A Translation of the Nepalese Text of the Suśrutasaṃhitā

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Draft of 3rd March 2025

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Introduction

What follows is a draft translation of selected chapters of the *Compendium of Suśruta* (*Suśrutasaṃhitā*). This differs from former translations, being based on the text that survives in the oldest known manuscripts of the work.[1] These old manuscripts are located in Nepal, so we refer to this as "the Nepalese version" of the work, although future research may show that this old version was more widely known.[2]

The date of the Suśrutasaṃhitā

In a previous publication, I discussed evidence showing that the *Suśrutasaṃhitā* as we have it now began to be assembled in the late centuries BCE, and was heavily revised and supplemented in the period before CE 500.[3] The more detailed reflections by Meulenbeld support this dating.[4] But we also now know, as a result of the Suśruta Project, that the work was subject to at least one further editorial campaign after the ninth century.[5] Another recently-discovered factor affects older arguments about the dating of the work. The name "Dhanvantari" that is associated with the vulgate version of the *Suśrutasaṃhitā* is not tied in the same way to the older, Nepalese version of the text.[6] In the late ninth century, the *Suśrutasaṃhitā* was read as a work delivered by Divodāsa, King of Kāśī, not the god Dhanvantari. The

1 See Wujastyk et al. 2023 for an introduction to the Nepalese text and Wujastyk et al. 2021– for background on the Suśruta Project, 2021–2024.
2 For more discussion of this issue, see Wujastyk et al. 2023: Introduction and ch. 2.
3 Wujastyk 2003*b*: 63–64.
4 HIML: 1A, 333–352.
5 Wujastyk et al. 2023: 16–26.
6 Wujastyk 2013; Birch, Wujastyk, Klebanov, Parameswaran, et al. 2021; Birch, Wujastyk, Klebanov, Rimal, et al. 2021; Wujastyk et al. 2023.

text was thoroughly re-edited after the ninth century, adding the narrative frame of the Dhanvantari attribution as well as verses from the *Carakasaṃhitā* and other material. It may be that at least some of this editorial work was performed by the author Candraṭa (fl. 900–1050), since several manuscript colophons of the *Suśrutasaṃhitā* include the statement,

> The correction of textual readings in the treatise of Suśruta was done by Candraṭa the son of the doctor Tīsaṭa, after studying the commentary of Jejjaṭa.[7]

The disassociation of Dhanvantari from the *Suśrutasaṃhitā* affects several historical arguments that were summarized by Meulenbeld about the relationship of the work to the *Carakasaṃhitā* and other works. Former arguments based on the priority of the *Carakasaṃhitā* to the *Suśrutasaṃhitā* can no longer stand, since the Nepalese version does not include many of the passages from the *Carakasaṃhitā* on which these arguments rest. A particularly striking example of this occurs in the *Sūtrasthāna*.

In the standard, printed edition or vulgate text of the *Suśrutasaṃhitā*, chapter ten of the *Sūtrasthāna* is dedicated to the topic of becoming a professional physician. The title of the chapter is interesting: "how to start being a secular practitioner," (विशिकानुप्रवेशनीयमध्यायम्). The word I translate as "secular practitioner" is, etymologically, "without a top-knot," i.e., a person who is not wearing a religious tuft of hair on the back of the head following tonsure. The text's choice of words points to a felt distinction of the doctor as not being a religious functionary.[8] The fourth passage of the chapter, describes how a physician takes note of omens on the way to a patient's home, and then how he diagnoses the patient:

> Then he should approach the house of the sick person according to the favourableness of the messenger, the reason given, omens, and good-luck signs. After sitting down, he should have a good look at the sick person, he should palpate them and interrogate them. Diseases are mostly understandable through these three means of gaining knowledge. That is what some people say, but it is not correct. There are six means of gaining

7 Wujastyk 2024.

8 Some commentators interpreted the word विशिखा to mean "path, road." This sense is not known outside the present passage. I would suggest it is an attempt to reverse engineer the chapter's title to mean something like the Pali *sotāpanna*.

> knowledge about diseases, i.e., by the five senses, hearing etc., and by interrogation.[9]

As we see, the text first proposes a three-part method of diagnosis and then immediately distances itself from that statement and provides a different six-part procedure. One has the sense of hearing two voices.

Who were the "some people" being referred to? The three-part diagnostic procedure is found in the *Carakasaṃhitā* (Ca.ci.25.22). For that reason, this passage has been taken as evidence that the authors of the Suśrutasaṃhitā knew the Caraka text and were responding to it. This is one of the pieces of evidence that is used to argue that the *Suśrutasaṃhitā* is chronologically later than the *Carakasaṃhitā*. In the Nepalese version of the *Suśrutasaṃhitā*, however, the passage is much simpler and omits this second, distancing, voice:

> Then, arriving at the house of the sick person according to the favourableness of the messenger, the reason given, omens, and good-luck signs, he should sit down. Then, he should have a good look at the sick person, he should palpate them and interrogate them. Through these three means of gaining knowledge it can be known whether life will be long or life will be short.[10]

Tthe passage referring to the *Carakasaṃhitā* is absent.

Luckily, for this part of the *Suśrutasaṃhitā*, the learned commentary of Cakrapāṇidatta (fl. 1075) survives. It was edited and published in 1939 by Yādavaśarman T. Ācārya. Commenting on the passage, Ācārya stated that this extra passage was not known to Cakrapāṇidatta.[11] Thus, we can say that it was added to the text of the *Suśrutasaṃhitā* some time between the oldest Nepalese manuscript (878 CE) and Cakrapāṇidatta's time, i.e., the eleventh century.

