandu NAK 1-1079). Also, MS Kathmandu KL 699 (f. 14r:1) has पत्ताङ्ग in a verse in 1.14 (cf. 1.14.36 (Su 1938: 66)). The text known to Ḍalhaṇa has पतङ्ग (1.16.29 (Su 1938: 81)) and this term is propagated in modern dictionaries.
- 136 Ḍalhaṇa glossed अञ्जन as रसाञ्जन, elixir salve (Su 1938: 81).
- 137 The expression स्वयथोपदेश is ungrammatical but supported in all available witnesses.
- 138 The vulgate transmission has lost the word वघ्न and replaced it with अर्ध “half,” which makes little sense in this surgical context.
- 139 Ḍalhaṇa accepted a verse following this, 1.16.32 (Su 1938: 81), which pointed out that the procedure for joining the nose is similar to that of joining the lips without fusing the ducts. He noted that earlier teachers did not think this statement on the nose and lips was made by sages, but he included it because it was accepted by Jejjāṭa, Gayadāsa and others, although they did not comment on it because it was easy to understand. Cakrapāṇidatta also did not comment on this additional verse (Su 1939: 133).

## Sūtrasthāna, adhyāya 28

- 1 Thus, living creatures and their strength, complexion (वर्ण) and energy (ओजस) are rooted in food. That (food) depends on the six flavours (रस). Thus, the flavours depend on substance (द्रव्य), and substances depend on medicinal herbs. There are two kinds of them (herbs): stationary and mobile.<sup>140</sup>

---

140 1.1.28 (Su 1938: 7), tr. P. V. Sharma 1999–2001: 1, 21.

## Kalpasthāna, adhyāya 1

The first chapter of the Kalpasthāna of the *Suśrutasaṃhitā* addresses the topic of protecting a king from those who would assassinate him using poison. The king's kitchen is presented as the site of greatest vulnerability. The staff in the kitchen must be vetted carefully and watched for signs of dissimulation. The description of the body-language that tells a poisoner (verses 18–25) are engaging and vivid. These verses are closely parallel in sense to a passage in the *Arthaśāstra* that says,

The signs of a poisoner, on the other hand, are as follows: dry and dark look on the face, stuttering speech, excessive perspiration and yawning, trembling, stumbling, looking around while speaking, agitation while working, and not remaining in his place.<sup>141</sup>

Next, the text discusses the signs of poison in toothbrushes, in food, drink, massage oil and other items that are likely to come into physical contact with the king. In passages that are again paralleled in the *Arthaśāstra* the work describes how poisoned food kills insects and crackles in a fire, flashing blue and the reactions of various birds to poison are described.<sup>142</sup>

The work then moves on to the various symptoms experienced by the king after being poisoned, and remedies appropriate to each case. Poison exhibits characteristic signs when added to milk and other drinks.<sup>143</sup> Further forms of poisoning, their symptoms and treatments are described and finally the king is advised to live amongst trusted friends and to protect his heart by drinking various ghee compounds. He should eat the meat and soup made from various animals, including peacock, mongoose, alligator, deer. The chapter ends with the description of an emetic.

### Literature

A brief survey of this chapter's contents and a detailed assessment of the existing research on it to 2002 was provided by Meulenbeld.<sup>144</sup> Translations of

---

<sup>141</sup> *Arthaśāstra* 1.21.8 (Kangle 1969: 1, 30), translation by Olivelle (2013: 97).

<sup>142</sup> Cf. *Arthaśāstra* 1.21.6, *ibid.*, Olivelle (2013: 96).

<sup>143</sup> Cf. *Arthaśāstra* 1.21.6 again.

<sup>144</sup> HIML: IA, 289–290.

this chapter since 2000 have appeared by Wujastyk (2003b: 131–139), P. V. Sharma (1999–2001: 3, 1–15), and Srikantha Murthy (2000–02).<sup>145</sup>

More recently, a discussion of the fourth chapter of this section in the light of the Nepalese manuscripts was published by Harimoto.<sup>146</sup> After a close comparative reading of lists of poisonous snakes, Harimoto concluded that, “the Nepalese version is internally consistent while the [vulgate] editions are not.” Harimoto showed how the vulgate editions, had been adjusted textually to smooth over inconsistencies, and gave insights into these editorial processes.<sup>147</sup>

## Manuscript notes

- MS Kathmandu NAK 5-333 has foliation letter numerals, for example on f. 323a, that are similar to MS Cambridge Add. 1693,<sup>148</sup> dated to 1165 CE noted in Bendall’s chart of Nepalese letter-numerals Bendall 1883: Lithograph V, after p. 225

---

<sup>145</sup> For a bibliography of translations to 2002, including Latin (1847), English (1877), Gujarati (1963) and Japanese (1971), see [HIML](#): IB, 314–315.

<sup>146</sup> Harimoto 2011: 101–104.

<sup>147</sup> The two editions that Harimoto noted, [Su 1938](#) and [Su 1889](#), present identical texts.

<sup>148</sup> Scan at [cudl.lib.cam.ac.uk/view/MS-ADD-01693/1](http://cudl.lib.cam.ac.uk/view/MS-ADD-01693/1).

## Translation

- 1–2 And now I shall explain the procedures for safeguarding food and drink, as were declared by the Venerable Dhanvantari.<sup>149</sup>
- 3 Divodāsa, the king of the earth, was the foremost supporter of religious discipline and virtue. With unblemished instruction he taught his students, of whom Suśruta was the leader.<sup>150</sup>

### [Threats to the king]

- 4–5 Evil-hearted enemies who have plucked up their courage, may seek to harm the king, who knows nothing of it. He may be assailed with poisons by or by his own people who have been subverted, wishing to pour the poison of their anger into any vulnerability they can find.<sup>151</sup>
- 6 Therefore, a king should always be protected from poison by a physician.
- 7 The racehorse-like fickleness of men's minds is well known. And for this reason, a king should never trust anyone.<sup>152</sup>

149 MS H adds in the margin अथ खलु वत्स सुश्रुतः “Now begins Vatsa Suśruta.” This phrase has been copied here by the scribe from the beginning of the *Suśrutasaṃhitā* chapter in the *sūtrasthāna* on the rules about food and drink (1.46.3 (Su 1938: 214)). The scribe presumably felt, not unreasonably, that this section had common subject matter with the present chapter. Further, SS 1.46.3 is the only place in the Nepalese transmission of the *Suśrutasaṃhitā* that names Dhanvantari and integrates him into the narrative of the *Suśrutasaṃhitā* as the teacher of Suśruta.

The mention of Dhanvantari here is the only other time in the Nepalese transmission that this authority is cited as the source of Ayurvedic teaching, and the unique occurrence of this actual phrase, “as was declared by the Venerable Dhanvantari.” See the discussion by Klebanov (2021a: 28–32), who concludes that the earliest recoverable recension of the *Suśrutasaṃhitā* may have had the phrase only at this point and not elsewhere in the work. See the further discussion by Birch, Wujastyk, Klebanov, Parameswaran, et al. (2021).

150 This is a quite different statement from the vulgate which has Dhanvantari as the teacher, and calls him the Lord of Kāśī (काशिपति) (Su 1938: 559). Ḍalhaṇa followed the vulgate but explicitly noted the reading before us with small differences: दिवोदासः क्षितिपतिस्तपोधर्मश्रुताकरः “Divodāsa, the king of the earth, was a mine of traditions about discipline and virtue.”

151 Verses about the use of Venemous Virgins as a weapon do not appear in the Nepalese manuscripts. Cf. Wujastyk 2003b: 81 f., 132. This material is present in the commentary of Gayadāsa.

152 The verb √ śvas is conjugated as a first class root in the Nepalese manuscripts.

- 8–11 He should employ a doctor in his kitchen (महानस) who is respected by experts, who belongs to a good family, is orthodox, sympathetic, not emaciated, and always busy.
- 12–13 The kitchen should be constructed at a recommended location and orientation. It should have a lot of light,<sup>153</sup> have clean utensils and be staffed by men and women who have been vetted.<sup>154</sup>
- 17–18ab The chefs, bearers (बोदर), and makers of boiled rice soups and cakes and whoever else might be there, must all be under the strict control of the doctor.<sup>155</sup>
- 18cd–19ab An expert knows people’s body language (इङ्गित) through abnormalities in voice, movement and facial expression. He should be able to identify a poisoner by the following signs.
- 19cd–23 Wanting to speak, he gets confused, when asked a question, he never arrives at an answer, and he talks a lot of confused nonsense, like a fool. He laughs for no reason, cracks his knuckles and scratches at the ground. He gets the shakes and glances nervously from one person to another. His face is drained of colour, he is grimy (ध्याम) and he cuts at things with his nails.<sup>156</sup> A poisoner goes the wrong way and is absent-minded.
- 25–27 I shall explain the signs to look for in toothbrush twigs, in food and drink as well as in massage oil (अभ्यङ्ग) and combs (अवलेखन); in dry rubs (उत्सादन) and showers, in decoctions (कषाय) and massage ointment (अनुलेपन); in garlands (स्रज), clothes, beds, armour and ornaments; in slippers and footstools, and on the backs of elephants and horses; in nasya (सुफ), inhaled smoke (धूम), eye make-up (अञ्जन), etc., and any other things which are commonly poisoned. Then, I shall also explain the remedy.
- 28 Flies or crows or other creatures that eat a poisonous morsel (बलि)

153 We read महच्छुचिः with the Nepalese manuscripts and against the vulgate’s महच्छुचि. We understand शुचिस as a neuter noun meaning “light” following Apte (Apte: 1050a).

154 Verses detailing the ideal staff are omitted in the Nepalese manuscripts. Cf. Su 1938: 560; Wujastyk 2003b: 132.

155 The word सौपोदनैकपूपिक “chefs for the boiled rice soups and cakes” is grammatically interesting. The term सूपोदन (as opposed to सूपौदन) is attested in the *Bodhāyanīya-gr̥hyasūtra* 2.10.54 (Shastri 1920: 68). More pertinently, perhaps, सूपौदन is attested in the Bower Manuscript, part II, leaf 11r, line 3 (Hoernle 1893–1912: vol. 1, p. 43).

156 The word ध्याम is glossed by Ḍaḥaṇa (in a variant reading) as someone who is the colour of dirty clothes 5.1 (Su 1938: 560).

- served from the king's portion, die on the spot.
- 29 Such food makes a fire crackle violently, and gives it an overpowering colour like a peacock's throat.
- 30–33 After a chukar partridge looks at food which has poison mingled with it, its eyes are promptly drained of colour; a peacock pheasant drops dead. A koel changes its song and the common crane rises up excitedly.<sup>157</sup> It will excite a peacock and the terrified parakeet and the hill myna screech. The swan trembles very much, and the racket-tailed drongo churrs.<sup>158</sup> The chital deer sheds tears and the monkey releases excrement.<sup>159</sup>
- 34cd Vapour rising from tainted food gives rise to a pain in the heart, it makes the eyes roll, and it gives one a headache.<sup>160</sup>
- 35, 36cd In such a case, an errhine and a collyrium that are costus, ??, *spikenard* and honey (मधुस);<sup>161</sup> a paste of sandalwood on the heart may also provide relief.<sup>162</sup>

157 The verb अर्च्छति “rises up” is a rare form best known from epic Sanskrit (see Oberlies 2003: 212, §7.6.1). The transmitted form क्रौञ्च is obviously a colloquial version of Sanskrit क्रौञ्च. Commenting on 1.7.10 (Su 1938: 31), Ḍalhaṇa interestingly gives the colloquial versions of several Sanskrit bird names, even singling out pronunciation in the specific location of Kānyakubja. For क्रौञ्च he says that people pronounce it कुरञ्ज and कौञ्चि. The form क्रौञ्च is found in Pāli (see Cone 2001: 731, who notes that Ardhmāgadhī has the same form). Elsewhere, Ḍalhaṇa calls the bird क्रौञ्चिर, क्रौञ्चि, and कैचर (1.46.105 (Su 1938: 223), 6.31.154 (Su 1938: 684) and (6.58.44 (Su 1938: 790) respectively).

158 Ḍalhaṇa seemed confused about the racket-tailed drongo (भृङ्गराज). He called it a generic drongo (भ्रमरक), a word that can also mean “bee,” (Dave 1985: 62), and then said that it is like the black drongo (धूम्याट) (for a nice explanation of this name, see Dave 1985: 62–63) and that people call it “the king of birds.”

159 MS Kathmandu KL 699 reads “bull (वृषभ)” for “Chital deer (पृषत).” The latter may perhaps be mistaken for the former in the Newa script, although the reading of MS Kathmandu KL 699 is hard to read at this point.

160 “Tainted” translates उपक्षिप्त. The word’s semantic field includes “to hurl, throw against,” and especially “to insult verbally, insinuate, accuse.” The commentator Ḍalhaṇa glossed the term as, “spoiled food given to be eaten” (विदूषितस्यान्नस्य भोक्तुं दत्तस्य), but he noted that some people read “उखाक्षिप्त” or “thrown into a pan.” Other translators have commonly translated it as “served,” perhaps influenced by Ḍalhaṇa’s “given (दत्त).”

161 The vulgate supplies another phrase and verb at this point that is not present in the Nepalese transmission, but that makes the text flow more easily.

162 sing-1972 discussed the difficulties in identifying लामज्ज, a plant cited more often in the *Suśrutasaṃhitā* than in the *Carakasamhitā*; Ḍalhaṇa adopted the common view that it is



- 37 Held in the hand, it makes the hand burn, and the nails fall out. In such a case, the ointment (प्रलेप) is [beautyberry](#), [velvet-mite](#), soma and [blue water-lily](#).<sup>163</sup>
- 38–39 If he eats that food, through inattention or by mistake, then his tongue will feel like a pebble (अष्टीला) and it will lose its sense of taste. It stings and burns, and his saliva (श्लेष्मन्) dribbles out.<sup>164</sup> In such a case, he should apply the treatment recommended above for vapour (बाष्प), and what will be stated below under “toothbrush twigs”.<sup>165</sup>
- 40 On reaching his stomach, it causes stupor (मूर्च्छा), vomiting, the hair stands on end, there is distension, a burning feeling and an impairment of the senses.<sup>166</sup>
- 41 In this case, vomiting must quickly be induced using the fruits of [emetic](#)

a type of *uśīra* or vetiver grass. The grammatical neuter form मधुस् “sweetness” of the Nepalese manuscripts is less common than neuter मधु “honey, sweetness, liquorice.”

- 163 “Beautyberry” (*Callicarpa macrophylla* Vahl.) is one identification of श्यामा, but vaidyas and commentators have different ideas about the plant’s identity (see glossary).

On translating इन्द्रगोप as “velvet-mite,” see Lienhard 1978. Ḍalhaṇa’s remarks show that he had a reading इन्द्रगोपा before him, and he tries to explain इन्द्रा and गोपा as separate plants. But he also says that some people read इन्द्रगोप.

Ḍalhaṇa curiously parsed the name सोमा (f.) out of the compound; this feminine noun is almost unknown to Ayurvedic literature. Some dictionaries and commentators consider it a synonym for गुडूची, others for ब्राह्मी or चन्द्रतर्क. Ḍalhaṇa also mentioned that some people think the word refers to the soma creeper (सोमलता), which might explain his choice to take the word as feminine. But the compounded word is far more likely to be सोम (m.), the well-known mystery plant (see Wujastyk 2003b: 76–78, 125). If this can be taken as rue (*Ruta graveolens*, L.), as some assert, one can point to a pleasing passage in Dioscorides where rue plays an antitoxic role: “...it is a counterpoison of serpents, the stinging of Scorpions, Bees, Hornets and Wasps; and it is reported that if a man be anointed with the juice of the Rue, these will not hurt him; and that the serpent is driven away at the smell thereof when it is burned; insomuch that when the weasel is to fight with the serpent she armeth herself by eating Rue, against the might of the serpent” (cited from Potter: 262; not found in Osbaldeston and Wood 2000).

- 164 The word अष्टीला is normally feminine. The Nepalese manuscripts read it with a short अ- ending. Gayadāsa noticed that some manuscripts read अष्टील with a short -अ ending (MS Bikaner RORI 5157, f. 5v:7–8) and Ḍalhaṇa reproduced his observation. The vulgate reading “from his mouth (चास्यात्)” is more obvious (*lectio faciliior*), but is not attested in the Nepalese manuscripts.

- 165 Poisoned toothbrushes are discussed in verses 48 ff. below.

- 166 I translate मूर्च्छा in the light of the metaphors discussed by Meulenbeld (2011), that include thickening and losing consciousness.

- nut, gourd, red gourd, and luffa, taken with milk and watered butter-milk, or alternatively with rice-water.
- 42 Reaching the intestines (पक्वाशय), it causes a burning feeling, stupor, diarrhoea, thirst, impairment of the senses, flatulence (आटोप) and it makes him pallid and thin.
- 43 In such a case, purgation with the fruit of indigo (नीली), together with ghee, is best. And 'slow-acting poison antidote (दूषीविषारि)' should be drunk with honey and curds (दधि).<sup>167</sup>
- 44 When poison is in any liquid substances such as milk, wine or water, there are various streaks, and foam and bubbles form.
- 45 And no reflections are visible or, however, if they can be seen once more, they are distorted, fractured, or tenuous and distorted too.<sup>168</sup>
- 46 Vegetables, soups, food and meat are soggy and tasteless. They seem to go stale suddenly, and they have no aroma.
- 47 All edibles lack aroma, colour or taste. Ripe fruits rapidly rot (प्र $\sqrt$ कुथ) and unripe ones ripen.<sup>169</sup>
- 48 When a toothbrush twig has poison on it, the bristles are corroded and the flesh of the tongue, gums and lips swells up.<sup>170</sup>
- 49 Then, once his swelling is lanced, one should rub (प्रतिसारण) it with fire-flame bush flowers jambul, mango stones and chebulic myrobalan fruit mixed with honey.<sup>171</sup>
- 50 Alternatively, the rubbing (प्रतिसारण) can be done with either the roots of sage-leaved alangium, the bark of blackboard tree or siris seeds.<sup>172</sup>

167 The 'slow-acting poison' is discussed at 5.2.25 ff. (Su 1938: 565).

168 Both Nepalese witnesses read विकृत (distorted) twice, which is tautologous. In the first occurrence both read विकृता without proper termination. One might read the sandhi in the second occurrence as or not distorted (वाविकृता), but this gives no better sense. The scribe of MS Kathmandu NAK 5-333, apparently the original hand, added in the margin the alternate reading "double (यमला)" as in the vulgate. Perhaps the scribe too was troubled by the tautology. It is also evidence that he was aware of a witness with variant readings similar to the vulgate. We emend for grammar but retain the *lectio difficilior*.

169 The root  $\sqrt$ कुथ "stink, putrify, rot" is apparently known only from its few uses in the *Suśrutasamhitā*.

170 Gayadāsa and Ḍalhaṇa pointed out that "enclosure of a tooth (दन्तवेष्ट)" and "flesh of the tooth (दन्तमांस)" have the same meaning (2.16.14–26 (Su 1938: 331–332)).

171 This recipe is different from the vulgate.

172 The spelling of the name अङ्गोल्ल varies अङ्गोट, अङ्गोठ, अङ्गोल (GVDB: 5); Ḍalhaṇa noted that the form अङ्गोल्ल is a colloquialism (1.37.12 (Su 1938: 161)). The sentence is awk-

- 51ab One should give advice about a poisoned tongue-scraper or mouth-wash (कवल) in the same way as for a toothbrush twig.
- 51cd Massage oil that has been laced with poison is slimy, thick and discoloured.
- 52 When the massage oil has been contaminated with poison, boils arise, pain, a discharge (स्राव), inflammation of the skin, and sweating.<sup>173</sup> And the flesh (मांस) splits open.
- 53–54 In such a case, sandalwood, crape jasmine, costus, and cuscus grass, bamboo leaves, heart-leaved moonseed and heart-leaved moonseed, white clitoria, sacred lotus, and Indian barberry should be made into an ointment (अनुलेपन) for the patient, who has been sprinkled with cold water. That is also recommended as a drink with the juice and leaves of wood apple.<sup>174</sup>
- 55 In the case of a dry rub (उत्सादन), a shower (परीषेक), an infusion, a massage ointment (अनुलेपन), or in beds, clothes, or armour, the physician should understand that it is the same as for oil massage (अभ्यङ्ग).<sup>175</sup>
- 56–58 When a comb has poison in it, the hair falls out, the head aches and blood oozes from the follicles (ख) and lumps (ग्रन्थि) appear on the head. In such a case, one should repeatedly apply an ointment of black earth soaked with bear's bile,<sup>176</sup> ghee, beautyberry,<sup>177</sup> black creeper, and amaranth. Good alternatives are either the fluid extract of cow-dung, or the juice of jasmine, the juice of woodrose, or household soot.<sup>178</sup>

ward and we have emended शिरीषमाषक to be a plural, as in the vulgate, rather than the ablative singular of the Nepalese witnesses. We follow Ḍalhana in interpreting the compound to refer to the distinctive bean-like siris seeds, rather than to mung beans (5.1.50 (Su 1938: 562)).

173 The feminine स्फोट for “boils” is unattested.

174 This compound could be interpreted as “wood apple juice and cassia cinnamon.” Note that this recipe is differs from that of the vulgate, which requires urine.

175 See verse 52 above.

176 Ḍalhana comments here that ‘bile is that fluid which goes along inside the tube attached to the liver’ (कालखण्डलग्ननलिकामध्यगतजलं पित्तम्) 5.1.57 (Su 1938: 562).

177 See note 163.

178 The plant identifications in this passage follow Ḍalhana’s glosses, although he noted a difference of opinion on the identity of woodrose (lit. “mouse-ear”).

The expression धूमो वागारसंज्ञितः ‘...or the smoke termed “house”’ is commonly interpreted by translators and in Ayurvedic dictionaries as ‘household soot,’ and this does seem to be the meaning, in context. The term was comprehensively discussed by Meulenbeld (2008: 443). Cf. note 270, p. 74.

- 59 If either massage oil for the head, or a helmet for the head, in a wash, turban, or garlands that are contaminated with poison, then one should treat it in the same way as a comb.
- 60–61 When face make-up is poisoned, the face becomes dark and has the symptoms found with poisoned massage oil. It is covered with spots (कण्टक) that are like lotus-spots (पद्मिनीकण्टक).<sup>179</sup> In this case, the drink is honey and ghee, and the ointment (प्रलेप) is sandalwood with ghee, curds, honey, *verbena*, *scarlet mallow* and *hogweed*.<sup>180</sup>
- 62–63ab Elephants and the like become ill and they dribble saliva. And the rider gets spots (स्फोट) and a discharge on his scrotum, penis, and rectum. In this case, one prescribes the same therapy as for poisoned massage oil for both the rider and the mount.
- 63cd–65ab When there is poison in snuff (नस्य) or smoke, the symptom (लिङ्ग) is blood coming out of the apertures of the head (ख), a headache, a flow of mucus (कफ) and impairment of the senses. In such a case, ghee of cows etc., boiled up with their milk and *Himalayan monkshood*, is prescribed, with *henna*, as a cold drink or er-rhine.
- 65cd–66 Flowers lose their fragrance and colour, and wilt. On smelling them, he gets a headache and his eyes fill with water. In this case, the treatment is what was proposed above for vapour (बाष्प) and that which is traditional for face make-up.
- 67–68 When it is in ear-oil, there is degeneration in the ear, and painful swelling. There is also a discharge from the ear and in such a case it needs to be irrigated (प्रतिपूरण) promptly with ghee and honey. Extracted juice (स्वरस) of *wild asparagus* and very cold juice of *white cutch tree* are also recommended as something good.<sup>181</sup>
- 69 When poison is mixed in with eye make-up (अञ्जन), he gets tears and rheum (उपदेह), with a burning feeling, pain, faulty vision (दृष्टिविभ्रम),

<sup>179</sup> See the description of this condition at 2.13.40 (Su 1938: 323), where the skin on the face is characterized as having pale circular patches that are itchy and have spots.

<sup>180</sup> The common plant-name पुनर्नवा is read as पुनर्णवा in both Nepalese witnesses. This unusual form is technically-speaking legal according to Pāṇini 8.4.3, but is not attested in published texts. पुनर्णवा is found rarely in some other Nepalese manuscripts such as the *Brahmayāmala* (a.k.a. *Picumata*, 44.81, transcription thanks to Shaman Hatley), and elsewhere (e.g., in Gaṇapatiśāstrī 1920–25: 20, where it is the name of a constellation).

<sup>181</sup> The syntax of the Nepalese version is slightly unclear, but the vulgate has smoothed out the difficulties.

- and possibly even blindness.<sup>182</sup>
- 70–71 In this case, one must immediately drink ghee and have it also in an eyewash (तर्पण) with long pepper. One should have an eye ointment (अञ्जन) of the juice of periploca of the woods and have the extract (निर्यास) of three-leaved caper, wood apple and periploca of the woods and the flower of marking-nut tree.
- 72–73 Because of poisoned slippers there will definitely be a swelling, numbness (स्वाप), a discharge (स्राव) and an outbreak of spots (स्फोट) on the feet. One should clean (प्र/साध) footstools together with slippers.
- 74 Ornaments lose their lustre, and they do not shine as they used to. They damage their respective locations with burning, sepsis (पाक), and fissuring (अवदारण).<sup>183</sup>
- 75ab One should apply the stated procedure for massage oil (अभ्यङ्ग) to poisoned slippers and ornaments.
- 75cd–76 In the case of the affliction (उपसर्ग) by poison which has been described above, starting from ‘vapour’ and ending with ‘ornaments,’ the physician should observe the side-effects (उपद्रव) and then prescribe the therapy called the Great Fragrance (महासुगन्ध) antidote, which I shall describe.<sup>184</sup>
- 77–78ab He should prescribe it in drinks, liniments (आलेपन), errhines (नस्य), and in eye ointment (अञ्जन). Also, he should use sharp purgatives and emetics. If bleeding is present, he should have the indicated veins pierced.
- 78cd–79ab If either purging nut or a fern is tied on to the King’s wrist, then all food that is mixed with poison will be rendered free of poison.<sup>185</sup>
- 79cd–80 He should always keep his heart protected (हृदयावरण) when amongst

182 The term translated as “faulty vision” could also mean “rolling eyes.” “Eye make-up” is normally made of Indian barberry.

183 The reading अवदारण in MS Kathmandu KL 699 is not attested elsewhere in Sanskrit literature. On “sepsis” for पाक, see Wujastyk 2003b: xlv–xlvi.

184 This antidote is indeed described later, in dramatic terms, at 5.6.14–27 (Su 1938: 581). A recipe with eighty-five ingredients including cow’s bile, it is praised as chief of all antidotes, one that can drag the patient back from the very jaws of death, from even the poisonous fangs of Vāsuki.

185 In early Ayurvedic literature, the plant अजरुहा is mentioned only here and its identity is unknown. It may be a fern of the Nephrodium family, according to Singh and Chuneekar (GVDB: 7). Ḍalhaṇa, on 5.1.78 (Su 1938: 563), cited a description of the two plants from the little-known authority Uśanas (HIML: IA, 660 et passim) who described अजरुहा as a white root with spots on it that looks like collyrium when it is split; when drunk with sandalwood it causes poison to be digested.

- people who are not his friends.<sup>186</sup> Before eating he should drink the kinds of ghee called 'Invincible' and 'Immortal'.<sup>187</sup> He should drink ghee (सर्पिषः), honey, curds (दधि), milk (पयस्), or cold water.
- 81 He should consume monitor lizard, peacock, mongooses, chital deer, and blackbuck too, that destroy poison, and their juices.
- 82 As discerning person should add well-crushed black creeper,<sup>188</sup> liquorice, and sugar to the meats of monitor lizard, monitor lizard, mongoose and blackbuck too.
- 83 Add sugar and Himalayan monkshood to peacock flesh, together with ginger. And for meat from a chital deer, he should add long pepper, with ginger.
- 84ab A cold neem broth with honey and ghee is wholesome too.
- 84cd A discerning person should partake of hard and soft foods that counteract poison.<sup>189</sup>
- 85 If poison might have been drunk, a person who has protected his heart should make himself vomit using long pepper, liquorice, honey, sugar, sugarcane juice and water.

The first chapter in the Kalpas.

<sup>186</sup> The *Carakasamhitā* described 'protecting the heart' as drinking several sweet, oily drinks to surround the heart and keep it safe (6.23.46 (Ca 1941: 574)). Ḍalhana explained it as taking a number of anti-toxic medicines, including those listed in the present passage, in order to cover or hide (प्रच्छादन) the heart 5.1.79–81 (Su 1938: 563).

<sup>187</sup> These ghee compounds are described in later chapters: see 5.2.47–49 (Su 1938: 566) and 5.6.13 (Su 1938: 581).

<sup>188</sup> Or some say turpeth.

<sup>189</sup> On this expression, see Yagi 1994.

## Kalpasthāna, adhyāya 2

### Introduction

This section begins with several lists of poisonous plants. The Sanskrit names for these plants are mostly not standard or familiar from anywhere in Sanskrit or ethnobotanical literature. It remains a historical puzzle why these particular names are so difficult to interpret. However, we are not the first to encounter these difficulties. In the twelfth century, the learned commentator on the text, Ḍalhaṇa, remarked,

In spite of having made the greatest effort, it has been impossible to identify these plants. In the Himalayan regions, Kirātas and Śabarās are able to identify them.<sup>190</sup>

Ḍalhaṇa also recorded variant readings of these poison names from the manuscripts that he consulted of the lost commentary of Gayadāsa (fl. c. CE 1000). The identities of these poisons have been in doubt for at least a thousand years.<sup>191</sup> Identifications have in many cases been equally impossible for us today.

One path for exploration in this situation is to attempt to reverse-engineer some identifications by considering the known toxic plants of India.<sup>192</sup>

### Translation

- 1 And now I shall explain **what should be known** about stationary poisons.<sup>193</sup>
- 3 It is said that there are two kinds of poisons, stationary (स्थायर) and mobile (जङ्गम). The former dwells in ten sites, the latter in sixteen places.

---

190 After *Suśrutasaṃhitā*, *kalpasthāna* 2.5 (Su 1938: 564). From the view of Sanskrit authors, Kirātas and Śabarās were tribal peoples. The eleventh-century author Bhikṣu Govinda, however, cast his treatise as a dialogue with a Kirāṭa king called Madana who was a master of the alchemical art (HIML: IIA, 620).

191 See Wujastyk 2003b: 80–81.

192 Valuable reference sources on Indian plant toxicology in general include Pillay 2013: chs. 10, 11 and Barceloux 2008: parts 1.II, 3 and 4.

193 No reference is made to Dhanvantari (see Birch, Wujastyk, Klebanov, Parameswaran, et al. 2021). “Stationary” here is a term contrasted with “moving,” and signifies plants as opposed to animals and insects.



- 4 Traditionally, the ten are: root, leaf, fruit, flower, bark, milky sap (क्षीर), pith (सार), resin (निर्यास), the elements (*dhātu*), and the tuber.
- 5 In that context,
  - the eight root-poisons are:<sup>194</sup>
    1. liquorice (?),<sup>195</sup>
    2. sweet-scented oleander,<sup>196</sup>
    3. jequirity,<sup>197</sup>
    4. false daisy,<sup>198</sup>
    5. *karatā*,<sup>199</sup> and ending with
    6. leadwort (*vidyutśikhā* → *agni-* or *rakta-śikhā?*)<sup>i</sup>,<sup>200</sup>
    7. country sarsaparilla (?),<sup>201</sup> and
    8. *medhshingi*,<sup>202</sup>

194 Some South Asian plants with poisonous roots that we would have expected to see in this list include *Croton tiglium*, L., *Calotropis* spp., *Citrullus colocynthus* L. Schrad., and *Ricinus communis* L. (CIPP).

195 Liquorice eaten in excess can be poisonous, but it is unlikely to be the plant intended here. Singh and Chuneekar (GVDB: 124) noted that the poisonous root mentioned in this passage, “remains to be identified.”

196 The roots of sweet-scented oleander are highly toxic, as are most parts of the plant (Pillay and Sasidharan 2019).

197 Jequirity contains a dangerous toxin called Abrin in its seeds and to a lesser extent in its leaves, but apparently not in its roots or bulb. Abrin is not harmful if eaten, but an infusion of the bruised (not boiled) seeds injected or rubbed in the eyes can be fatal (NK: # 6). The dose can be quite small.

