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The Seasons in Ancient Indian Medicine: Long Winters or Extensive Rains?

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The Seasons in Ancient Indian Medicine: Long Winters or Extensive Rains?

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1 INTRODUCTION

FOR THE PRACTICE OF MEDICINE IN GENERAL, an understanding of the seasons (Sanskrit: *ṛtu*) and their properties is important in more than one way. First, the constitution of human beings changes according to the time of year and, accordingly, gives rise to different ailments. Thus, for each season, distinct medicines, therapies, diet and conduct are advisable. Nutritional and therapeutic substances also undergo changes according to time. In certain seasons, they are strongly effective while in others, they lose their healing power altogether or are not available. Finally, certain climatic and seasonal phenomena can function as remedies.¹ Hence, the segmentation of the year, its influence on nature and its dietary and therapeutic implications for people are elaborated in all of the central compendia of ancient Indian medicine.

In my study, I address the five most eminent compendia of classical Ayurveda, i.e., the *Carakasamhitā* (CS), the *Suśrutasaṃhitā* (SS) and the *Bhelasamhitā* (BhS), as well as the works credited to Vāgbhaṭa: the *Aṣṭāṅgahrdayasaṃhitā* (AHS) and the *Aṣṭāṅgasamgraha* (AS).² Where advisable, the commentaries on these texts were also consulted.³

¹ SS 1.1.33, after other remedies, lists cures which are “caused by time:” “[Cures] caused by time are peculiarities of the year like wind, breezes, the heat of the sun, shadow, moonlight, darkness, cold and warmth, rain, day and night, fortnights, months, seasons, halves of the year, etc.” (कालकृताः प्रवातनिवातातपच्छायाज्योत्स्नातमः शीतोष्णवर्षाहोरात्रपक्षमासर्त्विअयनादयः संवत्सरविशेषाः.)

² The CS, the BhS and the SS all date to the period between 250 BCE and 150 CE and

were reworked and complemented to different degrees in the following centuries. AS and AHS came into existence around 700 CE and depend heavily on the CS and the SS. On the dating of these works, see Meulenbeld HIML: IA, 105 sqq. (CS), Meulenbeld HIML: IA, 342 sqq. (SS), Meulenbeld HIML: IIA, 22 sqq. (BhS), and Meulenbeld HIML: IA, 613 sqq. (AS and AHS).

³ Most notably, I rely on Ḍalhaṇa’s commentary on the SS, the *Nibandhasamgraha*,

In each of these works, one can find a lesson devoted to the structure of the year and the characteristics of the seasons.⁴ This lesson is usually located in the first section of the books.⁵ Generally, the lesson is roughly divided into two sections, the first of which explains the structure of the year and the second of which is dedicated to the characteristics of seasons as well as the appropriate corresponding diets and modes of conduct. In addition to these lessons, we find references to the seasons and their implications for medicine reappearing throughout the works.

One curious aspect of the passages under study is that they seem to apply two different seasonal schemes side-by-side, without explaining this duplication. We will see later that these schemes serve specific purposes in the treatises and, depending on the topic being treated, are used intentionally. Concerning this matter, I review the investigations of Francis Zimmermann (1980) and provide a comprehensive examination of the occurrences of these two schemes throughout the works under consideration in order to prove that the two schemes are nearly always used both intentionally and systematically in specific contexts.⁶ On the other hand, a closer look at the SS lesson on the seasons reveals that here these two schemes alternate every few sentences, sometimes without any specific need. This special feature together with certain textual evidence from the emerging critical edition⁷ indicate the posteriority of this lesson compared to its counterparts in the CS and the BhS.⁸ But before addressing these issues, I will introduce the underlying concept of the seasons and the division of the year into two halves.

2 TWO HALVES, SIX SEASONS

FOLLOWING SOME INTRODUCTORY SENTENCES, each of the lessons on the seasons, with the exception of that found in the BhS, proposes a concept of the year

that was written around the twelfth century CE. For more information on Ḍalhaṇa, see Meulenbeld HIML: IA, 372 sqq.

⁴ The ayurvedic compilations (*saṃhitās*) are generally structured into sections (*sthānas*) and subordinate units called *adhyāyas*. On the translation of *adhyāya* as “lesson,” instead of the more common “chapter,” in the *Carakasamhitā* and other works, see Preisendanz 2018.

⁵ These lessons, mostly located in the first sections of the compendia, are CS 1.6, SS 1.6 and 6.64, BhS 3.6, AS 1.4 and AHS 1.3. The first sections of these works, usually called Sūtrasthāna, are similar in structure

and contain diverse introductory and fundamental contents. The Sūtrasthānas of SS, AS and AHS contain additional lessons on surgery. In the case of the SS, the correct conduct and diet according to the seasons is treated separately near the end of the compendium in 6.64. The BhS lesson is located in the poorly preserved third section, called Vimānasthāna. The lesson on the seasons appears fragmentary as summer is omitted from the seasonal descriptions.

⁶ See section 3 of this study.

⁷ See p. 268.

⁸ See section 4 of this study.

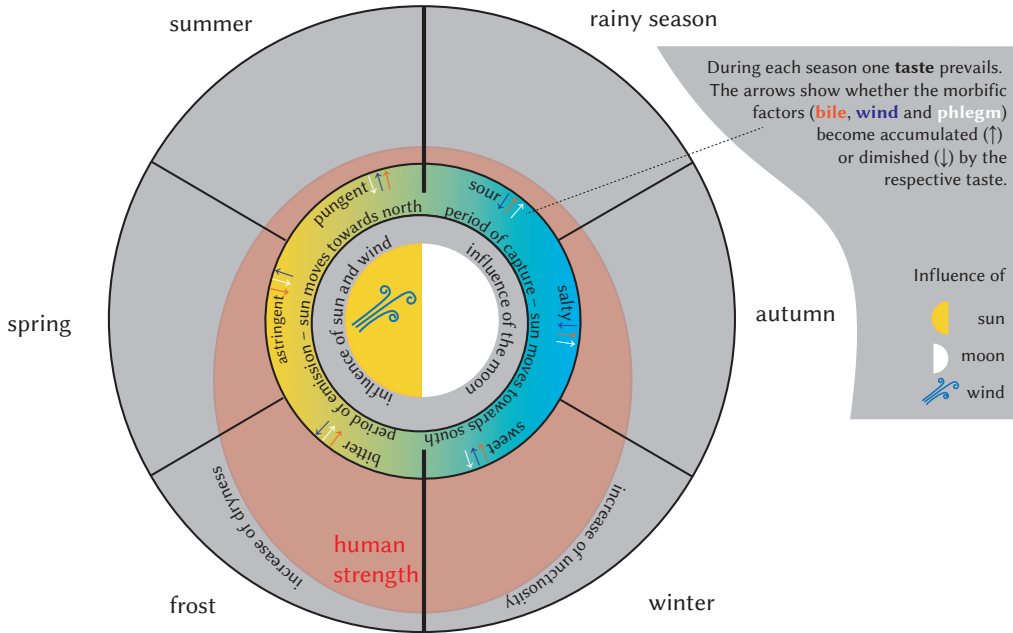


Figure 1: Halves of the year and seasons according to CS 1.6 (*śīśira* scheme).

comprising two halves.⁹ The year is subdivided into two phases according to the course of the sun and variations in the South Asian climate. This is described most precisely in the *CS*:

इह खलु संवत्सरं षडङ्गमृतुविभागेन विद्यात्। तत्रादित्यस्योदगयनमादानं च
 त्रीनृतूञ्छिशिरादीन्प्रीष्मान्तान्व्यवस्येत्वर्षादीन्पुनर्हैमन्तान्तान्दक्षिणायनं विसर्गं च।¹⁰

Here, you should know, the year is to be understood as having six parts, which are achieved by separation into seasons. Among these, one should define the three seasons spanning from frost through summer as the sun's movement towards the north and also as a period of capture. Rainy season through winter, however, is to be defined as the [sun's] movement towards the south and as a period of emission.