The fact that this reference to the *Carakasaṃhitā* is not present in the early Nepalese version of the *Suśrutasaṃhitā* means that the argument about chronological priority cannot be sustained.

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9 दूतनिमित्तशकुनमङ्गलानुलोम्येनातुरगृहमभिगम्य, उपविश्य, आतुरमभिपश्येत्स्पृशेत्पृच्छेच्च; त्रिभिरेतैर्विज्ञानोपायै रोगाः प्रायशो वेदितव्या इत्येके; तत्तु न सम्यक्, षड्विधो हि रोगाणां विज्ञानोपायः, तद्यथा — पञ्चभिः श्रोत्रादिभिः प्रश्नेन चेति ।। ४ ।।|

10 ततो दूतनिमित्तशकुनमङ्गलानुलोम्येनातुरगृहमागम्योपविश्यातुरमभिपश्येत्स्पृशेच्च त्रिभिरेतैर्विज्ञानोपायैः दीर्घमायुषोल्पायुषो वेदितव्यः।

11 अयं पाठश्च चक्रासंगतः.

Evidently, Candraṭa or some other editor added material from the *Carakasaṃhitā* to the *Suśrutasaṃhitā* after the ninth century. A piece of evidence that remains independent of the above issues is the remark by the learned commentator Cakrapāṇidatta (fl. 1075, Bengal) that Dṛḍhabala (fl. ca. 300–500 CE) knew and made use of the *Suśrutasaṃhitā*.[12] This provides a latest date for the *Suśrutasaṃhitā* in the period before Dṛḍhabala. This also shows that much of the text of the *Carakasaṃhitā* in its present form, as reconstructed by Dṛḍhabala, postdates the *Suśrutasaṃhitā*.

The Nepalese Version

The Nepalese version has been reconstructed on the basis of three manuscripts from Kathmandu,

1. MS Kathmandu KL 699 (siglum K),
2. MS Kathmandu NAK 1-1079 (N), and
3. MS Kathmandu NAK 5-333 (H).

The first of these MSS is the oldest, dated to CE 878.[13] It covers most of the *Suśrutasaṃhitā*, but lacks the *Nidānasthāna* and the *Śārīrasthāna* (see Fig. 1). The second is undated but is datable on palaeographical grounds to the twelfth or thirteenth centuries.[14] It contains the *Sūtrasthāna* and *Nidānasthāna* but breaks off shortly afterwards. The third manuscript, H, is the most complete, supporting the text of the whole of the *Suśrutasaṃhitā*. It is dated CE 1513.[15] The text of manuscript H follows K very closely but is probably not a direct apograph.[16] I conjecture that it was either copied from an intermediary that followed K very closely or from a ancestor of K.[17]

12 Cakrapāṇi ad *Carakasaṃhitā* 8.12.39 (Ca 1941: 735) (see also HIML: 1A, 132, 350–351).
13 Klebanov 2021*a*: 15.
14 Klebanov 2021*a*: 17–18.
15 I follow the arguments of Klebanov (2021*a*: 21–26) on the interpretation of the colophon although, as he pointed out, some interpret the date as CE 1573.
16 Chakraborty 2022.
17 "...as neither my own research ... nor the study undertaken in Harimoto ... could determine any linear connection between any of the Nepalese manuscripts of the SS, one may assume that [there exists] an older common ancestor of both of the manuscripts K and H." (Klebanov 2021*b*: 21).

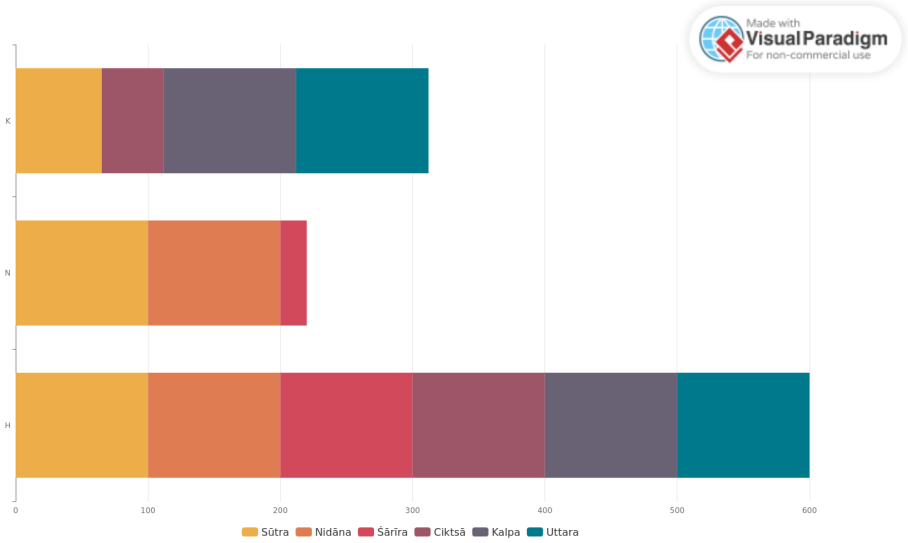

Figure 1: Coverage of the text by MSS K, N and H.