198 The plant is usually called just *bhaṅgurā* without the prefix *su-* “good.” However, there is no reported toxicity associated with *E. prostrata*..

199 This poisonous root cannot at present be identified. Similar-sounding candidates include *karkaṭaka*, *karaghāṭa* (emetic nut), and *karahāṭa*, but since this is a prose passage, there would be no reason to alter the word to fit a metre. Monier-Williams et al. (MW: 255) cite an unknown lexical source that equates *karatā* (mn.) with safflower (*Carthamus tinctorius*, L.), but this plant does not have a poisonous root.

200 The roots of both rose and white leadwort are very toxic.

201 The text reads masculine *ananta*, which is not a plant name. Gayī’s commentary on 5.2.5 (Su 1938: 564) noted a variant reading of feminine *anantā* in place of *gargaraka*, earlier in the compound. But the feminine *anantā*, country sarsaparilla, is not a poisonous plant.

202 Meulenbeld (1989: 61, n. 3) argued that our text reads a masculine or neuter noun *vijaya*, which never signifies cannabis. However, unlike the vulgate, the unanimous readings of the Nepalese manuscripts give feminine *vijayā*. Nevertheless, even the

i *Plumbago zeylanica* (or *rosea?*), L.; see NK #1966, 1967



- the leaf-poisons include:
  - ‘poison-leaf’ (*viṣapatrikā*)<sup>ii</sup>,
  - ‘drum-giver’ (*lambaradā*)<sup>iii</sup>,
  - thorn apple, and
  - big thorn apple;
- the fruits of items like: jequirity (*guñjā*)<sup>iv</sup>, rūṣkara ( )<sup>v</sup>, viṣa ( )<sup>vi</sup>, and vedikā ( )<sup>vii</sup>, are
  - kumudavati (*kumadavati*)<sup>viii</sup>,
  - reṇuka ( )<sup>ix</sup>,
  - kurūkaka ( )<sup>x</sup>,
  - ‘little bamboo’ (*veṇuka*)<sup>xi</sup>,<sup>203</sup>,
  - thorn apple (*karambha*)<sup>xii</sup>,
  - ‘big thorn apple’ (*mahākarambha*)<sup>xiii</sup>,
  - ‘pleaser’ (*nandanā*)<sup>xiv</sup>,
  - ‘crow’ (*kāka*)<sup>xv</sup>,
- the flower-poisons include those of:

feminine form only started to signify *Cannabis sativa* L. after the end of the first millennium (Meulenbeld 1989; Wujastyk 2002; McHugh 2021). The *Sauśrutaniṣhaṇṭu* gives a number of synonyms for *vijayā*, almost none of which have any poisonous parts (Suvedī and Tivārī 2000: 5.77, 10.143). But one of them, *viṣāṇī* (also *meṣaśṛṅgī*), is sometimes equated with *Dolichandrone falcata* (DC.) Seemann (ADPS: 518), a plant used as an abortifacient and fish poison (nadk-1982). This identification is tenuous.

203 Not poisonous.

ii unknown; see ?

iii unknown; see ?

iv ; see

v ; see

vi ; see

vii ; see

viii unknown; see ?

ix ?; see *Piper aurantiacum* Wall. (NK: #1924) is not poisonous.

x ?; see ?

xi *Bambusa bambos*, Druce?; see NK #307

xii *Datura metel*, L.; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

xiii *Datura metel*, L.?; see AVS 2.305 (cf. *Abhidhānamañjarī*), NK #796 ff., Potter 292 f., ADPS 132.

xiv ?; see ?

xv ?; see ?

- rattan (*vetra*)<sup>xvi</sup>,
- wild chinchona (*kādamba*)<sup>xvii</sup>,
- black pepper (*vallīja* → *marica*)<sup>xviii</sup>,
- thorn apple (*karambha*)<sup>xix</sup>, and
- big thorn apple (*mahākarambha*)<sup>xx</sup>;
- the seven bark, pith (सार) and resin (निर्यास) poisons are:
  - ‘gutboiler’ (*antrapācaka*)<sup>xxi</sup>,
  - ‘blade’ (*kartariya*)<sup>xxii</sup>,
  - wild mustard (*saurīyaka*)<sup>xxiii</sup>,
  - emetic nut (*karaghāṭa* → *karahāṭa?* → *madana*)<sup>xxiv</sup>,
  - thorn apple (*karambha*)<sup>xxv</sup>,
  - wild asparagus (*nandana* → *bahuputrā?*)<sup>xxvi</sup>, and
  - munj grass (*nārācaka*)<sup>xxvii, 204</sup>
- the three milky sap (क्षीर)-poisons are:
  - purple calotropis (*kumudaghnī* → *arka?*)<sup>xxviii, 205</sup>

204 The bark of wild asparagus (*Asparagus racemosus*, Willd.) is toxic.

205 The name of this poison, *kumuda-ghnī*, means ‘lotus killer’. In Sanskrit literature, the *kumuda* lotus is associated with the moon, since it blossoms by night. Since the sun causes this lotus to close, it is therefore an ‘enemy’ of the lotus. One of the chief words for the sun, *arka*, is also the name of *Calotropis gigantea*, which indeed has a milky juice which is a violent purgative, poison and abortifacient.

xvi Calamus rotang, L.; see AVS 1.330, NK #413

xvii Anthocephalus cadamba, Miq.; see NK #204

xviii Piper nigrum, L.?; see NK #1929; Rā.6.115, Dha.4.85, Dha.2.88

xix Datura metel, L.; see AVS 2.305 (cf. Abhidhānamañjarī), NK #796 ff., Potter 292 f., ADPS 132.

xx Datura metel, L.?; see AVS 2.305 (cf. Abhidhānamañjarī), NK #796 ff., Potter 292 f., ADPS 132.

xxi unknown; see ?

xxii unknown; see ?

xxiii Cleome viscosa, L.? (cf. Rā.4.144); see AVS 2.116, NK #615

xxiv Randia dumetorum, Lamk.; see NK #2091

xxv Datura metel, L.; see AVS 2.305 (cf. Abhidhānamañjarī), NK #796 ff., Potter 292 f., ADPS 132.

xxvi Asparagus racemosus, Willd.; see ADPS 441, AVS 1.218, NK #264, IGP 103, IMP 4.249ff., Dymock 482ff.

xxvii Saccharum bengalense, Retz.?; see NK #2184

xxviii Calotropis gigantea, (L.) R. Br.; see ADPS 52, AVS 1.341, NK #427, Potter 63

- oleander spurge (*snuhī*)<sup>xxix</sup>, and
- ‘web-milk’ (*jālakṣīri*)<sup>xxx</sup>;
- the two element (धातु)-poisons are:
  - ‘foam-stone’ (*phenāśma*)<sup>xxxi</sup>, and
  - orpiment (*haritāla*)<sup>xxxii,206</sup>
- the thirteen tuber-poisons are:
  - jequirity (*kālakūṭa*)<sup>xxxiii, 207</sup>
  - wolfsbane (*vatsanābha*)<sup>xxxiv</sup>,
  - Indian mustard (*sarṣapa*)<sup>xxxv</sup>,
  - leadwort (*pālaka* → *citraka*)<sup>xxxvi</sup>,
  - ‘muddy’ (*kardama*)<sup>xxxvii</sup>, the
  - ‘Virāṭa’s plant’ (*vairāṭaka*)<sup>xxxviii</sup>,
  - nutgrass (*mustaka*)<sup>xxxix</sup>,
  - atis root (*śṛṅgīviṣa*)<sup>xl</sup>,

206 Dutt (Dutt: 38–42) conjectured that ‘foam-stone’ may be impure white arsenic obtained by roasting orpiment.

207 The much later (perhaps sixteenth century) alchemical *Rasaratnasamuccaya* of pseudo-Vāgbhaṭa (21.14) says that the *kālakūṭa* poison, here translated as ‘jequirity’, is similar to ‘*kākacañcu*’ or ‘Crow’s Beak’, which is indeed a name for the plant jequirity or *Abrus precatorius*, L., more commonly called *guñjā* (not to be confused with *gañjā*). The black seed-pod is described as having a ‘sharp deflexed beak’ in botanical descriptions, so the Sanskrit name is quite graphic and appropriate. The poisonous scarlet seeds of *A. precatorius* can have a distinct black dot or tip, which could perhaps be translated ‘*kāla-kūṭa*’, or ‘Black Tip’.

The *Rājanighaṇṭupariśiṣṭa* (9.35) gives *kālakūṭaka* as a synonym for *kāraskara*, or *Strychnos nux-vomica*, L., whose seeds are notoriously poisonous.

xxix *Euphorbia neriifolia*, L., or *E. antiquorum*, L.; see ADPS 448, AVS (2.388), 3.1, NK #988, IGP 457b

xxx unknown; see ?

xxxii unknown; see ?

xxxiii *Arsenii trisulphidum*; see NK v. 2, p. 20 ff.

xxxiv *Abrus precatorius*, L.? Cf. RRS 21.14.; see AVS 1.10, NK #6, Potter 168.

xxxv *Aconitum napellus*, L.; see AVS 1.47, NK #42, Potter 4 f.

xxxvi *Brassica juncea*, Czern. & Coss.; see AVS 1.301, NK #378

xxxvii *Plumbago zeylanica* (indica? rosea?), L.; see Rā. 6.124, ADPS 119, NK #1966, 1967

xxxviii unknown; see ?

xxxix unknown; see ?

xl *Cyperus rotundus*, L.; see ADPS 316, AVS 2.296, NK #782

xl *Aconitum heterophyllum*, Wall. ex Royle; see AVS 1.42, NK #39

- sacred lotus (*prapuṇḍarīka*)<sup>xli</sup>,
- radish (*mūlaka*)<sup>xlii</sup>,
- ‘alas, alas’ (*hālāhala*)<sup>xliii</sup>,
- ‘big poison’ (*mahāviṣa*)<sup>xliv</sup>, and
- galls (*karkaṭa*)<sup>xlvi</sup>.<sup>208</sup>

Thus, there are fifty-five stationary poisons.

- 6 There are believed to be four kinds of wolfsbane, two kinds of *mustaka*, and six kinds of Indian *sarṣapa*. But the rest are said to be unique types.

## The effects of poisons

- 7–10 People should know that root-poisons cause writhing (उद्वेष्टन), ranting (प्रलाप), and delirium (मोह), and leaf-poisons cause yawning, writhing, and wheezing (श्वास).

Fruit-poisons cause swelling of the scrotum, a burning feeling and writhing. Flower-poisons will cause vomiting, distension (आध्मान) and sleep (स्वाप).

The consumption of poisons from bark, pith (सार) and resin (निर्यास) will cause foul breath, hoarseness (पारुष्य), a headache, and a discharge of phlegm (कफ).<sup>209</sup>

208 Leadwort root is a powerful poison. Nutgrass is tuberous, but non-toxic. Atis has highly toxic tuberous roots. Neither sacred lotus nor galls are toxic. The ‘alas, alas’ poison (*hālāhala*) is the mythical poison produced from the churning of the ocean at the time of creation: it occurs in medical texts such as the present one, and commentators identify it with one or other of the lethal poisons such as wolfsbane or jequirity. Agrawal (1963: 126) makes the intriguing suggestion that the word *hālāhala*, possibly to be identified with Pāṇini’s *hailihila* (P.6.2.38), may be of Semitic origin, although his evidence seems uncertain (Steingass (1930: 1506a) cites Persian *halāhil* ‘deadly (poison)’ as a loan from Sanskrit). KEWA: iii.585 also cites a claim for an Austro-Asiatic origin for the word.

209 At 1.2.6 (Su 1938: 11), Ḍalhaṇa glosses hoarseness (पारुष्य) as *vāgrūkṣatā*, “a rough, dry voice.”

xli *Nelumbo nucifera*, Gaertn.; see Dutt 110, NK #1698

xlii *Raphanus sativus*, L.; see NK #2098

xliii unknown; see Cf. Soḍhalanighantu p.43 (sub bola) = stomaka = vatsanābha

xliv unknown; see ?

xlvi *Rhus succedanea*, L.; see NK #2136

The milky sap (क्षीर)-poisons make one froth at the mouth, cause loose stool, and make the tongue feel heavy.<sup>210</sup> The element (धातु)-poisons give one a crushing pain in the chest, make one faint and cause a burning feeling on the palate.

These poisons are classified as ones which are generally speaking lethal after a period of time.

### 11–17 Symptoms of tuber poisoning

The tuber-poisons, though, are severe. I shall talk about them in detail. With jequirity (*kālakūṭa*)<sup>xlvi</sup>, there is numbness and very severe trembling. With wolfsbane (*vatsanābha*)<sup>xlvi</sup>, there is rigidity of the neck, and the faeces, and urine become yellow.

With *sārṣapa* (सार्षप),<sup>211</sup> the wind becomes defective (*vātavaiguṇya*), there is constipation (आनाह), and lumps (ग्रन्थि) start to appear. With leadwort (*pālaka* → *citraka*)<sup>xlvi</sup>, there is weakness in the neck, and speech gets jumbled.<sup>212</sup>

With the one called ‘muddy’ (*kardama*)<sup>xlvi</sup>, there is a discharge (प्रसेक), the faeces pour out, and the eyes turn yellow. The ‘Virāṭa’s plant’ (*vairāṭaka*)<sup>l</sup> causes pain in the body and illness in the head. Paralysis of one’s arms and legs and trembling are said to be caused by *mustaka* (मुस्तक).<sup>213</sup>

210 At 6.54.10 (Su 1938: 773), Ḍalhaṇa glosses loose stool (विद्धेद) as *dravapurīṣatā*, “having liquid stool.”

211 *Sārṣapa* would normally mean “connected with mustard,” and excessive consumption of mustard oil can be harmful. However, the *Sauśrutaniḥṣṇu* (156) gives *raṅṣoghnā* as a synonym for *sārṣapā*. This can be *Semecarpus anacardium*, L.f., which has some poisonous parts.

212 The verse in the Nepalese version ends with a plural verb that does not agree with the dual of the sentence subject.

213 The substitution in MS NAK 5-333 affecting 15cd is caused by an eye-skip to the word *viṣeṇa* in 2.17. *Mustaka* commonly refers to *Cyperus rotundus*, L.; the root is used in āyurveda but is not poisonous. However other dictionaries list *mustaka* amongst serious poisons, for example *Rājanighaṇṭu* (22 v. 42) and *Rasaratnasamuccaya* 16, v. 80.

xlvi *Abrus precatorius*, L.? Cf. RRS 21.14.; see AVS 1.10, NK #6, Potter 168.

xlvi *Aconitum napellus*, L.; see AVS 1.47, NK #38, Potter 4 f.

xlvi *Plumbago zeylanica* (indica? rosea?), L.; see Rā. 6.124, ADPS 119, NK #1966, 1967

xlvi unknown; see ?

l unknown; see ?

- 15b With great aconite (महाविष) one's limbs grow weak, there is a burning feeling and swelling of the belly.<sup>214</sup>
- 16a With puṇḍarīka (पुण्डरीक), one's eyes go red, and one's belly becomes distended.<sup>215</sup>
- 16b With mūlaka (मूलक), one's body is drained of colour and the limbs are paralysed.<sup>216</sup>
- 17a With hālāhala (अचोनिते), a man turns a dark colour (ध्याम), and gasps.<sup>217</sup>
- 17b With atis root (śṛṅgīviṣa)<sup>li</sup>, one gets violent knots (ग्रन्थि) and stabbing pains in the heart.<sup>218</sup>
- 18a With markaṭa (मोन्केय), one leaps up, laughs, and bites.<sup>219</sup>
- 18b-19a Experts have said that one should know that the thirteen highly potent tuber-poisons, which are mentioned here, have ten qualities (गुण).
- 19b-20a The ten are:
- dry (रूक्ष),
  - hot,
  - sharp,
  - rarified (सूक्ष्म),
  - fast-acting,
  - pervasive (व्यवायिन),

However, its ancient identity is still doubtful.

- 214 The poisonous root great poison (महाविष) is not clearly identifiable, although *viṣa* is commonly aconite. Verse 6 above notes that there are several kinds of aconite.
- 215 The word *puṇḍarīka* very commonly means sacred lotus, *Nelumbo nucifera*, Gaertn. The entire plant is edible and cannot be the poison intended here. Singh and Chuneekar (GVDB: 252) noted that this poison is unidentified and that it is also listed as a poison in *Carakasamhitā*.23.12.
- 216 The word *mūlaka* very commonly means the radish, *Raphanus sativus*, L. The root is edible and cannot be the poison intended here. Singh and Chuneekar (GVDB: 317) noted that this poison is unidentified.
- 217 Identification of *hālāhala* is uncertain. It may simply be a mythical poison, or its specific identity may have been lost over the centuries. Late *nighaṇṭus* identify it as *stomaka* = *vatsanābha*, i.e., *Aconitum napellus*, L. (*Soḍhalanighantu* p.43). Dalhaṇa on 5.2.17 (Su 1938: 564) interprets our “gasps” as “the man laughs and grinds his teeth.” But this gloss is probably displaced and intended to apply to verse 2.18.
- 218 Singh and Chuneekar (GVDB: 407) noted that *vatsanābha* and *śṛṅgīviṣa* are two different varieties of poisonous Aconites that are difficult to distinguish.
- 219 Singh and Chuneekar (GVDB: 299) said of *markaṭa*, “an unidentified vegetable poison.” Cf. Suvedī and Tivārī 2000: v.36 for synonyms that lead to the non-toxic jujube tree.

li *Aconitum heterophyllum*, Wall. ex Royle; see AVS 1.42, NK #39

- expansive (विकासिन),
  - limpid (विशद),
  - light, and
  - indigestible.
- 20b Because of dryness, it may cause inflammation of the wind; because of heat it inflames the choler and blood. Because of the sharpness it unhinges the mind, and it cuts through the connections with the sensitive points (*marman*). Because it is rarified it can infiltrate and distort the parts of the body.<sup>220</sup>
- 22 Because it is fast-acting it kills quickly, and because of its pervasiveness it affects one's whole physical constitution (*prakṛti*).<sup>221</sup> Because of its expansiveness it enters into the humour (दोष)s, bodily constituents (धातु)s, and even the impurities. Because it is limpid it overflows, and because it is light it is difficult to treat. Because it is indigestible it is hard to eliminate. Therefore, it causes suffering for a long time.
- 24 Any poison that is instantly lethal, whether it be stationary, mobile, or artificial, will be known to have all ten of these qualities.

### Slow-acting poison

- 25cd–26 A poison that is old or destroyed by anti-toxic medicines, or else dried up by blazing fire, wind, or sunshine, or which has just lost its qualities by itself,<sup>222</sup> becomes a slow-acting poison (*dūṣṭviṣa*).<sup>223</sup> Because it has lost its potency it is no longer perceived. Because it is surrounded by phlegm (कफ) it has an aftermath that lasts for a very long time.
- 27 If he is suffering from this, the colour of his stools changes, he gets sourness and a bad taste with great thirst. Stammering and close to death, wandering about, he may feel faint, giddy, and aroused.<sup>224</sup>

<sup>220</sup> We read the active *vikaroti* with Ḍalhaṇa against the transmitted passive *vikriyeta*, since it must be the parts of the body that are distorted, not the poison.

<sup>221</sup> Ḍalhaṇa on 5.2.22 (Su 1938: 565) explained this as “takes the form of pervading the whole body (अखिलदेहव्याप्तिरूपम्).”

<sup>222</sup> Ḍalhaṇa specified that this refers to the ten qualities that are mentioned above (5.2.26 (Su 1938: 565)).

<sup>223</sup> Ḍalhaṇa cited this verse at 1.46.83 (Su 1938: 222) while explaining *dūṣṭviṣa*.

<sup>224</sup> Similar symptoms of slow-acting poison are described at 2.7.11–13 (Su 1938: 296) in the context of contamination dropsy (दुष्पौदर). This this may explain why the vulgate inserted reference to this disease at this point.

- 28 If it lodges in his stomach (आमाशय), he becomes sick because of wind and phlegm; if it lodges in his intestines (पक्वाशय), he becomes sick because of wind and choler. A man's hair and limbs fall away and he looks like a bird whose wings have been chopped off.
- 29a–c If it lodges in one of the body tissues such as chyle (रस), it causes the diseases arising from the body tissues, that have been said to be wrong.<sup>225</sup> and it rapidly becomes inflamed on days that are nasty because of cold and wind.
- 29d–31 Listen to its initial symptoms (लिङ्ग): it causes heaviness due to sleep, yawning, disjunction (विश्लेष) and horripilation (हर्ष) and a bruising of the limbs (अङ्गमर्द).<sup>226</sup> Next, it causes intoxication from food (अन्नमद) and indigestion, loss of appetite (अरोचक), the condition of having a skin disease (कोठ) with round blotches (मण्डल),<sup>227</sup> **dwindling away (क्षय) of flesh**, swelling of the feet, hands, and face, **the fever called *pralepaka***, vomiting and diarrhoea.<sup>228</sup> The slow-acting poison might cause **wheezing, thirst and fever, and it might also cause distension of the abdomen**.
- 32 These various disorders are of many different types: one poison may produce madness, while another one may cause constipation (आनाह), and yet another may ruin the semen. One may cause **emaciation**, while another pallid skin disease (कुष्ठ).
- 33 Something is “corrupted” by repetitively keeping to bad locations, times, foods, and sleeping in the daytime. Or, traditionally, “corrupting poison” (slow-acting poison (दूषी-विष)) is so called because it may corrupt (*dūṣayet*) the body tissue (धातु)s.

#### 34- The stages of toxic shock

In the first shock of having taken a stationary poison, a person's tongue becomes dark brown and stiff, he grows faint, and panics.

- 35 In the second, he trembles, feels exhausted, has a burning feeling, as

<sup>225</sup> The expression *ayathāyathoktān* “stated to be unsuitable” is hard to understand here, but is clearly transmitted in the Nepalese version.

<sup>226</sup> Ḍalhaṇa 5.2.30ab (Su 1938: 565) glossed “disjunction” as the loss of function of the joints in regard to movement.

<sup>227</sup> The last ailment could perhaps be ringworm.

<sup>228</sup> The *pralepaka* fever was described by Ḍalhaṇa, at 6.39.52 (Su 1938: 675), as an accumulation of phlegm in the joints. Its symptoms are described in 6.39.54



- well as a sore throat. When the poison reaches the stomach (आमाशय), it causes pain in the chest (हृद्).
- 36 In the third, his palate goes dry, he gets violent pain (शूल) in the stomach (आमाशय), and his eyes become weak, swollen and yellow.
- 37 In the fourth shock, it causes the intestines and stomach to be exhausted (साद), he gets hiccups, a cough, a rumbling in the gut (अन्न), and his head becomes heavy too.
- 38 In the fifth he dribbles phlegm (कफ), goes a bad colour, his ribs crack (पार्श्वभेद), all his humours are irritated, and he also has a pain in his intestines (पक्काधान).
- 39a In the sixth, he loses consciousness and he completely loses control of his bowels.
- 39b In the seventh, there are breaks in his shoulders, back and loins, and he stops breathing.<sup>229</sup>

#### Remedies for the stages of slow poisoning

- 40 In the first shock of the poison, the physician should make the man, who has vomited and been sprinkled with cold water, drink an antidote (अगद) mixed with with honey and ghee.
- 41a In the second, he should make the man who has vomited and been purged drink as before;
- 41b on the third, drink an antidote and a beneficial nasal medicine (नस्य) as well as an eye salve (अञ्जन).
- 42a In the fourth, the physician should make him drink an antidote that is salt with a little oil.<sup>230</sup>
- 42b In the fifth, he should be prescribed the antidote together with a decoction (क्वाथ) of honey and liquorice.
- 43 In the sixth, the cure (सिद्धि) is the same as for diarrhoea. And in the seventh, he perishes.<sup>231</sup>

<sup>229</sup> Here at 5.2.24 (Su 1938: 566) Ḍalhaṇa glossed *sannirodha* as “complete cessation, i.e., of breath” (*sannirodhaḥ samyānnirodhaḥ, ucchvāsasya iti śeṣaḥ*). The manuscripts all read *skanda* where *skandha* must be intended; this confusion is known from Buddhist Hybrid Sanskrit (Edgerton 1953: 608).

<sup>230</sup> At 6.52.30 (Su 1938: 769) Ḍalhaṇa noted that *sindhu* can be interpreted as salt (सैन्धव).

<sup>231</sup> The vulgate text here is quite different, recommending that the patient have medicated powder blown up his nose. It may be possible to detect the evolution of the Nepalese अवसीदेत् to the vulgate’s अवपीडश. The vulgate version is hard to con-

- 44 In between any one of these shocks, once the above treatment has been done, he should give the patient the following cold gruel (यवागू) together with ghee and honey, that will take away the poison.
- 45–46 A gruel (यवागू) made of the following items in a stewed juice (निःकाथ) destroys the two poisons: luffa gourd,<sup>232</sup> wild celery,<sup>233</sup> velvet-leaf, sunflower,<sup>234</sup> heart-leaved moonseed, myrobalan siris, and selu plum, white siris, the two kinds of turmeric,<sup>235</sup> and the two kinds of poison berry,<sup>236</sup> hogweed, peas, the three heating spices, the two kinds of Indian sarsaparilla<sup>237</sup> and blue water-lily.

---

strue, and we see Ḍalhaṇa struggling to interpret it in his commentary on 5.2.43ab (Su 1938: 566). This sternutatory is, however, recommended in the Nepalese version at 5.5.30ab (Su 1938: 576), for the seventh shock of poisoning by a striped snake (राजिमत्). It is possible the text migrated from that location to this.

Another difference at this point is that the Nepalese version also does not support the vulgate's passage on the crow's foot (काकपद) therapy (Wujastyk 2003b: 145, n.106). The same is the case at 5.5.24 (Su 1938: 575) and the clear description at 5.5.45 (Su 1938: 577), in neither of which is the therapy supported in the Nepalese version. This therapy seems unknown to the Nepalese transmission. Perhaps the therapy migrated into the vulgate *Suśrutasamhitā* from the *Carakasamhitā* 6.23.66–67 (Ca 1941: 574).

232 At 4.10.8 (Su 1938: 449) Ḍalhaṇa glossed कोशवती as देवदाली and at 4.18.20 (Su 1938: 472) as कटुकोशातकी, vocabulary pointing to *Cucumis cylindrica*, *Cucumis actangula* or *Luffa echinata*. See glossary under luffa.

233 A plant often cited in *Suśrutasamhitā*, but rarely in *Carakasamhitā* (GVDB: 4). Ḍalhaṇa glossed it here, 5.2.45 (Su 1938: 566), as *ajamodā*, wild celery, but noted that others consider it to be *morāṭa*, rajmahal hemp. There is considerable complexity surrounding the identification of *morāṭa*/*mūrvā* and related synonyms (GVDB: 314–316). Taking *agnika* as a short reference to *agnimantha*, often identified as migraine tree, might be plausible, since that is antitoxic or anti-inflammatory, but such a short reference is not known elsewhere.

234 At 5.2.45 (Su 1938: 566) Ḍalhaṇa said that this plant has leaves like the *paṭola*, pointed gourd, Singh and Chunekar (GVDB: 280, 443) argued plausibly that this is a synonym for *arkapuṣpī*, panacea twiner, as Ḍalhaṇa also stated in 1.45.120 (Su 1938: 206), and the leaves of *Holostemma* and *Trichosanthes* are indeed strikingly similar. The appearance of the plant, a creeper with sun-like flowers, fits the name. But there remains much controversy about the identities of these candidates (e.g., ADPS: 195–198).

235 I.e., turmeric and Indian barberry.

236 I.e., poison berry and yellow-berried nightshade.

237 I.e., country sarsaparilla and black creeper.

## The invincible ghee

- 47–49 There is a famous ghee called “Invincible” (अजेय). It rapidly destroys all poisons but is itself unconquered. It is prepared with a mash (कल्क) of the following plants: liquorice, crape jasmine, costus, deodar, peas, Indian madder, cardamom and cherry, cobra’s saffron, blue water-lily, sugar, embelia, sandalwood, cassia cinnamon, beautyberry, rosha grass, the two turmeric<sup>238</sup> the two Indian nightshades,<sup>239</sup> the two kinds of Indian sarsaparilla,<sup>240</sup> beggarweed, and heart-leaf sida.

## Curing the ‘slow-acting’ poison

- 50–52 Someone suffering from “slow-acting poison (दूषीविष)” should be well sweated, and purged both top and bottom. Then he should be made to drink the following eminent antidote which removes “slow-acting poison:”  
Take long pepper, rosha grass, spikenard, lodh tree, cardamom, natron, scented pavonia, red chalk, as well as gold, and pondweed.  
This antitoxin, taken with honey, eliminates slow-acting poison. It is called the “enemy of slow-acting poison (दूषीविषारि),” and it is not prohibited in other situations.
- 53–54 If there are any other side-effects (उपद्रव), such as fever, a burning feeling, hiccups, constipation (आनाह), depletion of the semen, distension, diarrhoea, fainting, skin problems, bellyache (जठर), madness, trembling, then one should treat each one in its own terms, using anti-toxic medicines.
- 55 For a prudent person, the slow-acting poison can be cured (साध्य) immediately. It is treatable (याप्य) if it is of a year’s standing. Other than this, it should be avoided for the person who eats unwholesome things.

---

<sup>238</sup> I.e., turmeric and Indian barberry.

<sup>239</sup> I.e., poison berry and yellow-berried nightshade.

<sup>240</sup> I.e., country sarsaparilla and black creeper.

# Kalpasthāna, adhyāya 3

## Introduction

## Translation

- 1 And now we shall explain the rule (कल्प) that is the required knowledge about mobile poisons.<sup>241</sup>
- 3 The full explanation about the sixteen carriers (अधिष्ठान) of the mobile poisons, that have been mentioned by me in brief, will be stated.<sup>242</sup>
- 4 In that context, they are:<sup>243</sup>
  - gaze and breath, संदंशा),
  - teeth, nails, and bites • fart (अवशर्धित),<sup>244</sup>
  - urine and faeces, • anus,<sup>245</sup>
  - menstrual blood,
  - semen,
  - tail,
  - contact with saliva,
  - nipping with the mouth (मुख-
- 5 In that context,

<i>location of the poison</i>	<i>creatures</i> <sup>246</sup>
in their breath and gaze	divine snakes
in their fangs	the ones on earth <sup>247</sup>

<sup>241</sup> In contrast to stationary, plant poisons. No reference is made to Dhanvantari (see Birch, Wujastyk, Klebanov, Parameswaran, et al. 2021).

<sup>242</sup> “Carrier” for base, foundation (अधिष्ठान) aims to capture the idea that the author will describe the creatures in which poisons inhere.

<sup>243</sup> The content of this section is presented as a table, for clarity for the contemporary reader and mindful of the theoretical issues surrounding notational variation, including the “symbolic rewriting” and the modification of “expressive capacities” discussed by Sarukkai (2016: 321 ff). For further discussion, see Wujastyk 2021a: 81–83.

<sup>244</sup> This interpretation comes from Ḍaḥaṇa on 5.3.4 (Su 1938: 567), but he reads विशर्धित.

<sup>245</sup> Ḍaḥaṇa on 5.3.4 (Su 1938: 567) noted this reading.

<sup>246</sup> Many of these names are mere dubious placeholders.

<sup>247</sup> Ḍaḥaṇa on 5.3.5 (Su 1938: 567) cited the otherwise unknown authority Sāvitra on the topic of poisonous snakes (HIML: ???, ???).

<i>location of the poison</i>	<i>creatures</i>
in their nails, mouths and fangs	cats, dogs, monkeys, men (नर), <sup>248</sup> crocodiles, frogs, 'cook-fish' (पाकमत्स्य), <sup>249</sup> monitor lizards, cone snails (शम्बूक), 'poisonous snakes' (प्रचलाक), <sup>250</sup> geckos (गृहगोडिका), <sup>251</sup> four-footed insects and others
in their urine and faeces	lice (किटिप), 'flat insects' (पिचिटा), 'orange-dwellers' (कषायवासिक), 'pepper snakes' (सर्षपक), 'angry beetles' (तोटक), dung beetles (वर्चःकीट), and 'pot insects' (कौण्डिन्य)
in their semen	mice
in their stings (शूल)	scorpions, 'earth scorpions' (विश्वम्भर), wasps (वरकि), <sup>252</sup> fish, crabs (उच्चिटिङ्ग), and 'wing-scorpions' (पत्रवृश्चिक)
in their saliva, nails, urine, feces, blood, semen and fangs	spiders
in the bites of their mouths	flies, wasps (कणभ) and leeches
in the bites of their mouths, in their fangs, faces, †, farts, anuses and feces	'speckle-heads' (चित्रशीर्ष), 'lids' (शारव), 'bellied' (कुक्षित), 'wood-enemies' (दारुकारि), 'liquors' (मेदक), and 'darts' (शारिका).