⁹ The *BhS* omits this concept not only in the lesson on the seasons, but also does not mention the halves of the year throughout its entire text. This might hint towards a later introduction of this concept to the ayurvedic

corpus. Perhaps it was added to the *CS* and the *SS* in later revisions while the less popular *BhS* remained unchanged regarding this aspect.

¹⁰ *CS* 1.6.4.

The following passage describes how during the period of capture (*ādāna*), when strong dry winds blow, all of the moisture of earth, plants and creatures is absorbed by the sun. The period of emission (*visarga*), on the other hand, begins with heavy monsoon rains, which return the moisture and thus allow for everything to grow. While the sun travels higher north, i.e., reaching higher at noon from day to day, its influence grows. Gradually it absorbs the humidity from the earth. Around the summer solstice, the monsoon diminishes the power of the sun and, obscured by clouds, it loses its influence during its return to the south. At this time, the rains water the desiccated earth and humidity returns. This period of emission is associated with the dominance of the moon.¹¹ Furthermore, the period of capture provides unctuousness (*sneha*) while the period of emission is responsible for dryness (*rauḥsya*). Throughout the first period, the tastes of bitter, astringent and acrid dominate, while the second is characterized by sour, salty and sweet tastes.¹² As shown in figure 1, this cycle of capture and emission influences the strength of the human body, tormenting and weakening it during the hot and dry period and nurturing and strengthening it in times of humidity and coolness.

In the SS, the halves of the year are dealt with in 1.6.7–8 in a slightly shorter fashion. Here the year is divided into a southern (*dakṣiṇa*) and a northern (*ut-tara*) period. The terms “period of capture” (*ādāna*) and “period of emission” (*visarga*) are not mentioned. Thus, while in the CS the celestial bodies of the sun and moon, as well as the wind, play a dominant role, here the movement of the sun alone is the source for the terms used. Other than this, the description appears relatively parallel to the information provided in the CS. AS and AHS follow CS and mention both terminologies (northern and southern, capturing and emitting periods) while the surviving portions of the BhS make no mention of the halves of the year. Table 1 gives an overview of the designations and mentions of the seasons, the halves of the year, and their interrelations in the examined compendia.

While tripartite concepts are frequently used when describing the seasons,¹³ binary concepts prevail in discussions surrounding the halves of the year. These binary polarities – temperature and precipitation – are the exact indicators used in modern climate graphs. Thus, it is hardly surprising that such graphs for the northern half of the Indian subcontinent precisely reflect the information from our texts: Starting with the spring, temperatures rise steadily until the onset of

¹¹ In Indian culture, the moon and its beams have cooling qualities. Further, its designation within this context, *soma* – which is a synonym for water, also points towards this feature. On *soma* in Ayurveda, see Angermeier 2020a.

¹² See CS 1.6.5–6.

¹³ Examples for such tripartite concepts are the influence of sun, moon and wind, the application of the three morbid factors, or the definition of three moderate and three extreme seasons.

| | | |
|---------------------|---|---|
| CS 1.6 | <i>śíśira</i> ^I <i>vasanta</i> <i>grīṣma</i> <i>ādāna</i> / <i>uttarāyana</i> | <i>varṣā</i> <i>śarad</i> <i>hemanta</i> ^{II} <i>visarga</i> / <i>dakṣiṇāyana</i> |
| SS 1.6 ^a | <i>śíśira</i> ^I <i>vasanta</i> <i>grīṣma</i> <i>vasanta</i> <i>grīṣma</i> <i>prāvṛṣ</i> ^b <i>uttara</i> | <i>varṣā</i> <i>śarad</i> <i>hemanta</i> ^{II} <i>varṣā</i> ^I <i>śarad</i> <i>hemanta</i> ^{II} <i>dakṣiṇa</i> |
| SS 6.64 | <i>śíśira</i> <i>vasanta</i> <i>grīṣma</i> ^b | <i>varṣā</i> ^I <i>śarad</i> <i>hemanta</i> |
| BhS 3.6 | <i>śíśira</i> <i>vasanta</i> – ^c – | <i>varṣā</i> ^{II} <i>śarad</i> <i>hemanta</i> – |
| AS 1.4 | <i>śíśira</i> <i>vasanta</i> <i>grīṣma</i> <i>udagayana</i> / <i>ādāna</i> | <i>varṣā</i> <i>śarad</i> <i>hemanta</i> ^{I+II} <i>dakṣiṇāyana</i> / <i>visarga</i> |
| AHS 1.3 | <i>śíśira</i> ^I <i>vasanta</i> <i>grīṣma</i> <i>uttarāyana</i> / <i>ādāna</i> | <i>varṣā</i> <i>śarad</i> <i>hema</i> ^{II} <i>dakṣiṇāyana</i> / <i>visarga</i> |

The English equivalents for the seasons are frost (*śíśira*), spring (*vasanta*), summer (*grīṣma*), beginning of the rains (*prāvṛṣ*), rainy season (*varṣā*), autumn (*śarad*), and winter (*hema* or *hemanta*). The terms *ādāna* and *visarga* denote a period of capture and a period of release respectively; *uttarāyana*, *uttara*, and *udagayana* all refer to the period in which the sun gradually moves to the north, while *dakṣiṇāyana* and *dakṣiṇa* are describing the period of its southward movement.

^I First season in the first part of the lesson.

^{II} First season in the latter part of the lesson.

^a The front section of SS 1.6 introduces two schemes that differ regarding one season. In the back section, and in SS 6.64, all seven mentioned seasons are described.

^b In the second part of lesson SS 1.6 and in SS 6.64 the description of the beginning of the rains (*prāvṛṣ*) is inserted after that of summer (*grīṣma*).

^c Summer (*grīṣma*) is missing here, most probably because this part of the lesson was lost in transmission.

Table 1: Seasons and halves of the year

the monsoon after which they decrease until autumn, slowly at first, but then faster during winter, only to rise once more when spring arrives. The average amount of precipitation, on the other hand, rockets upwards with the start of the monsoon and increases still further during the rainy season. It then drops to a low level in autumn and remains there until the next rainy season.

These halves of the year together consist of six seasons, each comprising two months. The most outstanding feature of Indian climate, the monsoon, provides impetus for the implementation of a corresponding season not recognized in

most other parts of the world. So, in addition to autumn, winter, spring and summer there exists a fifth, the rainy season. The full six are traditionally completed by dividing the long winter into two parts, winter (*hemanta*) and frost (*śiśira*).¹⁴ The lessons on the seasons in the examined works introduce these seasons at the beginning, during the discussion of the structuring of time.¹⁵ They are mentioned once again in the second parts of the lessons, where they are described separately and in some detail.¹⁶ These descriptions contain information about climatic circumstances and effects on both nature and the human body, as well as recommendations regarding diet and conduct of life during the specific seasons.¹⁷

Dividing the year into six seasons presents several advantages. Most discernibly, it matches well with the yearly division into twelve months and the two halves concept. Furthermore, it allows for an analogy to be drawn between seasons and tastes (*rasa*), which in Ayurveda also number six and play an important role. According to tradition, in every season a different flavor dominates, influencing nature, the animal kingdom and humans.¹⁸

3 ... AND ONE MORE SEASON

AS DISCUSSED EARLIER, the overall picture in these works is quite coherent, although now and again we find certain particularities. For example, Suśruta introduces a parallel concept of the seasons in his lesson on the topic: following

¹⁴ Following Zimmermann's convention, I use "winter" as an equivalent to *hemanta* and "frost" as translation for the second cold season. As an adjective, *śiśira* usually means "cool," "frigid," or "cooling;" as a substantive it can denote dew and hoar-frost, coldness, or, like here, a frosty season. On the development of the seasons in Indian literature, see Vogel 1971: 284 sqq.