The vulgate

The version of the *Suśrutasaṃhitā* that we refer to as "the vulgate" is the version of the text that circulates in print today in multiple editions. The most careful and authoritative edition is that of Y. T. Ācārya and N. R. Ācārya (Su 1938).[18] It is telling that this edition includes the commentary of Ḍalhaṇa (b. ca. 1175) and, for the *Nidānasthāna*, also that of Gayadāsa (fl. ca. 1000). These important authors commented on a text that is, broadly speaking, what we call "the vulgate." But they both mentioned quite often that the manuscripts they were consulting contained other versions of the text and in a high number of cases, these variations match the Nepalese version.[19] It is possible that Gayadāsa and Ḍalhaṇa, through their commentarial work on the text, participated in shaping "the vulgate."

The scholar Rudolph Hoernle was also aware of this cleavage in the transmission-history of the *Suśrutasaṃhitā*. But with the more limited materials available to him at the turn of the twentieth century he drew

18 This and the following issues have been discussed by Wujastyk et al. (2023: 2 and ch. 3).

19 E.g., see the discussion in footnote 165 below.

the line a little differently. He referred to the text of the *Śārīrasthāna* of the *Suśrutasaṃhitā*, transmitted in the printed editions of his day, as "the Traditional Recension."

> The recension which is found in Jīvānanda's and all other prints,[20] and which, in the sequel, will be referred to as the Traditional Recension, has in its favour not only all available manuscripts, but also all ancient commentaries on the Compendium of Suśruta, ... Or, shortly, the Traditional Recension is supported by the whole body of existing witnesses.[21]

However, Hoernle was unfortunately not aware of the Nepalese manuscripts of the *Suśrutasaṃhitā*, which at the time he was writing were in Nepalese libraries that had not yet been explored by scholars of the time. The contrast that Hoernle was drawing was between the Traditional Recension and the *Śārīrasthāna* of the *Carakasaṃhitā* as printed by the influential Bengali scholar, Kavirāja Gaṅgādhara Ray (1798–1885).[22]

The Translation

The translation follows the methods of rigorous philological care and modern principles of translation theory.[23] Major differences in sense from the vulgate text are marked in this manner, but the differences are so pervasive and fine-grained that most have not been explicitly marked.

The text-historical state of the *Suśrutasaṃhitā* bears many resemblances to other early textual transmissions in South Asia. The situation was articulated particularly clearly for the case of Pāli by von Hinüber (1978), in the opening of his chapter,

> ...we cannot go back beyond the council of Aluvihāra (Ālokavihāra) under Vaṭṭagāmaṇī Abhaya (29–17 B.C.) where the Pāli

20 Hoernle listed four, S. M. Gupta 1835–36; Su 1889; Vīrasvāmi 1900–09; Govindjī et al. 1901.

21 Hoernle 1907: 68.

22 Ray 1868–70. Hoernle's evaluation of this edition was not entirely kind: "I have not been able to discover for it any authority whatsoever. ... it is probably that the recension of Gangādhar is a reconstruction of his own to meet those of the difficulties which he had noticed" (Hoernle 1907: 70). For a full account of the genesis of this edition, see Pecchia 2022.

23 See Wujastyk 2003*b*: intro. and Wujastyk 2021: 81–83 for an overview.

> canon ws written down for the first time in Ceylon. This is the very starting point of our tradition handed down to us by the monks of the Mahāvihāra. About recensions of the Pāli canon different from the Mahāvihāra tradition and deviating from its wording... we scarcely have any knowledge at all.

Similarly, the manuscript evidence for the *Suśrutasaṃhitā* that is available today allows us to reconstruct a version of the work after it was consolidated into a text of five parts with a sixth or "later" (*uttara*) and somewhat different part already appended to the first five. The prehistory of the work before this form is tantalizingly unknown to us. That the work was assembled from diverse sources and that many hands were involved is without doubt. The oldest surviving manuscript, MS Kathmandu KL 699, gives us physical evidence for the state of the text in the ninth century. We little insight into the formational processes affecting the text before that time. But what we can see plainly is that the text was edited pervasively after that time, being influenced especially by the commentators Jejjaṭa, Candraṭa, Gayadāsa and Cakrapāṇidatta and the editor Candraṭa. However, a clear picture of how these later editorial processes took place will only be possible as a result of further research into a wider manuscript base.

Part 1. Sūtrasthāna

Part 2. Nidānasthāna

Part 3. Śārīrasthāna

Part 4. Cikitsāsthāna

Part 5. Kalpasthāna

Kalpasthāna 8: Poisonous insects

Introduction

This is the last chapter of the *Kalpasthāna*. Since the chapter-colophons of the Nepalese manuscripts of the whole *Suśrutasaṃhitā* commonly end with the statement, "here ends the *Suśrutasaṃhitā* together with the *Uttaratantra*," we can presume that an older version of the *Suśrutasaṃhitā*, sans *Uttaratantra*, ended with the present chapter. Added to this, the beginning of the next section of the work, the *Uttaratantra*, reads,

> It being declared in the preceding 120 chapters, from here on, in the latter section, I shall explain the meanings in detail, fully.[713] Now, I shall explain the treatise called "the latter" where diseases in their diversity are fully revealed.

It is often the case with evolving works that new chapters are added at the start or, especially, at the end of a work. This has been true since the *Ṛgveda*. The *Kalpasthāna* has a different character from the rest of the *Suśrutasaṃhitā*, for example eschewing theoretical considerations in many situations. It may therefore itself have once been an addition to an even earlier medical work consisting of four main divisions.