248 Probably dittography from the previous word, monkey (वानर). But it is supported in both Nepalese witnesses, so it must go back to an earlier exemplar.

249 MS KL 699 separates the words पाक and मत्स्य with a *daṇḍa*, indicating that the scribe thought they were separate terms. Ḍalhaṇa thought this was a kind of fiery insect (5.3.5 (Su 1938: 567)).

250 *Arthaśāstra* 14.1.14, 23 (Olivelle 2013: 448), where it might also be a chameleon, but the latter are not venomous.

251 The scribe of MS NAK 5-333 noted in the margin that some of his sources read गल-गोडिका, which is the name of a snake known also in the *Carakasamhitā* and elsewhere in literature. Hemacandra's *Abhidhānacintāmaṇi* (4.364) mentions that गृहगोडिका and गृहगोलिका are synonyms (Rādhākāntā Deva 1876: 691a, *sub māṇikyā*).

252 वरटी is a wasp; वरकि in the Nepalese MSS may be an alternant of this word. Ḍalhaṇa on 5.3.5 (Su 1938: 568) remarked that some interpreted वरकिमत्स्य as two items, "wasp and fish," others as a single one, "wasp-fish."

---

Table 3: Passage 5, expressed in tabular format.

---

- 6 The enemies of the king pollute the waters, roads and foodstuffs in enemy territory. The experienced physician, who has learned how to purify things, should clean up those polluted things.
- 7 Polluted water is slimy and smells of tears.<sup>253</sup> It is covered with froth and covered with streaks. The frogs and fish die, the birds are crazed and, along with the wetland creatures, they wander about aimlessly.
- 8 Men, horses and elephants who swim in it experience vomiting, delusion, fever, swelling and sharp pains.<sup>254</sup> He should try to purify that polluted water, after curing their ailments.
- 9 And so, he should burn axlewood and garjan oil tree, as well as corky coral tree, with crimson trumpet-flower tree and small-flowered crape myrtle and weaver's beam tree, and with golden shower tree and white catch tree. Then he should sprinkle that ash, cold, on the waters.
- 10–11 And in the same way, putting a handful of the ash in a pot, one may also purify water that one wants.  
If any one of the limbs of cows, horses, elephants, men or women, touch a place on the ground that enemies have spoiled with poison, or a ford or rock or a flat surface, then it swells up and burns and its hair and nails fall out on that place.<sup>255</sup>
- 12 In that situation, he should grind up country sarsaparilla together with all the aromatic items, with alcoholic drinks. And then he should

<sup>253</sup> अस्त्र normally means “tears,” but rarely means “blood.”

<sup>254</sup> On the polysemy of elephant/snake (नाग), see Semeka-Pankratov 1979.

<sup>255</sup> “Swells up” translates an unclear reading that was probably श्यति, which may be an irregular form of √श्नु श्वा, श्वि (see Whitney 1885: 175–176).

- sprinkle the paths that need to be used with waters mixed with mud.<sup>256</sup>  
 And if there exists another path, he should go by that.<sup>257</sup>
- 13 When grasses and foods are polluted, people collapse, fall unconscious. And others vomit. They get loose stool (विज्ञेद) or they die. One should apply to them the therapy as described.
- 14–15 Alternatively, one should wipe various musical instruments with antidotes that remove poison and then play them. What is called the most excellent paste for a musical instrument is certain minerals<sup>258</sup> together with gold and sarsaparilla, and a portion of of nutgrass equal to that, together with the bile called “brown cow”.<sup>259</sup> By the sound of the musical instrument, even terrible poisons that may be present at that place are destroyed.
- 16 If there is smoke or wind that is affected by poison then birds are dazed and fall to the ground. People get coughs, colds, and head illnesses, and acute eye diseases.<sup>260</sup>
- 17 The smoke and air can be purified by putting into the air: lac, turmeric, Himalayan monkshood, and myrobalan, with Himalayan mayapple, costus, cardamom,<sup>261</sup> and peas, and beautyberry.

256 Our “alcoholic drinks” translates सुरा. For a discussion of this term at our period see McHugh 2021: 37–39 *et passim*.

257 Ḍalhaṇa on 5.3.12 (Su 1938: 568) cited a similar reading for the fourth pāda, but with a negative particle, “and if there is no other way, one should go by that.”

258 “Certain minerals” translates तारावितार, the unanimous reading of the Nepalese witnesses. But the meaning of this expression is not clear and may even refer to plants, like the other ingredients. The vulgate reads तारः सुतारः, which is also not very clear. However, Ḍalhaṇa on 5.3.14 (Su 1938: 568) identified these as “silver” and “mercury.” This is highly unlikely to be a correct understanding of the passage. Historically, mercury is not naturally present in the South Asian peninsula (Watt<sub>Dict</sub>: 5, 233) and the word पारद that Ḍalhaṇa used is probably a loan-word from Persian (sub *paranda*, *par-randa* Steingass 1930: 244b). Mercurial compounds are not reliably attested in South Asia until two or three centuries after the composition of the *Suśrutasaṃhitā* at the earliest. The currently available “śāstric” recension of the *Arthaśāstra* that is datable to 175–300 CE (Olivelle 2013: 29–31) does not mention mercury (*ibid*, 534). See further the study by Wujastyk (2013a: 17, *et passim*).

259 सुरेन्द्रगोप and कुरुविन्द are both uncertain, see index. Ḍalhaṇa’s opinion has been followed here, but it seems fair to say that all commentators were guessing.

260 The syntax of this verse is somewhat loose; the vulgate has regularized it, smoothing out the difficulties.

261

## The origin of poison

- 18 As it is told, the arrogant demon called Kaiṭabha created an obstacle for lotus-born Brahmā, at the very time that he was creating these creatures.<sup>262</sup>
- 19 Pitiless Fury took a body and burst out of the mouth of furious Brahmā's store of fiery energy.<sup>263</sup>
- 20 He burned that great, thundering, apocalyptic demon. Then, after bringing about the annihilation of that demon, his amazing fiery energy increased.
- 21 And so, there was a sinking down (*viṣāda*) of the Daityas. Observing that, it was named "poison (*viṣa*)" because of its ability to produce a "sinking down."
- 22 After that, the Lord created beings and subsequently made that fury enter into creatures still and moving.
- 23–24 Water that falls from the sky to the earth has no obvious flavour. The savour of the different places it lands on enters into it. In the same way, whatever substance a poison reaches, it establishes itself there and by its nature it takes on that substance's savour.<sup>264</sup>
- 25 Generally speaking, in a poison, all the qualities are really sharp. For this reason, every poison is known to irritate all of the humours.
- 26 Irritated and afflicted by the poison, they leave their natural functions. Poison does not get digested, so it blocks the breaths.<sup>265</sup>
- 27 Breathing is obstructed because its pathway is blocked by phlegm. Even if life continues, a man remains without consciousness.
- 28 Similar to semen, the poison of all angry snakes pervades the whole body, and goes to the limbs like semen because of being stirred up.
- 29 The fang of snakes is like a hook. When it gets there, it sticks inside

---

262 At this point, the text seems to make a new beginning to the topic of toxicology, as if starting a new chapter. It is notable that no reference is made here to the famous origin story of poison in the churning of the primal milk ocean; for discussion of the sources of this account, see Bedekar 1967. For reflections on this passage, connecting it with Rudra and the *Śatapathabrāhmaṇa*, see Mānasa-taraṅgiṇī 2019.

263 "Fury" is here anthropomorphised.

264 The scribal emendation in MS Kathmandu NAK 5-333 of नियच्छति to निगच्छति suggests that the scribe had more than one manuscript before him, one of them representing the reading of the vulgate recension.

265 Probably a reference to the five breaths. Ḍalhaṇa referred to winds (वात), but this does not seem correct since it is a reference to humours rather than breaths.



- them. That is why the unagitated poison of a snake is not released.
- 30 Sprinkling with very cold water is traditional for all cases of poisoning, because poison is declared to be extremely hot and sharp.<sup>266</sup>
- 31 Poison in insects is slow and not very hot, having a lot of wind and phlegm. So in cases of insect poisoning, sweating is not forbidden.
- 32cd In cases of a strike or a bite, the poison may, of its own accord, stay there.
- 33–35ab †Having come upon a body,<sup>267</sup> in the case of corpses that have been pierced by a poisoned arrow and bitten by a snake, someone who eats the poisoned flesh of a recent corpse out of carelessness will suffer with illness according to the poison, or even die. And therefore, the flesh of those should not be eaten when they have just died.
- It is admissible after three quarters of an hour, but without the poisoned arrow and the snakebite.
- 35.1 [At this point an Upajāti verse is added in the margin of K but is not fully legible; the version of the text in H is also incomplete and not fully comprehensible.]<sup>268</sup>
- 35.3 †When, in a wound, the poison that is connected with these qualities runs, ...Therefore, not everything that is damaged by poison and eaten causes death.
- <sup>269</sup>
- 35.1 [śloka in the MSS that aren't in the vulgate. The first line doesn't scan. Witness K adds a part of the start of this in the bottom margin. This material is repeated at 3.39.2 in MS H. ]
- 35cd & 36cd One designates a person who has diarrhoea of feces looking like soot

266 The verb पठ् “is declared, read aloud” here could possibly suggest that the author is working within a written, not oral, tradition.

267 “Having come upon” translates प्रस्थाप्य, which is hard to interpret unless it is a rare form connected with the sense “to see.”

268 *Mādhavanidāna*, 69.20–21 (MN<sub>1</sub>: 480) has verses that are directly parallel to this section:

*darvīkarāṇāṃ viṣam āśughāti sarvāṇi coṣṇe dviguṇībhavanti ajīrṇapittātapapīḍiteṣu bāleṣu vṛddheṣu bubhukṣiteṣu* 20

*kṣīṇakṣate mohini kuṣṭhayukte rūkṣe 'bale garbhavatīṣu cāpi*

*śāstrakṣate yasya na raktam eti rāḍyo latābhiś ca na saṁbhavanti* 21. This passage is the only occurrence in the ayurvedic text corpus that relates to the Nepalese version of the *Suśrutasamhitā* at this point. This suggests that Mādhavakara (fl. ca. 700, Bengal) knew and used the Nepalese version.

269 At this point, witness H inserts a marginal *Indravajrā* verse about diseases that afflict immoral women.

(गृहधूम) with wind,<sup>270</sup> and who vomits foam, as “someone who has drunk poison.”

- 37 Therefore, fire burns a heart that is pervaded by poison. For, having pervaded of its own accord the location of consciousness, it abides.<sup>271</sup>

### Patients beyond help

- 38 Patients who should not be accepted include: those who have been bitten under a [peepul tree](#), in a temple, in a cemetery, at an ant-hill, at dawn or dusk, at a crossroads, under Yama’s asterism,<sup>272</sup> under the Great Bear and people who have been bitten in lethal spots.

- 39 The poison of cobras kills rapidly. They all gain twice the intensity in those who have indigestion, those who are afflicted by bile or wind, old people, children and the hungry.

- 39.1 In those whose who are mad or intoxicated, or who suffer from anxiety, or who are unable to tolerate its various strengths, it becomes sharp. †...

39.2

- 3.40cd–3.41 One should reject someone overcome by poison who **does not bleed** when cut with a knife, where weals do not appear as a result of lashes,<sup>273</sup> or where there is no horripilation because of cold water, whose mouth is **crooked**, whose hair is falling out of his head. A man who is fatigued and those who stammer,<sup>274</sup>

- 3.42 one who has a black and red swelling at the site of the bite, with lockjaw, should be avoided. The same goes for someone who has a solid plug emerge from their mouth and someone who has blood running from above and below and

- 3.43ab The physician should also avoid a person who has fangs that have not fallen out quickly.<sup>275</sup>

270 गृहधूम is not a plant in this context *pace* MW: 362. See the discussion in note 178, p. 51.

271 Ḍalhaṇa said that someone who has died from drinking poison has a heart that cannot be burned because it is pervaded by poison (5.3.37 (Su 1938: 570)). But the sense of the Nepalese MSS is the opposite.

272 याम्ये means “southerly” but Ḍalhaṇa on 5.3.38 (Su 1938: 570) interpreted it as “in Yama’s direction” as “under the seventh asterism.”

273 Ḍalhaṇa, on 5.3.40 (Su 1938: 570), glossed लताभिस् “by means of whips,” as “when the body is struck by whips.”

274 nāsāvasāda & plural sakaṇṭhabhaṅgāḥ

275 The grammatical verb-form परिवर्ज्यते “he should avoid,” opt., 3rd, sg., is unusual. Renou (1940:10 ff) documented such forms from the *Aitareyabrāhmaṇa* onwards.

---

Oberlies (2003: ¶6.3.3 “Peculiar optative endings”, pp. 176–177) showed that the form is well-documented in *manuscripts* of the *Mahābhārata*, but has been edited out of the printed critical edition in almost all cases. Cf. also Kulikov 2006.

The concern about a patient who “has fangs that have not fallen out” is hard to understand. The word दंष्ट्रा does not mean human teeth (दन्त). We therefore prefer to interpret this as a patient where the fangs of a venomous creature remain in the bite-wound. This requires construing the expression as a *bahuvrīhi* compound: दंष्ट्रा or दंष्ट्र + अनिपातः.

## Kalpasthāna, adhyāya 4

### Introduction

The fourth chapter of the Kalpasthāna of the *Suśrutasaṃhitā* addresses the topic of snake bites and snake venom. Unusually for the Nepalese version of the *Suśrutasaṃhitā*, the discussion is framed as a question from Suśruta to the wise Dhanvantari. Suśruta's questions are about the number of snakes, how they are classified, the symptoms of their bites and the pulses or stages of poisoning experienced by a victim of snakebite and related topics. The taxonomy of snakes is presented in a presentational variant form in Figures 2 and 3.

### Literature

A brief survey of this chapter's contents and a detailed assessment of the existing research on it to 2002 was provided by Meulenbeld.<sup>276</sup> There also exists a herpetological literature from colonial India as well as more recent studies of snakes in the context of cultural and religious life.

The ophiological literature of the colonial period begins with Fayrer (1874), whose work included striking colour paintings of snakes.<sup>277</sup> Fayrer provided a biological taxonomy of snakes as well as chapters on mortality statistics during the nineteenth century, treatment and effects of poison, and experimental data. Ewart (1878) included descriptions of appearance and behaviour of poisonous snakes and sometimes their local names; he also distinguished his publication by fine colour illustrations.<sup>278</sup> Wall (1913: 75–124) provided a useful analysis of the medical effects of snake envenomation in India arranged by the varied symptomology of different snakes. He also discussed the difference between the symptoms of toxicity and fright (69–75) and also the difficulties arising out of uncertainty about the effects of snake-bite (124–126). Wall (1921) provided a wealth of detail of the snakes of Sri Lanka, including line drawings.

Doniger (2015) provided a good survey of snakes as protagonists in religious literature from the *Atharvaveda* through the epics, *Purāṇas* and

---

<sup>276</sup> HIML: IA, 292–294.

<sup>277</sup> The first edition of Fayrer's work was published two years earlier, in 1872.

<sup>278</sup> Calling his work a supplement to Fayrer (1874), but also being cited by Fayrer, Ewart 1878 evidently also collected local knowledge from his "snake-man" (p. 22)

Buddhist literature. Slouber (2016: 31–33 *et passim*) discussed the *Suśruta-saṃhitā*'s *Kalpasthāna* as a precursor and influence on later Tantric traditions of snake-bite interpretation and therapy. Semeka-Pankratov (1979) traced semiotics of the term *nāga* through Vedic, Pali and Sanskrit literature.

A discussion of this chapter specifically in the light of the Nepalese manuscripts was published by Harimoto.<sup>279</sup> After a close comparative reading of lists of poisonous snakes, Harimoto concluded that, “the Nepalese version is internally consistent while the [vulgate] editions are not.” Harimoto showed how the vulgate editions had been adjusted textually to smooth over inconsistencies, and gave insights into these editorial processes.<sup>280</sup>

## Translation

- 1 Now we shall explain the procedure (कल्प) about what should be known concerning the venom in those who have been bitten by snakes.<sup>281</sup>
- 3 Suśruta, grasping his feet, questions the wise Dhanvantari, the expert in all the sciences.
- 4 “My Lord, please speak about the number of snakes, and their divisions, the symptoms of someone who has been bitten, and the knowledge about the successive shocks (वेग) of poisoning”.<sup>282</sup>
- 5 On hearing his query, that distinguished physician spoke.  
“The venerable snakes such as Vāsukī and Takṣaka are uncountable.
- 6–9ab “They are snake-lords who support the earth, as bright as the ritual fire, ceaselessly roaring, raining and scorching. They hold up the earth, with its oceans, mountains and continents. If they are angered, they can destroy the whole world with a breath and a look. Honour to them. They have no role here in medicine.

---

<sup>279</sup> Harimoto 2011: 101–104.

<sup>280</sup> The two editions that Harimoto noted, Su 1938 and Su 1889, present identical texts.

<sup>281</sup> The *Sarvāṅgasundarī*, commenting on 1.16.17 (Ah 1939: 246), glossed कल्प as प्रयोग.

<sup>282</sup> The expression “successive shocks” translates वेग, which in other contexts may mean “(natural) urge.” Here, it is rather the discrete stages or phases of physiological reaction to envenomation. Cf. the symptoms of cobra poisoning described by Wall (1913: 80).

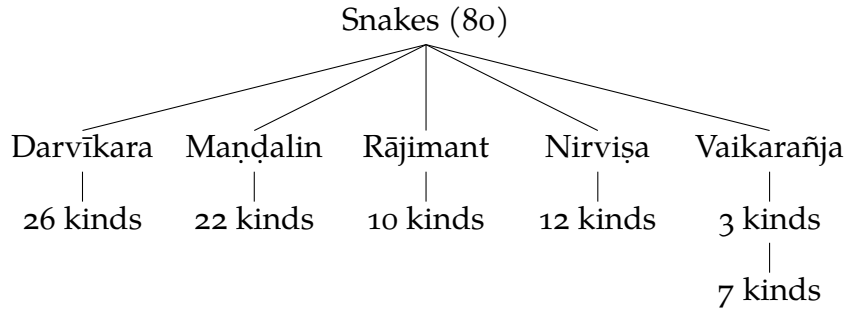


Figure 2: The taxonomy of snakes in the vulgate, 5.4.9–13ab (Su 1938: 571).

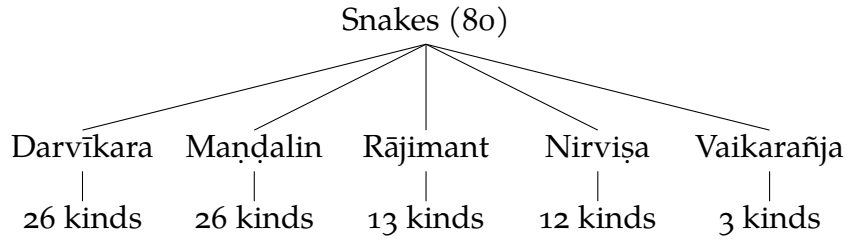


Figure 3: The taxonomy of snakes in the Nepalese version.

“The ones that I shall enumerate in due order are those mundane ones with poison in their fangs who bite humans.”<sup>283</sup>

- 9cd–10 “There are eighty kinds of snakes and they are divided in five ways: Darvīkaras, Maṇḍalins, Rājimats, and Nirviṣas. And Vaikarañjas that are traditionally of three kinds.”<sup>284</sup>
- 11 “Of those, there are twenty and six hooded snakes, and the same number of Maṇḍalins are known. There are thirteen Rājīmants.”<sup>285</sup>
- 12 “There are said to be twelve Nirviṣas and, according to tradition, three Vaikarañjas.

<sup>283</sup> The next few verses are discussed in detail by Harimoto (2011: 101–104), who shows that in the taxonomy of snakes, the Nepalese version of the *Suśrutasamhitā* has greater internal coherence than the vulgate recension.

<sup>284</sup> Harimoto (2011) translated these names as “hooded,” “spotted,” “striped,” “harmless,” and “hybrid.” Figure 2 shows the taxonomy described in the vulgate text; Figure 3 shows the different and more logical division of the Nepalese version of the *Suśrutasamhitā*.

<sup>285</sup> The phrasing of this śloka is awkward.

- 13–14ef “If they are trodden on, ill-natured or provoked or even just looking for food, those very angry snakes will bite. And that is said to happen in three ways: serpented (सर्पित), torn (दरित) and thirdly without venom (निर्विष). Some experts on this want to add “hurt by the snake’s body”.<sup>286</sup>
- 15–16 “The physician can recognize the following as “ophidian (सर्पित)”: Where a rearing snake makes one, two or more puncture-marks of its teeth, when they are deep and without much blood,<sup>287</sup> accompanied by a little ring of spots (चुच्चुमालक),<sup>288</sup> lead to degeneration, and are close together and swollen.
- 17 Where there are streaks with blood, whether it be blue or white, the physician should recognize that to be “torn (दरित),” having a small amount of venom.
- 18

<sup>286</sup> This might refer to constriction. The phrase reads like a commentarial addition rather than the main text of the *Suśrutasaṃhitā*.

<sup>287</sup> The word उद्धृत “aroused” was glossed by Ḍalhaṇa at 5.4.15 (Su 1938: 571) as उन्मोद्य, a word not found as such in standard dictionaries (MW; KEWA; AyMahā; Apte). Semantic considerations suggest that the word is not related to √muṭ “break” or mūṭa/mūṭa “woven basket.” Perhaps it is related to the Tamil மோதி (mōṭi), whose meanings include “arrogance, grandeur, display” (DED<sub>2</sub>: #5133) or to faintly-documented forms like moṭyate “is twisted” (CDIAL: #10186). Ḍalhaṇa’s उन्मोद्य may thus mean “twisting up” or “making an arrogant display.”

Note that पद “puncture-mark” (more literally, “footprint”) is being used in the same sense as in 1.13.19 (Su 1938: 57) when describing the marks on the body where a knife scarifies the skin before leeching. See footnote 67.

<sup>288</sup> The usual dictionary lexeme is चच्चु, not चुच्चु as in the Nepalese witnesses. We translate “spots” following Ḍalhaṇa and Gayadāsa on 5.4.15 (Su 1938: 571), where they described a group of spots or swellings at the site of the bite. On the history of the word मालक, see Kieffer-Pülz 1996.

## Uttaratantra, adhyāya 16 (17 in the vulgate)

### Literature

Survey of this chapter and the existing research on it to 2002: [HIML: IA](#), 305–306.

History of couching in India: Scott 1817; Breton 1826; Jack 1884; Hendley 1895; Elliot 1918; Śāstrī 1940; V. Deshpande 1999; 2000; Wujastyk 2019; Leffler et al. 2020, Wujastyk 2003b: 65–67.

### Translation

- 1 Now I shall explain the counteraction (प्रतिषेध) of diseases located in the pupil (दृष्टि).
- 2 There are three curable (साध्य), three incurable (असाध्य), and six mitigatable (याप्य) diseases located in peoples eyes. Among these, three are curable (साध्य). Amongst these three, the remedy (प्रतीकार) has been stated for the one called “seeing smoke (धूमदर्शिन)”.<sup>289</sup>
- 3–5ab When the eye is inflamed (विदग्ध) by bile and when it is inflamed by phlegm, one should apply the method for removing bile and phlegm, using nasal medicines (नस्य), irrigation (सेक), application of collyrium (अञ्जन), liniment (आलेप), and medicines cooked in a crucible (पुटपाक), together with an eyewash (तर्पण),<sup>290</sup> but not cutting with a blade (शस्त्र-क्षत).<sup>291</sup>

One should drink ghee (सर्पिस) prepared with the three fruits (त्रिफला) and in the first [case where the problem is bile], and prepared with turpeth (त्रैवृत) in the latter [case, of phlegm].

And ghee prepared with tilvaka (तैल्वक) is wholesome in both cases, or else aged ghee on its own.
- 5cd–7ab In a collyrium, these four compounds (योग) are beneficial in both cases:

<sup>289</sup> This disease and its cure are described earlier (SS.6.7.39 and SS.6.10.16 ([Su 1938](#): 609 and 614) respectively). The latter part of this verse is hard to construe and the text here may have been altered at an early period.

<sup>290</sup> These therapies are described in SS.6.18 ([Su 1938](#): 633–640).

<sup>291</sup> Dalhaṇa interpreted this as blood-letting (सिरावेध), which is discussed in SS.1.14 ([Su 1938](#)).



- ochre (गैरिक), Sind salt (सैन्धव), long pepper (कृष्णा) and the black soot (मषी) from cow's teeth;
  - Cow's flesh (गोमांस), black pepper (मरिच), siris (शिरीष) and red arsenic (मनःशिला);
  - stalk (वृन्त) from a wood apple (कपित्थ) with honey (मधु);<sup>292</sup>
  - or the the fruits of the velvet bean (स्वयंगुप्त).
- 8 The physician should make a collyrium with ground up metal (कुप्यक),<sup>293</sup> Asoka tree (अशोक), Sal tree (शाला), mango (अम्र), beautyberry (प्रियंगु), Indian lotus (नलिन), blue lotus (उत्पल), together with hareṇu (हरेणु), emblic (आमलक), myrobalan (पथ्या), long pepper (पिप्पलि). It should be combined with ghee and honey (क्षौद्र).
- 9–10 Also, when bile and phlegm have developed, the physician should apply hareṇu (हरेणु) with the expressed juice (स्वरस) of the flowers from mango (अम्र) and Jambu (जम्बू) trees.  
Then this collyrium, matured (विपक्व) with ghee and honey (क्षौद्र), should then be applied.
- 10–11ab Filaments (किञ्जल्क) of Indian lotus (नलिन) and blue lotus (उत्पल), with ochre (गैरिक), and the juice of cow-dung (गोशकृत) are a collyrium in the form of a pill (गुडिका). This is good for both day and night blindness.
- 11cd–12ab Elixir-salve (रसाञ्जन), honey (क्षौद्र), ghee, scambrerry (तालीश), together with gold and ochre, with the juice of cow-dung (गोशकृत) are for an eye afflicted with bile.
- 12cd–13 Alternatively, wise physician should first grind together elixir-salve (शीत) and stibnite (सौवीरक), infused (भावित) with the blood of birds and animals (रस).<sup>294</sup> Then he mixes it with the bile of a tortoise or with extract of rohu carp (रौहित). It should always be used with powdered collyrium to quell the bile.
- 14 Thus, a collyrium of white teak (काश्मरी) flowers, liquorice (मधुक), tree turmeric (दावी), lodh tree (लोध्र) and elixir salve (रसाञ्जन) is always good as a collyrium in this case.

292 Wood apple (कपित्थ) in this verse is ablative singular or accusative plural, neither of which construe obviously.

293 A metal other than gold or silver, according to V. Joṣī and N. H. Joṣī (*AyMahā*: 1.217). Perhaps lead, which is used in making contemporary collyrium.

294 This was Ḍalhaṇa's preferred interpretation of *rasa* "juice" in this context. He also noted that some take elixir-salve (शीत) to be camphor.

- 15 Alternatively, for those who cannot see during the day, this pill (गुडिका), with sandalwood, is recommended: salt (नदीज), conch shell and the three spices, collyrium, realgar (मनःशिला), the two turmeric (रजन)<sup>295</sup> and liver extract (यकृद्रस).<sup>296</sup>
- 16 One should grind up kohl (स्रोतोज),<sup>297</sup> and Sind salt (सैन्धव) and long pepper and also hareṇu (हरेणु). Such wicks with goats urine are good in a collyrium for night blindness (क्षणदान्ध्य).
- 17–18ab Alternatively, in such a case, grind together Indian sarsaparilla (कालानुसारिव)<sup>298</sup> long pepper, dried ginger (नागर) and honey, the leaf of the scramberry (तालीशपत्र), the two turmeric (रजन), a conch shell and liver extract (यकृद्रस). Then shade-dried wicks take away illness (रुज).
- 18cd–19ab Wicks made of red arsenic (मनःशिला), chebulic myrobalan (अभया), the three spices (व्योष). Indian sarsaparilla (सारिव), cuttlefish bone (समुद्रफेन), combined with goat's milk are good.
- 19cd–21ab One should cook a honey collyrium (क्षौद्राञ्जन) either in the juices of cow's urine (गोमूत्र), and bile, spirits (मदिरा), liver (यकृत), and emblic (धत्री) or else in the juice of the liver (यकृत) of something different, or else with the extract of the three fruits (त्रिफला). One of these should be mixed with cow urine, ghee and cuttle fish (अर्णवमल)<sup>299</sup> with long pepper, honey and box myrtle (कङ्कल). It is placed in sea salt and stored in a bamboo tube.
- 21cd–22 One should cook the liver of a sheep, the ghee of a goat, with long pepper and Sindh salt, honey and the juice of emblics. Then one should store it properly in a catechu box. Prepared thus, the honey collyrium is good.
- 23 Alternatively, a collyrium that is hareṇu (हरेणु) mixed with long pepper

295 Turmeric (*Curcuma longa* Linn.) and tree turmeric (*Berberis aristata* DC). The term *rajana* is unusual; the normal term is *rajanī*. *Rajana* occurs in *Suśrutaniḥṣaṇṭu* 158 in the sense of *Ferula asafoetida*, Linn.

296 This verse appears as no. 27 in the vulgate.

297 Glossed by Ḍalhaṇa as a kind of collyrium. Cf. **nadk-1954** and P. V. Sharma 1982: 197–198

298 There are two forms of *sārivā* mentioned widely in Āyurvedic literature, the white and the black. Ideas on the identity of the black form are particularly fluid. See Sivarajan and Balachandran (ADPS: 434–438) for a clear discussion.

299 At SS 6.12.31, Ḍalhaṇa glossed *aṇṇavamala* as cuttlefish bone (समुद्रफेन). It may be worth considering whether the unusual term *aṇṇavamala* “ocean-filth” might refer to ambergris.

- (मागधी), the bone and the marrow of a goat, cardamom (एला) and liver, together with liver extract, is good for eyes afflicted by phlegm.<sup>300</sup>
- 24 Over a fire, one should cook the liver (यकृत) of a monitor lizard (गोधा) prepared with entrails (अन्न) and stuffed with long pepper (मागधि). As is well known, liver (यकृत) which is used (निषेवित) with collyrium certainly destroys night blindness.
- 25 After preparing both a spleen (स्लीहन) and a liver on a spit, one should eat them both with ghee and oil.<sup>301</sup>
- 25cd–26ab As is well known, there are six diseases that can be alleviated (याप्य); in those cases (तत्र) one should release the blood by bloodletting. And for the sake of wellbeing one should also purge using aged ghee combined (उपहित) with purgative aids (अङ्ग).
- 26cd–27 When an eye-disease is caused by wind (पवनोद्भव) they say that castor oil (पञ्चाङ्गुलतैल) mixed with milk is good.<sup>302</sup> In the case of diseases of blood (शोनित) and bile (पित्त), one should drink ghee with the three fruits; it is particularly cleansing.<sup>303</sup> In the case of phlegm, a purgative by means of turpeth (त्रिवृत्) is recommended. In the case of all three humours, sandal (सुगन्धि) in oil is prepared with it (turpeth).<sup>304</sup>
- 28 In cases of partial blindness (तिमिर), aged ghee is recommended. It is good if it is kept in an iron vessel.
- 28cd–29ab One should know that ghee with the three mylobalans is always good,

300 On the identities of *elā* and *hareṇu*, Watt ([WattComm](#): 511 ff) described the former as “true” or “lesser” or “Malabar” cardamom, *Elettaria cardamomum*, Maton & White. In contrast, the “greater” cardamom is *Amomum subulatum* (that Watt discussed on p. 65) that is commonly used as an inferior substitute for *E. cardamomum*. Singh and Chuneekar ([GVDB](#): 467 f) provided an interesting discussion of *hareṇu*, noting that the term refers to two substances, first the *satīna* pulse (*Pisum sativum*, Linn.), and second an unknown fruit such as perhaps a *Vitex*. They noted, “None of the text commentators have attempted to disclose the nature of its source plant,” although Ḍalhaṇa described it as aromatic and identical to *reṇukā* (SS.ci.2.75).