¹⁵ This part is missing in the BhS lesson. In the CS, only the first and last seasons of the halves of the year are mentioned, ie. frost, summer, rainy season and winter. See the translated passage above on p. 2.

¹⁶ In the case of the SS, the back section of lesson 1.6 only contains rather poetic descriptions of the outer appearance of the seasons. Evidence from the Suśruta Project (see p. 268) clearly shows that nearly the whole section was added later, as it is not present in the oldest available manuscripts. For the new critical edition (NE) of this chapter (still in progress at the time of pub-

lication of this article) see NE: Sūtrasthāna and scroll down to "Adhyāya 6". However, the SS, near its end, has another lesson on the seasons containing descriptions of seasonal environmental and bodily processes and the appropriate diet and conduct to counteract these influences (SS 6.64.5–56.1ab).

¹⁷ See CS 1.6.9–48, SS 6.64.5–56.1ab, BhS 3.6.2–23, AS 1.4.8–60ab and AHS 1.3.8–60ab.

¹⁸ Bitter (*tikta*), astringent (*kāṣāya*), acrid (*kaṭuka*), sour (*amla*), salty (*lavaṇa*) and sweet (*madhura*) correspond with frost, spring, summer, rains, autumn and winter in this order. See CS 1.6.4–6 and the explanations by the commentator Cakrapāṇidatta (eleventh century CE) on this passage. For further details on the connections between seasons, tastes and the morbidic factors, see Angermeier 2020c: 43–46; Zimmermann 1987b: 31–36; 1987a: 63–66; 1980: 101–102.

the introduction and a section pertaining to time and its measurements, in which the seasons as we now know them are already mentioned, he claims:

Here, nevertheless, the seasons rains proper (*varṣā*), autumn (*śarad*), winter (*hemanta*), spring (*vasanta*), summer (*grīṣma*) and beginning of the rains (*prāvṛṣ*) are the cause of accumulation, excitation and pacification of the morbid factors."¹⁹

Thus, frost (*śīśira*) has been omitted and instead replaced by a distinct rainy season. In the following, for the sake of clarity and brevity I will refer to the first concept, containing the frost season, or *śīśira*, as the "*śīśira* scheme" and to the second one, containing the beginning of the rains, or *prāvṛṣ*, as the "*prāvṛṣ* scheme."

Several theories are presented in secondary literature about these two concepts. While previous researchers suggested understanding them as a northern and southern calendar, or as a civilian and a medical year,²⁰ Francis Zimmermann, in his 1980 article on seasonal wholesomeness (*ṛtu-sātmya*), argued that two schemes prevail, both equally important for medicine and neither developed for geographical regions:

[...] The first schema that we looked at was distributive in form, presenting each season equally. [...] The second schema is, on the other hand, transitive in form: it explains the evolution of humors and diseases by the action of distant causes, it justifies the recurrence of symptoms of a particular season in the next one, phenomena in which we see the most clearly the maturational power of time: aggravations and improvements; the phlegm accumulated in winter causes problems in the spring, but should normally ease off in summer, etc.²¹

¹⁹ SS 1.6.10. For the Sanskrit text and a translation of the whole passage, go to p. 255 of this article.

²⁰ See, on this, Vogel 1971: 304 sqq. Ḍalhaṇa, in his commentary on SS 1.6.10, mentioned this interpretation as a northern and a southern calendar: "Others however explain differently: one should know, that in regions south of the Ganges the classification beginning with the rains exists. This [classification] again is criticized by the teacher Gayadāsa." (अन्ये त्वन्यथा व्याख्यानयन्ति – गङ्गाया दक्षिणे देशे वर्षाद्यतुविभागो ज्ञातव्य इति; अयमपि गयदासाचार्येण दूषितः.) Gayadāsa is the author of yet another commentary on the SS (dated around 1000 CE) within which,

however, the remarks on this passage are not preserved. On Gayadāsa and his commentary see Meulenbeld HIML: IA, 382 sq. A twentieth-century scholar who supported the theory of a northern and a southern calendar was Hemarājaśarman, who assumed the existence of two Suśrutas. He credited the northern calendar (containing frost) to a hypothetical senior Suśruta and the southern (containing beginning of the rains) to a younger (see Meulenbeld HIML: IA, 335). However, one should keep in mind, that these two calendars are not a unique feature of the SS, but also appear in the other works examined here.

²¹ Zimmermann 1980: 103.

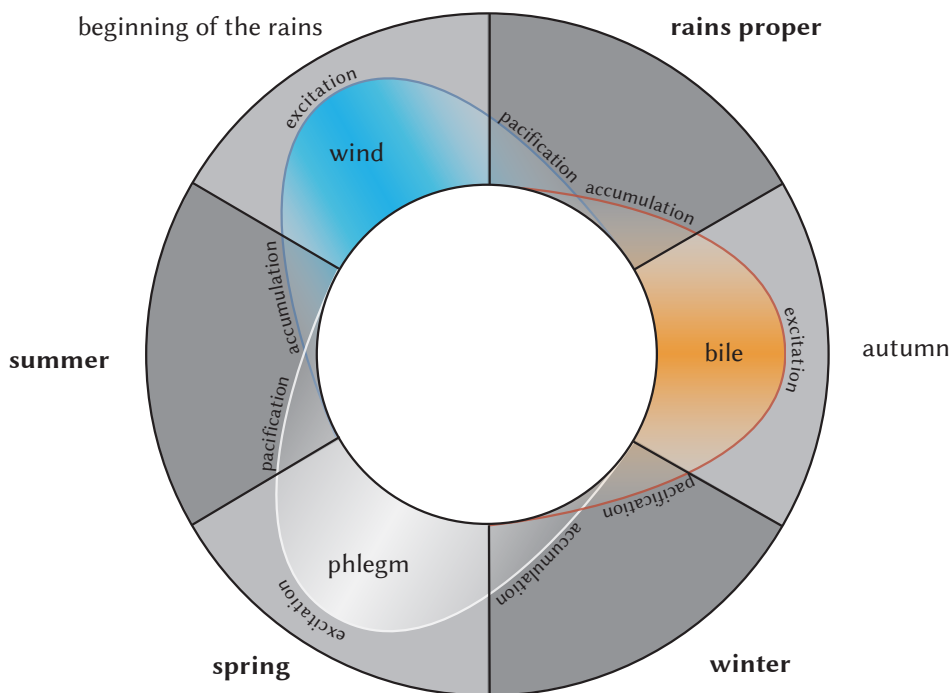


Figure 2: Moderate and extreme seasons according to SS 1.6 (*prāvṛṣ* scheme).