Insect names

It is more than usually difficult to equate the Sanskrit names of insects with contemporary creatures. In fact, it is mostly impossible. This is partly, at least, because historical entomology is non-existent as a discipline. Furthermore, entomology as a science in South Asia is dramatically

713 Note that this is not the reading of the vulgate, which says that the *Uttaratantra* will explain everything that was *not* completely explained before.

undeveloped when compared, for example, with botany.[714] There are few general surveys of insects in India and virtually none that record historical names or literary references. In the twelfth century, Ḍalhaṇa made the following remark about the commentators who lived before his time:

> These different types of insects are not described by commentators like Suvīra, Nandin,Varāha, Jejjjaṭa and Gayadāsa, so they have to be identified from the people of different localities.[715]

Thus, even pre-modern Sanskrit authors were not expert regarding the identities of the insects discussed in the *Suśrutasaṃhitā*.[716]

In general the names listed in passages 5–14 are the least recognizable. Most seem never to appear elsewhere in Sanskrit literature or even elsewhere in the *Suśrutasaṃhitā*. The names mentioned from passages 25 onwards are mostly recognizable and do appear elsewhere Sanskrit literature.[717] This chapter therefore gives the appearance of having two distinct parts. First, there is a taxonomy arranged according to humoral characteristics, containing otherwise unknown insect names. Second follows a concatenated treatise with more recognizable ordinary-language nomenclature coupled with creature-by-creature nosology and therapy.

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.[718]

The early history of entomology in India was fragmented until the study of Maxwell-Lefroy (1909) who provided a comprehensive and well illustrated reference compendium. Dover (1922) gave an overview of the early years of the field, though he admitted that, "I have not the linguistic attainments to discuss the mention of various insects in ancient Sanskrit

714 Desmond (1992) devoted a book of 368 pages to the early history of Indian botany; Dover (1922: 338–345) described the history of Indian entomology in seven pages.

715 Ḍalhaṇa on 5.8.4 (Su 1938: 586): एते कीटकभेदा नानादेशीयलोकादवगन्तव्याः, यतः सुवीरनन्दिवराहजेज्जटगयदासादिभिः टीकाकारैर्न व्याख्याताः. (Varāha is called Vārāha by Ḍalhaṇa on 2.13.3 (Su 1938: 318).) Cf. Meulenbeld (HIML: IA, 387–388) on Suvīra and *mutatis mutandis* on the other commentators

716 MW includes 191 insect names, almost none of which are identified.

717 E.g., Mitra 2005.

718 HIML: IA, 296–299.

works." Entomological studies focussed on south India include those of Baingrigge Fletcher (1914) and Ramakrishna Ayyar (1963). Meulenbeld (HIML: IB, 402) provided short bibliographies on Indian scorpions (note 214) and on spiders (note 222). Some insects were included by Ball (1888) in his study of the Indian flora and fauna known to classical Greek authors. Kaur and L. Singh (2018) provided a unique but very brief historical sketch of some arthropod references in Sanskrit literature.

Translation

1 And now I shall explain the procedure (*kalpa*) about insects.

Taxonomy of insects

3 Insects originate from snakes' semen, feces, urine, the rot of corpses, and eggs.[719] Their characters are traditionally divided into three: wind, fire, and water.

4 Yet others hold the opinion that they are connected with the characters of all of the humours. And those insects are also very fierce and all of them are divided into four groups.[720]

Wind

5–6
1. Tick-navel,
2. Beaked,
3. Horned, and
4. Hundred-kulimbhakas,
5. Cricket,
6. Fiery,
7. Little-voice,
8. Vicitiṅgas, and
9. Lentil insects.
10. Revolver, and
11. Sheep-insect,
12. Myna-face, and
13. Legume-insect,
14. Hundred-creeper,
15. Stripy,
16. Spotted,
17. Speckle-head.[721]

7cd–8ab These eighteen insects, being of airy character, irritate the wind. The diseases of people bitten by one of these are caused by wind.

Fire

8cd–11ab

719 P. V. Sharma (1999–2001: 3, 78) omitted "snakes' " making it sound as if insects are just born of any semen, etc.

720 The insects named in the following lists are all unidentifiable at the present time. The English translations are based mostly on the etymologies of the Sanskrit names. Future ethno-linguistic studies of insect-names in South Asia may solve some cases.

721 The list is deficient in the Nepalese version. The vulgate text has another half-verse here listing two more names, शतबाहु "hundred-arm" and रक्तराजि "red-stripe." It does not include the Nepalese version's अल्पवाच "little voice."

1. Pitcher-like,
2. Shining-like-grain,
3. Celestial, and
4. Warding off,
5. Leaf-scorpion,
6. Noseless,
7. Devout,
8. Droplet,
9. Bee,
10. Outsider.
11. Picciṭās,
12. Pot-turd,
13. Maggot,
14. Enemy-liquor,
15. Lotus-insect,
16. Drummer,
17. Mosquito,
18. Centipede,
19. Five-venom,
20. Cook-fish insect,
21. Black-beak,
22. She-ass insect.

These are the insects, as well as the

23. Worm-dish,

and the other one that is known as the

24. Slimy.

11cd–12ab These are the twenty-four insects that have the character of fire. The diseases of people bitten by one of these are caused by bile.