301 We read the locative as if an instrumental; if the locative were intended then it would be the spit that would be coated with oil and ghee.

302 Ḍalhaṇa said that the unexpressed topic of this recipe is partial blindness (तिमिर).

303 Blood-bile (शोनित-पित्त, रक्त-पित्त) is a widely-recognized disease in ayurveda, but the compound here is definitely dual, which rules out that interpretation. One would expect blood-bile because the previous verse

304 The expression “the fragrant one in oil (तैलसुगन्धि)” is puzzling. The word *sugandhi* has different referents in the *Nighaṇṭu* literature but is not common as a noun in the extant literature. “Sandal” is just one of its possible meanings.

- and it is made with what is called periploca of the woods (मेषविषाण).  
 A man who is suffering from partial blindness should lick the finely-ground three fruits mixed with ghee off his hand (सपाण).<sup>305</sup>
- 29cd Alternatively, someone afflicted by phlegm should apply them (the three fruits) mixed with oil and steeped (प्रगाढ) in honey.
- 30 The very best oil, well-cooked with a decoction of cow-dung, is good in cases of partial blindness, taken as an errhine.  
 In cases caused by bile, ghee by itself is good, as is oil when it arises from wind and blood.
- 31 And in the case of wind one should apply turpeth (त्रिवृत) based on strong mallow (अतिबला), and country mallow (बला) in an errhine (नस्य).<sup>306</sup>  
 Ghee which has been extracted from milk cooked with the meat of aquatic creatures and those from marshlands should be prescribed.
- 32 †An enclosed roasting (पुटाख्य) with Sindh salt and the product of the meat of a carnivore (क्रव्यभुज) and a deer (एण), is combined with honey and ghee.<sup>307</sup>  
 Fat (वसा) from a horse, a vulture, a snake, and a cock (ताम्रचूड), combined with mahua (मधूक) is always good in a collyrium.†<sup>308</sup>
- 33 Having prepared (निषेवित) a collyrium made of kohl (स्रोतस) and gradu-

305 “Off his hand” translates the adverbial *sapāṇam*, an unusual word. Ḍalhaṇa reproduced a reading close to the Nepalese recension but says that Jejjāṭa rejects it and so he also does (Su 1938: 627).

306 “Based on” translates *-āśrita* “depending on” which does not construe easily here. The vulgate has *śṛta* “cooked” which makes easier sense but is not supported by the Nepalese MSS.

307 Ḍalhaṇa noted (Su 1938: 628a) that *puṭāhvaya* (see verse 35 below) is a synonym for *puṭapāka*, and that the process is described in the *Kriyākālpa* chapter, i.e., SS.6.18.33–38 (Su 1938: 635). On the *puṭa* process in the *Suśrutasaṃhitā*, which is earlier and different than that of *rasaśāstra* literature, see the discussion by Wujastyk (2019: 83):

The term ‘enclosed roasting’ (*puṭapāka*) does occur in the *Suśrutasaṃhitā* in the context of eye treatments, but designates a method of obtaining juice from substances by wrapping them in leaves pasted with earth and cooking the bolus on charcoal to finally extract a juice.

308 This verse contain irresolvable difficulties. There are no significant variants in the Nepalese MS transmission, but the text is ungrammatical. The vulgate reads substantially differently but we have nevertheless made some emendations in line with it and read the verse as two sentences.

- ally combine it with juices (रस), milk and ghee.<sup>309</sup>  
 For thirty days, this collyrium is put in the mouth of a black snake that is covered with kuśa grass (कुश).
- 34 Next, a collyrium that is milk containing long pepper (मागधी), lye (क्षारक) and Sindh salt (सैन्धव) that has been repeatedly prepared with the mouth of a black snake, is good in the case of bloodshot blindness (रागिन् तिमिर).<sup>310</sup>
- 35 They say that ghee may be produced from that and combined with sweet herbs is good as an errhine for eye-diseases caused by bile. And here, an eyewash (तर्पण) is good that is a combination that is the flesh of wild animals taken hot (पुटाह्वय).<sup>311</sup>
- 36 And realgar (मनःशिला) mixed with elixir salve (रसाञ्जन) and honey is a liquid collyrium (द्रवाञ्जन) which is, in this case, combined with mahua (मधूक).<sup>312</sup>  
 Alternatively, experts on this say that finely ground blue vitriol (तुत्थ) extracted from a gold mine is the “same collyrium (समाञ्जन)”.<sup>313</sup>
- 37 Conch mixed with equal parts of sheep’s horn and stibnite (अञ्जन) removes the impurity of the glassy opacity (काच) because of the application of collyrium (अञ्जन).<sup>314</sup>  
 The extracts (रस) produced from aflame of the forest (पलाश), Rohīta tree (रोहीत),<sup>315</sup> mahua (मधूक), ground with the supernatant layer (अग्र) of the spirits (मदिर) is applied.

309 Ḍalhaṇa specified that the juices are meat soups of various animals (Su 1938: 628).

310 Ḍalhaṇa described this blindness as a type of *kāca* disease caused by wind (Su 1938: 628). The expression “bloodshot blindness” is an attempt to capture the idea of a blind eye that is dyed or coloured (not colour-blindness). This verse is quite different from the vulgate and also syntactically challenging.

311 The expression taken hot (पुटाह्वय) is a guess.

312 The expression liquid collyrium (द्रवाञ्जन) is only known from Ḍalhaṇa’s comments on 6.17.11ab (Su 1938: 626). The recipe in the present collyrium is different from that discussed by Ḍalhaṇa.

313 On *tuttha*, which may also be identified with zinc oxide or as crushed sea-urchin shells, see Falk (1991: 112 ff.); zinc oxide is a component of skin-balms but is not recommended for application in the eyes themselves. The expression “same collyrium (समाञ्जन)” is a hapax legomenon glossed inexplicably by Ḍalhaṇa as “a collyrium with an equal amount of fermented barley” (*tulyasauvīrāñjana*) (Su 1938: 628).

314 The ablative “from collyrium” is hard to construe, but Ḍalhaṇa used this term and phrase in his commentary on 6.17.41ab (Su 1938: 629).

315 Probably *Soyimida febrifuga* A. Juss.

- 38 Alternatively, one should cook an errhine with cuscus grass (उशीर), lodh tree (लोध्र), the three fruits (त्रिफला), beauty berry (प्रियङ्गु) to pacify eye diseases caused by phlegm.<sup>316</sup> One should apply smoke of the bark of embelia (विदङ्ग), velvet leaf (पाथा), white siris (किनिही), and desert date (इङ्गुदी); and cuscus grass (उशीर) alone.
- 39 A ghee that is cooked (भावित) from a decoction of a non-flowering tree (वनस्पति)<sup>317</sup> as well as turmeric (हरिद्रा) and spikenard (नलद) is good in a eyewash (तर्पण). Alternatively, one may have an enclosed roasting (पुटपाक) done with arid-land animals (जाङ्गल)<sup>318</sup> and a plentiful amount of long pepper (मागध), Sindh salt and honey.
- 40 A treatment (क्रिया) with realgar (मनःशिला), the three spices, conch, honey, along with Sindh salt, green vitriol (कासीस) and elixir salve (रसाञ्जन).<sup>319</sup> They say that an elixir salve (रसाञ्जन) combined with myrobalans, treacle and dried ginger is good.<sup>320</sup>
- 41 Alternatively, a collyrium that has been prepared many times in the eight types of urine<sup>321</sup> is put into water with the three fruits. Having stored it in the mouth of a nocturnal creature (निशाचर)<sup>322</sup> one should place it in a conch (सलिलोत्थित) for two months.<sup>323</sup>
- 42 One should apply that collyrium together with the flowers of mahua (मधूक) and horseradish tree (शिग्रु) when [the disease] is caused by all [the humours].

316 Ḍalhaṇa invoked a general rule (परिभाषा) to indicate that this mixture should be cooked with sesame oil.

317 These are fig trees. The *Sauśrutaniḡhaṇṭu* (252) specifies the Uḍumbara. Cf. the classification in CS.1.1.71–72, 1.8, *et passim*.

318 On this term, see SS.1.35.42 (*Su* 1938:157) and the discussion by Zimmermann (1999: 25–31).

319 Ḍalhaṇa glossed treatment (क्रिया) specifically as inspissation (रसक्रिया) (*Su* 1938: 629).

320 We emend *hite* to *hitam*, against the MSS.

321 See SS *mūtravarga*

322 Ḍalhaṇa glossed nocturnal creature (निशाचर) as “vulture,” although elsewhere in the *Suśrutasaṃhitā* it is more commonly interpreted as a spirit or demon. In the present context, following verses 33 and 34, it is probably a snake.

323 We interpret “water-born (सलिलोत्थित)” as “conch” in line with *jalodbhava*, but the term is uncertain.

- But alternatively, all treatments apply when blood is the cause. The procedure that removes bile is good when there is blue dot cataract (म्लायिन).<sup>324</sup>
- 43 For one who has a humour, the physician should consider the rule in all humoral cases and then smear the ointment on the face.<sup>325</sup>  
The treatment that is good for removing watery eye (स्यन्द) should be properly applied in all these humoral cases, according to the individual.<sup>326</sup>
- 44 The physician should not employ substances in errhines etc., when the humours intensify, and also when disease spreads. And further, in the *Kalpa*, there is a good deal more said about collyriums, and that should be considered and then applied.<sup>327</sup>
- 45 Someone who uses matured ghee, the three fruits, wild asparagus (शतावरी), as well as mung beans (मुद्ग), emblic and barley has nothing to fear from cases of severe blindness (तिमिर).
- 46 Blindness is dispelled by milk prepared with wild asparagus or in emblics, or again cooked barley (यवौदन) followed by the water of three fruits with plenty of ghee.
- 47 When there is bloodshot blindness (रागिणि तिमिरे), the wise physician should not cut a vein. A humour injured (उत्पीडित) by the instrument rapidly destroys vision.
- 48 Non-bloodshot blindness (अरग तिमिर) in the first layer (पटल) is treatable. And bloodshot blindness (रागिणि तिमिरे) in the second layer, with difficulty. And in the third layer it can be mitigated (याप्य).<sup>328</sup>
- 49 I shall explain the therapy for success when there is a cataract (लिङ्गनाश) caused by phlegm. It may be white, like a full moon, an umbrella, a pearl (मुक्ता) or a spiral (आवर्त).
- 50 Or it may be uneven, thin in the middle, streaked or have excessive

324 The vulgate follows Ḍalhaṇa in glossing *mlāyin* as *parimlāya*. The description of this condition at SS.6.7.27–28 appears to refer to “blue dot” or “cerulean” cataract. √*mlai* derivatives can mean “dark” or “black.”), which is normally a different ailment.

325 The vulgate edition omits part of this verse (ab) combining earlier and later passages.

326 The term watery eye (स्यन्द) refers to the specific disease *abhiṣyanda*. See SS.6.6.5, 1.46.51, etc.

327 Ḍalhaṇa noted that *Kalpa* means the Uttaratantra adhyāya 18 (Su 1938: 633 ff).

328 Although the text says with difficulty (कृच्छ्र), the implication is that it is untreatable (असाध्य) (cf. 6.17.2 (Su 1938: 625) above). The three categories, treatable, untreatable and possibly mitigated are standard categories of triage.



- shine (प्रभ). A humour (दोष) in the pupil may be characterized as being painful or having blood.<sup>329</sup>
- 51–52 At a time that is neither too hot or too cold, the patient who has been oiled and sweated is restrained and seated, looking symmetrically at his own nose.
- The wise physician should separate (मुक्त्वा) two white sections from the black part (कृष्ण) and from the outer corner of the eye (अपाङ्ग). Then he should press (पीड्-) properly into the eye,<sup>330</sup> at the naturally-occurring (दैवकृते) opening (छिद्र) with a probe (शलाका) made of copper or iron, with a tip like a barley-corn, held by a steady hand with the middle finger, forefinger and thumb, the left one with the right hand and the other one contrariwise.
- When the piercing is done properly, there is the issue of a drop of liquid and a sound.<sup>331</sup>
- 55 The expert should moisten the exact place of piercing with a woman's breast-milk. Then he should scratch the circuit of the pupil (दृष्टिमण्डल) with the tip of the probe (शलाका).<sup>332</sup>
- 56 Without injuring, gently pushing the phlegm in the circuit of the pupil against the nose, he should remove it by means of sniffing (उच्छिञ्जन).<sup>333</sup>
- 57 Whether the humour is solid (स्त्यान) or liquid (चल), one should apply sweating to the eye externally, with leaves (भङ्ग) that remove wind, after fixing the needle (सूची) properly.<sup>334</sup>
- 58 But if the humour cannot be destroyed or if it comes back, one should

329 In the vulgate, and in parallel passages in the AS, the reading "it may be (भवेत्)" is replaced with the negative "if, then not (न चेद्)" (cf. utt.17.1–3 (As 1980: 712)). These characteristics are then read as conditions that preclude surgery; for the Nepalese recension, they are simply descriptions of the appearance of a cataract.

330 We understand the locative *nayane* as the place of pressing; other interpreters take it as an accusative dual. The idea is that the eye is held steady by the surgeon.

331 Ḍalhaṇa remarked on 6.17.61ab (Su 1938: 630) that when the piercing is not correctly done, blood issues and there is no sound.

332 The anatomy of the eye is described in 6.1.14–16 (Su 1938: 596). The disks or *maṇḍalas* are the circuits or disks of the eye.

333 Ḍalhaṇa described sniffing (उच्छिञ्जन) at 6.19.8 (Su 1938: 641), clearly intending inward sniffing.

334 We interpret *bhaṅga* as leaves, following the usage elsewhere in this sthāna 4.32.9, 6.11.5 (Su 1938: 513, 614) where *bhaṅga* means shoots (पल्लव). A similar procedure is described at 6.17.25 (As 1980: 716a), where sweating of the eye is done by means of the leaves of a castor-oil plant.



- apply the piercing (व्यध) once again, with appropriate oils and so on.
- 59 Now the pupil (दृष्टि) shines like the sun (हरि) in a cloudless sky; then, when objects become visible, one may slowly remove the probe (शलाका).<sup>335</sup>
- 60 Having smeared ghee on the eye, one should cover it with a bandage. Then, he must lie down supine in a house free from disturbances.<sup>336</sup>
- 61 At that time, he should not belch, cough, sneeze, spit or shiver. Afterwards there should be restrictions (यन्त्रणा) as in the case of someone who has drunk oil.<sup>337</sup>
- 62 Every three days one should wash it with decoctions (कषाय) that remove wind. After three days, one should sweat the eye externally because of the danger of wind.
- 63 Having restrained himself in this way for ten days he should thereafter take a beneficial regimen (कर्म) that clears the pupil (दृष्टि) and also he should take light food in measure.

### [Complications]

- 64 When there is a misshapen eyeball (विलोचन), the eye may fill because of the release of blood from a vein.<sup>338</sup>  
A hard probe leads to shooting pain (शूल), a thin to unsteadiness of the humours (दोषपरिप्लव),<sup>339</sup>
- 65 a thick-tipped probe leads to a large wound, and a sharp one may cause

335 There are many problems with the MS readings and interpretation of this half-verse. We have inferred “sky” and emended from “free from the point (अग्रमुक्त)” to “free from clouds (अभ्रमुक्त)”. The latter meaning is supported (in different words) by the vulgate and occurs elsewhere in Sanskrit literature.

336 Ḍalhaṇa explained disturbances specifically as dust, smoke, drafts and sunlight 6.17.67 (Su 1938: 631a).

337 Ḍalhaṇa glossed “restrictions (यन्त्रणा)” as having a controlled diet and the other restrictions appropriate to someone who is taking oil as a preparation before further therapy (6.17.68 (Su 1938: 631)). These restrictions are also described at 6.18.28 (Su 1938: 635) and 1.16.25cd (Ah 1939: 249).

338 The condition of “misshapen eye” is referred to briefly in 6.61.9 (Su 1938: 800), where Ḍalhaṇa glossed it as “bent brow and eye (वक्रभ्रूनेत्र).” The vulgate’s reading of “with blood (शोनितेन)” is easier to construe.

339 There is a medically significant difference here from the vulgate, which reads “a rough (खर) probe” not a “thin” probe.

harm in many ways; a very irregular one may cause a discharge of water, a rigid (स्थिरा) one brings about a loss of function (क्रियासङ्ग).<sup>340</sup>  
 66 Therefore, one should make a good probe that is free from these defects.

### [Characteristics of the probe]

The probe should be eight finger-breadths long and in the middle it is wrapped with thread and is as thick as a thumb joint. It is shaped like a bud at both ends (वक्र).  
 67 A commendable probe should be made of silver, iron or gold (शातकुम्भी).<sup>341</sup>

### [Complications]

Redness, swelling, lumps, driness (चोष), bubbling (बुद्बुद),<sup>342</sup> pigs' eye (सूकराक्षिता),<sup>343</sup> irritation (अधिमन्थ), etc. and other diseases arise from faults in the piercing,  
 69–70 or even from bad behaviour. One should treat them each accordingly. Listen to me once again about compounds for painful red eyes.  
 Red chalk (गैरिकः), Indian sarsaparilla (शारिवा), panic grass (दूर्वा), and ghee ground with barley.  
 71 This face ointment is to be used for quelling pain and redness. Or else it may be taken combined with the juice of citron (मातुलुङ्ग) with sesame gently fried, mixed with white mustard (सिद्धार्थक).<sup>344</sup> This is immediately beneficial when someone is looking for relief.  
 72 A paste with Holostemma (पयस्या),<sup>345</sup> Indian sarsaparilla (शारिवा), cas-

340 This translation of loss of function (क्रियासङ्ग) is given on the basis of Ḍalhaṇa's gloss of *kriyāsaṅgakarī* at 3.8.19 (Su 1938: 382) as "causing the destruction of actions such as moving (गमनादिक्रियाविनाशकरी)."

341 The vulgate reads "copper (ताम्र)" in place of "silver."

342 Ḍalhaṇa glossed "bubbling (बुद्बुद)" as "prolapse (मांसनिर्गम) that looks like bubbles."

343 The expression "pigs' eye" appears to be a *hapax*. It was glossed as "downward vision (अधोदृष्टित्व)" by Ḍalhaṇa.

344 On the adverbial use of gently (मृदु), see Gombrich 1979.

345 The identity of *payasyā* is debated (GVDB: 538), and was already in doubt at the time of Ḍalhaṇa but likely candidates may be those suggested by Ḍalhaṇa, who suggests either *arkapuṣpī* or *kṣīrakākoli*, that may be *Holostemma adakodien* Schult. and *Leptadenia reticulata* (Retz.) Wight & Arn. (ADPS: 195-196). The *Sauśrutaniḥṣaṇṭu* glosses it as

- sia cinnamon (पत्र), Indian madder (मज्झिष्ठा), and liquorice (मधुकैर) stirred with goat's milk, pleasantly warmed, is said to be healthy.<sup>346</sup>
- 73 Alternatively, it can be made in this way with Himalayan cedar, Himalayan cherry (पद्मक) and dried ginger. Or, in the same way, with grapes, liquorice and the Lodh tree mixed with Sindh salt.
- 74 Alternatively, goats' milk with the Lodh tree, Sindh salt, red grapes and liquorice, cooked, should be used in irrigation because it removes pain and redness.
- 75 Having cooked it with liquorice, water-lily, and costus, mixed with grapes (द्राक्षा), lac (लाक्षा), white sugar (सिता), with wild asparagus, Hare Foot Uraria (पृथक्पर्णी),<sup>347</sup> nutgrass (मुस्ता), liquorice, Himalayan cherry (पद्मक), and Sindh salts, one should apply it [irrigation] gently warm.
- 76cd–77ab Ghee that has been cooked in four times the amount of milk that has itself been cooked with drugs that destroy wind.<sup>348</sup> This has an admixture of cottony jujube (काकोली) etc., should be prescribed in all treatments.<sup>349</sup>
- 77cd–78ab If pain does not end in this way, one should administer blood-letting to the vein of someone who has previously been oiled and sweated. Then the wise physician should apply cauterization in the advised manner.<sup>350</sup>
- 78cd–80ab Now listen to two excellent collyriums for making the pupils clear. After grinding the flowers of periploca of the woods (मेषशृङ्ग), siris (शिरीष), axelwood (धव) royal jasmine (जाती), pearl and beryl (वैडूर्य) with goat's milk, one should put it in a copper pot for seven days.
- 80cd–81 Having made it into wicks (वर्त्ति), the physician should apply it as a collyrium. Alternatively, one should make kohl (स्रोतोज), coral (विद्रुम),

*kṣīrikā* or *arkapuṣpikā* (Suvedī and Tivārī 2000: v. 307).

346 The expression “stirred with goat's milk (अजाक्षीरार्दित)” is difficult. It may be connected with the rare root *ard* documented by Whitney (1885: 15). Cf. *√ard gatau* (*Dhātupāṭha* 1.56).

347 Suvedī and Tivārī 2000: 18.

348 Ḍalhaṇa mentioned that these drugs include Deodar (भद्रदारु) and other wind-destroying drugs. The *vātasamśamana* group is listed in *Suśrutasaṃhitā sūtrasthāna* 1.39.7.

349 Ḍalhaṇa noted that this would include errhines, ointments, etc.

350 The vulgate reads *vāpi* for *cāpi*, so Ḍalhaṇa saw blood-letting and cautery as alternatives, not a sequence of treatments. Ḍalhaṇa listed the places that cauterization may be applied, such as the brow, forehead, etc.

cuttlefish bone (फेन), and realgar (मनःशिला) and peppers into wicks as before. One should apply these wicks, which are good in a collyrium, to steady the pupil.

- 82 I shall again discuss the foremost collyriums at length in the *Kriyākalpa* section. Those various methods may be applied here too.

## Uttaratantra, adhyāya 38

### Summary of the Content

The chapter talks about various diseases of the female reproductive system and, in doing so, combines both aspects that go into a representation of diseases in āyurvedic literature: signs, symptoms and pathogenesis (*nidāna*), on the one hand, and medical treatment (*cikitsā*), on the other. In chapters of the *Uttaratantra*, these two aspects are sometime dealt with in two different chapters *X-vijñānīya* and *X-pratiṣedha*. There are, however, many examples where this distinction is not made.

### Placement of the Chapter

While in [Su 1938](#) the current chapter is found at the end of the section on paediatrics (*Kumāratantra*, or *Kumārabhṛtya* as this section is styled in MS Kathmandu KL 699), in the Nepalese version, this is chapter 6.58, and it is chapter 23 of an entirely different section, namely, the *Kāyācikitsā*.

Several things are noteworthy in this regard:

- In the placement of the vulgate, this chapter follows upon 6.37 *Grahotpatti* (6.35 in the Nepalese version), a chapter that talks about the origination of nine demons (ग्रह) that are responsible for all children's diseases described in previous chapters of the *Kumāratantra*. In this way, the current chapter retains the general focus on the child bearing (कौमारभृत्य), but, at the same time, marks a change to a distinct, less mystical approach to the topic at hand (that could originate in a cultural milieu different from that of the preceding eleven chapters). Dalhaṇa explained how the chapter fits its context in the following way ([Su 1938](#): 668b):

It is appropriate that, for the sake of treating the disorders of the female reproductive system, the chapter called “Countermeasures Against Disorders of the Female Reproductive System” is taught immediately after the chapter called “The Origination of Demons (ग्रह).” It is because (1) there is an explicit mention of the word “*yoni*” in the statement “born in the womb (योनि) of animal and human” [in SS.6.37.13bc] and because (2) the disorders

of the female reproductive system are the causes for the inborn disorders of children.<sup>351</sup>

- In the placement of the Nepalese version, *Yonivyāpatpratiṣedha* is preceded by 6.56 *Mūtrāghātapratiṣedha* (6.58 in [Su 1938](#)) and 6.57 *Mūtrakṛcchrapratiṣedha* (6.59 in [Su 1938](#)), two chapters dealing with the diseases of the urinary tract. The current chapter carries on with the topic of diseases that affect genitalia. In its Nepalese version, the chapter opens with two verses that explain the reasons for treating the particular set of diseases. These lack any reference to the inborn disorders of children, mentioned by Ḍalhaṇa, and instead highlight the importance of curing female diseases for the satisfaction of male partner.
- SS.1.3 in both [Su 1938](#) and the Nepalese version lists the chapter at the place where it is found in the vulgate (Cf. Sū.3.37ab: *naigameṣacikitsā ca grahotpattiḥ sayonijāḥ*).
- Parallel chapters in the *Aṣṭāṅgasamgraha* and the *Aṣṭāṅgaḥṛdayasamhitā* form a part of the *Śalyatantra* section of each text.

## Parallels

The current chapter is parallel in its content to *Aṣṭāṅgasamgraha* 6.38 and 6.39 as well as *Aṣṭāṅgaḥṛdayasamhitā* 6.33 and 6.34 (*Guhyarogavijñāna* and *Guhyarogapratiṣedha* respectively).

A close literary parallel to the first part of the chapter is found in *Mādhavanidāna* (MN<sub>3</sub>) 62, or at least its version printed in Y. T. Ācārya (MN<sub>3</sub>: 361). The readings of the MN<sub>3</sub> as it stands now usually side with the vulgate version rather than with the Nepalese. In addition to the basic text, there are several valuable pointers made in the *Madhukośa*, an early commentary on the MN<sub>3</sub>. This part of the text is authored by Śrīkaṇṭhadatta, who was most like a direct student of Vijarakṣita. The latter wrote the first part of the *Madhukośa*, up to chapter 32, and, what is more, can be dated to the late eleventh or early twelfth centuries.<sup>352</sup>

Another most interesting parallel is found in *Carakasamhitā* 6(Ci).30.

<sup>351</sup> Ḍalhaṇa on SS.6.38.1: *grahotpattyadhyāyanantaram 'tityagyonim mānuṣam ca' iti vacanena yoner nāmasamkīrtanāt kumārajanmavikārakāraṇatvāc ca, yonivyāpaccikitsitārtham yonivyāpatpratiṣedhādhyāyārambho yujyate [...]*

<sup>352</sup> Meulenbeld [1974b](#): 22–26.

## Philological notes

### Metrical alterations

The first two verses in the Nepalese version, 6.38.2.1 and 6.38.4.1, are written in a classical variety of the *upajāti* metre:  $\underline{\text{U}} \text{ } \underline{\text{U}} \text{ } \underline{\text{U}} \text{ } \underline{\text{U}} \text{ } \underline{\text{U}} \text{ } \underline{\text{U}} \text{ } \underline{\text{U}}$ . In content, they are only approximately parallel to three hemistichs in *anuṣṭubh* metre found in the vulgate.<sup>353</sup> The latter verses lack the apologetic explanation concerning the reasons for this chapter being taught.

### The original opening verses

From verse *Suśrutasaṃhitā* 6.38.5.1 onwards, the Nepalese version of the text continues with three hemistichs in the same classical *upajāti* metre (the syllabic pattern above).<sup>354</sup> By contrast, the vulgate contains two complete verses (four hemistichs) in the *anuṣṭubh* metre, again with only loosely-related content.<sup>355</sup> The three final hemistichs of this group are borrowed verbatim from the *Carakasamhitā*.<sup>356</sup> We can be sure of the direction of borrowing because one of these shared verses says that the twenty kinds of diseases of the female reproductive system “have already been indicated in the *Compendium of Diseases* (रोगसंग्रह)”.<sup>357</sup> This statement does not make any sense in the context of the *Suśrutasaṃhitā*, where no such Compendium exists.<sup>358</sup> By contrast, in the *Carakasamhitā* this reference points back to chapter 1.19 (*Ca* 1941: 109–112), which calls itself “The Compendium of Diseases”.<sup>359</sup> This Compendium lists all the diseases dealt with in later sections of the text, and specifically mentions the twenty diseases of female reproductive system.<sup>360</sup> Even the vocabulary and wording of this passage is identical to the later verses. It is beyond doubt that this passage originated in the *Carakasamhitā* and was borrowed by the editors of the vulgate

353 *Suśrutasaṃhitā* 6.38.3–4ab (*Su* 1938: 668).

354 The metre of these verses is not perfect.

355 *Suśrutasaṃhitā* 6.38.4cd–6ab (*Su* 1938: 668).

356 *Carakasamhitā* 6.30.7cd–8 (*Ca* 1941: 634).

357 *Suśrutasaṃhitā* 6.38.5ab (*Su* 1938: 668): विंशतिर्व्यापदो योनेर्निर्दिष्ट रोगसंग्रहे ॥ ← *Carakasamhitā* 6.30.7cd (*Ca* 1941: 634).

358 The remark was not commented on by Dalhana.

359 *Carakasamhitā* 1.19.9cd (*Ca* 1941: 112): रोगाध्याये प्रकाशिताः.

360 *Carakasamhitā* 1.19.3 (*Ca* 1941: 110): विंशतिर्योनिव्यापदः।

text of the *Suśrutasaṃhitā*.<sup>361</sup>

## Translation

- 1 And now I shall explain the countermeasures against disorders of the female reproductive system (योनिव्यापत्).<sup>362</sup>
- \*3 Since for good men, a woman is the most pleasurable thing, therefore a physician should diligently attend to the diseases located in the female reproductive system (योनि), because he is entirely devoted to it (that is, to curing these diseases) for the sake of (people's) happiness.<sup>363</sup>
- \*4 A corrupted female reproductive system (योनि) cannot consume semen (बीज), and therefore, the woman cannot take a fetus (that is, become pregnant). She gets severe prolapses (अर्शस), abdominal lump (गुल्म) and similarly many other diseases (रोग).
- \*5 Humours (दोष), wind (वात), etc., corrupted due to faulty medical treatment (मिथ्योपचार),<sup>364</sup> sexual activity, fate, and also defects (दोष) of men-

361 The above three hemistichs in *anuṣṭubh* are also repeated in the *MN*<sub>3</sub> 62.1–2ab. Given that the subsequent verses in the *MN*<sub>3</sub> stem from the *Suśrutasaṃhitā*, it is likely that *MN*<sub>3</sub> 62.1–2ab too was borrowed from the *Suśrutasaṃhitā* and not from its original location in the *Carakasaṃhitā*.

362 On this broad understanding of the term *yoni* as “female reproductive system” see Das 2003: pp. 572–5.

363 As our translation indicates, the sentence construction does not allow an unambiguous identification of who or what is the referent of the pronoun *tad* in the compound form *tadadhīna* ‘devoted to it.’ Our current understanding is that *tad* refers to the ‘most pleasurable thing’ mentioned in pāda a. It could, however, also refer to ‘them,’ that is, the ‘good men.’

364 In our translation of the compound मिथ्योपचार, we decided for the technical meaning of the term उपचार, that is, “medical application” or “treatment.” The combination मिथ्या+उप-+चर is attested several times in medical literature. At least once, at *Carakasaṃhitā* 3.3.38 (Ca 1941: 245), it is given an explicit gloss by Cakrapāṇidatta: मिथ्योपचारितानिति असम्यक् चिकित्सितान् “... given improper therapy”. In the *Suśrutasaṃhitā* (Su 1938), it is used once in a passage (6.18.30 (Su 1938: 635)) where it refers specifically to the wrong application of irrigation (तर्पण) and roasting (पुटपाक), both of which are mentioned in the previous verse. Another use of the compound in a similar meaning is found in a citation from Bhoja’s work quoted by Gayadāsa at *Suśrutasaṃhitā* 2.5.17 (Su 1938: 287): श्वित्रं तु द्विविधं प्रोक्तं दोषजं व्रणजं तथा। तत्र मिथ्योपचाराद्धि व्रणस्य व्रणजं स्मृतम्॥ “... arises from wrong treatment of the wound.” In contrast to this, the parallel verse in *Suśrutasaṃhitā* 6.38.5ab (Su 1938: 668) = *Carakasaṃhitā* 6.30.8 (Ca 1941: 634) = *MN*<sub>3</sub> 62.1 reads मिथ्याचार “wrong conduct.” All commentators (Cakrapāṇidatta on the *Caraka*-



strual blood (आर्तव) and semen (बीज), produce various diseases in the female reproductive organ (योनि). These 20 diseases are taught here distinctly and one by one along with their treatment (भेषज), causes (हेतु) and signs (चिह्न).

\*6.1 Because of wind (वात), female reproductive organ (योनि) becomes:

1. udāvartā (उदावर्ता),
2. called Infertile (वन्ध्या), and
3. Sprung (स्रुता),
4. Flooded (परिप्लुता), and
5. Windy (वातला).