Zimmermann went on to explain how this second scheme, using the beginning of rains (*prāvṛṣ*) instead of the frost (*śiśira*), is important for some fields of medicine: In addition to categorization into hot and cold, and dry and humid seasons, some passages also distinguish between extreme and moderate seasons, which are called balanced (*sādhāraṇa*). Summer, due to its heat and dryness, winter due to its cold, and the rainy season owing to its humidity, are classified as extreme while the other three are seen as moderate transitional seasons. By introducing the beginning of the rains (*prāvṛṣ*) in place of frost (*śiśira*), the physician acquired a new, better structured system in which every extreme season is followed by a moderate season. This concept matches much better with certain medical ideas, particularly with the theory of accumulation, excitement and pacification of the three morbid factors (*doṣas*) bile, wind and phlegm.²²

The other scheme, however, was not abandoned. Somehow physicians found a way for them to coexist peacefully side by side. This phenomenon is especially striking in Suśruta's lesson on the seasons, in which the frost (*śiśira*) calendar is

²² See Figure 2.

used at first (in 1.6.6–8)²³, only to be instantaneously replaced in 1.6.10 by the beginning of the rains (*prāvṛṣ*) calendar:

इह तु वर्षाशरद्धेमन्तवसन्तग्रीष्मप्रावृषः षडृतवो भवन्ति दोषोपचयप्रकोपोपशमनिमित्तं^a;
ते तु भाद्रपदाद्येन^b द्विमासिकेन^c व्याख्याताः; तद्यथा भाद्रपदाश्वयुजौ वर्षाः
कार्तिकमार्गशीर्षौ शरत् पौषमाघौ हेमन्तः फाल्गुनचैत्रौ वसन्तो वैशाखज्येष्ठौ ग्रीष्म
आषाढश्रावणौ प्रावृङ् इति।^d

^a NE: ऽकोपप्रशमनिमित्तं।

^b NE: ऽपदाद्यैर्।

^c NE: द्विमासिकेनैव।

^d SS 1.6.10.

Here, nevertheless the six seasons rainy season, autumn, winter, spring, summer and beginning of the rains are the cause of accumulation, excitation and calmness of the morbid factors. These again are explained using two-month units, beginning with Bhādrapada; namely, the rainy season is Bhādrapada and Āśvayuja, autumn Kārtika and Mārgaśīrṣa, winter Pauṣa and Māgha, spring Phālguna and Caitra, summer Vaiśākha and Jyeṣṭha, and the beginning of the rains Āṣāḍha and Śrāvaṇa.

Prior to this passage, in 1.6.6, the treatise discusses the divisions of the year and lists frost in lieu of the beginning of the rains.²⁴ The topic that follows this passage is the seasonal accumulation, excitation and treatment of the morbid factors. The most promising track, if we want to understand this change of concept regarding the seasons, is laid by the word “here” (*iha*), at the beginning of our passage. What is the author referring to by using the term “here”? The commentator Ḍalhaṇa is somewhat indecisive on this point:

संशोधनाश्रयं दर्शनं दर्शयन्न आह – इहेत्यादि। इहास्मिन्नध्याये, तुशब्दः पुनरर्थः। [...]^a

^a Ḍalhaṇa *ad* SS 1.6.10.

23 The seasons are listed in 1.6.6: तत्र माघादयो द्वादश मासाः संवत्सरः, द्विमासिकमृतुं कृत्वा षडृतवो भवन्ति; ते शिशिरवसन्तग्रीष्मवर्षाशरद्धेमन्ताः; [...]

24 There we also find other, more ancient names for the months, which first occur in the late vedic period in the Yajurveda. In this passage Tapas (= Māgha) and Tapasya (= Phālguna) constitute frost, Madhu

(= Caitya) and Mādhava (= Vaiśākha) spring, Śuci (= Jyeṣṭha) and Śukra (= Āṣāḍha) summer, Nabhas (= Śrāvaṇa) and Nabhasya (= Bhādrapada) the rainy season, Iṣa (= Āśvayuja) and Ūrja (= Kārtika) autumn and Sahas (= Mārgaśīra) and Sahasya (= Pauṣa) winter. On this concept, see Vogel 1971: 290, 314.

In order to demonstrate the notion based on purification he says: “here” (*iha*) and so on. “here” means “in this lesson,” the word “nevertheless” (*tu*) has the meaning of “moreover.”

The first sentence indicates that the author of the original text is now talking about a specific notion or perspective. The second tries to explain the meaning of “here” (*iha*) but is perplexing because we were already presented with the other seasonal concept in the very same lesson. Subsequently, however, on the question of why Suśruta now starts the list of seasons with the rainy season, when previously frost occupied the starting position, Ḍalhaṇa explains: “for the sake of [addressing the topic of] the accumulation, etc., of the morbid factors.”²⁵ This change of starting point must implicitly include the replacement of frost by the beginning of the rains.²⁶ Thus, we can also understand this explanation as an answer to our question regarding why the scheme has been changed. Ḍalhaṇa goes on to explain that in contexts where the development of diseases out of morbid factors (*doṣas*) is concerned, the second scheme (containing the beginning of rains (*prāvṛṣ*)) is adequate, while in contexts dealing with impact of tastes on the morbid factors, the first scheme (containing frost (*śiśira*)) is the one to use. He also provides additional textual evidence from the preceding lesson in support of his argument:

[...] अस्मिन्नध्याये पुनः किमर्थं वर्षादय ऋतव इत्याह – दोषोपचयाद्यर्थम्। ननु, इदं दर्शनं व्याधिहेतुवातादिसंचयाद्यर्थत्वात्प्राकर्तुं युज्यते? नैवम्, तत्र वातादिहेतूनां रसानां निष्पत्तेस्तदेव दर्शनं प्राकृतं, अथवा हेमन्ते शिशिरे चैव वसन्ते चापि मोक्षयेत् [त्र्यहाद् ...]’ – (= SS 1.5.40) इत्यादिश्लोके शिशिरादीनामादौ निर्दिष्टत्वात्। संचयात्प्रकोपो बलवान्, तस्य चिकित्सितं संशोधनमित्यत्र वर्षादय ऋतव उक्ताः, तथा चरकेऽपि रोगभिषगिज्जतीये विमाने संशोधनमधिकृत्य वर्षादयो ऽभिहिताः। यद्यपि दोषसंचयादिनिमित्तं वर्षादयः कथिताः, तथापि संचयादिषु संशोधनं कार्यमित्यस्य प्राधान्यम्; शिशिरादयस्तु रसं बलं चाधिकृत्योक्ताः, वर्षादयस्तु संशोधनमधिकृत्य संचयाद्यर्थमिति तात्पर्यार्थः। [...]^a

^a Ḍalhaṇa *ad* SS 1.6.10.

Regarding the question: “For what reason, however, does he mention the seasons beginning with the rainy season in this lesson?” his response is: “for the sake of [addressing the topic of] the accumulation etc. of the morbid factors.”

Since [here] the topic is the accumulation etc. of wind etc.²⁷, which

25 Ḍalhaṇa *ad* SS 1.6.10: [...] दोषोपचयाद्यर्थम्। [...]

26 Regarding the sequence of the seasons in the various lists see table 1.

27 This means: “the accumulation, excitation/dissolution and pacification of wind, phlegm and bile according to the seasons.”

are the causes of diseases, would it not be appropriate to place this notion in the beginning [of this lesson]? This is not the case. There exactly that [other] notion is positioned in the beginning because of the occurrence of the tastes, which were the causes of wind etc. Or also because in the stanza “In winter, also in frost and also in spring [the bandage] is to be lifted after three days.” frost etc. were mentioned at the beginning.²⁸

It is because of accumulation that strong excitation occurs; its cure is purification. In this regard, the seasons, beginning with the rainy season, were mentioned. Likewise in Caraka, in the lesson about the remedies, concerning the issue of purification,²⁹ [the seasons] were specified beginning with the rainy season. Even though [the seasons] as conditions for the accumulation etc. of the morbidic factors were mentioned as beginning with the rainy season, the main point of this [passage now], however, is that in the case of accumulation etc. purification must be carried out. On the one hand, where taste and strength are the topic, [the seasons] are mentioned as beginning with frost; on the other hand, where purification is the topic, having accumulation etc. as an objective, [they are mentioned] as beginning with the rainy season. This is the [author’s] intended meaning.