Phlegm

12–15ab
1. Vaiśvambhara,
2. Pañcaśukla,
3. Pañcakṛṣṇa,
4. Kokila-insect,
5. Śairyaka-insect,
6. Pravalāka,
7. Bhaṭābha,
8. Kiṭibha,
9. Aṭakī,
10. Sucīmukha,
11. Kṛṣṇagodhā,
12. Kuṣṭa-insect,
13. Kaṣāyavāsika,

These are the thirteen watery (*saumya*) insects that irritate the phlegm. The diseases of people bitten by one of these are caused by phlegm.

All three humours

15cd-17ab
1. Tuṅgīnāsa,
2. Valabhika,
3. Tolaka,
4. Nāhana,
5. Koṇṭāgīrī,
6. Krimikara,
7. Maṇḍalapuṣpaka,
8. Tuṇḍavakra,
9. Sarṣapaka,
10. Spoṭaka,
11. Śambuka,
12. Fiery insect,

These are the twelve terrible ones that are born of all three humours.

Symptoms

17cd, 20–24 The knowledge about the stages of toxic shock (*vega*) of those bitten by one of these is the same as with snakes.[722]
The following are found in the area of a bite, or in a body permeated (*ākula*) with poison: an eruption of blisters, swelling, lumps and circles, ringworm (*dardru*),[723] small ear-like growths (*karṇikā*), spreading rashes (*visarpa*), and dark, rough patches of skin (*kiṭibha*).[724]

Taxonomy according to symptoms and prognosis

25–27 xx
28 iguana
29 [725]
30–41 xx

Therapies

42–56abcd xx

Taxonomy of scorpions

56ef–66 xx

722 Two verses appear at this point in the vulgate that are not in the Nepalese version. They introduce a categorization of insect poisons into severe versus mild, a scheme that the Nepalese version does not reference.

723 More usually दद्रु, a skin disease like कुष्ठ, i.e., leprosy or vitiligo, caused by an excess of bile and phlegm (*Mahākośa*: 390), although the form दर्द्रु is mentioned in the *Uṇādisūtra* commentary by Śvetavanavāsin (fl. tenth to fifteenth century), "दर्द्रूः कुष्ठभेदः" (I.88). Translated here as "ringworm" because that is prominent amongst the NIA usages of the lexeme and derivatives (CDIAL: 1, #6142).

724 These symptoms are the same as those listed at 5.7.8 (Su 1938: 582) as being caused by rat poisoning, and similar to the list at 1.11.7 (Su 1938: 46). See footnote 657, p. 195.

725 See n. 221, p. 86.

Figure 4: Husain, Shaykh, Shaykh Ali and Shaykh Hatim, "Asavari Ragini: Cropped Image of Scorpions" (Husain et al. 1591). Courtesy of the Smithsonian Institution.

Therapies for scorpion-sting

67–74 xx

Symptoms of spider poisoning

75–89 xx

Origin story for spiders

90–93 xx

Taxonomy of spiders

94–100ab xx

Specific symptoms and treatment for spider poisoning

100cd–120 XX

Untreatable spider poisons

121–127 xx

Curable and incurable

128–129 xx

Therapies for spider poisoning

130–134 xx

General therapies for poisoning

135–139 xx

End of the Suśrutasaṃhitā

140–143 xx

Part 6. Uttaratantra

Editions and Abbreviations

Ah 1939 — Kuṃṭe, Aṇṇā Moreśvara, Navare, Kṛṣṇaśāstrī, and Parādkar, Hariśāstrī (1939) (eds.), *श्रीमद्वाग्भटविरचितम् अष्टाङ्गहृदयम्, श्रीमदरुणदत्तविरचितया सर्वाङ्गसुन्दराख्यया व्याख्यया, हेमाद्रिप्रणीतया आयुर्वेदरसायनाह्वया टीकया च समुल्लसितम्* = *The Astāngahṛidaya* (6th edn., Muṃbayyām: Nirṇayasāgara Press), ARK: https://n2t.net/ark:/13960/t3tt6967d.

Ca 1941 — Ācārya, Yādavaśarma Trivikrama (1941) (ed.), *महर्षिणा पुनर्वसुनोपदिष्टा, तच्छिष्येणाग्निवेशेन प्रणीता, चरकदृढबलाभ्यां प्रतिसंस्कृता चरकसंहिता, श्रीचक्रपाणिदत्तविरचितया आयुर्वेददीपिकाव्याख्यया संवलिता* (3rd edn., Mumbayyāṃ: Nirnaya Sagara Press), ARK: https://n2t.net/ark:/13960/t48q2f20n.

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Abbreviations

ADPS — Sivarajan, V. V., and Balachandran, Indira (1994), *Ayurvedic Drugs and Their Plant Sources* (New Delhi, Bombay, Calcutta: Oxford & IBH Publishing).

AVS — Warrier, 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).

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GJM2 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 GJM1.