\*6.2 And because of choler (पित्त), occur:

1. With bloodloss (रक्तक्षया),
2. Vomiting (वामिनी), and
3. Causing a Fall (स्रंसनी),
4. Child-murderess (पुत्रघ्नी), and also
5. Bilious / Choleric (पित्तला).

\*7.1 And because of phlegm (कफ) occur:

1. Extremely Excited (अत्यानन्दा),
2. Protuberant (कर्णिनी), and
3. & 4. two Caraṇī (चरणी), and
5. other Phlegmatic (श्लेष्मला).

\*7.2 And similarly there are other (kinds of morbid female reproductive system) involving all *doṣas*:

1. Impotent (शण्डी),
2. With testicles (अण्डीनी),
3. two Huge (महती),
4. With a needle-like opening (सूचीवक्रा),
5. Sarvātmikā (सर्वात्मिका).

---

*saṃhitā*, Śrīkaṇṭhadatta on the *MN*<sub>3</sub>, and Ḍalhaṇa on the *Suśrutasaṃhitā*) explain that the wrong conduct stands here specifically for unwholesome diet. The parallel in *Aṣṭāṅgaḥḍayaṣaṃhitā* 6.33.27 (*Ah* 1939: 895) = *Aṣṭāṅgaṣaṅgraha* 6.38.34 (*As* 1980: 829) plainly reads दुष्टभोजन “corrupted food” instead.

## Editions and Abbreviations

- Ah 1939 Kumṭe, Aṇṇā Moreśvara, Navare, Kṛṣṇaśāstrī, and Parādkar, Hariśāstrī (1939) (eds.), श्रीमद्वाग्भटविरचितम् अष्टाङ्गहृदयम्, श्रीमदरुणदत्तविरचितया सर्वाङ्गसुन्दराख्यया व्याख्यया, हेमाद्रिप्रणीतया आयुर्वेदरसायनाह्वया टीकया च समुल्लसितम् = *The As-tāṅgahṛidaya* (6th edn., Mumbayyām: Nirṇayasāgara Press), [ark:/13960/t3tt6967d](http://ark:/13960/t3tt6967d).
- Anup *Anup Sanskrit Library.*
- Apte Apte, Vaman Shivaram (1992), *The Practical Sanskrit-English Dictionary* (Kyoto: Rinsen Book Company), ISBN: 4-653-00038-7; Reprinted from Gode and Karve 1957–59.
- AS *Asiatic Society.*
- As 1980 Āṭhavale, Ananta Dāmodara (1980) (ed.), अष्टाङ्गसङ्ग्रहः श्रीमद्द्ववाग्भटविरचितः इन्दुव्याख्यासहितः [= *Vāgbhaṭa's Aṣṭāṅgasan̄graha with Indu's Commentary*] (Pune: M. A. Āṭhavale, Śrīmad Ātreya Prakāśanam), [ark:/13960/s25bwqsd0n7](http://ark:/13960/s25bwqsd0n7).
- AyMahā Jośī, Veṇīmādhavaśāstrī, and Jośī, Nārāyaṇa Harī (1968), आयुर्वेदीय महाकोशः अर्थात् आयुर्वेदीय शब्दकोशः संस्कृत-संस्कृत (Mumbai: Mahārāṣṭra Rājya Sāhitya āṇi Saṁskṛti Maṁḍala), [ark:/13960/t22c41g8t](http://ark:/13960/t22c41g8t).
- Bhela 1921 Mookerjee, Ashutosh, and Ananta Krishna Shastri, Ved-antabisharad (1921) (eds.), *The Bhela Samhita. Sanskrit Text* (Calcutta: University of Calcutta), [ark:/13960/t3sv3157j](http://ark:/13960/t3sv3157j); Based on two copies made of the Thanjavur codex unicus (MS Thanjavur TMSSML 10773, Burnell 1880: 63–4, P. P. S. Sastri 1933: #11085).
- Bhela 2000 Krishnamurthy, K. H. (2000), *Bhela-saṁhitā. Text with English Translation, Commentary and Critical Notes* (Haridas Ayurveda Series, 8; Varanasi: Chaukhambha Visvabharati).
- BL *British Library.*

- Ca 1941 Ācārya, Yādavaśarma Trivikrama (1941) (ed.), महर्षिणा पुनर्वसुनोपदिष्टा, तच्छिष्येणाग्निवेशेन प्रणीता, चरकदृढबलाभ्यां प्रतिसंस्कृता चरकसंहिता, श्रीचक्रपाणिदत्तविरचितया आयुर्वेददीपिकाव्याख्या संवलिता (3rd edn., Mumbayyām: Nirnaya Sagara Press), [ark:/13960/t48q2f20n](https://nirnayasangara.com/13960/t48q2f20n).
- CDIAL Turner, R. L. (1966–85), *A Comparative Dictionary of the Indo-Aryan Languages* (London, New York, Toronto: Oxford University Press), ISBN: 0197135501, [URL](https://www.oxfordjournals.org/lookup/doi/10.1093/acref/9780197135501); With *Indexes* compiled by Dorothy Rivers Turner (OUP, London, 1969), *Phonetic Analysis* by R. L. and D. R. Turner (OUP, London, 1971), and *Addenda and Corrigenda* edited by J. C. Wright (School of Oriental and African Studies, London, 1985).
- DED<sub>2</sub> Burrow, Thomas, and Emeneau, Murray B. (1984), *A Dravidian Etymological Dictionary* (2nd edn., Oxford: Clarendon Press), [ark:/13960/t4wj06g26](https://www.oxfordjournals.org/lookup/doi/10.1093/acref/9780197135501), [URL](https://www.oxfordjournals.org/lookup/doi/10.1093/acref/9780197135501).
- EWA Mayrhofer, Manfred (1986–2001), *Etymologisches Wörterbuch des Altindoarischen* (Heidelberg: Carl Winter, Universitätsverlag), ISBN: 3-533-03826-2.
- HIML Meulenbeld, Gerrit Jan (1999–2002), *A History of Indian Medical Literature*, 5 vols. (Groningen: E. Forsten), ISBN: 9069801248.
- IOLR Eggeling, Julius, et al. (1887–1935), *Catalogue of the Sanskrit Manuscripts in the Library of the India Office* (London: Secretary of State for India), [ark:/13960/s2kbb5zcrg9](https://www.oxfordjournals.org/lookup/doi/10.1093/acref/9780197135501).
- KEWA Mayrhofer, Manfred (1953–72), *Kurzgefaßtes etymologisches Wörterbuch des Altindoarischen; a Concise Etymological Sanskrit Dictionary* (Heidelberg: Carl Winter, Universitätsverlag).
- KL *Kaiser Library*.
- MN<sub>1</sub> Ācārya, Yādavaśarma Trivikrama (1920) (ed.), महामतिश्री-माधवकरप्रणीतं माधवनिदानम् श्रीविजयरक्षित-श्रीकण्ठदत्ताभ्यां विरचितया मधुकोशाख्यव्याख्या, श्रीवाचस्पतिवैद्यविरचितया आतङ्कदर्पणव्याख्या विशिष्टांशेन च समुल्लसितम् = *Mādhavanidāna by Mādhavakara with the Two Commentaries, Madhukosha by Vijayarakshita & Shrikanthadatta and Ātankadarpaṇa by Vāchaspati Vaidya*

- (1st edn., Bombay: Nirnaya Sagara Press), [ark :/ 13960 / t9z08jn5j](https://nir.nir.org/ark:/13960/t9z08jn5j).
- MN<sub>3</sub> Ācārya, Yādavaśarma Trivikrama (1932) (ed.), महामतिश्री-  
माधवकरप्रणीतं माधवनिदानम् श्रीविजयरक्षित-श्रीकण्ठदत्ताभ्यां विरचितया  
मधुकोशाख्यव्याख्या, श्रीवाचस्पतिवैद्यविरचितया आतङ्कदर्पणव्याख्याया  
विशिष्टांशेन च समुल्लसितम् = *Mādhavanidāna by Mādhavakara  
with the Two Commentaries, Madhukosha by Vijayarakshita  
& Shrikanthadatta and Ātānkadarpaṇa by Vāchaspati Vaidya*  
(3rd edn., Bombay: Nirnaya Sagara Press), [ark :/ 13960 / t66452x0h](https://nir.nir.org/ark:/13960/t66452x0h); Reprinted Varanasi: Chowkhambha, 1986.
- MW Monier-Williams, Monier, Leumann, E., Cappeller, C.,  
et al. (1899), *A Sanskrit–English Dictionary Etymologically  
and Philologically Arranged, New Edition* (Oxford: Clarendon  
Press); 1970 reprint.
- NAK *National Archives of Kathmandu.*
- NCC Raghavan, V., et al. (1949–), *New Catalogus Catalogorum, an  
Alphabetical Register of Sanskrit and Allied Works and Authors*,  
39 vols. (Madras University Sanskrit Series; Madras: Uni-  
versity of Madras); v.1: revised edition, 1968. Searchable at  
<https://vmlt.in/ncc/>.
- NGMCP NGMCP (2014), “Nepal-german Manuscript Cataloguing  
Project. Online Title List and Descriptive Catalogue,” Uni-  
versität Hamburg and Deutsche Forschungsgemeinschaft,  
[URL](https://nmgcp.uni-hamburg.de/).
- PW Böhrtlingk, Otto, and Roth, Rudolph (1855–75), *Sanskrit-  
Wörterbuch* (St. Petersburg: Kaiserlichen Akademie der  
Wissenschaften), [URL](https://www.sanskrit-worterbuch.de/), accessed 18/05/2023.
- PWK Böhrtlingk, Otto (1879), *Sanskrit-wörterbuch in kürzerer  
fassung* (St. Petersburg: Kaiserlichen Akademie der Wis-  
senschaften), [URL](https://www.sanskrit-worterbuch.de/), accessed 18/05/2023.
- RORI *Rajasthan Oriental Research Institute.*

- Su 1889 Bhaṭṭācāryya, Jivānanda Vidyāsāgara (1889) (ed.), सुश्रुतः. सूत्र-निदान-शारीर-चिकित्सा-कल्पोत्तर-तन्त्र-कल्पित आयुर्वेद. भगवता धन्वन्तरिणोपदिष्टः सुश्रुतनामधेयेन तच्छिष्येण विरचितः (3rd edn., Calcutta: Saratī Press), [ark:/13960/t1nh6j09c](https://nnp.wisc.edu/ark:/13960/t1nh6j09c); HIML: IB, 311, edition b.
- Su 1915 Ācārya, Yādavaśarma Trivikrama (1915) (ed.), सुश्रुतसंहिता, सुश्रुतेन विरचिता, वैद्यवरश्रीडल्हणाचार्यविरचितया निबन्धसंग्रहाख्यव्याख्यया समुल्लसिता, आचार्योपाह्वेन त्रिविक्रमात्मजेन यादवशर्मणा संशोधिता = *The Sushrutasamhita of Sushruta, the Nibandhasangraha Commentary of Shri Dalhaṇāchārya* (Mumbayyām: Nirṇaya-sāgaramudrāyantrālaye), [ark:/13960/t3sv0mt50](https://nnp.wisc.edu/ark:/13960/t3sv0mt50), accessed 29/07/2020; HIML: IB, 312 edition \*v.
- Su 1931 Ācārya, Yādavaśarma Trivikrama (1931) (ed.), सुश्रुतसंहिता, वैद्यवरश्रीडल्हणाचार्यविरचितया निबन्धसंग्रहाख्यव्याख्यया समुल्लसिता, महर्षिणा सुश्रुतेन विरचिता, सूत्र-निदान-शारीर-चिकित्सा-कल्पस्थानोत्तरतन्त्रात्मकः. आचार्योपाह्वेन त्रिविक्रमात्मजेन यादवशर्मणा संशोधिता = *The Sushrutasamhitā of Sushruta with the Nibandhasangraha Commentary of Shree Dalhaṇāchārya* (2nd edn., Mumbayyām: Pāṇḍuraṅga Jāvajī at the Nirṇayasāgaramudrāyantrālaye), [ark:/13960/t9j41sg94](https://nnp.wisc.edu/ark:/13960/t9j41sg94), accessed 09/06/2020; HIML: IB, 312 edition \*v.
- Su 1938 Ācārya, Yādavaśarma Trivikrama, and Ācārya, Nārāyaṇa Rāma (1938) (eds.), श्रीडल्हणाचार्यविरचितया निबन्धसंग्रहाख्यव्याख्यया निदानस्थानस्य श्रीगयदासाचार्यविरचितया न्यायचन्द्रिकाख्यपञ्जिकाव्याख्यया च समुल्लसिता महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता (3rd edn., Bombay: Nirṇayasāgara Press), [ark:/13960/t09x0sk1h](https://nnp.wisc.edu/ark:/13960/t09x0sk1h); HIML: IB, 313, edition cc ('the vulgate').
- Su 1938<sup>2</sup> Ācārya, Yādavaśarma Trivikrama, and Ācārya, Nārāyaṇa Rāma (2004) (eds.), महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता, श्रीडल्हणाचार्यविरचितया निबन्धसंग्रहाख्यव्याख्यया निदानस्थानस्य श्रीगयदासाचार्यविरचितया न्यायचन्द्रिकाख्यपञ्जिकाव्याख्यया च समुल्लसिता (Vārāṇasī: Caukhambhā Kṛṣṇadāsa Akādamī); Reprint of the third, 1938 edition (Su 1938).

- Su 1939      Ācārya, Yādavaśarma Trivikrama, and Śarman, Nandakiśora (1939) (eds.), सुश्रुतसंहितायाः सूत्रस्थानम्. श्रीचक्रपाणिदत्तविरचितया भानुमतीव्याख्याया समेतम् = *Sushrut-saṅhitā (sūtra Sthān) with Bhānumatī Commentary by Chakrapāṇi Datta with Introduction by Gaṇanāth Sen* (Śrīsvāmī Lakṣmīrāma Nidhi Granthamālā = Shrī Swāmī Lakshmi Rām Trust Series, 1; [Jaipur]: Śyāmasundara Śarman), [ark : / 13960 / t54g0d12m](http://13960/t54g0d12m); Printed at the Nirṇayasāgara Press, Bombay.
- Su 1945      Ācārya, Yādavaśarma Trivikramācārya, and Ācārya, Nārāyaṇa Rāma (1945) (eds.), महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता (मूलमात्रा). पाठान्तर-परिशिष्टादिभिः संवलितः = *the Suśrutasaṅhitā of Suśruta with Various Readings, Notes and Appendix etc.* (Mumbāi: Nirṇayasāgarākhyamudraṇālaye), [ark : / 13960 / t8kd4jh7n](http://13960/t8kd4jh7n).
- TMSSML      *Tanjore Maharaja Serfoji Saraswati Mahal Library.*
- Viṣṇudh.      Śarman, Madhusūdana, and Śarman, Mādhavaprasāda (1912) (eds.), विष्णुधर्मोत्तरपुराणम् = [*Viṣṇudharmottarapurāṇa*] (Mumbai: Khemarāja Śrīkrṣṇadāsa at the Śrīveṅkaṭeśvara Steam Press), [ark : / 13960 / t6qz6fr23](http://13960/t6qz6fr23); Lithograph format. Edited on the basis of a manuscript belonging to the astrologer Śudhākaraśarman of the Varanasi Sanskrit Pāṭhaśālā.

## Index of Manuscripts

*The numbers after the colon refer to pages in this document.*

Bikaner Anup 4390: 6

Bikaner RORI 5157: 49

Cambridge Add. 1693: 45

Hyderabad Osmania 137-3(b): 41

Kathmandu KL 699: 36, 42, 48, 93

Kathmandu NAK 1-1079: 14, 21, 36, 42

Kathmandu NAK 1-1146: 21  
Kathmandu NAK 5-333: 8, 10, 14, 36, 42, 45, 50, 72  
London BL H. T. Colebrooke 908: 10  
Mumbai AS B.D.109: 6  
Mumbai AS B.I.3: 6  
NAK 5-333: 61  
Thanjavur TMSSML 10773: 98

## References

- Ācārya, Yādavaśarma Trivikrama (1941) (ed.), महर्षिणा पुनर्वसुनोपदिष्टा, तच्छिष्येणाग्निवेशेन प्रणीता, चरकदृढबलाभ्यां प्रतिसंस्कृता चरकसंहिता, श्रीचक्रपाणिदत्तविरचितया आयुर्वेददीपिकाव्याख्यया संवलिता (3rd edn., Mumbayyām: Nirṇaya Sagara Press), [ark:/13960/t48q2f20n](https://nirṇaya.org/ark:/13960/t48q2f20n).
- Ācārya, Yādavaśarma Trivikramācārya, and Ācārya, Nārāyaṇa Rāma (1945) (eds.), महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता (मूलमात्रा). पाठान्तर-परिशिष्टादिभिः संवलिता = *the Suśrutasaṃhitā of Suśruta with Various Readings, Notes and Appendix etc.* (Mumbāi: Nirṇayasāgarākhyamudraṇālaye), [ark:/13960/t8kd4jh7n](https://nirṇaya.org/ark:/13960/t8kd4jh7n).
- Acharya, Diwakar (2012), “Description of Microfilm A 45/5,” NGMCP, [URL](https://ngmcp.org/), accessed 27/02/2023.
- Adriaensen, Rob, Barkhuis, Roelf, and Ruijters, Jean-Louis (1984), “An English Translation of Suśrutasaṃhitā, Nidānasthāna 1, 1–39, Together with Gayadāsa’s Nyāyacandrikā,” in Gerrit Jan Meulenbeld (ed.), *Proceedings of the International Workshop on Priorities in the Study of Indian Medicine* (Groningen: Forsten), 277–310.
- Āgāṣe, Ve. Śā. Rā. Rā. Kāśīnātha Śāstrī, and Āpaṭe, Hari Nārāyaṇa (1904) (eds.), वाचस्पतिमिश्रविरचितटीकासंवलितव्यासभाष्यसमेतानि पातञ्जलयोगसूत्राणि तथा भोजदेवविरचितराजमार्तण्डाभिधवृत्तिसमेतानि पातञ्जलयोगसूत्राणि (Ānandāśramasaṃskṛtagranthāvaliḥ, 47; Puṇyākhyā-pattana: Ānandāśramamudraṇālaya), [ark:/13960/t40s27g36](https://nirṇaya.org/ark:/13960/t40s27g36).

- Agrawal, V. S. (1963), *India As Known to Pāṇini: A Study of the Cultural Material in the Aṣṭādhyāyī* (2nd edn., Varanasi: Prthvi Prakashan); First published in 1953.
- Angermeier, Vitus (2020), *Regenzeiten, Feuchtgebiete, Körpersäfte. Das Wasser in der klassischen indischen Medizin* (Wien: Österreichische Akademie der Wissenschaften).
- Azeez Pasha, M. (1971), "English Translation of Madan-ul-Shifa, Tibbe Sikandar Shahi (Sikandar Shah's Mine of Medicine)," *Bulletin of the Department of History of Medicine (Osmania University, Hyderabad)*, 2/4: 227–2324; continued in BDHM 3(1) 29–38; BIHM 1(3/4) 127–134; & BIHM 2(1), 17–22.
- Baber, Zaheer (1996), *The Science of Empire: Scientific Knowledge, Civilization, and Colonial Rule in India* (Albany: State University of New York Press).
- Bakker, Hans T. (2019), "Some Methodological Considerations with Respect to the Critical Edition of Puranic Literature," in *Holy Ground: Where Art and Text Meet* (Leiden: Brill), 175–84. DOI: [10 . 1163 / 9789004412071\\_010](https://doi.org/10.1163/9789004412071_010).
- Barceloux, Donald G. (2008), *Medical Toxicology of Natural Substances. Foods, Fungi, Medicinal Herbs, Plants, and Venomous Animals* (Hoboken, NJ, etc.: John Wiley & Sons), ISBN: 047172761X.
- Bausi, Alessandro, et al. (2015), *Comparative Oriental Manuscript Studies. An Introduction* (Hamburg: Tredition). DOI: [10.5281/ZENODO.46784](https://doi.org/10.5281/ZENODO.46784).
- Bedekar, V. M. (1967), "The Legend of the Churning of the Ocean in the Epics and the Purāṇas: A Comparative Study," *Purāṇa*, 9/1: 7–61, [ark:/13960/t57d2r97r](https://doi.org/10.13960/t57d2r97r).
- Bendall, Cecil (1883), *Catalogue of the Buddhist Sanskrit, Manuscripts in The, University Library, Cambridge: With Introductory Notices and Illustrations of the Palaeography and Chronology of Nepal and Bengal* (Cambridge: University Press), [ark:/13960/t03x8vz7b](https://doi.org/10.13960/t03x8vz7b).
- Bhaṭṭācārya, Candrakānta (1910–17) (ed.), *सुश्रुतसंहिता प्रथमखण्डम् सूत्रस्थानात्मकम् हाराणचन्द्रचक्रवर्तिकविराजविरचितसुश्रुतार्थसन्दीपनभाष्य-समेतम्... चन्द्रकान्त भट्टाचार्य-प्रमुखैः संशोधितम्* = [*The Suśrutasaṃhitā with the Commentary Suśrutārthasandīpanabhāṣya by Hārāṇacandra Cakravartī*] (Kalikātā: Satya Press); Edition "t" in [HIML](https://www.himl.org/): IB, 312.



- Bhattacharai, Bidur (2020), *Dividing Texts. Conventions of Visual Text-Organisation in Nepalese and North Indian Manuscripts* (Studies in Manuscript Cultures; Berlin/Boston: de Gruyter), 388.
- Birch, Jason, Wujastyk, Dominik, Klebanov, Andrey, Parameswaran, Madhu K., et al. (2021), "Further Insight into the Role of Dhanvantari, the Physician to the Gods, in the Suśrutasaṃhitā," *Academia Letters*. doi: [10.20935/AL2992](https://doi.org/10.20935/AL2992).
- Birch, Jason, Wujastyk, Dominik, Klebanov, Andrey, Rimal, Madhusudan, et al. (2021), "Dalhaṇa and the Early 'Nepalese' Version of the Suśrutasaṃhitā." doi: [10.20935/a13733](https://doi.org/10.20935/a13733).
- Böhtlingk, Otto (1879), *Sanskrit-wörterbuch in kürzerer fassung* (St. Petersburg: Kaiserlichen Akademie der Wissenschaften), [URL](#), accessed 18/05/2023.
- Böhtlingk, Otto, and Roth, Rudolph (1855–75), *Sanskrit-Wörterbuch* (St. Petersburg: Kaiserlichen Akademie der Wissenschaften), [URL](#), accessed 18/05/2023.
- Bollée, Willem (2010), "Remarks on the Cultural History of the Ear in India," in Nalini Balbir (ed.), *Svasti: Essays in Honour of Professor Hampa Nagarajaiah for His 75th Birthday* (Bangalore: K. S. Mudappa Smaraka Trust), 141–67, [URL](#), accessed 23/01/2022.
- Breton, P. (1826), "On the Native Mode of Couching," *Transactions of the Medical and Physical Society of Calcutta*, 2: 341–82, [ark : / 13960 / t3dz8nn5t](https://doi.org/ark:/13960/t3dz8nn5t), [URL](#), accessed 02/06/2021.
- Bronkhorst, Johannes (2016), *How the Brahmins Won: From Alexander to the Guptas* (Leiden: Brill). doi: [10.1163/9789004315518](https://doi.org/10.1163/9789004315518).
- (2021), "Patañjali's Āryāvarta = Śuṅga realm?," *Academia Letters*. doi: [10.20935/a1291](https://doi.org/10.20935/a1291); Article 291.
- Bronner, Yigal (2021) (ed.), "The Pandit Project" (30 Sept.), [URL](#).
- Brooks, Lisa Allette (2018), "Epistemology and Embodiment: Diagnosis and the Senses in Classical Ayurvedic Medicine," *Asian Review of World Histories*, 6: 98–135. doi: [10.1163/22879811-12340027](https://doi.org/10.1163/22879811-12340027).
- (2020a), "A Surgeon's Hand: Reflections on Surgical Tactility in Early Ayurveda," *Asian Medicine*, 15/1: 30–62. doi: <https://doi.org/10.1163/15734218-12341460>, [URL](#).

- Brooks, Lisa Allette (2020b), "The Vascularity of Ayurvedic Leech Therapy: Sensory Translations and Emergent Agencies in Interspecies Medicine," *Medical Anthropology Quarterly*, 35/1: 82–101. doi: [10.1111/maq.12595](https://doi.org/10.1111/maq.12595).
- (2020c), "Whose Life is Water, Whose Food is Blood: Fluid Bodies in Āyurvedic Leech Therapy," in Natalie Köhle and Shigehisa Kuriyama (eds.), *Fluid Matter(s): Flow and Transformation in the History of the Body* (Asian Studies Monograph Series, 14; Canberra: ANU Press). doi: [10.22459/fm.2020](https://doi.org/10.22459/fm.2020).
- Burghart, Marjorie (2016), "The TEI Critical Apparatus Toolbox: Empowering Textual Scholars through Display, Control, and Comparison Features," *Journal of the Text Encoding Initiative*, 10/Issue 10. doi: [10.4000/jtei.1520](https://doi.org/10.4000/jtei.1520).
- (2017), "Textual Variants," in Marjorie Burghart, James Cummings, and Elena Pierazzo (eds.), *Digital Editing of Medieval Texts: A Textbook* (DEMM), [URL](https://url), accessed 04/07/2021.
- Burnell, Arthur Coke (1880), *A Classified Index to the Sanskrit Mss. in the Palace at Tanjore* (London: Trübner), [ark:/13960/t4xh86j61](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-3960-t4xh86j61); Bhelaśaṃhitā described on pp. 67 ff.
- Carpue, J. C. (1816), *An Account of Two Successful Operations for Restoring a Lost Nose from the Integuments of the Forehead...Including Descriptions of the Indian and Italian Methods* (London: Longman et al.), [ark:/13960/t2q57fn42](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-3960-t2q57fn42), accessed 20/03/2019.
- Chadha, Gita, and Thomas, Renny (2022) (eds.), *Mapping Scientific Method: Disciplinary Narrations* (Science and Technology Studies; Abingdon and New York: Routledge). doi: [10.4324/9781003298908](https://doi.org/10.4324/9781003298908).
- Cone, Margaret (2001), *A Dictionary of Pāli* (Oxford: The Pali Text Society), ISBN: 0 86013 394 x.
- Cordier, P. (1903), "Récents découvertes de mss. médicaux sanscrits dans l'Inde (1898–1902)," *Muséon, Nouvelle Série*, 4: 321–52, [ark:/13960/t26b2j457](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-3960-t26b2j457), accessed 02/01/2020; Reprinted in Roṣu 1989: 539–70.
- Coult, Ro. (1731), "An Account of the Diseases of Bengall," in *Indian Science and Technology in the Eighteenth Century* (Impex India), 141 f., 276.
- Crawford, D. G. (1930), *Roll of the Indian Medical Service, 1615–1930* (London, Calcutta, Simla: Thacker).

- Das, Rahul Peter (2003), *The Origin of the Life of a Human Being. Conception and the Female According to Ancient Indian Medical and Sexological Literature* (Indian Medical Tradition; Delhi: Motilal Banarsidas), ISBN: 81-208-1998-5.
- Dave, K. N. (1985), *Birds in Sanskrit Literature* (Delhi: Motilal Banarsidass), ISBN: 0-89581-676-8, [ark:/13960/t2c94cv80](https://nbn-resolving.org/urn:nbn:in:bbri:13960-t2c94cv80).
- Deshpande, Madhav (1988), "Pāṇini and the Northwestern Dialect: Some Suggestions on Sūtra 3.3.10," in Mohammad Ali Jazayery and Werner Winter (eds.), *Languages and Cultures: Studies in Honor of Edgar C. Polomé*, xxxvi (Trends in linguistics. Studies and monographs; Berlin, New York: Mouton de Gruyter), 111–23.
- Deshpande, Madhav M. (2010), "Pañca Gauḍa and Pañca Drāviḍa: Contested Borders of a Traditional Classification," in Klaus Karttunen (ed.), *Anantaṃ Śāstram. Indological and Linguistic Studies in Honour of Bertil Tikkani* (Studia Orientalia, 108; Helsinki: Finnish Oriental Society), 29–58, ISBN: 9789519380742.
- Deshpande, Vijaya (1999), "Indian Influences on Early Chinese Ophthalmology: Glaucoma As a Case Study," *Bulletin of the School of Oriental and African Studies*, 62: 306–22. DOI: [10.1017/S0041977X00016724](https://doi.org/10.1017/S0041977X00016724).
- (2000), "Ophthalmic Surgery: A Chapter in the History of Sino-indian Medical Contacts," *Bulletin of the School of Oriental and African Studies*, 63/3: 370–88, ISSN: 0041-977X. DOI: [10.1017/s0041977x00008454](https://doi.org/10.1017/s0041977x00008454).
- Deshpande, Vijaya Jayant (2019), "An Investigation into Ancient Greco-Indian Medical Exchanges: Sostratus vs Suśruta," *Indian Journal of History of Science*, 54/2: 144–61. DOI: [10.16943/ijhs/2019/v54i2/49659](https://doi.org/10.16943/ijhs/2019/v54i2/49659).
- Dimitrov, Dragomir, and Tamot, Kashinath (2007), "Kaiser Shamsher, His Library and His Manuscript Collection," *Kaiser Shamsher, His Library and His Manuscript Collection*, 3 (Jan.): 26–36, [URL](#).
- Doniger, Wendy (2015), "Introduction: Sympathy for the Devi: Snakes and Snake Goddesses in Hinduism," in Kaiser Haq, *The Triumph of the Snake Goddess* (Cambridge, MA: Harvard University Press), 1–28. DOI: [10.4159/9780674089136-intro](https://doi.org/10.4159/9780674089136-intro).
- Eaton, Richard M. (1993), *The Rise of Islam and the Bengal Frontier, 1204–1760* (Berkeley: University of California Press), [ark:/13030/ft067n99v9/](https://nbn-resolving.org/urn:nbn:in:bbri:13030-ft067n99v9/).

- Edgerton, Franklin (1939), "The Epic Triṣṭubh and Its Hypermetric Varieties," *Journal of the American Oriental Society*, 59/2: 159–74. DOI: [10.2307/594060](https://doi.org/10.2307/594060).
- (1953), *Buddhist Hybrid Sanskrit Grammar and Dictionary*. Vol. 2: *Dictionary* (William Dwight Whitney Linguistic Series; New Haven: Yale University Press).
- Eggeling, Julius, et al. (1887–1935), *Catalogue of the Sanskrit Manuscripts in the Library of the India Office* (London: Secretary of State for India), [ark:/13960/s2kbk5zcrg9](https://nnp.s2kbk5zcrg9).
- Elliot, Robert Henry (1918), *The Indian Operation of Couching for Cataract: Incorporating the Hunterian Lectures Delivered before the Royal College of Surgeons of England on February 19 and 21, 1917* (London: H. K. Lewis).
- Emeneau, M. B. (1969), "Sanskrit Syntactic Particles – "kila, khalu, nūnam"," *Indo-Iranian Journal*, 11/4: 241–68.
- Ewart, Joseph (1878), *The Poisonous Snakes of India: For the Use of the Officials and Others Residing in the Indian Empire* (London: J & A Churchill), ISBN: 81-7002-011-5, [ark:/13960/t9z07w72g](https://nnp.t9z07w72g); Reprinted Delhi: Himalayan Books, 1985.
- Falk, Harry (1991), "Silver, Lead and Zinc in Early Indian Literature," *South Asian Studies*, 7/1: 111–7. DOI: [10.1080/02666030.1991.9628430](https://doi.org/10.1080/02666030.1991.9628430).
- Fan, Ka Wai (2005), "Couching for Cataract and Sino-indian Medical Exchange From the Sixth to the Twelfth Century AD," *Clinical and Experimental Ophthalmology*: 188–90. DOI: [10.1111/j.1442-9071.2005.00978.x](https://doi.org/10.1111/j.1442-9071.2005.00978.x); Unaware of V. Deshpande 1999; 2000.
- Fayrer, Joseph (1874), *The Thanatophidia of India, Being a Description of the Venomous Snakes of the Indian Peninsula with and Account of the Influence of their Poison on Life and a Series of Experiments* (2nd edn., London: Churchill), [ark:/13960/t9h49dg5c](https://nnp.t9h49dg5c); First edition 1872.
- Fitzgerald, James L. (2009), "A Preliminary Study of the 681 Triṣṭubh Passages of the Mahābhārata," in Robert P. Goldman and Muneo Tokunaga (eds.), *Epic Undertakings* (Papers of the 12th World Sanskrit Conference; Delhi: Motilal Banarsidass Publisher), 95–117.
- Froese, R., and Pauly, D. (2022) (eds.), "Fishbase: The Global Encyclopedia about Fish," [URL](https://www.fishbase.org/).