Although this sounds quite reasonable and sophisticated, and might well be Zimmermann’s main source for his assumption – can we be sure that Ḍalhaṇa, who lived roughly a millennium after the *Suśrutasaṃhitā* came into existence, understood the passage correctly? To be more precise, Ḍalhaṇa’s explanation is apparently compatible with the text he comments upon. However, by referring to the CS, he claims that his explanations are also valid beyond the SS and can be understood as ayurvedic universals. Therefore, to assess the role and consistency of the seasonal concepts throughout early ayurvedic literature and to comprehend Ḍalhaṇa’s grasp of it, it is necessary to examine the employment of both schemes throughout the relevant sources. Even though the lessons on seasons in the other four compendia don’t mention the second scheme of seasons explicitly, frost (*śiśira*) and beginning of the rains (*prāvṛṣ*) are both mentioned in these works in several other contexts. These occurrences enable us to check the general consistency of the employment of both schemes as well as the accuracy

²⁸ With this quotation from lesson 5 (SS 1.5.40) Ḍalhaṇa makes clear that in the preceding lesson, the *śiśira* scheme prevails. This seems to be maintained across the boundary between the lessons until the change is immediately necessary in 1.6.10.

²⁹ See CS 3.8.125 (8.93 in the critical edition. On the critical edition see p. 268.) where the seasons suitable for purification therapies are mentioned. These comprise the moderate seasons of spring, beginning of the rains, and autumn.

| <i>Passage</i> | <i>Topic</i> |
|----------------------------------|---|
| CS 1.5.57 | nasal medicaments (<i>nasyakarma</i>) for the moderate seasons |
| CS 1.13.18 | treatment with oil in <i>prāṅvṛṣ</i> |
| CS 3.8.125–128 ^a | purification therapy |
| CS 6.1.2.8–9 | storage of drugs in <i>prāṅvṛṣ</i> |
| SS 1.36.5 | collection of drugs |
| SS 1.45.8 | water that is safe to drink in <i>prāṅvṛṣ</i> |
| SS 4.24.105 | avoidance of water in <i>prāṅvṛṣ</i> |
| SS 4.24.108 | treatment with oil in moderate seasons |
| SS 4.37.51 | rules for the application of oily enema |
| SS 6.64.54 | lesson about diet and conduct in the seasons |
| BhS 1.8.12 | oily enema that are applied in moderate seasons |
| BhS 1.25.13 | application of enema and other treatment in <i>prāṅvṛṣ</i> ^b |
| AS 1.23.8 | description of the seasons referring to the application of medical treatments: moderate seasons are especially suitable |
| AS 1.23.30 | moderate seasons are appropriate for the removal of the morbid factors |
| AS 1.25.13 | treatments including oil in <i>prāṅvṛṣ</i> , treatments including ghee in the rainy season, ... |
| AS 6.49.37 | preparation of a <i>rasāyana</i> elixir, which has to be buried in ash during <i>prāṅvṛṣ</i> ^c |
| AHS 1.13.33–35 (variant reading) | treatment of the morbid factors according to the seasons |
| AHS 1.16.12 | treatments including oil in <i>prāṅvṛṣ</i> , treatments including ghee in the rainy season, ... |

^a 8.93–94 in the critical edition; see p. 268.

^b The 25th lesson in the Sūtrasthāna of BhS deals primarily with purification therapy and describes the right time and circumstances for it. BhS 1.25.13–21 is dedicated to the significance of the seasons.

^c *rasāyana*-s are recipes and therapies that provide a prolonged life span, optimize bodily functions or even bestow superhuman powers. In the AS they are discussed all together in 6.49, while the CS deals with them in a quadripartite lesson at the beginning of the Cikitsāsthānas (CS 6.1.1–4) and in the SS their discussion is spread over four lessons (SS 4.27–30). For a description of their effects see CS 6.1.1.7–8 or AS 6.49.1–2. For more information, see Hellwig 2008.

Table 2: Mentions of beginning of the rains (*prāṅvṛṣ*) in the examined compendia

and reach of Ḍalhaṇa's analysis. In order to do this, I collected all references to the beginning of the rains (*prāṅvṛṣ*) and frost (*śiśira*) and examined whether or not their contexts fit into Ḍalhaṇa's (and Zimmermann's) categories.³⁰ In the case of the beginning of the rains (*prāṅvṛṣ*), the results were quite striking: Nearly every reference deals with with purification therapies, especially those involving

³⁰ See table 2 and 3.

oil. That is because these therapies involving the application of oil should be applied during moderate seasons, which are, as previously stated, the beginning of rains, autumn and spring.

On the other hand, the picture is less clear for frost (*śiśira*), since the term appears in several contexts. Generally speaking the *śiśira* scheme can be found in three circumstances:

- when diet and conduct are involved,
- where there is talk about collecting drugs according to seasons, and
- while naming times and substances that provoke the morbid factors, bile, wind and phlegm.

However, there is an obvious common ground on these points as well: They all refer to measures to be taken preventatively before the impairment of morbid factors that subsequently causes diseases. With regards to the last point the connection is self-evident. Right diet and conduct are preventive measures par excellence, helping to keep an equilibrium among the morbid factors.³¹ Furthermore, drugs have varying availability and qualities according to the seasons. Therefore, it is important to harvest and store them in advance, otherwise they might be unavailable in times of emergency.³²

4 CONFUSION IN THE *SUŚRUTASAṂHITĀ*

THE DICHOTOMY OF THE TWO SCHEMES found in these passages is in clear accordance with Ḍalhaṇa's interpretation, but does it also work for the remainder of the *SS* lesson on the seasons? *SS* 1.6.11 starts its explanations with the rainy season but, contrary to Ḍalhaṇa's claim, it does not deal with purification according to the season. Rather, it deals with explanations of how the plants and the water change during the year and, together with climatic phenomena, influence the morbid factors in human bodies:

³¹ See Angermeier 2020b: 9 sqq.

³² See *CS* 3.3.4 and Angermeier 2007: 58 sq.

| <i>Passage</i> | <i>Topic</i> |
|---------------------|--|
| CS 1.6.4–6, 17–21 | lesson about the seasons |
| CS 1.22.24 | fasting in <i>śíśira</i> against certain diseases |
| CS 1.27.205 | rain water in <i>śíśira</i> is lighter than in winter and useful against phlegm and bile |
| (CS 6.16.109 | ripening of a drug in <i>śíśira</i>) ^a |
| CS 7.1.10 | collection of drugs according to the seasons |
| CS 7.10.9 | collection of latex from trees in <i>śíśira</i> as an emetic |
| SS 1.5.40 | removal of bandages according to the seasons |
| SS 1.6.6, 7, 25 | lesson about the seasons |
| SS 1.45.81 | curdled milk is healthy in winter, <i>śíśira</i> , and in the rainy season |
| SS 6.64.31 | lesson about diet and conduct in the seasons |
| BhS 1.7.8 | recommended frequency of sexual intercourse according to the seasons |
| BhS 1.14.17 | preventive remedies and drinks according to the seasons |
| (BhS 1.18.20 | symptoms of poisoning through razor blades in summer and in <i>śíśira</i>) |
| BhS 3.6.19 | lesson about the seasons |
| AS 1.4.4, 6, 19, 22 | lesson about the seasons |
| AS 1.9.52 | recommended frequency of sexual intercourse according to the seasons |
| AS 1.9.82 | dietary recommendations for seasons with unusual features |
| AS 1.21.8 | relations between seasons and morbid factors |
| AS 1.24.11 | fasting in <i>śíśira</i> |
| AS 3.1.15 | substances and times that lead to excitation of phlegm (<i>śíśira</i> and spring) |
| AS 5.2.50 | collection of latex from trees in <i>śíśira</i> as an emetic |
| AS 5.8.4 | roots should be collected in summer or <i>śíśira</i> |
| AHS 1.3.1–2, 17–18 | lesson about the seasons |
| AHS 1.12.25 | definition of excitation: excitation of phlegm in <i>śíśira</i> |
| AHS 1.14.11 | fasting in <i>śíśira</i> |
| AHS 5.2.45 | collection of latex from trees in <i>śíśira</i> as an emetic |

^a In some cases *śíśira* denotes not a specific season but more generally the cold period of the year. Passages in which this understanding of *śíśira* is more likely are given in brackets.