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Flora

aconite leaf (?) (*viṣapatrikā*) Unknown. Cf. perhaps, Indian aconite (*viṣā*) (but that is feminine). Cf. GVDB: 373, "unidentified" : 145

agarwood (*aguru*) Aquilaria malaccensis Lam., GVDB: 3 : 102, 103, 206

'alas, alas' (?) (*hālāhala*) unknown. See Cf. *Soḍhalanighantu* p.43 (sub *bola*) = *stomaka* = Indian aconite (*vatsanābha*) : 146, 148

Alexandrian laurel (*punnāga*) Calophyllum inophyllum, L. See AVS: 1, 338, NK: 1, #425 : 187, 206

amaranth (*taṇḍulīya*) see amaranth (*taṇḍulīyaka*) : 188

amaranth (*taṇḍulīyaka*) Amaranthus spinosus L. See GVDB: 174, Dutt: 321, NK: 1, #144, Potter$_{rev}$: 15. Cf. AVS: 1, 121. Amaranth (etym. amṛta!) is a large family, many originally endemic to S. America. A. hypochondriacus L. is sometimes identified with *taṇḍulīyaka*, but A. spinosus L. is better known and attested in S. Asia in the first millennium BCE (Saraswat 1991) : 137, 195, 199, 204, 306

Arabian jasmin (*tṛṇaśūnya*) see Arabian jasmine (*mallikā*), GVDB: 190 MW: 453 says Jasminium sambac. GVDB: 190 also suggest screwpine (*ketaka*) : 306

Arabian jasmine (*mallikā*) Jasminum sambac (L.) Aiton, GVDB: 300 : 306

Arabian jasmine (*tṛṇaśūlya*) probably an alternative pronunciation for Arabian jasmin (*tṛṇaśūnya*), GVDB: 190 : 206

arjun (*arjuna*) Terminalia arjuna, Bedd. See HK: 738 : 46, 82, 203

Asoka tree (*aśoka*) Saraca indica Linn.,

Maton. See AVS: 2, 360, NK: 1, #924, Potter$_{rev}$: 66 : 102, 103, 153, 159, 187, 188, 196, 206, 309

cardamom (*kṣudrailā*) see cardamom (*elā*), GVDB: 128. This expression, "small cardamom" is only used at *Suśrutasaṃhitā* Kalpasthāna 6.17 : 206

carray cheddie (*viśvadevā*) → *gāṅgerukī* Canthium parviflorum, Lam. See AVS: 1, 366 f. Or Sida rhombifolia Linn. (GVDB: 372, 444 ff. et passim) : 85

castor oil tree (*gandharvahasta*) see castor-oil (*eraṇḍa*). GVDB: 135, K & B: 3, 2277 : 51, 105

castor-oil (*eraṇḍa*) Ricinus communis, L. See NK: 1, #2145, Chopra: 214 : 56, 309

castor-oil tree (*vardhamāna*) see castor-oil (*eraṇḍa*), GVDB: 361 : 204

catechu (*khadira*) Senegalia catechu (L.f.) P. J. Hurter & Mabb = Acacia catechu Willd. GVDB: 129–130 : 82

certain minerals (*tārāvitāra*) Unknown. It is not even certain that these are minerals. The variant reading in the vulgate, *tāraḥ sutāraḥ* was glossed by Ḍalhaṇa on 5.3.14 (Su 1938: 568) as follows *tāro rūpyaṃ, sutāraḥ pāradaḥ*, "tāra means silver; sutāra means mercury." : 158

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*) : 39, 323

champak (*campaka*) Magnolia champaca (L.) Baill. ex Pierre, GVDB: 154 : 206

chebulic myrobalan (*harītakī*) Terminalia chebula Retz. GVDB: 466 : 111, 136, 206, 325

cherry (*elavālu*) Prunus cerasus, L. See GVDB: 58 for a thoughtful discussion NK: 1, #2037. : 153, 206, 309

cherry (*elavāluka*) see cherry (*elavālu*) : 204

chir pine (*sarala*) Pinus roxburghii, Sarg. GVDB: 423 : 81, 112, 204, 206

cinnamon (*tvac*) Cinnamomum cassia, Blume. See NK: 1, #579 : 198, 206, 309

cinnamon (*tvak*) see cinnamon (*tvac*) : 188

cinnamon (*varāṅga*) see cinnamon (*tvac*), GVDB: 360 : 204

citron (*mātuluṅga*) Citrus medica, Linn. GVDB: 276, 306. Also spelled *mātuliṅga, mātulaṅga, mātulāṅga* : 81, 110, 115, 116, 188

cluster fig (*udumbara*) Ficus racemosa, L. See ADPS: 487 : 203

cobra's saffron (*nāgapuṣpa*) → nāgakeśara. Mesua ferrea, L. See NK: 1, #1595, GVDB: 220 : 153

colocynth (*indravāruṇī*) Citrullus colocynthis (L.) Schrad., GVDB: 46. The two varieties of this plant are discussed by (ADPS: 180–183); the first is agreed to be colocynth, the second is debated but is likely to be a Curcubitaceae : 204, 206, 309

colocynth (*mṛgādanī*) see colocynth (*indravāruṇī*) GVDB: 46, 318 : 188

common smilax (*śvadaṃṣṭra*) Smilax aspera L., GVDB: 414 : 81

convolvulus (*lakṣmaṇā*) Sivarajan and Balachandran (ADPS: 273–275) suggest Ipomoea marginata (Desr.) Verdc. or I. obscura (Linn.) AVS: 3, 237–238 suggests Ipomoea sepiaria Roxb. (looks like a little boy (*putraka*), and generates a boy (*putrajananī*), according to the *Bhāvaprakāśa*). Sivarajan and Balachandran (ADPS: 273–275) firmly reject Mandragora officinalis which is European; but possible consideration could be given to Mandragora caulescens C.B.Clarke, a variant that is known in South Asia. Cf. GVDB: 346–347. NK: #1546, #2323 suggests Mandragora officinalum, Linn., known as *putrada* : 85