Gaṇapatiśāstrī, T. (1920–25), *Āryamañjuśrīmūlakalpāḥ* (Trivandrum Sanskrit Series, 70; Anantaśayane: Rājakīyamudraṇayantrālaye), [ark:/13960/t4pk5sj0j](https://nopr.scribd.org/archives/01/13960/t4pk5sj0j).

Giesche, Alena, et al. (2023), “Recurring Summer and Winter Droughts from 4.2–3.97 Thousand Years Ago in North India,” *Nature: Communications Earth & Environment*, 4/1: 1–10. DOI: [10.1038/s43247-023-00763-z](https://doi.org/10.1038/s43247-023-00763-z).

Gode, P. K., and Karve, C. G. (1957–59) (eds.), *Revised and Enlarged Edition of Prin. V. S. Apte’s the Practical Sanskrit-English Dictionary* (Poona: Prasad Prakashan), [ark:/13960/t3gx47212](https://nopr.scribd.org/archives/01/13960/t3gx47212), accessed 20/10/2017.

Gombrich, Richard (1979), “‘He Cooks Softly’: Adverbs in Sanskrit Grammar,” *Bulletin of the School of Oriental and African Studies*, 42/2: 244–56. DOI: [10.1017/s0041977x0014580x](https://doi.org/10.1017/s0041977x0014580x).

Gupta, Parmanand (1973), *Geography In Ancient Indian Inscriptions (Up to 650 A.D.)* (Delhi: D. K. Publishing House), [ark:/13960/t3907cf2d](https://nopr.scribd.org/archives/01/13960/t3907cf2d).

— (1989), *Geography from Ancient Indian Coins & Seals* (New Delhi: Concept Publishing Company), ISBN: 9788170222484.

Gupta, Sri Madhusudana (1835–36) (ed.), *Āyur-veda-prakāśa [also Called Suśruta-saṃhitā] by Suśruta. the Suśruta, or System of Medicine, Taught by Dhanwantari, and Composed by His Disciple Suśruta*, 2 vols. (Calcutta: Education Press and Baptist Mission Press), [ark:/13960/t6841qw6x](https://nopr.scribd.org/archives/01/13960/t6841qw6x).

Haas, E. (1876), “Über die Ursprünge der Indischen Medizin, mit besonderem Bezug auf Suśruta,” *Zeitschrift der Deutschen Morgenländischen Gesellschaft*, 30/4: 617–70, [URL](https://nopr.scribd.org/archives/01/13960/t6841qw6x).

Harimoto, Kengo (2010), “[Preliminary Edition of the Nepalese MSS of the Suśrutasamhitā, adhyāyas 1.1–3, 6.4]” (prepublished).

— (2011), “In Search of the Oldest Nepalese Manuscript,” *Rivista degli Studi Orientali*, 84/1–4: 85–106, ISSN: 0392-4866, [URL](https://nopr.scribd.org/archives/01/13960/t6841qw6x), accessed 08/09/2019.

— (2013), “Description of microfilm C 80/7,” NGMCP, [URL](https://nopr.scribd.org/archives/01/13960/t6841qw6x), accessed 27/02/2023.

— (2014), “Nepalese Manuscripts of the Suśrutasamhitā,” *Journal of Indian and Buddhist Studies (Indogaku Bukkyogaku Kenkyu)*, 62/3: 23–29 (1087-1093). DOI: [10.4259/ibk.62.3.1087](https://doi.org/10.4259/ibk.62.3.1087), [URL](https://nopr.scribd.org/archives/01/13960/t6841qw6x), accessed 08/09/2019.

- Hayashi, Takao (2017), "The Units of Time in Ancient and Medieval India," *History of Science in South Asia*, 5/1: 1–116. DOI: [10.18732/h2ht0h](https://doi.org/10.18732/h2ht0h).
- Hemarāja Śarman (1938) (ed.), काश्यपसंहिता (वृद्धजीवकीयं तन्त्रं वा) महर्षिणा मारीच-कश्यपेनोपदिष्टा ... हेमराजशर्मणा लिखितेन विस्तृतेन उपोद्धातेन सहिता ... सत्यपाल भिषगा कृतया विद्योतिनी हिन्दीव्याख्यया ... समुल्लसिता (1st edn., Mumba: Nirṇayasāgara Press), [ark:/13960/t3mw5gb9p](https://nirṇayasāgara.org/ark:/13960/t3mw5gb9p).
- Hendley, T. Holbein (1895), *A Medico-topographical Account of Jeypore, Based on the Experience of Twenty Years' Service As a Residency Surgeon and Thirteen As Superintendent of Dispensaries at Jeypore, Rajputana* (Calcutta: Calcutta Central Press Company).
- Hessler, Franciscus (1844–55), *Suśrutas Ayurvēdas: id est Medicinae Systema a Venerabili D'hanvantare Demonstratum a Susruta Discipulo Compositum; Nunc Primum Ex Sanskrita in Latinum Sermonem Vertit, Introductionem, Annotationes Et Rerum Indice Franciscus Hessler* (Erlangen: Ferdinandum Enke), [ark:/13960/t17m45r97](https://nirṇayasāgara.org/ark:/13960/t17m45r97).
- Hoernle, A. F. Rudolf (1893–1912) (ed.), *The Bower Manuscript: Facsimile Leaves, Nagari Transcript, Romanised Transliteration and English Translation with Notes* (New Imperial Series, 22; Calcutta: Government of India and under the patronage of the Bengali Government, Archaeological Survey of India), [ark:/13960/t05z1bg4q](https://nirṇayasāgara.org/ark:/13960/t05z1bg4q).
- (1897), सुश्रुतसंहिता = *The Suśruta-Saṃhitā or the Hindū System of Medicine According to Suśruta Translated from the Original Sanskrit* (Bibliotheca Indica, 911; Calcutta: Asiatic Society), [ark:/13960/t8pd1kw9r](https://nirṇayasāgara.org/ark:/13960/t8pd1kw9r), accessed 03/01/2018; No more published; Hoernle does not state which edition he is translating, but it includes the "Dhanvantari phrase".
- (1906a), "Studies in Ancient Indian Medicine I: The Commentaries on Suśruta," *Journal of the Royal Asiatic Society of Great Britain and Ireland*: 283–302, [URL](https://nirṇayasāgara.org/ark:/13960/t8pd1kw9r), accessed 26/06/2019.
- (1906b), "Studies in Ancient Indian Medicine II: On Some Obscure Anatomical Terms," *Journal of the Royal Asiatic Society of Great Britain and Ireland*, 4: 915–41, [URL](https://nirṇayasāgara.org/ark:/13960/t8pd1kw9r), accessed 25/06/2019.
- (1907a), "Studies in Ancient Indian Medicine II: On Some Obscure Anatomical Terms (Continued from the the Journal, 1906, p. 941)," *Journal of the Royal Asiatic Society of Great Britain and Ireland*: 1–18, [URL](https://nirṇayasāgara.org/ark:/13960/t8pd1kw9r), accessed 25/06/2019.



- Hoernle, A. F. Rudolf (1907*b*), *Studies in the Medicine of Ancient India: Osteology or the Bones of the Human Body* (Oxford: Clarendon Press), [ark:/13960/t1pg9cq8b](#).
- Hofer, Theresia (2007), "Swami Laxmi Ram's Ayurvedic Pharmacy in Jaipur, India," *Wellcome History*, 34: 2–3, [URL](#), accessed 16/03/2022.
- Holwell, J. Z. (1767), *An Account of the Manner of Inoculating for the Small Pox in the East Indies With...Observations on The...Mode of Treating That Disease in Those Parts* (London: T. Becket & P. A. de Hondt), [ark:/13960/t3ws9h63c](#).
- Jack, David Morton (1884), "A Thesis on Cataract in India: Its Pathology and Treatment," Wellcome Library, London, MS 3007, [URL](#), accessed 02/06/2021.
- Jamison, Stephanie W., and Brereton, Joel P. (2014), *The Rigveda* (South Asia Research; New York: Oxford University Press), ISBN: 9780199370184; With commentary at <http://rigvedacommentary.alc.ucla.edu/>.
- Kangle, R. P. (1969), *The Kauṭīliya Arthaśāstra* (2nd edn., Delhi: Motilal Banarsidass), ISBN: 81-208-0042-7, [ark:/13960/t3gz6qh1s](#), accessed 23/09/2021.
- Karttunen, Klaus (2015), *Yonas and Yavanas in Indian Literature* (Studia Orientalia, 116; Helsinki: Finnish Oriental Society), 454, ISBN: 978-951-9380-88-9, [URL](#); Published electronically in 2016 as a back issue of *Studia Orientalia*.
- Keith, Arthur Berriedale (1908), review of A. F. Rudolf Hoernle (1907), "Studies in Ancient Indian Medicine II: On Some Obscure Anatomical Terms (Continued from the the Journal, 1906, p. 941)," *Journal of the Royal Asiatic Society of Great Britain and Ireland*: 1–18, [URL](#), accessed 25/06/2019, in *Zeitschrift Der Deutschen Morgenländischen Gesellschaft*, 1/62: 134–9, [URL](#), accessed 17/04/2021.
- Kieffer-Pülz, Petra (1996), "The Meaning of Māḷa(ka)/māla(ka) in Pāli," in N. Balbir, G.-J. Pinault, and J. Fezas (eds.), *Langue, style et structure dans le monde indien, Centenaire de Louis Renou. Actes du Colloque international* (Paris, 25–27 janvier 1996 (Paris), 285–325, [URL](#), accessed 17/05/2023.

- Klebanov, Andrey (2010), "The \*Nepalese Version of the Suśrutasaṃhitā and Its Interrelation with Buddhism and the Buddhists," MA thesis (Hamburg: Hamburg University, Sept.), [URL](#), accessed 08/09/2019.
- (2012), "Description of microfilm B 29/19," NGMCP, [URL](#), accessed 27/02/2023.
- (2021a), "On the Textual History of the Suśrutasaṃhitā (1): A Study of Three Nepalese Manuscripts," *eJIM: Electronic Journal of Indian Medicine*, 12/1: 1–64. doi: [10.21827/ejim.12.1.37385](#).
- (2021b), "On the Textual History of the Suśrutasaṃhitā, (2): An Anonymous Commentary and its Identified Citations," in Toke Lindegaard Knudsen, Jacob Schmidt-Madsen, and Sara Speyer (eds.), *Body and Cosmos: Studies in Early Indian Medical and Astral Sciences in Honor of Kenneth G. Zysk* (Leiden, Boston: Brill), 110–39. doi: [10.1163/9789004438224\\_008](#).
- Kuist, James M. (1982), *The Nichols File of The Gentleman's Magazine* (Madison: University of Wisconsin Press), ISBN: 0-299-08480-9, [ark:/13960/t53g2ct2z](#).
- Kulikov, Leonid (2006), "The Sanskrit -yet- Optative: A Formation Not Yet Recorded in Sanskrit Grammars," *Wiener Zeitschrift für die Kunde Südasiens*, 50: 27–68. doi: [10.1553/wzksls27](#), [URL](#).
- Lariviere, Richard W. (2003), *The Nāradaśmṛti. Critically Edited with an Introduction, annotated Translation, and Appendices* (2nd edn., Delhi: Motilal Banarsidass), ISBN: 8120818040; First edition: Philadelphia, 1989.
- Law, Bimala Churn (1984), *Historical Geography of Ancient India* (New Delhi: Orient Books Reprint), [ark:/13960/t3d01t737](#); Reprint of 1954 Paris edition.
- Leffler, Christopher T., et al. (2020), "The History of Cataract Surgery: From Couching to Phacoemulsification," *Annals of Translational Medicine*, 8/22: 1551–97, ISSN: 2305-5847. doi: [10.21037/atm-2019-rs-04](#), [URL](#), accessed 02/11/2020.
- Li, Charles (2017), "Critical Diplomatic Editing: Applying Text-critical Principles As Algorithms," in Peter Boot et al. (eds.), *Advances in Digital Scholarly Editing. Papers Presented at the Dixit Conferences in the Hague, Cologne, and Antwerp* (Leiden: Sidestone Press), 305–10, ISBN: 978-90-8890-485-1, [URL](#), accessed 10/11/2020.



- Li, Charles (2017–), “Saktumiva,” [URL](#), accessed 21/01/2023.
- (2018), “Limits of the Real: A Hypertext Critical Edition of Bhartṛhari’s *Dravyasamuddeśa*, with the Commentary of Helārāja,” en, PhD thesis (Cambridge: University of Cambridge). doi: [10.17863/CAM.31454](#).
- (2022a), “Helayo: Reconstructing Sanskrit Texts from Manuscript Witnesses,” *Journal of Open Source Software*, 7/71: 4022. doi: [10.21105/joss.04022](#).
- (2022b), “Reconstructing a Sanskrit Text” (19 Nov.), [URL](#), accessed 20/01/2023.
- Lienhard, Siegfried (1978), “On the Meaning and Use of the Word *Indragopa*,” *Indologica taurinensia*, 6: 177–88, [URL](#), accessed 06/02/2021; The *indragopa* is a ‘red velvet mite’.
- Longmate, Barak (1794), “A Curious Chirurgical Operation,” *The Gentleman’s Magazine and Historical Chronicle*, 64.4 (Oct.): 883, 891, 892; I am grateful to the late John Symons of the Wellcome Library who identified the author ‘B. L.’ as the journalist Barak Longmate. See also Kuist [1982](#): 87.
- Maas, Philipp André (2013), “A Concise Historiography of Classical Yoga Philosophy: *leslie*,” in Eli Franco (ed.), *Historiography and Periodization of Indian Philosophy* (Vienna: Sammlung de Nobili), 53–90, [URL](#), accessed 27/05/2016.
- Mairs, Rachel (2013), “Greek Settler Communities in Central and South Asia, 323 BCE to 10 CE,” in Ato Quayson (ed.), *A Companion To Diaspora And Transnationalism* (Oxford: John Wiley and Sons Ltd), 443–54, ISBN: 9781405188265.
- (2014), *The Hellenistic Far East: Archaeology, Language, and Identity in Greek Central Asia: Archaeology, Language, and Identity in Greek Central Asia* (Berkeley: University of California Press), 250, ISBN: 9780520292468. doi: [10.1525/9780520959545](#).
- Majno, Guido (1975), *The Healing Hand. Man and Wound in the Ancient World* (Cambridge, MA: Harvard University Press), [ark:/13960/t4hm7xf2c](#).

- Malamoud, Charles (1996), "Paths of the Knife: Carving up the Victim in Vedic Sacrifice," in *Cooking the World: Ritual and Thought in Ancient India. Translated from the French by David White* (Delhi, Bombay, etc.: Oxford University Press), 169–80.
- Mānasa-taraṅgiṇī (2019), "Kaiṭabha, Poison and Death: Meanderings through Tradition," mAnasa-taraMgiNI Blog (1 Sept.), [URL](#), accessed 31/01/2023.
- Manucci, Niccolò (1907–08), *Storia Do Mogor or, Mogul India, 1653–1708 by Niccolao Manucci, Venetian; Translated with Introduction and Notes, by William Irvine* (The Indian Texts Series; London: J. Murray), [URL](#), accessed 04/10/2021.
- Masai, François (1950), "Principes et conventions de l'édition diplomatique," *Scriptorium*, 4: 177–93. DOI: [10.3406/scrip.1950.2294](#).
- McHugh, James (2021), *An Unholy Brew: Alcohol in Indian History and Religions* (New York: Oxford University Press), 416 pp., ISBN: 9780199375936.
- Mehta, S. R., and Sashindran, V. K. (2002), "Clinical Features And Management Of Snake Bite," *Medical Journal Armed Forces India*, 58/3 (July): 247–9. DOI: [10.1016/s0377-1237\(02\)80140-x](#).
- Meulenbeld, Gerrit Jan (1974b), *The Mādhavanidāna and Its Chief Commentary: Chapters 1–10. Introduction, Translation, and Notes* (Leiden: Brill), ISBN: 978-90-04-03892-9, [ark:/13960/t25b8q97g](#).
- (1984), "The Surveying of Sanskrit Medical Literature," in id. (ed.), *Proceedings of the International Workshop on Priorities in the Study of Indian Medicine* (Groningen: Forsten), 37–56.
- (1989), "The Search for Clues to the Chronology of Sanskrit Medical Texts As Illustrated by the History of Bhaṅgā (cannabis Sativa Linn.)," *Studien zur Indologie und Iranistik*, 15: 59–70.
- (1991), "The Constraints of Theory in the Evolution of Nosological Classifications: A Study on the Position of Blood in Indian Medicine (Āyurveda)," in *Medical Literature from India, Sri Lanka, and Tibet*, 91–106, ISBN: 90-04-09522-5, [URL](#).
- (1992), "The Characteristics of a Doṣa," *Journal of the European Āyurvedic Society*, 2/1: 1–5, [ark:/13960/t8hf69z8j](#).

- Meulenbeld, Gerrit Jan (2008), *The Mādhavanidāna with "Madhukośa," the Commentary by Vijayarakṣita and Śrīkaṇṭhadatta (Ch. 1-10). Introduction, Translation, and Notes* (Delhi: Motilal Banarsidass).
- (2011), "The Relationships between Doṣas and Dūṣyas: A Study on the Meaning(s) of the Root Murch-/mūrch," *eJournal of Indian Medicine*, 4/2: 35–135, [URL](#), accessed 13/10/2017.
- Miles, M. (1999), "Personal Communication," Mar.; Letter of 4 March.
- Moureau, Sébastien. (2015), "The Apparatus Criticus," in Alessandro Bausi et al. (eds.), *Comparative Oriental Manuscript Studies: An Introduction* (Hamburg: Tredition), 348–52, ISBN: 978-3-7323-1768-4, [URL](#), accessed 04/07/2021.
- Mukhopādhyāya, Girindranāth (1913), *The Surgical Instruments of the Hindus, with a Comparative Study of the Surgical Instruments of the Greek, Roman, Arab, and the Modern European (sic) Surgeons* (Calcutta: Calcutta University), [ark:13960/t1zd2pq29](#), accessed 29/01/2018; Vol.2: [ark:/13960/t9r25qd8m](#). Reprinted as a single volume, New Delhi, 1987.
- Narayana, Ala, and Thrigulla, Saketh Ram (2011), "Tangible Evidences of Surgical Practice in Ancient India," *Journal of Indian Medical Heritage*, 16: 1–18, [URL](#), accessed 02/06/2021.
- NGMCP (2014), "Nepal-german Manuscript Cataloguing Project. Online Title List and Descriptive Catalogue," Universität Hamburg and Deutsche Forschungsgemeinschaft, [URL](#).
- Oberlies, Thomas (2003), *A Grammar of Epic Sanskrit* (Indian Philology and South Asian Studies, 5; Berlin: De Gruyter), ISBN: 9783110144482. DOI: [10.1515/9783110899344](#).
- Olivelle, Patrick (2005), *Manu's Code of Law: A Critical Edition and Translation of the Manava-dharmasastra*, With the editorial assistance of Suman Olivelle (South Asia research; New York: Oxford University Press), ISBN: 0195171462.
- (2013), *King, Governance, and Law in Ancient India: Kauṭilya's Arthaśāstra. a New Annotated Translation* (New York: Oxford University Press), ISBN: 9780199891825. DOI: [10.1093/acprof:osobl/9780199891825.003.0001](#).

- Osbaldeston, Tess Anne, and Wood, R. P. A. (2000), *Dioscorides. De Materia Medica. Being an Herbal with Many Other Medicinal Materials Written in Greek in the First Century of the Common Era. a New Indexed Version in Modern English* [Introductory Notes by R. P. Wood] (Johannesburg: IBIDIS Press), ISBN: 0-620-23435-0, [URL](#).
- Pandey, Anshuman (2012), "Proposal to Encode the Newar Script in ISO/IEC 10646," [URL](#).
- Pass, Gregory (2003), *Descriptive Cataloging of Ancient, Medieval, Renaissance, and Early Modern Manuscripts* (Chicago: American Library Association), ISBN: 0-8389-8218-2, [URL](#).
- PBS (2020), "Modern Day Blood-letting in North Africa," PBS (11 Dec.), [URL](#); Filmed in Farchana, Chad, amongst Sudanese refugees from Darfur, for the series *Our Human Planet*.
- Pillay, V. V. (2013), *Modern Medical Toxicology* (New Delhi: Jaypee Brothers Pvt. Ltd), ISBN: 9789350259658.
- Pillay, Vijay V., and Sasidharan, Anu (2019), "Oleander and Datura Poisoning: An Update," *Indian Journal of Critical Care Medicine*, 23/Supplement 4: 5250–5. DOI: [10.5005/jp-journals-10071-23302](#).
- Preisendanz, Karin (2007), "The Initiation of the Medical Student in Early Classical Āyurveda: Caraka's Treatment in Context," in Birgit Kellner et al. (eds.), *Pramāṇakīrtiḥ. Papers Dedicated to Ernst Steinkellner on the Occasion of His 70th Birthday. Part 2*, ii, 2 vols. (Wiener Studien zur Tibetologie und Buddhismuskunde, 70.2; Wien: Arbeitskreis für Tibetische Und Buddhistische Studien Universität Wien), 629–68, ISBN: 9783902501097, [URL](#).
- Price, Kenneth M. (2013), "Electronic Scholarly Editions," in Ray Siemens and Susan Schreiban (eds.), *A Companion to Digital Literary Studies* (Chichester, UK: John Wiley & Sons, Ltd), 434–50. DOI: [10.1002/9781405177504.ch24](#), [URL](#), accessed 04/07/2021.
- Rādhākāntā Deva, Rājā (1876), *शब्दकल्पद्रुमः = Shabda Kalpadrumah, Or, the Tree Bearing All the Words That May Be Wished For* (Calcutta: Baradākānta Mitra & Co. at the New Bengal Press), [ark:/13960/t9x10x61b](#).

- Rai, Saurav Kumar (2019), "Invoking 'Hindu' Ayurveda: Communalisation of the Late Colonial Ayurvedic Discourse," *The Indian Economic & Social History Review*, 56/4: 411–26. doi: [10.1177/0019464619873820](https://doi.org/10.1177/0019464619873820); Online first.
- Rama Rao, B., et al. (2005), *Sanskrit Medical Manuscripts in India* (New Delhi: Central Council for Research in Ayurveda & Siddha), [ark :/ 13960/t88h7763b](https://nopr.scribd.com/document/13960/t88h7763b).
- Rama Sastri and Krishnamurthi Sastri, S. R. (1952) (eds.), *पातञ्जलयोग-सूत्रभाष्यविवरणम्। (शङ्करभगवत्पादप्रणीतम्) = Pātñjala[sic]-yogasūtra-bhāṣya Vivaraṇam of Śaṅkara-Bhagavatpāda. Critically Edited with Introduction* (Madras Government Oriental Series, 94; Madras: Government Oriental Manuscripts Library), [ark :/ 13960 / t7jq3m14w](https://nopr.scribd.com/document/13960/t7jq3m14w), accessed 20/10/2017.
- Rây, Priyadarajan, Gupta, Hirendra Nath, and Roy, Mira (1980), *Suśruta Saṃhita (a Scientific Synopsis)* (New Delhi: Indian National Science Academy), [ark:/13960/t64511t6v](https://nopr.scribd.com/document/13960/t64511t6v), accessed 13/09/2019.
- Raychaudhuri, Hemachandra (1953), *Political History of Ancient India* (Calcutta: University of Calcutta), [ark:/13960/s25hz0hz29p](https://nopr.scribd.com/document/13960/s25hz0hz29p).
- Renou, Louis (1940), "Sur certaines anomalies de l'optatif Sanskrit," *Bulletin de la Société de Linguistique de Paris*, 41: 5–17, [ark :/ 12148 / bpt6k121049](https://nopr.scribd.com/document/12148/bpt6k121049).
- Rhys Davids, Thomas William, and Stede, William (1921–25), *The Pali Text Society's Pali-English Dictionary* (London: The Pali Text Society), [ark:/ 13960/t4nk3nc12](https://nopr.scribd.com/document/13960/t4nk3nc12).
- Rimal, Madhusudana, and Wujastyk, Dominik (2022), "MS Kathmandu NAK 1/1146," Pandit Project (18 May), [URL](https://panditproject.org/MS-Kathmandu-NAK-1-1146).
- Roelli, Philipp (2020) (ed.), *Handbook of Stemmataology* (Berlin: De Gruyter). doi: [10.1515/9783110684384](https://doi.org/10.1515/9783110684384).
- Roelli, Philipp, and Macé, Caroline (2015), "Parvum Lexicon Stemmataologicum. A Brief Lexicon of Stemmataology." doi: [10.5167/uzh-121539](https://doi.org/10.5167/uzh-121539).
- Roşu, Arion (1989), *Un demi-siècle de recherches āyurvédiques. Gustave Liétard et Palmyr Cordier: Travaux sur l'histoire de la médecine indienne* (Paris: Institut de Civilisation Indienne).

- Saha, Mridula (2015), *The History of Indian Medicine Based on the Vedic Literature Satapatha Brahmana* (Kolkata: The Asiatic Society), ISBN: 978-9381574294.
- Sarukkai, Sundar (2016), "Translation As Method: Implications for History of Science," in Bernard Lightman, Gordon McOuat, and Larry Stewart (eds.), *The Circulation of Knowledge Between Britain, India and China* (Leiden: BRILL), 309–29. doi: [10.1163/9789004251410\\_014](https://doi.org/10.1163/9789004251410_014).
- Sastri, Hrishikesh, and Gui, Siva Chandra (1895–1917), *A Descriptive Catalogue of Sanskrit Manuscripts in the Library of Calcutta Sanskrit College* (Calcutta: Baptist Mission Press).
- Sastri, P. P. S. (1933), *A Descriptive Catalogue of the Sanskrit Manuscripts in the Tanjore Maharaja Serfoji's Sarasvati Mahal Library Tanjore: Natya, Sangita, Kamasstra, Vaidya & Jyotisa, nos. 10650–11737* (Srirangam: Sri Vani Vilas Press), [ark:/13960/t3nw8bc12](https://nbn-resolving.org/urn:nbn:in:nlmres-13960-t3nw8bc12).
- Śāstrī, Vardhamāna Pārśvanātha (1940) (ed.), *उग्रादित्याचार्यकृत कल्याणकारक (राष्ट्रभाषानुवादसहित) = The Kalyāṇa-kāraṇam of Ugrādityacharya, Edited with Introduction, Translation, Notes, Indexes and Dictionary* (Sakhārāma Nemacanda Gramthamālā, 129; Solāpura: Seṭha Goviṃdajī Rāvajī Doṣī), [ark:/13960/t2q617g4d](https://nbn-resolving.org/urn:nbn:in:nlmres-13960-t2q617g4d).
- Schwartzberg, Joseph E., Bajpai, Shiva G., et al. (1978) (eds.), *A Historical Atlas of South Asia* (Chicago: University of Chicago Press), [URL](https://www.oxfordreference.com/view/10.1093/acref/9780195067139).
- Scott, H. (1817), "Some Remarks on the Arts of India, with Miscellaneous Observations on Various Subjects," *Journal of Science and the Arts*, 2: 67–72, ill. after 133, [ark:/13960/t9870jt4g](https://nbn-resolving.org/urn:nbn:in:nlmres-13960-t9870jt4g); Breton 1826: 358–363 cites Scott's description of cataract couching.
- Semeka-Pankratov, Elena (1979), "A Semiotic Approach to the Polysemy of the Symbol *nāga* in Indian Mythology," in Irene Portis Winner and Jean Umiker-Sebeok (eds.), *Semiotics of Culture* (Approaches to Semiotics, 53; The Hague, Paris, NY: Mouton), 237–90. doi: [10.1515/9783110823134-009](https://doi.org/10.1515/9783110823134-009); The contents of this volume were published simultaneously in *Semiotica* (1/3) 1979.
- Sen, Sailendra Nath (1988), *Ancient Indian History and Civilization* (Delhi: New Age International), [ark:/13960/t8gf8pz34](https://nbn-resolving.org/urn:nbn:in:nlmres-13960-t8gf8pz34).



- Sena, Gaṅgāprasād, et al. (1886–93) (eds.), सुश्रुतसंहिता...दल्लनाचार्य-कृत-निबन्ध-संग्रह, चक्रपाणिदत्त-कृत-भानुमती-टीका...वङ्गानुवाद...इंरेजि प्रतिशब्द (Calcutta: Maṇirāma Press); Edition "g" in [HIML](#): IB, 311.
- Sharma, Har Dutt (1939), *Descriptive Catalogue of the Government Collections of Manuscripts Deposited at the Bhandarkar Oriental Research Institute, Vol. XVI, Part I, Vaidyaka* (Descriptive Catalogue of Manuscripts in the Government Manuscripts Library, XVI.I; Pune: Bhandarkar Oriental Research Institute), [ark:/13960/t0ms6rc70](#), accessed 23/10/2019.
- Sharma, Priya Vrat (1972), *Indian Medicine in the Classical Age* (Varanasi: Chowkhamba Sanskrit Series Office).
- (1975), *Āyurved Kā Vaijñānik Itihās* (Jayakṛṣṇadāsa Āyurveda Granthamālā; Vārāṇasī: Caukhambā Orientalia).
- (1982), *Ḍalhaṇa and his Comments on Drugs* (Delhi: Munshiram Manoharlal).
- (1999–2001), *Suśruta-Saṃhitā, with English Translation of Text and Ḍalhaṇa's Commentary Alongwith (sic) Critical Notes*, 3 vols. (Haridas Ayurveda Series, 9; Varanasi: Chaukhambha Visvabharati).
- Shastri, R. Shama (1920) (ed.), बोधायनगृह्यसूत्रम् *The Bodhāyana Grihyasutra* (Mysore: University of Mysore), [ark:/13960/t2t492622](#).
- Shiffman, Melvin A. (2013), "History of Otoplasty: Review of Literature," in id. (ed.), *Advanced Cosmetic Otoplasty: Art, Science, and New Clinical Techniques* (Berlin, Heidelberg: Springer), chap. 5, 43–64. DOI: [10.1007/978-3-642-35431-1\\_5](#).
- Siddiqi, Muhammad Zubayr (1959), *Studies in Arabic and Persian Medical Literature*, [ark:/13960/s25bxqt84xm](#).
- Singhal, G. D., et al. (1972–82), *Diagnostic [and Other] Considerations in Ancient Indian Surgery* (Varanasi: Singhal Publications); A translation of the *Suśrutasaṃhitā* in 10v.
- Sircar, Dinesh Chandra (1971), *Studies in the Geography of Ancient and Medieval India* (2nd edn., Delhi: Motilal Banarsidass), [ark:/13960/t72w2zd8w](#).
- (1987), "6. Rākshashkhālī (Sundarban) Plate; Śaka 1118," *Epigraphia Indica* (1953–54), 30: 42–3, [ark:/13960/t80m25q3w](#).