Table 3: Mentions of frost (*śíśira*) in the examined compendia

तत्र वर्षास्वोषधयस्^a तरुण्योऽल्पवीर्या^b आपश्चाप्रसन्नाः^c क्षितिमलप्रायाः। ता उपयुज्यमाना^d नभसि मेघावतते जलप्रक्लिन्नायां भूमौ क्लिन्नदेहानां प्राणिनां^e शीतवातविष्टम्भिताग्नीनां^f विदह्यन्ते, विदाहातः^g पित्तसंचयमापादयन्ति। स संचयः शरदि प्रविरलमेघे वियत्युपशुष्यति पङ्केऽर्ककिरणप्रविलायितः पैत्तिकान्व्याधीन्जनयति।^h

^a The NE reads: औषध्यस्।

^b NE: ऽल्पवीर्या आहारत्वम् विदह्यन्ते।

^c NE: चाप्रशान्ताः।

^d NE: तास् तूपयुज्यमाना।

^e NE: देहिनां।

^f NE: शीतवातवर्षवि०।

^g NE: स विदाहातः।

^h SS 1.6.11.1.

Here, in the **rainy season**, the plants are tender, have little efficacy, and the waters are not clear, but rich in earthy pollution.³³ When ingested, these [plants and waters] are digested in beings, who, because their digestive fire is inhibited by the cool wind,³⁴ have moist bodies when the sky is full of clouds and the ground is saturated with water. And, due to their digestion, they cause an accumulation of bile. This accumulation is dissolved by the rays of the sun in **autumn** – when only scattered clouds are in the sky, when the mud dries – and gives rise to bile-related diseases.

ता एवौषधयः कालपरिणामात्परिणतवीर्या बलवत्यो हेमन्ते भवन्त्यापश्च प्रसन्नाः^a स्निग्धा अत्यर्थं गुर्व्यश्च। ता उपयुज्यमाना मन्दकिरणत्वाद्भानोः सतुषारपवनोपस्तम्भितदेहानां^b देहिनामविदग्धाः स्नेहाच्छैत्याद्गौरवादुपलेपाच्^c च श्लेष्मसंचयम्^d आपादयन्ति, स संचयो वसन्तेऽर्ककिरणप्रविलायित ईषत्स्तब्धदेहानां देहिनां^e श्लैष्मिकान्व्याधीन्जनयति।^f

^a NE: प्रशान्ताः।

^b NE: सतुषारोपष्टम्भित०।

^c NE: उपलेपित्वाच्।

^d NE: श्लेष्मणस्सञ्चयम्।

^e NE: ऽर्ककिरणप्रविलायितः (ईषत्स्तब्धदेहानां देहिनां is omitted)।

^f SS 1.6.11.2.

³³ If we follow the NE: “Here, in the rainy season tender plants with little efficacy are digested as food, and the waters are not calm, but rich in earthy pollution.” Italics in this

and the following footnotes mark the differences between the vulgate and the NE.

³⁴ According to the NE: “... by cool wind and rain.”

Because their effectiveness has changed due to the change of time, these very plants become strong in the **winter** and the waters are clear,³⁵ lush and especially heavy. When ingested, they remain undigested by the beings whose bodies are inhibited by the frosty wind³⁶ because the sun has weak rays. And due to their oiliness, coldness, heaviness and sluggishness they cause the accumulation of phlegm. This accumulation is dissolved in the **spring** by the sun's rays, and gives rise to phlegm-related diseases in beings who have somewhat rigid bodies [at that time].³⁷

ता एवौषधयो निदाघे निःसारा^a रूक्षा अतिमात्रं लघ्व्यो भवन्त्यापश्च। ता उपयुज्यमानाः सूर्यप्रतापोपशोषितदेहानां देहिनां रौक्ष्याल्लघुत्वाद्वैशद्याच्च^b च वायोः संचयमापाद्यन्ति।^c स संचयः प्रावृषि चात्यर्थं जलोपक्लिन्नायां भूमौ क्लिन्नदेहानां^d प्राणिनां^e शीतवातवर्षेरितो वातिकान्व्याधीन्जनयति। एवमेष दोषाणां संचयप्रकोपहेतुरुक्तः।^f

^a NE: एवौषधयो ग्रीष्मनिःसारा।

^b NE: लघ्वाच्च (वैशद्याच्च omitted)।

^c NE: आपादयन्ति।

^d NE: चातिक्लिन्न०।

^e NE: देहिनां।

^f SS 1.6.11.3.

These very plants become sapless, arid and excessively light in **summer**, and [so does] the water. When they are ingested, due to their rough, light and clear nature,³⁸ they cause an accumulation of the wind in beings who have bodies parched by the heat of the sun. And this accumulation, during the **beginning of the rains**, is stimulated by cool wind and rain in beings who have moist bodies,³⁹ and, when the earth is moistened, gives rise to wind-related diseases.

Thus, this [seasonal] reason for accumulation and excitation of the morbid factors has been stated.

³⁵ According to the NE: "... the waters calm."

³⁶ Or "... inhibited by fog and wind"; acc. to the NE: "... inhibited by fog." Regarding the translation of *tuṣāra* as "fog," see Angermeier 2020c: 70. Usually *upastambhita* means "erected" or "supported" but this meaning seems unlikely here. Usually the digestive fire is described as strong during winter, able to digest heavy food. This passage however, appears to suggest that it is somehow affected by the climatic circumstances during this season and has dif-

ficulties to cope with the ingested food. Regarding the translation of *upastambhita* as "inhibited", see also SS 4.38.17, where the word is used in a similar way.

³⁷ According to the NE: "This accumulation is dissolved in the spring by the sun's rays, and gives rise to phlegm-related diseases." (The rest is omitted.)

³⁸ According to the NE: "... due to being rough and light."

³⁹ According to the NE: "... an exceedingly moist body."

If we follow Ḍalhaṇa, we would expect the *śiśira* scheme (beginning with frost) here because this passage deals with the causative factors influencing the morbidic factors during the year. In support of Ḍalhaṇa we could argue that these descriptions in SS 1.6.11 are there only in preparation for SS 1.6.13, indeed dealing with the medical treatment of seasonal morbidic factors according to the *prāvṛṣ* scheme – however, in a considerably shorter fashion:

तत्र वर्षाहेमन्तग्रीष्मेषु संचितानां दोषाणां शरद्वसन्तप्रावृद्धु च प्रकुपितानां निर्हरणं
कर्तव्यम्।^a

^a SS 1.6.13. In the NE कर्तव्यम् is omitted. The sequential number 12 is omitted in this edition.

In this regard, in the rainy season, winter and summer, the elimination of accumulated morbidic factors is to be carried out, and in autumn, spring and during the beginning of the rains, that of the excited ones.

After this sentence the lesson surprisingly switches back to the *śiśira* scheme to describe the natural pacification of bile, wind, and phlegm according to the seasons:

तत्र पैत्तिकाणां व्याधीनामुपशमो हेमन्ते^a श्लैष्मिकाणां निदाघे वातिकानां शरदि स्वभावत
एव। त^b एते संचयप्रकोपोपशमा^c व्याख्याताः।^d

^a NE: व्याधीनाम् हेमन्ते व्युपशमो।

^b NE: स्वभावतस्त्व।

^c NE: ँकोपशमा।

^d SS 1.6.14.