coriander (*dhānyaka*) Coriandrum sativum

is not native to South Asia : 116

wild spider flower (*tailaparṇika*) see wild spider flower : 206

wild spider flower (*tilaparṇī*) Cleome gynandra L., GVDB: 184–185, but see the discussion of the other drug plants sometimes intended by this name : 329

wild sugar cane (*kāṇḍekṣu*) Saccharum spontaneum L., GVDB: 90 : 81

winged-stem canscora (*girihvā*) see winged-stem canscora (*girikarṇikā*) : 188

winged-stem canscora (*girikarṇikā*) sometimes → *śvetā*, in which case possibly Clitoria ternatea, L., see AVS: 2, 129, NK: 1, #621. Since *śvetā* and *girihvā* are cited as separate constitutents of one formula (e.g., *Suśrutasaṃhitā* 5.5.75 (Su 1938: 579) they cannot be the same plant. GVDB: 138–139 argued for Symphorema polyandrum Wight, which they also assigned to *sinduvāra*. When discussing *śaṅkhapuṣpī*, another possible synonym, Sivarajan and Balachandran (ADPS: 425–427) also suggest Canscora alata (Roth) Wall. (syn of Canscora decussata Schultes & Schultes f.) and Convulvulus pluricaulis Chois. The former has a more appropriate distribution and is chosen here : 329

winged-stem canscora (*giryāhvā*) see winged-stem canscora (*girikarṇikā*) : 328

Withania (*aśvagandhā*) Withania somnifera (L.) Dunal. See AVS: 5, 409 f, Dymock: 2, 566 f, 150, GVDB: 29, Chevillard: 152 : 55, 104, 111, 188

wood-apple (*kapittha*) Limonia acidissima, L. See AVS: 3, 327, NK: 1, #1021 : 111, 137, 139, 189, 198, 199, 203, 220, 322

woody turmeric (*kāleyaka*) Coscinium fenestratum (Goetgh.) Colebr., GVDB: 95. See V. K. Gupta et al. 2015: 173–175 : 206

woody-fruited jujube (*gopaghoṇṭā*) Ziziphus xylopyra (Retz.) Willd. GVDB: 147 → *ghoṇṭā* : 204

yellow-berried nightshade (*kaṇṭakārī*) Solanum virginianum L. (syn. Solanum surattense Burm. f. and Solanthum xanthocarpum, Schrad. & Wendl.) GVDB: 68–69. See also IHR: 430. A component of lesser five roots : 318, 329

yellow-berried nightshade (*kṣudrā*) see yellow-berried nightshade (*kaṇṭakārī*), ADPS: 100, NK: 1, #2329, AVS: 5, 164 : 152, 153

Fauna

arala rat (*arala-animal*) a hapax legomenon in Sanskrit, probably a Dravidian loan word or cognate from forms like Pengo, Manḍa, Kuwi etc., *orli, urli*, etc., DED_2: #994 : 194, 196, 197

aṭakī (*aṭakī*) unknown : 213

bad-marked rat (*kuliṅga*) etymologically, "having bad-marks" MW: 286, but unidentifiable : 194, 197

beaked (*tuṇḍikerī*) neologism insect-name based on the etymology of *tuṇḍa*. Probably *tuṇḍikera* and *tuṇḍicela* are variants of the same lexeme. *ṭuṇḍa* is "Nicht überzeugend erklärt" according to Mayrhofer (EWA: 1, 653), who refers to a possible non-Indo-European origin (ibid. v. 3, 249 on *tundikā, tundikerī* refers to plants only). But Burrow 1971: 544 derived the term plausibly from $\sqrt{}$*tud* "peck" : 212

bee (*bhramara*) bee or bumble-bee, MW: 769, etc. : 213

blue-gray skin with red or orange spots and speckles that may change according to its environment like a chameleon. Tokay geckos, especially males, are aggressive and territorial and can inflict a strong bite. However, many agamids and skinks are also endemic to South Asia, and have markings that could match the description of the *Suśrutasaṃhitā*. See further IW: 40, 135–136; Deuti 2020 : 86

leaf-scorpion (*patravṛścika*) unknown insect, name based on etymology : 213

legume-insect (*vaidala*) unknown insect, name based on etymology : 212

lentil insect (*masūrika-insect*) usually the name of a lentil or the "lentil disease," namely smallpox. But here, an insect : 212

little rat (*cikkira*) likely related to the Tuḷu "cikkeli, a small variety of mouse," and other Dravidian works related to Tamil *cikka* "small',' DED_2: #2495. See also CDIAL: 1, #4779 on *cikka* "mouse or muskrat," from lexical sources, and #4781 *cikkā* "small" from Drav., Burrow 1948: #141 : 194, 196

little-voice (*alpavāca*) unidentified insect; possibly a wrong reading : 212

lotus-insect (*padmakīṭa*) unknown insect, name based on etymology : 213

maggot (*kīra-insect*) unknown insect. See Lahndā, Panjābī, Bengali, Oriya *kīṛā*, etc., CDIAL: 1, #3193 and similar forms in Bīhārī, Maithilī Bhojpurī, etc. Obviously a variant of *kīṭa* : 213