- Śiromaṇi, Bharatacandra (1873) (ed.), चतुर्वर्गचिन्तामणि-दानखण्डम् (Calcutta: Asiatic Society of Bengal), [ark:/13960/t1rf9jd94](https://n2t.net/ark:/13960/t1rf9jd94).
- Sleeman, W. H. (1893), *Rambles and Recollections of an Indian Official* (London: Constable), [ark:/13960/t22c4bx7w](https://n2t.net/ark:/13960/t22c4bx7w); v. 2 at <http://n2t.net/ark:/13960/t2s52bq7w>.
- Slouber, Michael (2016), *Early Tantric Medicine: Snakebite, Mantras, and Healing in the Garuda Tantras* (New York: OUP), 392 pp., ISBN: 9780190461812.
- Smith, Brian K. (1994), *Classifying the Universe: The Ancient Indian Varṇa System and the Origins of Caste* (New York, Oxford: Oxford University Press), ISBN: 0-19-508498-5.
- Spencer, Walter George (1935–38), *Celsus: De Medicina. with an English Translation by W. G. Spencer*, 3 vols. (Loeb Classical Library, 292, 304, 336; Cambridge, MA; London: Harvard University Press; William Heinemann), [URL](https://n2t.net/ark:/13960/t95823n1k), accessed 02/06/2021.
- Speziale, Fabrizio (2019), “Rasāyana and Rasaśāstra in the Persian Medical Culture of South Asia,” *History of Science in South Asia*, 7: 1–41. DOI: [10.18732/hssa.v7i0.40](https://doi.org/10.18732/hssa.v7i0.40).
- Spink, M. S., and Lewis, G. L. (1973) (eds.), *Albucasis on Surgery and Instruments: A Definitive Edition of the Arabic Text with English Translation and Commentary* (London: Wellcome Institute of the History of Medicine), [ark:/13960/t95823n1k](https://n2t.net/ark:/13960/t95823n1k).
- Srikantha Murthy, K. R. (2000–02), *Illustrated Suśruta Saṃhitā: Text, English Translation, Notes, Appendices and Index* (Jaikrishnadas Ayurveda Series, 102; 1st edn., Varanasi: Chaukhambha Orientalia).
- Steingass, F. (1930), *A Comprehensive Persian-English Dictionary Including the Arabic Words and Phrases to Be Met with in Persian Literature* (London: Kegan Paul, Trench, Trubner), [ark:/13960/s25bwz0337d](https://n2t.net/ark:/13960/s25bwz0337d); Reprint, Delhi: Oriental Reprint, 1973.
- Storey, C. A. (1971), *Persian Literature, a Bio-bibliographical Survey*. Vol. II.2: Medicine (London: Royal Asiatic Society of Great Britain and Ireland), [ark:/13960/t9v18bf68](https://n2t.net/ark:/13960/t9v18bf68).



- Strauss, Bettina (1934), “Das Giftbuch des Sānāq: eine Literaturgeschichtliche Untersuchung,” *Quellen und Studien zur Geschichte der Naturwissenschaften und der Medizin*, 4/2: [89]–[152] followed by Arabic text, [ark:/13960/s2hb5j66s95](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63688-p0095-9).
- Suvedī, K. S., and Tivārī, N. (2000) (eds.), सौश्रुतनिघण्टुः ग्रन्थादौ विस्तृतेन ग्रन्थवैशिष्ट्यप्रकाशकेनोपोद्धातेन अवसाने च द्रव्याणामनेकभाषानामावली-पर्यायसङ्ग्रहाभ्यां समलङ्कृतः सुश्रुतसंहितायां प्रयुक्तानामौषधद्रव्याणां पर्याय-गुणकर्मवर्णात्मकोऽपूर्वग्रन्थः (Belajhūṇḍī, Dān: Mahendrasaṃskṛtavīśvavidyālayaḥ).
- Talwar, P. K., and Kacker, R. K. (1984), *Commercial Sea Fishes of India* (Calcutt: Zoological Survey of India), [ark:/13960/t5s841v5m](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63688-p0095-9).
- Tavernier, Jean-Baptiste (1684), *Collections of Travels through Turkey (sic), into Persia, and the East-Indies* (London: M. Pitt), [ark:/13960/t9g45vn74](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63688-p0095-9).
- TEI Consortium (2010), *TEI P5: Guidelines for Electronic Text Encoding and Interchange*, ed. C. M. Sperberg-McQueen et al. (Oxford, Providence, Charlottesville, Nancy: TEI Consortium), [URL](https://www.tei.org/).
- Thorburn, S. S. (1876), *Bannu; or Our Afghan Frontier* (London: Trübner & Co.), [ark:/13960/t39z96g7m](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63688-p0095-9); Reprinted Lahore: Niaz Ahmad, 1978.
- UNESCO (2013), “International Memory of the World Register *Susruta Samhita* (Nepal),” UNESCO, [URL](https://www.unesco.org/), accessed 11/09/2019.
- Unicode Consortium (1991), “The Unicode Standard 15.0, Newa Range,” [url: https://unicode.org/charts/PDF/U11400.pdf](https://unicode.org/charts/PDF/U11400.pdf).
- Unschuld, Paul Ulrich (1984), *Medicine in China: A History of Ideas* (Berkeley: University of California Press), ISBN: 0520050231.
- Valiathan, M. S. (2007), *The Legacy of Suśruta* (Hyderabad, Chennai, etc.: Orient Longman).
- Velankar, H. D (1925–30), *Descriptive Catalogue of the Sanskr̥ta and Prākṛta Manuscripts in the Library of the Bombay Branch of the Royal Asiatic Society* (Bombay: Royal Asiatic Society, Bombay), [ark:/13960/t53g00h0n](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63688-p0095-9); Biswas #0115.
- Wall, Frank (1913), *The Poisonous Terrestrial Snakes of Our British Indian Dominions (Including Ceylon) and How to Recognize Them; With Symptoms of Snake Poisoning and Treatment* (3rd edn., Bombay: Bombay Natural History Society), [ark:/13960/t1zc8g94b](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63688-p0095-9).

- Wall, Frank (1921), *Ophidia Taprobanica or the Snakes of Ceylon* (Colombo: Cottle, Government Printer), [ark:/13960/t39z9q93n](https://nbn-resolving.org/urn:nbn:de:bsz:55-13960-t39z9q93n).
- Whitney, William Dwight (1885), *The Roots, Verb-forms, and Primary Derivatives of the Sanskrit Language. A Supplement to his Sanskrit Grammar* (Leipzig: Breitkopf and Härtel), [ark:/13960/t3qv3p906](https://nbn-resolving.org/urn:nbn:de:bsz:55-13960-t3qv3p906).
- Wilson, H. H. (1823), "On the Medical and Surgical Sciences of the Hindus," *The Oriental Magazine and Calcutta Review*, 1: 207–12, 349–56, [URL](#).
- Woodcock, Martin W. (1980), *Collins Handguide to the Birds of the Indian Sub-continent, Including India, Pakistan, Bangladesh, Sri Lanka and Nepal* (Collins), ISBN: 0-00-219712-X; Reprinted 1990.
- Wujastyk, Dagmar (2012), *Well-mannered Medicine: Medical Ethics and Etiquette in Classical Ayurveda* (New York: Oxford University Press). DOI: [10.1093/acprof:oso/9780199856268.001.0001](https://doi.org/10.1093/acprof:oso/9780199856268.001.0001).
- (2013a), "Perfect Medicine. Mercury in Sanskrit Medical Literature," *Asian Medicine: Tradition & Modernity*, 8/1 (Sept.): 15–40, ISSN: 1573-4218. DOI: [10.1163/15734218-12341278](https://doi.org/10.1163/15734218-12341278).
- (2019), "Iron Tonics: Tracing the Development from Classical to Iatrochemical Formulations in Ayurveda," *HIMALAYA: The Journal of the Association for Nepal and Himalayan Studies*, 39/1. DOI: [10.5281/zenodo.7746874](https://doi.org/10.5281/zenodo.7746874).
- Wujastyk, Dominik (1993), "Indian Medicine," in W. F. Bynum and Roy Porter (eds.), *Companion Encyclopedia of the History of Medicine*, i (London: Routledge), chap. 33, 755–78, ISBN: 0-415-04771-4, [URL](#).
- (2002), "Cannabis in Traditional Indian Herbal Medicine," in Ana Salema (ed.), *Āyurveda at the Crossroads of Care and Cure. Proceedings of the Indo-European Seminar on Ayurveda held at Arrábida, Portugal, in November 2001* (Lisbon: Centro de História de Além-Mar, Universidade Nova de Lisboa), 45–73, ISBN: 972-98672-5-9, [URL](#), accessed 27/05/2019.
- (2003a), "Black Plum Island," in *2nd International Conference on Indian Studies. Proceedings* (Kraków: Jagiellonian University, Institute of Oriental Philology and Księgarnia Akademicka), 637–49.
- (2003b), *The Roots of Ayurveda: Selections from Sanskrit Medical Writings* (Penguin Classics; 3rd edn., London, New York, etc.: Penguin Group), ISBN: 0-140-44824-1.

- Wujastyk, Dominik (2004), "Agni and Soma: A Universal Classification," *Studia Asiatica: International Journal for Asian Studies*, IV–V, ed. Eugen Ciurtin: 347–70. DOI: [10.5281/zenodo.7742068](https://doi.org/10.5281/zenodo.7742068).
- (2013b), "New Manuscript Evidence for the Textual and Cultural History of Early Classical Indian Medicine," in *Medical Texts and Manuscripts in Indian Cultural History*, ed. Dominik Wujastyk, Anthony Cerulli, and Karin Preisendanz (New Delhi: Manohar), 141–57, [URL](#).
- Wujastyk, Dominik, et al. (2020), "Suśrutasamhitā," PanditProject (6 Oct.), [URL](#), accessed 14/09/2022.
- Wujastyk, Dominik (2021a), "A New Translation of Carakasamhitā, Vimānasthāna, Chapter 1, Based on the Vienna Critical Edition," in Toke Lindegaard Knudsen, Jacob Schmidt-Madsen, and Sara Speyer (eds.), *Body and Cosmos. Studies in Early Indian Medical and Astral Sciences in Honor of Kenneth G. Zysk* (Leiden, Boston: Brill), chap. 6, 77–109. DOI: [10.1163/9789004438224\\_007](https://doi.org/10.1163/9789004438224_007).
- (2021b), "MS London BL H. T. Colebrooke 908," [URL](#), accessed 03/07/2021.
- (2021–), "Sushrutaproject: Version Control for Suśruta Text TEI Transcriptions: Suśruta Project Manuscript Transcriptions," University of Alberta, [URL](#), accessed 21/01/2023; archived at DOI: [10.5281/zenodo.6471655](https://doi.org/10.5281/zenodo.6471655).
- Wujastyk, Dominik, et al. (2021–), "The Suśruta Project: The Textual and Cultural History of Medicine in South Asia Based on Newly-Discovered Manuscript Evidence," ed. Dominik Wujastyk, Jason Birch, Andrey Klebanov, et al., [URL](#), accessed 21/01/2023.
- Wujastyk, Dominik, Birch, Jason, Klebanov, Andrey, et al. (2021–) (eds.), "New Digital Edition of the Suśrutasamhitā: The Suśruta Project at Sak-tumiva," University of Alberta, [URL](#).
- Wujastyk, Dominik, Birch, Jason, Klebanov, Andrey, et al. (2023), *On the Plastic Surgery of the Ears and Nose. The Nepalese Version of the Suśrutasamhitā* (Heidelberg: Heidelberg Asian Studies Publishing), ISBN: 978-3-948791-63-6. DOI: [10.11588/hasp.1203](https://doi.org/10.11588/hasp.1203) (inpress).
- Wujastyk, Dominik, Pollock, Sheldon, et al. (2008–), "SARIT: Search and Retrieval of Indic Texts," [URL](#), accessed 21/01/2023.

- Yagi, Toru (1994), "A Note on bhojya- and bhakṣya-," in Yasuke Ikari (ed.), *A Study of the Nīlamata. Aspects of Hinduism in Ancient Kashmir* (Kyoto: Kyoto Institute for Research in Humanities, Kyoto University).
- Yano, Michio (1986), "A Comparative Study of *Sūtrasthānas*: Caraka, Suśruta, and Vāgbhaṭa," in Teizo Ogawa (ed.), *History of Traditional Medicine: Proceedings of the 1st and 2nd International Symposia on the Comparative History of Medicine—East and West* (Osaka: Division of Medical History, the Taniguchi Foundation), 325–44.
- Zimmermann, Francis (1983), "Suśrutasamhita," review of G. D. Singhal et al. (1972–82), *Diagnostic [and Other] Considerations in Ancient Indian Surgery* (Varanasi: Singhal Publications); A translation of the *Suśrutasamhitā* in 10v. In *Bulletin of the History of Medicine*, 57/2: 291–3, ISSN: 00075140, eprint: [44441590](https://doi.org/10.1080/00075140.1983.10556000), URL.
- (1999), *The Jungle and the Aroma of Meats* (2nd edn., Delhi: Motilal Banarsidass), ISBN: 8120816188.
- Zysk, Kenneth G. (1984), "An Annotated Bibliography of Translations into Western Languages of Principle Sanskrit Medical Treatises," *Clio Medica*, 19/3–4: 281–91.
- (1985), *Religious Healing in the Veda: With Translations and Annotations of Medical Hymns from the Rgveda and the Atharvaveda and Renderings from the Corresponding Ritual Texts* (Transactions of the American Philosophical Society; Philadelphia: American Philosophical Society), ISBN: 0871697572.
- (1986), "The Evolution of Anatomical Knowledge in Ancient India with Special Reference to Cross-cultural Influences," *Journal of the American Oriental Society*, 106: 687–705. DOI: [10.2307/603532](https://doi.org/10.2307/603532).
- (2000), *Asceticism and Healing in Ancient India: Medicine in the Buddhist Monastery* (Indian Medical Tradition; 2nd edn., Delhi: Motilal Banarsidass); First published 1991. Reprint of 1998 edition.

# Glossary

## cow-praising

-govandanā: 23

ācāra

-regimen: 16

accumulation

-sañcaya: 18

adhiṣṭhāna

-located: 16

adhyāya

-sections: 19

āgantū

-external factors:

19

āhāra

-diet: 16

ahorātra

-day and night: 18

ajeya

-invincible: 54

alagarddā

-sting-gush: 22

ālepana

-liniments: 23

alleviation

-pratīkāra: 18

along these lines

-evam: 18

amṛta

-immortal: 54

aṇḍaja

-born from eggs:

17

aṅga

-parts: 18

anger

-krodha: 16

animals

-paśu: 17

ants

-pipīlika: 17

āśoka

-grief: 16

āśrayin

-substrate: 16

asthi

-bones: 19

asūyā

-jealousy: 16

ātmaka

-nature: 16

ayana

-half-year: 18

āyatta

-depends on: 16

āyur

-life: 22

-life, longevity: 13

āyurveda

-the science of life:

13

bala

-strength: 16

bāṣpa

-vapour: 48

bhramaraka

-drongo: 48

bhr̥ṅgarāja

-racket-tailed

drongo: 48

black drongo

-dhūmyāṭa: 48

black

-kṛṣṇā: 22

blink of the eye

-nimeṣa: 18

blood

-rudhira: 17

bones

-asthi: 19

born from eggs

-aṇḍaja: 17

born in in a caul

-jarāyujā: 17

born of sweat

-svedaaja: 17

bṛṇhana

-nourishment: 16

bulbs

-kanda: 17

bull

-vṛṣabha: 48

carman

-pelt: 17

cāsyāt

-from his mouth:

49

caturvarga

-fourfold

grouping: 18

catuṣṭaya

-four factors: 18

chedya

-excision: 19

chinna

-segmented: 23

chital deer

-pṛṣata: 48

clusters

-samplava: 17

collection

-varga: 18

comfort

-sukha : 18

complexion

-varṇa: 16

congested humours

-sannipāta: 19

creepy-crawlies

-sarīsrpa: 14, 17

dainya

-misery: 16

dantamāmsa

-flesh of the tooth:

50

dantaveṣṭa

-enclosure of a

tooth: 50

dart-mouth

-śaṅkumukhī : 23  
*datta*  
 -given: 48  
 day and night  
 -ahorātra: 18  
 depends on  
 -āyatta: 16  
 depression  
 -viśāda: 16  
 desire  
 -icchā: 16  
*dhātu*  
 -element: 56  
*dhūmyāta*  
 -black drongo: 48  
 diet  
 -āhāra: 16  
 disease  
 -vyadhi: 18  
*doṣa*  
 -humours: 18  
 drongo  
 -bhramaraka: 48  
 ducts  
 -sirā: 19  
*duḥkha*  
 -suffering: 16  
*dveṣa*  
 -hatred: 16  
 earth products  
 -pārthiva: 17  
 earthen products  
 -pārthiva: 18  
 element  
 -dhātu: 56  
 enclosure of a tooth  
 -dantaveṣṭa: 50  
 envy  
 -īrṣyā: 16  
 essence  
 -sāra: 17  
*evam*  
 -along these lines:  
 18  
 excision

-chedya: 19  
 external factors  
 -āgantū: 19  
 flavours  
 -rasa: 16  
 flesh  
 -māṃsa: 19  
 flesh of the tooth  
 -dantamāṃsa: 50  
 flowering trees  
 -vykṣa: 17  
 flowers  
 -puṣpa: 17  
 fortnight  
 -pakṣa: 18  
 four factors  
 -catuṣṭaya: 18  
 fourfold grouping  
 -caturvarga: 18  
 frogs  
 -maṇḍūka: 17  
 from his mouth  
 -cāsyāt: 49  
 fruit trees  
 -vanaspati: 17  
 fruits  
 -phala: 17  
 given  
 -datta: 48  
*govandanā*  
 -cow-praising: 23  
 great antidote  
 -mahāgāda: 23  
 greed  
 -lobha: 16  
 grief  
 -āśoka: 16  
 half-year  
 -ayana: 18  
*harṣa*  
 -overexcitement:  
 16  
 hatred

-dveṣa: 16  
 herbs  
 -oṣadhi: 17  
 human being  
 -puruṣa: 16, 18  
 humours  
 -doṣa: 18  
*icchā*  
 -desire: 16  
 immortal  
 -amṛta: 54  
 in yama's direction  
 -yāmya: 74  
*indragopa*  
 -red velvet mites:  
 17  
*indrāyudhā*  
 -rainbow: 23  
 inherent factors  
 -svabhāva: 19  
 inherent  
 -svābhāvika: 16  
 intended  
 -vyākhyāta: 19  
 invincible  
 -ajeya: 54  
 irregularities  
 -vaiśamya: 16  
 irritation  
 -prakopa: 18  
*īrṣyā*  
 -envy: 16  
 items created by time  
 -kālakṛta: 17f  
*jala*  
 -water: 22  
*jalaukas*  
 -water-dwellers:  
 22  
*jaṅgama*  
 -moving: 17f  
*jarāyuja*  
 -born in in a caul:  
 17

jealousy  
- *asūyā*: 16  
joints  
- *sandhi*: 19  
juice extract  
- *svarasa*: 17  
  
*kalā*  
- minutes: 18  
*kālakṛta*  
- items created by  
time: 17f  
*kāma*  
- lust: 16  
*kanda*  
- bulbs: 17  
*kapilā*  
- tawny: 23  
*kapittha*  
- wood apple: 81  
*karburā*  
- mottled: 22  
*karman*  
- therapies: 19  
*kāṣṭhā*  
- trice: 18  
knowledge  
- *veda*: 13  
*kriyā*  
- procedures: 15f,  
19  
- treatment: 18  
*kriyākāla*  
- the time for  
therapies: 18  
*kṛmi*  
- worms: 17  
*krodha*  
- anger: 16  
*kṛṣṇā*  
- black: 22  
*kṣīra*  
- sap: 17  
*kunṭa*  
- small insects: 17

leaves  
- *patra*: 17  
*lekhana*  
- scarification: 16  
life  
- *āyur*: 22  
life, longevity  
- *āyur*: 13  
liniments  
- *ālepana*: 23  
*lobha*  
- greed: 16  
located  
- *adhiṣṭhāna*: 16  
lotus-mouth  
- *puṇḍarīkamukhī*:  
23  
lust  
- *kāma*: 16  
*lūtā*  
- spiders: 14  
  
*mahāgāda*  
- great antidote: 23  
malice  
- *mātsarya*: 16  
*māṃsa*  
- flesh: 19  
*mānasa*  
- mental: 16  
*maṇḍūka*  
- frogs: 17  
*marks with a knife*  
- *śastrapada*: 26  
*māsa*  
- month: 18  
*mātsarya*  
- malice: 16  
mental  
- *mānasa*: 16  
minutes  
- *kalā*: 18  
misery  
- *dainya*: 16  
month  
- *māsa*: 18

mottled  
- *karburā*: 22  
mouse  
- *mūṣikā*: 23  
moving  
- *jaṅgama*: 17f  
*muhūrta*  
- three-quarters of  
an hour: 18  
*mūla*  
- root: 16  
- roots: 17  
*mūṣikā*  
- mouse: 23  
*mūṣika*  
- rodents: 14  
  
nature  
- *ātmaka*: 16  
*nimeṣa*  
- blink of the eye:  
18  
*niryāsa*  
- resin: 17  
*nivāta*  
- no wind: 17  
no wind  
- *nivāta*: 17  
nourishment  
- *bṛṇhaṇa*: 16  
  
oceanic  
- *sāmudrikā*: 23  
oil  
- *sneha*: 17  
*ojas*  
- vital energy: 16  
*oṣadhi*  
- herbs: 17  
- remedies: 18  
*oṣadhī-*  
- remedies: 16  
overexcitement  
- *harṣa*: 16  
  
pacification

- *saṁśamana*: 16  
 - *upaśama*: 18  
 pain and injury  
 - *vedanābhighāta*: 13  
*pakṣa*  
 - fortnight: 18  
*pārthiva*  
 - earth products: 17  
 - earthen products: 18  
 particulars  
 - *vikalpa*: 18  
 parts  
 - *aṅga*: 18  
*paśu*  
 - animals: 17  
*patra*  
 - leaves: 17  
 pelt  
 - *carman*: 17  
*phala*  
 - fruits: 17  
 physical  
 - *śārīravat*: 18  
*piṅgalā*  
 - ruddy: 23  
*pipīlaka*  
 - ants: 17  
 practical purposes  
 - *prayojanavat*: 18  
*prakopa*  
 - irritation: 18  
*prakṛti*  
 - temperament: 16  
*pratīkāra*  
 - alleviation: 18  
*prayojanavat*  
 - practical purposes: 18  
 procedures  
 - *kriyā*: 15f, 19  
*prṣata*  
 - chital deer: 48  
*punḍarikamukhī*  
 - lotus-mouth: 23

purification  
 - *saṁśodhana*: 16  
*puruṣa*  
 - human being: 16, 18  
*puṣpa*  
 - flowers: 17  
 racket-tailed drongo  
 - *bhr̥ṅgarāja*: 48  
 rainbow  
 - *indrāyudhā*: 23  
 rainy seasons  
 - *varṣā*: 17  
*rasa*  
 - flavours: 16  
 red velvet mites  
 - *indragopa*: 17  
 regimen  
 - *ācāra*: 16  
 remedies  
 - *oṣadhi*: 18  
 - *oṣadhī*:- 16  
 resin  
 - *niryāsa*: 17  
 rodents  
 - *mūṣika*: 14  
 root  
 - *mūla*: 16  
 roots  
 - *mūla*: 17  
*ṛtu*  
 - season: 18  
 ruddy  
 - *piṅgalā* : 23  
*rudhira*  
 - blood: 17  
*samlava*  
 - clusters: 17  
*saṁśamana*  
 - pacification: 16  
*saṁśodhana*  
 - purification: 16  
*sāmudrikā*  
 - oceanic: 23

*saṁvatsara*  
 - year: 18  
*sañcaya*  
 - accumulation: 18  
*sandhi*  
 - joints: 19  
*śaṅkumukhī*  
 - dart-mouth: 23  
*sannipāta*  
 - congested humours: 19  
 sap  
 - *kṣīra*: 17  
*sāra*  
 - essence: 17  
*śārīravat*  
 - physical: 18  
*sarīṣpa*  
 - creepy-crawlies: 14, 17  
*śastrapada*  
 - marks with a knife: 26  
*sāvarikā*  
 - *sāvarikā*: 23  
*sāvarikā*  
 - *sāvarikā* : 23  
 scarification  
 - *lekhaṇa*: 16  
 season  
 - *ṛtu*: 18  
 sections  
 - *adhyāya*: 19  
 segmented  
 - *chinna*: 23  
 shoots  
 - *udbhīd*: 17  
 shrubs  
 - *vīrudh*: 17  
 sinews  
 - *snāyu*: 19  
*sirā*  
 - ducts: 19  
 skin  
 - *tvak*: 17f



small insects  
     - *kunta*: 17  
*snāyu*  
     - sinews: 19  
*sneha*  
     - oil: 17  
 soma creeper  
     - *somalatā*: 49  
*somalatā*  
     - soma creeper: 49  
 spiders  
     - *lūtā*: 14  
*śreyas*  
     - welfare: 13  
 stationary  
     - *sthāvara*: 16, 18  
*sthāvara*  
     - stationary: 16, 18  
 sting-gush  
     - *alagarddā*: 22  
 strength  
     - *bala*: 16  
 substrate  
     - *āśrayin*: 16  
 suffering  
     - *duḥkha*: 16  
*sukha*  
     - comfort: 18  
*svabhāva*  
     - inherent factors:  
         19  
*svābhāvika*  
     - inherent: 16  
*svarasa*  
     - juice extract: 17  
*svedaja*  
     - born of sweat: 17  
 tawny  
     - *kapilā*: 23

temperament  
     - *prakṛti*: 16  
 the science of life  
     - *āyurveda*: 13  
 the time for therapies  
     - *kriyākāla*: 18  
 therapies  
     - *karman*: 19  
 three-quarters of an  
     hour  
     - *muhūrta*: 18  
 treatment  
     - *kriyā*: 18  
 trice  
     - *kāṣṭhā*: 18  
*tvak*  
     - skin: 17f  
*udbhid*  
     - shoots: 17  
*upaśama*  
     - pacification: 18  
*vaiṣāmya*  
     - irregularities: 16  
*vanaspati*  
     - fruit trees: 17  
 vapour  
     - *bāṣpa*: 48  
*varga*  
     - collection: 18  
*varṇa*  
     - complexion: 16  
*varṣā*  
     - rainy seasons: 17  
*veda*  
     - knowledge: 13  
*vedanābhighāta*  
     - pain and injury:  
         13  
*vikalpa*

    - particulars: 18  
*vīrudh*  
     - shrubs: 17  
*viṣāda*  
     - depression: 16  
 vital energy  
     - *ojas*: 16  
*vṛkṣa*  
     - flowering trees: 17  
*vṛṣabha*  
     - bull: 48  
*vyadhi*  
     - disease: 18  
*vyākhyāta*  
     - intended: 19  
*vyāla*  
     - wild animals: 17  
 water  
     - *jala*: 22  
 water-dwellers  
     - *jalaaukas*: 22  
 welfare  
     - *śreyas*: 13  
 wild animals  
     - *vyāla*: 17  
 wood apple  
     - *kapittha*: 81  
 worms  
     - *kṛmi*: 17  
*yāmya*  
     - in yama's  
         direction: 74  
 year  
     - *saṃvatsara*: 18  
*yuga*  
     - yuga: 18  
 yuga  
     - yuga: 18

## Materia Medica Reference Works

- ADPS Sivarajan, V. V., and Balachandran, Indira (1994), *Ayurvedic Drugs and Their Plant Sources* (New Delhi, Bombay, Calcutta: Oxford & IBH Publishing).
- AVS Warriar, P. K., Nambiar, V. P. K., and Ramankutty, C. (1994–96) (eds.), *Indian Medicinal Plants: A Compendium of 500 Species. Vaidyaratnam P. S. Varier's Arya Vaidya Sala, Kottakal* (Madras: Orient Longman).
- BIA Prater, S. H. (1993), *The Book of Indian Animals* (3rd edn., Bombay, Delhi, etc.: Oxford University Press); 4th impression of 3rd corrected 1980 edition.
- Chopra Chopra, R. N., Nayar, S. L., and Chopra, I. C. (1956), *Glossary of Indian Medicinal Plants* (3rd reprint, 1992, New Delhi: Council of Scientific and Industrial Research); vol. 2: R. N. Chopra, I. C. Chopra, and Varma ([Chopra<sub>sup</sub>](#)).
- Chopra IDG Chopra, R. N., Chopra, I. C., Handa, K. L., et al. (1958), *Chopra's Indigenous Drugs of India* (2nd edn., Calcutta: Dhur & Sons), [ark:/13960/t9673t140](#).
- Chopra<sub>sup</sub> Chopra, R. N., Chopra, I. C., and Varma, B. S. (1969), *Supplement to Glossary of Indian Medicinal Plants* (Reprint 1986, New Delhi: National Institute of Science Communication), ISBN: 8185038872.
- CIPP Pillay, V. V. (2010), "Common Indian Poisonous Plants," in D. A. Warrell, T. M. Cox, and J. D. Firth (eds.), *Oxford Textbook of Medicine* (5th edn., Oxford University Press), 1371–5. DOI: [10.1093/med/9780199204854.003.090302](#).
- Dutt Dutt, Uday Chand (1922), *The Materia Medica of the Hindus...with a Glossary of Indian Plants by George King. Revised Edition...by Binod Lall Sen and Ashutosh Sen and Pulin Krishna Sen* (Krishnadas Sanskrit Studies; 3rd edn., Calcutta: Madan Gopal Dass for the Adi-Ayurveda Machine Press), [ark:/13960/t59c7tg9z](#); Reprinted Varanasi: Chowkhamba Saraswatibhavan, 1980.

- Dymock Dymock, William, Warden, C. J. H., and Hooper, David (1890), *Pharmacographia Indica: A History of the Principal Drugs of Vegetable Origin Met with in British India* (London, Bombay, Calcutta: Kegan Paul), [URL](#), accessed 16/03/2023.
- GJM<sub>1</sub> Meulenbeld, Gerrit Jan (1974a), "Sanskrit Names of Plants and their Botanical Equivalents," in id., *The Mādhavanidāna and Its Chief Commentary: Chapters 1–10. Introduction, Translation, and Notes* (Leiden: Brill), chap. Appendix Four, 520–611, [ark:/13960/t25b8q97g](#).
- GJM<sub>2</sub> Meulenbeld, Gerrit Jan (1988), "G. J. Meulenbeld's Additions to his "Sanskrit Names of Plants and their Botanical Equivalents"," in Rahul Peter Das, *Das Wissen von der Lebensspanne der Bäume: Surapālas Vṛkṣāyurveda* (Stuttgart: Franz Steiner Verlag), chap. Appendix 1, 425–65, ISBN: 9783515046633; Supplement to [GJM<sub>1</sub>](#).
- GVDB Singh, Thakur Balwant, and Chuneekar, K. C. (1972), *Glossary of Vegetable Drugs in Brhatṭrayī* (Varanasi: Chowkhamba Sanskrit Series Office), [ark:/13960/s2cvp72x58j](#).
- IGP Griffiths, Mark (1994), *The New Horticultural Society Index of Garden Plants* (London: Macmillan).
- Issar Issar, T. P. (1994), *Blossoms of Bangalore* (Bangalore: T. P. Issar).
- IW Israel, Samuel, et al. (1988), *Indian Wildlife: Sri Lanka Nepal* (Insight Guides; Singapore etc.: APA Publications), ISBN: 9780245545238.
- K&B Kirtikar, K. R., Basu, B. D., and an I.C.S (1987), *Indian Medicinal Plants*, ed. E. Blatter, J. F. Caius, and K. S. Mhaskar, 8 vols. (2nd edn., Dehradun: International Book Distributors); First published in Allahabad, 1918.
- NK Nadkarni, K. M. (1982), *Dr. K. M. Nadkarni's Indian Materia Medica, with Ayurvedic, Unani-tibbi, Siddha, Allopathic, Homeopathic, Naturopathic & Home Remedies, Appendices & Indexes ... in Two Volumes*, ed. A. K. Nadkarni, 2 vols. (3 ed., revised and enlarged by A. K. Nadkarni, Bombay: Popular Prakashan), ISBN: 8171541429, [URL](#); First published in 1954.

Potter	Wren, R. C. (1956), <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> , ed. R. W. Wren (7th edn., Rustington, Sussex: Health Science Press), <a href="https://nbn-resolving.org/urn:nbn:uk:2019-06-01-13960-t14n65c9g">ark:/13960/t14n65c9g</a> .
Potter <sub>rev</sub>	Wren, R. C., Williamson, Elizabeth M., and Evans, Fred J. (1994), <i>Potter's New Cyclopaedia of Botanical Drugs and Preparations</i> (Saffron Walden: C. W. Daniel Company Ltd.); Reprint of revised 1988 edition.
Reptiles	Daniel, J. C. (1983), <i>The Book of Indian Reptiles</i> (Bombay: Oxford University Press).
Trees	Bole, P. V., and Vaghani, Yogini (1986), <i>Field Guide to the Common Trees of India</i> (Bombay, Delhi, Oxford, etc.: World Wildlife Fund – India and Oxford University Press), ISBN: 0-19-561595-6; 4th reprint.
Watt <sub>Comm</sub>	Watt, George (1908), <i>The Commercial Products of India, Being an Abridgement of "the Dictionary of the Economic Products of India"</i> (London: John Murray), <a href="https://nbn-resolving.org/urn:nbn:uk:2019-06-01-13960-t8cg7dm79">ark:/13960/t8cg7dm79</a> .
Watt <sub>Dict</sub>	Watt, George (1889–96), <i>A Dictionary of the Economic Products of India</i> (Calcutta: Dept. Revenue and Agriculture, Government of India), <a href="https://nbn-resolving.org/urn:nbn:uk:2019-06-01-13960-t8cg7dm79">URL</a> , accessed 28/04/2021.