Here, the pacification of bile-related diseases naturally takes place in winter, that of phlegm-related ones in summer, and that of wind-related ones in autumn. These [processes of] accumulation, excitation, and pacification have now been proclaimed.

This does not concur with the description in SS 1.6.11, because there, wind, accumulated in summer, is supposed to reach excitation in the beginning of the rains and should undergo natural pacification already in the rainy season. Thus, 1.6.14, contrary to the preceding passage, clearly follows the *śiśira* scheme again, according to which natural pacification of wind in autumn is perfectly fine.⁴⁰ This is also in accordance with Ḍalhaṇas elaborations but, for consistency's sake,

⁴⁰ See Figure 3.

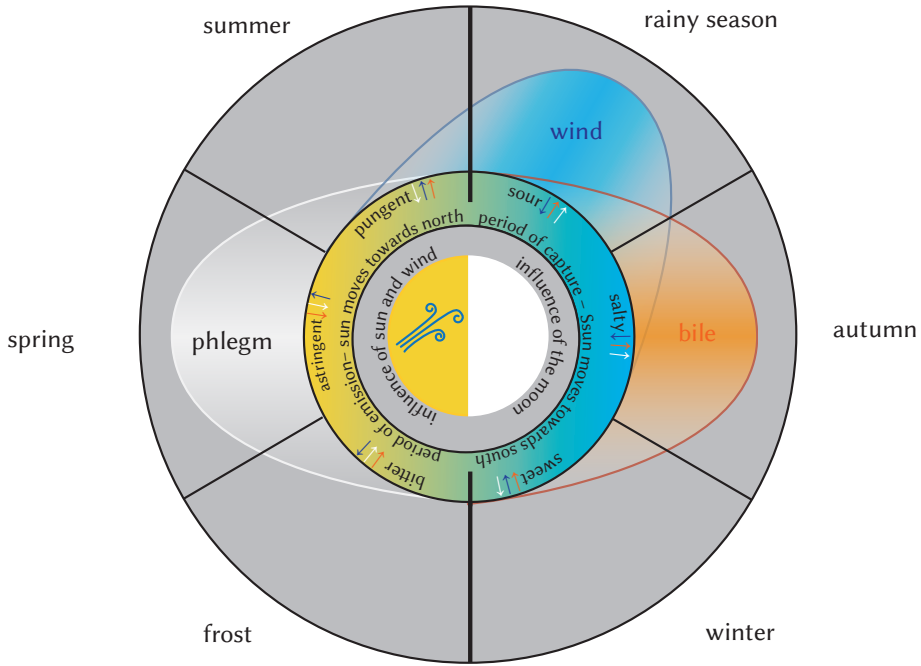


Figure 3: Dynamics of the moribific factors in the śīśira scheme.

we would then expect to see the śīśira scheme applied also in 1.6.11. To add to the confusion, in 1.6.15 the SS returns to the *prāvṛṣ* scheme without need, simply to explain that there exists an analogy between the seasons and the daytimes and that we can expect the moribific factors to act during the day in the same way as they do over a whole year:

तत्र पूर्वाह्णे^a वसन्तस्य लिङ्गं^b मध्याह्णे ग्रीष्मस्य अपराह्णे प्रावृषः^c प्रदोषे वार्षिकां
 शारदमर्धरात्रे प्रत्युषसि हैमन्तमुपलक्षयेत्, एवमहोरात्रमपि वर्षमिव शीतोष्णवर्षलक्षणं
 दोषोपचयप्रकोपोपशमैर्^d जानीयात्।^e

^a NE: तत्र दिवसपूर्वाह्णे।

^b NE: वसन्तलिङ्गं।

^c NE: प्रावृद्धिङ्गं।

^d NE: शीतोष्णवर्षदोषोप०।

^e SS 1.6.15.

Here one can observe in the morning⁴¹ the characteristics of spring, at noon those of summer, in the afternoon those of the beginning of

⁴¹ According to the NE: "... in the morning of the day."

| | <i>Topic</i> | <i>Scheme</i> |
|------------------------|---|----------------------|
| SS 1.6.6 | months and seasons | <i>śīśira</i> scheme |
| SS 1.6.7–8 | halves of the year | <i>śīśira</i> scheme |
| SS 1.6.10 | introduction of the other scheme | <i>prāvṛṣ</i> scheme |
| SS 1.6.11 | seasonal change of plants, water, digestion, and <i>doṣas</i> | <i>prāvṛṣ</i> scheme |
| SS 1.6.13 | medical removal of seasonal <i>doṣas</i> | <i>prāvṛṣ</i> scheme |
| SS 1.6.14 | natural pacification of seasonal <i>doṣas</i> | <i>śīśira</i> scheme |
| SS 1.6.15 | analogy: seasons and day periods | <i>prāvṛṣ</i> scheme |
| SS 1.6.38 ^a | preventive removal of <i>doṣas</i> | <i>śīśira</i> scheme |

^a This stanza is omitted in the NE.

Table 4: Employment of seasonal schemes in SS 1.6.

the rains, in the evening those of the rainy season, at midnight those of autumn and in the morning those of winter. Thus, the day, like the year, should be understood to have the characteristics of cold, heat and rain, together with the accumulation, excitation and pacification of the morbid factors.⁴²

So, what are the reasons for this switching back and forth between the two schemes?⁴³ It has been widely accepted that the SS is not simply the work of one author but rather repeatedly underwent substantial modifications until it reached the shape presented nowadays in the existing editions, most of them, based only on a few manuscripts, generally following the reading defined by Ḍalhaṇa's commentary.⁴⁴ In the provisional critical edition, based on three Nepalese manuscripts, of which the oldest one (Kathmandu KL 699) dates back to 878 CE, the lesson on seasonal conduct differs considerably from how

42 According to the NE: Thus, the day, like the year, should be understood *by the accumulation, excitation and pacification of the morbid factors caused by cold, heat and rain.*

43 For an overview on the employment of the two schemes in SS 1.6, see Table 4.

44 On the structure and early development of the SS, see Meulenbeld HIML: IA, 344 sqq. The findings of the Suśruta Project show that the recension,

represented in the examined Nepalese manuscripts, differs considerably from how Ḍalhaṇa read the text. This suggests that we have to assume at least two different recensions of the the work, and that many passages were added or changed at a later date (on these issues, see Klebanov 2021 and Birch et al. 2021). On the history of the editions of the SS, see Wujastyk 2013: 142 sq.

it is represented in Jādavaji Trikamji's edition.⁴⁵ Most notably, it contains no seasonal descriptions (SS 1.6.22–36 is not there in the Nepalese manuscripts) and therefore has much less resemblance to the lessons on seasonal conduct in CS and BhS than was thought until recently. And even though the passages relevant for our problem (1.6.6–15) contain no major deviations, the overall situation suggests that this lesson as a whole underwent repeated revisions, also before the earliest evidence preserved in KL 699, or it was composed out of slightly discordant pre-existing textual materials. The discrepancies observed in 1.6.6–15 make it very likely that these passages, or at least the ideas presented in them, were taken from different origins and thrown together by someone not very aware of the various underlying concepts. As a consequence of this Ḍalhaṇa struggled to explain the resulting difficulties.