maṇḍalapuṣpaka (*maṇḍalapuṣpaka*) unknown : 213

mole-rat (*kokila-animal*) Bandicota bengalensis (Gray & Hardwicke). Etymologically, "brown as a Kokila". CDIAL: 1, #4324 relates *kokila* to *golaka* but it may more likely be a Dravidian loanword from *koko, kogi, koki*, meaning "small, little, young" DED_2: 2030. This is possibly supported by Kannada *kok* and Telugu *golatta, koku* for the mole-rat, reported by Prater (BIA: 205) : 194, 197

mongoose (*nakula*) Urva edwardsii or the often sympatric U. auropunctatus (small Indian mongoose, usually an eater of smaller creatures than snakes) (BIA: ch. 5), On mongooses and snakes, see IW: 112; BIA: 98–99 : 140, 188

mosquito (*maśaka*) a mosquito, gnat, gadfly or any stinging fly, MW: 793, CDIAL: 1, #9917 : 213

myna-face (*śārikāmukha*) unknown insect, name based on etymology : 212

nāhana (*nāhana*) unknown : 213

noseless (*vināsikā*) unknown insect, name based on etymology : 213

outsider (*bāhyaka*) unknown insect, name based on etymology : 213

pañcakṛṣṇa (*pañcakṛṣṇa*) unknown : 213

pañcaśukla (*pañcaśukla*) unknown : 213

parakeet (*śuka*) Psittacula krameri, Scopoli (or P. eupatria or cyanocephala), See Woodcock 1980: 64 : 134, 198

picciṭā (*picciṭā*) unknown insect; etymologically perhaps similar to *piccaṭa* "squashed flat" (MW: 624) : 213

pigeon rat (*kapota-animal*) a rat "like a pigeon;" presumably of grey colour : 194, 197

pitcher-like (*kauṇḍinya-insect*) unknown insect, name based on etymology : 213

pot-nose wasp (?) (*kumbhīnāsa*) unknown insect, name based on etymology. Cf. the forms related to *kumbhakārī* "potters' wife" at CDIAL: 1, #3312, including Assamese *kumārni* "mason-wasp," Hindī "wasp-like insect which makes a clay nest" : 334

pot-turd (*kumbhīvarcas*) unknown insect, name based on etymology (on *-varcas*, see *Mahākośa*: 1, 725 : 213

pravalāka (*pravalāka*) unknown : 213

racket-tailed drongo (*bhṛṅgarāja*) Dicrurus

remotely related to Dravidian lexemes for "tick," *uḷuṅgu, uḍum, urūm, uṇṇi*, etc. DED_2: #591, #604. The vulgate of the *Suśrutasaṃhitā* reads pot-nose wasp (?) (*kumbhīnāsa*) "pot-nose" in place of this lexeme, q.v. : 212

tolaka (*tolaka*) unknown : 213

tortoise (*kūrma*) Perhaps Geochelone elegans (Schoepff), Reptiles: 30 and plate, MW: 1076 : 207

tuṇḍavakra (*tuṇḍavakra*) unknown : 213

tuṅgīnāsa (*tuṅgīnāsa*) unknown : 213

vaiśvambhara (*vaiśvambhara*) unknown : 213

valabhika (*valabhika*) unknown insect : 213

vicitiṅga (*viciṭiṅga*) unidenitified insect (not in MW) : 212

warding off (*vāraṇī*) unknown insect, name based on etymology. Cf. Oṛiyā *bāraṇī* "charm against wild animals or noxious insects" CDIAL: 1, #11553 : 213

white rat (*śveta-animal*) from the etymology, perhaps the Mus musculus, L.., although strictly, they are agouti not white. The whitetailed wood rat (*Madromys blanfordi*, Thomas) is brown but has a distinctive white end to its tail : 194, 197

worm-dish (*krimisarāvī*) unknown insect, name based on etymology. *śarāva* "dish, plate, etc." (MW: 1057) : 213

Minerals

ashes (*bhasma*) ashes, corrosive when wet : 146

cuttle-fish bone (?) (*phenāśma*) Hapax legomenon. Etymologically "foam-stone". Perhaps cuttlefish bone, or pumice (see Byrski 1981)? Dutt (Dutt: 38–42) conjectured that 'foam-stone' may be impure white arsenic obtained by roasting orpiment. : 146

orpiment (*haritāla*) Arsenii trisulphidum. See NK v. 2, p. 20 ff : 146

vermilion (*rakta*) speculative, based on *Mahākośa*: 1, 667, under *raktadhātu*, citing the *Dhanvantarīyanighaṇṭu* : 146

Glossary

ākula - permeated: 214

character - *prakṛti*: 212

dadru - ringworm: 214
dardru - ringworm: 214
dark, rough patches of skin - *kiṭibha*: 214

insect - *kīṭa*: 212

kalpa - procedure: 212
karṇikā - small ear-like growths: 214
kīṭa - insect: 212
kiṭibha - dark, rough patches of skin: 214

permeated - *ākula*: 214

prakṛti - character: 212
procedure - *kalpa*: 212

ringworm - *dadru*: 214 - *dardru*: 214

saumya - watery: 213
small ear-like growths - *karṇikā*: 214
spreading rashes - *visarpa*: 214

toxic shock - *vega*: 214

vega - toxic shock: 214
visarpa - spreading rashes: 214

watery - *saumya*: 213

Todo list