## Glossary and Index of Medical Substances

amaranth ( <i>taṇḍulīyaka</i> ) <i>Amaranthus hypochondriacus</i> , L. See King 321, NK: 1, #144, Potter <sub>rev</sub> : 15. Cf. AVS: 1, 121, 46	macrophylla, Vahl. See AVS: 1, 334, NK: 1, #420, 44, 46
axlewood ( <i>dhava</i> ) <i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guill & Perr. See AVS: 1, 163 f, Chopra: 20, 65	beggarweed ( <i>aṃśumatī</i> ) <i>Desmodium gangeticum</i> (L.) DC (Dymock: 1, 428, GJM1: 602, NK: 1, #1192; ADPS: 382, 414 and AVS: 2, 319, 4.366 are confusing), 62
bamboo leaves ( <i>veṇupatrikā</i> ) <i>Bambusa bambos</i> , Druce. See NK: 1, #307, 46	beggarweed ( <i>vidārigandhā</i> ) → <i>śālapanṇī</i> . <i>Desmodium gangeticum</i> (L.) DC. See Dymock: 1, 428, GJM1: 602, cf. NK: 1, #1192; ADPS: 382, 414 and AVS: 2, 319, 4.366 are confusing, 35
beautyberry ( <i>priyaṅgu</i> ) ← <i>śyāmā</i> . <i>Callicarpa macrophylla</i> , Vahl. See AVS: 1, 334, NK: 1, #420. Some say also <i>Setaria italica</i> Beauv. GVDB: 263–264. See also GVDB: 413, 62, 66	black creeper ( <i>pālindī</i> ) <i>Ichnocarpus frutescens</i> , (L.) R.Br. or <i>Cryptolepis buchanani</i> , Roemer & Schultes. See
beautyberry ( <i>śyāmā</i> ) <i>Callicarpa</i>	

- AVS: 3, 141, 3.145, 3.203, NK: 1, #1283, 1210, ADPS: 434, 46, 49, 61, 62
- blackboard tree (*saptachada*) *Alstonia scholaris* R. Br. GVDB: 420, 45
- blackbuck (*hariṇa*) *Antilope cervicapra*, L. See BIA: 270 IW: 95, 165, *et passim*, 49
- blue water-lily (*utpala*) *Nymphaea stellata*, Willd. See GJM1: 528, IGP 790; Dutt: 110, NK: 1, #1726, 25, 44, 61, 62
- cardamom (*elā*) *Elettaria cardamomum*, Maton. See AVS: 2, 360, NK: 1, #924, Potter<sub>rev</sub>: 66, 62, 66
- cassia cinnamon (*patra*) *Cinnamomum tamala*, (Buch.-Ham.) Nees. See AVS: 2, 84, NK: 1, #589, 46, 62
- castor oil tree (*gandharvohasta*) → *eraṇḍa*. GVDB: 135, K&B: 3, 2277, 32
- castor-oil (*eraṇḍa*) *Ricinus communis*, L. See NK: 1, #2145, Chopra: 214, 37
- certain minerals (*tārāvitāra*) Unknown. It is not even certain that these are minerals. The variant reading in the vulgate, *tārāḥ sutārāḥ* was glossed by Ḍalhaṇa on 5.3.14 (Su 1938: 568) as follows *tāro rūpyaṇi, sutārāḥ pāradaḥ*, “tāra means silver; sutāra means mercury.”, 66
- chaff (*kāṇḍana*) The word *kāṇḍana* is not found in dictionaries; *kaṇḍana* is threshing, separating the chaff from the grain in a mortar. Cf. Hemādri’s *Caturvargacintāmaṇi* (PWK: 2, 8) (Śiromaṇi 1873: 1, 138: 21, citing the *Vāyupurāṇa*), 132
- chebulic myrobalan (*harītakī*) *Terminalia chebula* Retz. GVDB: 466, 45
- cherry (*elavālu*) *Prunus cerasus*, L.?. See BVDB 58, NK: 1, #2037, GVDB: 58, 62
- chital deer (*pr̥ṣata*) *Axis axis*, Erxleben. See BIA: 292, IW: 93, 49
- cobra’s saffron (*nāgapuṣpa*) → *nāgakeśara*. *Mesua ferrea*, L. See NK: 1, #1595, GVDB: 220, 62
- corky coral tree (*pāribhadra*) *Erythrina suberosa* Roxb. See GVDB 245, 65
- costus (*kuṣṭha*) *Saussurea costus*, Clarke. See NK: 1, #2239, 46, 62, 66
- country mallow (*atibalā*) *Abutilon indicum*, (L.) Sweet, but may be other kinds of mallow, e.g., *Sida rhombifolia*, L.. See NK: 1, #11, IGP: 1080, NK: 1, #2300, ADPS: 71, 77, 35
- country sarsaparilla (*anantā*) *Hemidesmus indicus*, (L.) R. Br. See ADPS: 434, AVS: 3, 141–5, NK: 1, #1210. But see GVDB: 13 for complications that may suggest that it is to be equated with *sārivā*, which may sometimes be *Cryptolepis* or *Ichnocarpus frutescens* R. Rr. (GVDB: 429–431), 35, 51, 61, 62, 65
- crape jasmine (*nata*) → crape jasmine GVDB: 215, 128, 129
- crape jasmine (*tagara*) *Tabernaemontana divaricata* (L.) R.Br. ex Roem. & Schultes. See GJM1: 557, AVS: 5, 232. Synonym of crape jasmine. But some say *Valeriana jatamansi*, Jones See GVDB: 173–174 for discussion (and charming comments on brain liquid testing). Some say *tagara* is Indian rose-bay or Indian valerian, but there remain many historical questions about the ancient and regional identities of this plant See, e.g., AVS: 5, 334, 46, 62, 128, 129
- crimson trumpet-flower tree (*pāṭalā*) *Stereospermum chelonides*, (L. f.) A. DC. See GJM1: 573, AVS: 5, 192 ff, ADPS: 362 f, AVS: 3, 1848 f, IGP 1120, Dymock: 3, 20 ff, 65
- cuscut grass (*uśīra*) *Andropogon murcatus*, Retz. Also “vetiver grass.” See NK: 1, #180, 46
- datura (*dhattūra*) *Datura metel*, L. See AVS: 2, 305 (cf. *Abhidhānamāñjarī*), NK: 1, #796 ff. Potter<sub>rev</sub>: 292 f, ADPS: 132, 32
- decanted liquor (*surāmaṇḍa*) K&B: 2, 502, NK: 2, appendix VI, #49, 34

- deodar (*bhadradāru*) *Cedrus deodara*, (Roxb.ex D.Don) G. Don. See [AVS](#) 41, [NK](#): 1, #516, 62
- dried meat (*vallūra*) [MW](#): 929, [AyMahā](#): 1, 730. The term is used, rarely, in both the CS (1.5.10) and SS (1.13. 16, 6.42.75–76). It is a Dravidian loanword and occurs in the *Arthaśāstra* etc. ([KEWA](#): 3, 167), 25
- elixir salve (*rasāñjana*) → *añjana*. See [Indian barberry](#), 37
- embelia (*viḍaṅga*) *Embelia ribes*, Burm. f. See [ADPS](#): 507, [AVS](#): 2, 368, [NK](#): 1, #929, [Potter<sub>rev</sub>](#): 113, 62
- emetic nut (*madana*) *Randia dumetorum*, Lamk. See [NK](#): 1, #2091, 44
- false daisy (*subhaṅgurā*) (*su*)bhaṅgura = *bhrṅga*? *Eclipta prostrata* (L.) L. See [GVDB](#): 288, 51
- fermented rice-water (*dhānyāmla*) → *kāñjī*, *kāñjikā*, *sauvīra*. [GVDB](#): 458, [NK](#): 2, appendix VI, #18, 34
- fern (*ajaruhā*) *Nephrodium* species [GVDB](#): 7, uncertain. Perhbaps *Christella dentata* (Forssk.) Brownsey & Jermy, which is reported to have folk applications against skin diseases in India, 48
- fire-flame bush (*dhātakī*) *Woodfordia fruticosa* (L.) Kurz. See [AVS](#): 5, 412, [NK](#): 1, #2626, 45
- fragrant lotus (*saugandhika*) A type of *kumuda* or *utpala* ([GVDB](#): 457), 25
- garjan oil tree (*aśvakarṇa*) *Dipterocarpus turbinatus* Gaertn. f. See [GVDB](#): 28, [Chopra](#): 100, 65
- giant potato (*kṣīravidārī*) possibly → *kṣīraśukla*. *Ipomoea mauritiana*, Jacq. See [ADPS](#): 510, [AVS](#): 3, 222, [AVS](#): 3, 1717 ff, 130–132
- ginger (*mahaśadha*) *Zingiber officinale*, Roscoe. See [ADPS](#): 50, [NK](#): 1, #2658, [IGP](#): 1232, 49
- gold (*hema*) gold, 62
- gold and sarsaparilla (*surendragopa*) Unknown. *Dalhaṇa* on 5.3.15 ([Su 1938](#): 568) glossed *surendra* as “gold” and *gopā* as “Indian sarsaparilla.” He also noted other opinions that *surendra* was “Tellicherry bark”, 66
- golden shower tree (*rājadruma*) *rājadruma* = *āragvadha*. *Cassia fistula* L. See [GVDB](#) 37, 65
- gourd (*alābu*) *Lagenaria siceraria* Standl. [GVDB](#): 25. Some say *Lagenaria vulgaris*, *Seringe* ([NK](#): 1, #1419) but this is not appropriate for blood-letting, 21, 22, 45
- heart-leaf sida (*balā*) *Sida cordifolia*, Linn. See [ADPS](#): 71, [NK](#): 1, #2297, 35, 62
- heart-leaved moonseed (*amṛtā*) → *guḍūcī*. *Tinospora cordifolia*, (Willd.) Hook.f. & Thoms.?. See [ADPS](#): 38, [NK](#): 1, #2472, 624, *Dastur* #229, 46, 61
- heart-leaved moonseed (*somavallī*) *Tinospora cordifolia* (Thunb.) Miers. [GVDB](#): 456. Likely, but uncertain, 46
- henna (*madayantikā*) *Lawsonia inermis*, L. See [AVS](#): 3, 303, [NK](#): 1, #1448, [Potter<sub>rev</sub>](#): 151, 47
- Himalayan mayapple (*vakra*) *Podophyllum emodi*, Wall. ([NK](#): #1971). But perhaps a synonym of [crape jasmine](#) and [crape jasmine](#) ([GVDB](#): 354), 66
- Himalayan monkshood (*ativiṣā*) *Aconitum heterophyllum* Wall. [GVDB](#): 12, [NK](#): 1, #39. Also “atis roots”, 47, 49, 66
- hogweed (*punarnavā*) *Boerhaavia diffusa*, L. See [ADPS](#): 387, [AVS](#): 1, 281, [NK](#): 1, #363, 47, 61
- Holostemma creeper (*jīvantī*) → *sūryavallī*? *Holostemma ada-kodien*, Schultes. See [ADPS](#): 195, [AVS](#): 3, 167, [NK](#): 1, #1242, [AVS](#): 3, 1619, 131
- horned pondweed (*śaivāla*) also *śaivāla*, *śevāra*. *Zannichellia palustris* L. The uncertainties of this identification are



- discussed by Singh and Chuneekar (GVDB: 409). Sometimes identified with **scutch grass** (*dūrvā*) (GVDB: 409). Identified as *Ceratophyllum demersum* Linn. (“hornwort”) by AVS: 2, 56–57x, 130, 132
- hornwort (*jalaśūka*) ← *jalanīlikā*.  
*Ceratophyllum demersum*, L. See AVS: 2, 56, IGP: 232. Singh and Chuneekar (GVDB: 166) suggest **horned pondweed**. Ḍalhaṇa noted on 1.16.19 (Su 1938: 79) that some people interpret it as a poisonous, hairy, air-breathing, underwater creature, 35
- Indian barberry (*añjana*) → *rasāñjana*, *dāruharidrā*. *Berberis aristata*, DC. Dymock: 1, 65, NK: 1, #335, GJM1: 562, IGP: 141, 37, 48, 129
- Indian barberry (*dāruharidrā*) *Berberis aristata*, DC. See Dymock: 1, 65, NK: 1, #685, GJM1: 562, IGP 141, 61, 62
- Indian barberry (*kālīyaka*) → *dāruharidrā*, *añjana*. *Berberis aristata*, DC. See Dymock: 1, 65, NK: 1, #685, GJM1: 562, IGP: 141, 46
- Indian ipecac (*payasyā*) Uncertain. Possibly *Tylophora indica* (Burm.f.) Merr. Perhaps a synonym of **panacea twiner**, **giant potato**, **purple roscoea**, and **plants like asthma plant and Gulf sandmat** (GVDB: 237–238). Also “curds” when not a plant, 35, 131
- Indian kudzu (*vidārī*) → *payasyā*. *Pueraria tuberosa* (Willd.) DC. See ADPS: 510, AVS: 1, 792 f, AVS: 4, 391; not Dymock: 1, 424 f. See GJM2: 444, 451, AVS: 1, 187, but AVS: 3, 1719 = *Ipomoea mauritiana*, Jacq, 35
- Indian madder (*mañjiṣṭhā*) *Rubia cordifolia*, L. See IGP, Chopra: 215, GVDB: 289, 32, 62
- Indian mottled eel (*varmimatsya*) Almost certainly the mottled eel. MW: 962c noted that the *varmi* fish “is commonly called *vāmi*.” The “vam fish,” or “বান মাছ (*bān māch*)” in Bengal, is a marine and freshwater eel, *Anguilla bengalensis*. It is the most common eel in Indian inland waters and a prized food fish (Froese and Pauly 2022). However, some NIA languages identify the “vam” fish with the Indian Pike Conger, *Congresox talabonides* (Bleeker) (Talwar and Kacker 1984: 235, 236), 23
- Indian mustard (*sarṣapa*) *Brassica juncea*, Czern. & Coss. See AVS: 1, 301, NK: 1, #378, 26
- Indian sarsaparilla (*sārivā*) → *anantā*. *Hemidesmus indicus*, (L.) R. Br. ADPS: 434, AVS: 3, 141–5, NK: 1, #1210; and black creeper, *pālindī*. *Ichnocarpus frutescens*, (L.) R.Br. or *Cryptolepis buchanani*, Roemer & Schultes AVS: 3, 141, 3.145, 3.203, NK: 1, #1283, 1210, ADPS: 434, 61, 62, 129
- jambul (*jambū*) *Syzygium cumini*, (L.) Skeels. See ADPS: 188, NK: 1, #967, Potter<sub>rev</sub>: 168, Wujastyk 2003a, 45
- jasmine (*mālatī*) *Jasminum grandiflorum*, L. See NK: 1, #1364, 46
- jequirity (*guñjā*) *Abrus precatorius*, L. See AVS: 1, 10, NK: 1, #6, Potter<sub>rev</sub>: 168, 51
- lac (*lākṣā*) *Kerria lacca* (Kerr.). See GJM1: 445, NK: 2, #32. Watt (Watt<sub>Comm</sub>: 1053–1066) is characteristically informative, and is definite about the antiquity of lac in India, 66
- liquorice (?) (*klītaka*) *Glycyrrhiza glabra*, L.? GVDB: 123–124 discuss the many difficulties in identifying this plant, 51
- liquorice (*madhuka*) see *yaṣṭimadhuka*, 35, 49, 60, 62
- liquorice (*yaṣṭimadhuka*) *Glycyrrhiza glabra*, L. AVS: 3, 84, NK: 1, #1136, GVDB: 329 f., 37
- lodh tree (*lodhra*) *Symplocos racemosa*, Roxb. See GJM1: 597, ADPS: 279 f, NK: 1, #2420. Singh and Chuneekar (GVDB: 351–352) notes that there are

- two varieties, *S. racemosa*, qualified as śāvāra, and *S. crataegoides* Buch.-Ham. for *paṭṭikā lodhra*, 62
- long pepper (*māgadha*) *Piper longum*, L. See NK: 1, #1928; but cf. AVS: 3, 245, 48
- long pepper (*pippalī*) *Piper longum*, L. See ADPS: 374, NK: 1, #1928, 49, 62
- luffa (*koṣṭakī*) = *koṣṭakī*. *Luffa cylindrica*, (L.) M. J. Roem. or *L. acutangula*, (L.) Roxb. ADPS: 252–253, NK: 1, #1514 etc. GVDB: 121, 45, 61, 131
- luffa gourd (*kośavatī*) = *koṣṭakī*, luffa, 61
- mango (*āmra*) *Mangifera indica* Linn. GVDB: 37, 45
- marking-nut tree (*bhallātaka*) *Semecarpus anacardium*, L. See NK: 1, #2269, AVS: 5, 98, 48
- medhshingi (*vijayā*2) *Dolichandrone falcata* (DC.) The *Sauśrutaniḥaṇṭu* gives a number of synonyms for *vijayā* (Suvedī and Tīvārī 2000: 5.77, 10.143). But one of them, *viśāṇī* (also *meśāśrṅgī*), is sometimes equated with *Dolichandrone falcata* (DC.) Seemann (ADPS: 518; GVDB: 373 f, a plant used as an abortifacient and fish poison (NK: #862), 51
- migraine tree (*agnimantha*) *Premna corymbosa*, Rottl. See AVS 1927, ADPS: 21, NK: 1, #2025, AVS: 4, 348; GJM1: 523: = *P. integrifolia/serratifolia*, L, 61
- milk-white (*kṣīraśuklā*) An unidentified plant. GVDB: 126: see purple roscoeia and giant potato, 35, 132
- monitor lizard (*godhā*) *Varanus bengalensis*, Schneider. See Reptiles: 58, 35, 49
- mung beans (*māṣaka*) *Phaseolus mungo* Linn. GVDB: 308, 46
- myrobalan (*abhayā*) *Terminalia chebula*, Retz. See ADPS: 172, NK: 1, #2451, Potter<sub>rev</sub>: 214, 61, 66
- natron (*suvarcikā*) Sodium carbonate. NK: 2, #45. Ḍalhaṇa identifies *suvarcikā* with svarjikṣāra 4.8.50 (Su 1938: 441), 62
- neem tree (*nimba*) *Azadirachta indica* A. Juss. GVDB: 226, 32
- nutgrass (*kuruvinda*) Unknown. Ḍalhaṇa on 5.3.15 (Su 1938: 568) glossed the term as **nutgrass**, but noted other opinions that it was a whetstone or a very special metallic gem. Singh and Chuneekar (GVDB: 108) added that it could be a variety of rice, *ṣaṣṭika dhānya*, 66
- nutgrass (*mustā*) *Cyperus rotundus*, L. See ADPS: 316, AVS: 2, 296, NK: 1, #782, 131
- panacea twiner (*arkapuṣpī*) → *arkaparṇī*, *Tylophora indica* (Burm. f.) Merr. GVDB: 23–24. Maybe identical to **Indian ipecac**, **giant potato** and similar sweet, milky plants. See GVDB: 24, 127, 238, 441, 443 for discussion. For discussion in the context of **Holostemma creeper**, see ADPS: 195 and AVS: 3, 171. The etymology of the name suggests *Helianthus annuus* Linn., but this plant is native to the Americas, 61, 130
- peas (*hareṇu*) *hareṇu* = *satīna*. *Pisum sativum*, L. Singh and Chuneekar (GVDB: 419–420, 467–468) notes that two plants are usually meant under this name, but there is no agreement on the identity of the second, 61, 62, 66
- peepul tree (*aśvattha*) *Ficus religiosa*, L. See ADPS: 63, 69
- periploca of the woods (*meśāśrṅga*) *Gymnema sylvestre* (Retz.) R. Br. See AVS: 3, 107, NK: 1, #1173, 48
- plants like asthma plant and Gulf sandmat (*kṣīriṇī*) various milky plants, perhaps including *Euphorbia hirta* Linn. (asthma plant) and *E. microphylla* Heyne (Gulf sandmat) (GVDB: 127), 130
- plumed cockscomb (*indīvara*) Uncertain;



- possibly *Celosia argentea* Linn. But see the useful discussion in [GVDB: 44–45](#). Possibly another name for [thorn apple](#) (*karambha*), q.v., [133](#)
- pointed gourd (*paṭola*) *Trichosanthes dioica*, Roxb. [GVDB: 232–233](#), [61](#)
- poison berry (*br̥hatī*) *Solanum violaceum*, Ortega. See [ADPS: 100](#), [NK: 1, #2329](#), [AVS: 5, 151](#), [61](#), [62](#)
- pondweed (*paripelavā*) Normally a neuter noun. Singh and Chuneekar ([GVDB: 238](#), 264–265, 409) argued that *plava* and *śaivāla* are the same thing, and may be either *Zannichellia palustris*, L., or *Potamogeton pectinatus*, L., [62](#)
- pondweed (*śevāla*) *Zannichellia palustris* L. See [horned pondweed](#), [25](#)
- prickly chaff-flower (*apāmārga*) *Achyranthes aspera*, L. See [GJM1: 524 f](#), [AVS: 1, 39](#), [ADPS: 44 f](#), [AVS: 3, 2066 f](#), [Dymock: 3, 135](#), [32](#), [35](#)
- purging nut (*mūṣikā*) *Jatropha curcas*, L. See [AVS: 3, 261](#), [NK: 1, #1374](#), [48](#)
- purple calotropis (*arka*) *Calotropis gigantea*, (L.) R. Br. See [ADPS: 52](#), [AVS: 1, 341](#), [NK: 1, #427](#), [Potter<sub>rev</sub>: 57](#), [Chopra IDG: 305–308](#), [35](#)
- purple roscoeia (*kṣīrakākolī*) [GVDB: 89](#) notes that many physicians use *Roscoeia procera* Wall. in this context. But the identification is uncertain. Possibly connected to [milk-white](#) or [giant potato](#)., [130](#), [131](#)
- rajmahal hemp (*moraṭa*) → *mūrvī*, *Marsdenia tenacissima* (Roxb.) Wight et Arn. Good discussion at [GVDB: 314–316](#), [324](#), [61](#)
- red chalk (*gairika*) *gairika*, [62](#)
- red gourd (*bimbī*) *Coccinia indica*, W. & A. See [PVS 1994.4.715](#); [NK: 1, #534](#), [45](#)
- rice-grain chaff (*śālitaṇḍulakāṇḍana*) See [chaff](#), [26](#)
- rock salt (*saindhava*) See [NK: 2, M#48](#), [Watt<sub>Comm</sub>: 963–971](#), [26](#)
- rosha grass (*dhyāmaka*) *Cymbopogon martinii* (Roxb.) Wats. See [AVS: 2, 285](#), [NK: 1, #177](#), [62](#)
- sacred lotus (*padma*) *Nelumbo nucifera*, Gaertn. See [NK: 1, #1698](#), [25](#), [46](#)
- sage-leaved alangium (*aṅkolla*) *Alangium salvifolium* (Linn. f.) Wang. [GVDB: 5–6](#), [45](#)
- sandalwood (*candana*) *Santalum album*, L. See [ADPS: 111](#), [NK: 1, #2217](#), [62](#)
- sappanwood (*pattāṅga*) Also *pattāṅga*. *Caesalpinia sappan*, L. [AVS: 1, 323](#), [K&B: 2, 847 f](#), [GVDB: 234](#), [37](#)
- scarlet mallow (*bandhujīva*) *Pentapetes phoenicea*, L. [NK: #1836](#), [GVDB: 268](#), [47](#)
- scented pavonia (*bālaka*) *Pavonia odorata*, Willd. See [ADPS: 498](#), [NK: 1, #1822](#), [62](#)
- scutch grass (*dūrva*) *Cynodon dactylon* (Linn.) Pers. ([GVDB: 205](#)), [129](#)
- selu plum (*śelu*) *Cordia myxa*, L. non Forssk. See [GJM1: 529 \(2\)](#), [IGP: 291b](#), cf. [AVS: 3, 1677 f](#); cf. [AVS: 2, 180](#) (*C. dichotoma*, Forst.f.), [NK: 1, #672](#) (*C. latifolia*, Roxb.), [61](#)
- sesame oil (*taila*) *Sesamum indicum* L. [GVDB: 183](#), [36](#)
- siris (*śirīṣa*) *Albizia lebbeck*, Benth. See [AVS: 1, 81](#), [NK: 1, #91](#), [61](#)
- siris seeds (*śirīṣamāṣaka*) *Albizia lebbeck*, Benth. See [AVS: 1, 81](#), [NK: 1, #91](#), [45](#)
- small-flowered crape myrtle (*sidhraka*) *Lagerstroemia parviflora* Roxb. See [GVDB: 432](#), [65](#)
- spikenard (*māṃsī*) *Nardostachys grandiflora*, DC. See [NK: 1, #1691](#), [62](#)
- spikenard (*nalada*) → *māṃsī*. *Nardostachys grandiflora*, DC. See [NK: 1, #1691](#), [43](#)
- sugar (*sitā*) Ḍalhaṇa makes this equation at 1.37.25 ([Su 1938: 162](#)), [62](#)
- sunflower (*sūryavallī*) → *ādityavallī*, *sūryamukhī*, *Helianthus annuus* Linn. [GVDB: 35](#), [443](#), [61](#)
- sweet plants (*madhuravarga*) The sweet plants are enumerated at *Suśrutasaṃhitā* 1.42.11. See also

- GVDB: 127, 35  
sweet-scented oleander (*aśvamāraka*)  
Nerium oleander, L. See ADPS: 223,  
NK: 1, #1709, 51  
Tellicherry bark (*kuṭaja*) Holarrhena  
pubescens Wall. ex G. Don, with  
Wrightia tinctoria and W. arborea  
considered GVDB: 101–102,  
ADPS: 267–270, 129  
thorn apple (*karambha*) Datura metel, L.  
See GVDB: 76 for useful discussion.  
Also, AVS: 2, 305 (cf.  
Abhidhānamāñjarī), NK: 1, #796 ff.  
Potter<sub>rev</sub>: 292 f, ADPS: 132. Possibly the  
same plant as plumed cockscomb  
(*indīvara*) (GVDB: 76, 44–45), 52, 131  
three heating spices (*tryūṣaṇa*) śuṇṭhī  
(Dried ginger) Zingiber officinale,  
Roscoe. ADPS: 50, NK: 1, #2658,  
AVS: 5, 435, IGP 1232, pippalī (long  
pepper) Piper longum, L. ADPS: 374,  
NK: 1, #1928, and marica (black  
pepper) Piper nigrum, L. ADPS: 294,  
NK: 1, #1929, 61  
three-leaved caper (*varuṇa*) Crataeva  
magna (Lour.) DC. See AVS: 2, 202; cf.  
NK: 1, #696, 48  
tree cotton (*kārpāsa*) G. arboreum L.  
ADPS: 231. Pace the identifications of  
Singh and Chuneekar (GVDB: 92, 247),  
since G. barbadense L. is native to  
South America and G. herbaceum L.  
which is native to Africa, 32  
tree cotton (*picu*) See *kārpāsa*, 34, 37  
turmeric (*haridrā*) Curcuma longa Linn.  
GVDB: 465, 61, 66  
turmeric (*rajanī*) Curcuma longa, L.  
ADPS: 169, AVS: 2, 259, NK: 1, #750,  
26, 62  
velvet-leaf (*pāṭhā*) Cissampelos pariera, L.  
See ADPS: 366, NK: 1, #592, GJM1: 573,  
AVS: 1, 95; cf. AVS: 2, 277, 61  
velvet-mite (*indragopa*) Kerria lacca  
(Kerr.). Lienhard 1978, 44  
verbena (*phañjī*) Clerodendrum serratum,  
L. See AVS: 2, 121, ADPS: 87, 47  
watered buttermilk (*udaśvit*) MW: 183, 45  
weaver's beam tree (*muṣkaka*) Schrebera  
swietenoides, Roxb. See AVS: 5, 88,  
Lord, NK: 1, #2246, 65  
white calotropis (*alarka*) Calotropis  
procera, (Ait.) R. Br. See NK: 1, #428,  
Chopra: 46b, Chopra IDG: 305–308, 35  
white clitoria (*śvetā*) → *giryāhvā*. Clitoria  
ternatea, L. See AVS: 2, 129, NK: 1,  
#621, 46  
white cutch tree (*somavalka*) Acacia  
polyacantha, Willd. See AVS: 1, 30, IGP  
7, GJM1: 602, AVS: 2, 935; pace NK: 1,  
#1038, 47, 65  
white siris (*kiñihī*) Albizia procera,  
(Roxb.) Benth. See GVDB 98, NK: 1,  
#93, 61  
white water-lily (*kumuda*) Nymphaea  
alba, Linn. GVDB: 105, 25  
wild asparagus (*bahuputrā*) → *nandana*?  
Asparagus racemosus, Willd. See  
ADPS: 441, AVS: 1, 218, NK: 1, #264,  
IGP: 103, AVS: 4, 2499 ff, Dymock: 3,  
482 ff, 47  
wild celery (*agnika*) → may be *bhalātaka*,  
*lāṅgalī*, *ajamodā*, *morāṭa*, or *agnimantha*,  
GVDB: 4. Uncertain, 61  
wild celery (*ajamodā*) Apium graveolens,  
L., 61  
Withania (*aśvagandhā*) Withania  
somnifera (L.) Dunal. See AVS: 5, 409 f,  
Dymock: 2, 566 f., Chevallier 150, 35  
wood apple (*kapittha*) Limonia acidissima,  
L. See AVS: 3, 327, NK: 1, #1021, 46, 48  
woodrose (*mūṣikakarṇī*) Jatopha curcas, L.  
AVS: 3, 261, NK: 1, #1374. GVDB: 317;  
ADPS: 23–25 discuss this issue well, 46  
yellow-berried nightshade (*kṣudrā*)  
Solanum virginianum, L. See  
ADPS: 100, NK: 1, #2329, AVS: 5, 164,  
61, 62

# Appendix

## On digital critical editions

- Price, Kenneth M. (2013), “Electronic Scholarly Editions,” in Ray Siemens and Susan Schreibman (eds.), *A Companion to Digital Literary Studies* (Chichester, UK: John Wiley & Sons, Ltd), 434–50. doi: [10.1002/9781405177504.ch24](https://doi.org/10.1002/9781405177504.ch24), URL, accessed 04/07/2021.  
A survey of the field in 2013, with a focus on the presentation of electronic texts rather than on critical editing as such.
- Moureau, Sébastien. (2015), “The Apparatus Criticus,” in Alessandro Bausi et al. (eds.), *Comparative Oriental Manuscript Studies: An Introduction* (Hamburg: Tredition), 348–52, ISBN: 978-3-7323-1768-4, URL, accessed 04/07/2021.  
Useful discussion about the *apparatus criticus* in general, and an evaluation of the plus and minus points of positive and negative apparatuses.
- Burghart, Marjorie (2016), “The TEI Critical Apparatus Toolbox: Empowering Textual Scholars through Display, Control, and Comparison Features,” *Journal of the Text Encoding Initiative*, 10/Issue 10. doi: [10.4000/jtei.1520](https://doi.org/10.4000/jtei.1520).  
Discussion of a software tool, including the handling of positive and negative apparatus. Makes the assumption that online displays are notational variants only.
- Burghart, Marjorie (2017), “Textual Variants,” in Marjorie Burghart et al. (eds.), *Digital Editing of Medieval Texts: A Textbook* (DEMM), URL, accessed 04/07/2021.  
Discussion of how to express various kinds of apparatus in TEI.
- Bausi, Alessandro, et al. (2015), *Comparative Oriental Manuscript Studies. An Introduction* (Hamburg: Tredition). doi: [10.5281/ZENODO.46784](https://doi.org/10.5281/ZENODO.46784).  
A huge book that disappointingly says nothing at all about Sanskrit manuscripts. Nevertheless there are many interesting case studies and remarks applicable to the Indian manuscript tradition.
- Roelli, Philipp (2020) (ed.), *Handbook of Stemmatology* (Berlin: De Gruyter). doi: [10.1515/9783110684384](https://doi.org/10.1515/9783110684384).  
A major collection of studies. The materials on Sanskrit manuscripts is unfortunately influenced by some inadequate recent studies on

the *Mahābhārata*. Nevertheless, the volume remains important for its many studies of general method and theory.