The CS and the BhS, both belonging to the school of internal medicine (*kāy-
acikitsā*), were probably the earliest āyurvedic compilations to contain lessons on seasonal conduct in their Sūtrasthanas. With the addition of the Uttara-tantra the SS obtained a lesson containing descriptions of seasonal processes and recommendations for appropriate diet and conduct, very similar to the parallel content in the CS and BhS lessons on the seasons.⁴⁶ Still, apparently a need to compensate for the lack of such a lesson in the Sūtrasthana was felt. Over time, this need led to the formation of SS 1.6. as a lesson on seasonal conduct (*ṛtucārya*), modelled after the templates in the compilations of the internal medicine school and pieced together somewhat clumsily from other sources, resulting in the observable mix-up of seasonal schemes.

5 RESULTS

ZIMMERMANN ALREADY NOTICED THE CONNECTION of the *prāvṛṣ* scheme with the seasonal evolution of the morbidic factors, as was also stated in Cakrapāṇidatta's commentary, and with the discipline of purification treatment (*śodhana*).⁴⁷ In SS 6.64, the second lesson of this compendium that discusses the seasons, it is explicitly stated that one should apply evacuative measures against bile in autumn, against phlegm in spring, and against wind during the beginning of the rains⁴⁸, while for the remaining seasons no such treatments are advised. Zimmermann labeled the *śisīra* scheme as "distributive in form, presenting each

45 On the Suśruta Project and its provisional critical edition see p. 268).

46 On the position and date of the Uttara-tantra, see Meulenbeld HIML: IA, 347 sqq.

47 See Zimmermann 1980: 103. Especially in the CS, which has an emphasis on internal medicine, the treatments discussed

the most are the purificatory ones, including the well known set of "five treatments" (*pañcakarma*). The whole of the Kalpasthāna and most of the Siddhisthāna are devoted to these treatments.

48 See SS 6.64.16cd–17ab, 39 and 54cd–55ab.

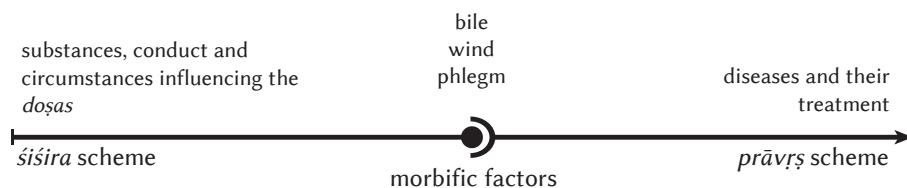


Figure 4: The *doṣas* as a linchpin between the two seasonal schemes.

season equally” and the *prāvṛṣ* scheme as “*transitive* in form [explaining] the *evolution* of humors and diseases by the action of distant causes”. However, with the above observation from section 3 in hand (summarized in the tables 2 and 3) we clearly see that both schemes are connected to the morbid factors and have transitive characteristics. It is more consistent to define the *śīśira* scheme as a system for preventive measures (diets, collecting drugs, diagnosis and prognosis) and the *prāvṛṣ* scheme as a system for reactive measures (i.e., therapies).

The analysis also confirms Ḍalhaṇa’s interpretation, consistent with the implementation of the seasonal schemes not only in the CS but in all examined Saṃhitās. He took the morbid factors of wind, bile and phlegm as a linchpin for his explanation: Everything concerned with their agitation is dealt with under the *śīśira* scheme, whereas for all kinds of reactive, purifying measures against diseases which are caused by these morbid factors the *prāvṛṣ* scheme is adopted.⁴⁹

Furthermore, we can now see that this construction with two complementary schemes of seasons was not just an idea of Suśruta’s school of medicine, but common knowledge among the physicians of the era and fairly well established in all of the classical Saṃhitās. The SS lesson, that is apparently of a later date than those in the CS and the BhS, is the only one actually discussing both schemes side by side. Ironically, the schemes got so confused in this lesson, that Ḍalhaṇa was stimulated to write his comprehensive explanations, which in turn very likely⁵⁰ helped Zimmermann in his rather accurate analysis of the two schemes. However, in his apparent desire for consistency, Ḍalhaṇa was unwilling to admit the contradictions within the SS lesson on the seasons but rather tried to explain them away in order to maintain the authority of his source text. Consequently, Zimmermann did not pay attention to these textual problems, since they did not directly affect his research subject. Nevertheless, a thorough understanding of the seasonal schemes, their employment and development in the early history

⁴⁹ See Figure 4.

⁵⁰ Zimmermann did not refer to Ḍalhaṇa on this issue but the similarity of his ana-

lysis strongly suggests that it was based on Ḍalhaṇa’s account.

of Āyurveda requires a precise analysis of the convoluted implementation of the schemes in *SS* 1.6, as provided in the section starting on p. 259 of this study. This analysis, together with the evidence from the Nepalese manuscripts, reveals that the *SS* lesson is of later date compared to the corresponding lessons in the *CS* and the *BhS*.

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In the case of the *Suśrutasaṃhitā*, I include the results of the ongoing Suśruta Project and the current status of its critical edition.⁵³ Further information processed in this article is based on research conducted within the project “Epidemics and Crisis Management in Pre-modern South Asia,” also funded by the FWF Austrian Science Fund.⁵⁴

Finally, I want to thank the anonymous reviewers and my colleagues Ge Ge and Dominik A. Haas for their valuable suggestions that improved this article.

⁵¹ Preisendanz et al. 2011–6.

⁵² Ibid.

⁵³ Wujastyk et al. (NE).

⁵⁴ Angermeier 2022–6.

ABBREVIATIONS

- AHS Kumṭe, A. M. and Navare, K. R. (1939), श्रीमद्वाग्भटविरचितम् अष्टाङ्गहृदयम्, श्रीमदरुणदत्तविरचितया 'सर्वाङ्गसुन्दर्याख्या' व्याख्यया हेमाद्रिप्रणीतया 'आयुर्वेदरसायनाह्वया' टीकया च समुल्लसितम् = *The Astāṅgaḥṛidaya. ... by Vāgbhaṭa with the Commentaries (Saroāṅgasundarā) of Arunadatta and (Āyurvedarasāyana) of Hemādri*, ed. S. Ś. Parāḍakara (6th edn., Bombay: Nirṇaya Sāgar Press), ARK: ark:13960/t3tt6967d.
- AS Āthavale, A. D. (1980), श्रीमद् वृद्धवाग्भटविरचितः अष्टाङ्गसङ्ग्रहः इन्दुव्याख्यासहितः = [Aṣṭāṅgasanḡrahaḥ] (Pune: Śrīmad Ātreya Prakāśanam), ARK: ark:/13960/t9773bb9z.
- BhS Veṅkaṭasubrahmaṇyaśāstrī, V. S. and Rājarājeśvaraśarmā, C. (1977), भेलसंहिता महर्षि-पुनर्वसोरात्रेयस्यान्तेवासिना भेलाचार्येण प्रणीता = *Bhela saṁhitā* (New Delhi: Central Council for Research in Indian Medicine & Homeopathy).
- CS Ācārya, Y. T. and Ācārya, Y. T. (1941) (eds.), महर्षिणा पुनर्वसुनोपदिष्टा, तच्छिष्येणाग्निवेशेन प्रणीता, चरकदृढबलाभ्यां प्रतिसंस्कृता चरकसंहिता, श्रीचक्रपाणिदत्तविरचितया आयुर्वेददीपिकाव्याख्यया संवलिता = *The Carakasamhitā of Agniveśa, Revised by Charaka and Dṛidhabala. With the Āyurveda-Dīpikā Commentary of Cakrapāṇidatta* (Reprint, 4 ed., New Delhi, Munshiram Manoharlal, 1981, Mumbayyām: Nirṇaya Sagara Press), ARK: ark:/13960/t48q2f20n.
- Ḍalhaṇa ad SS Ācārya, Y. T. (1931a) (ed.), वैद्यवरश्रीडल्हणाचार्यविरचितया निबन्धसंग्रहाख्यव्याख्यया समुल्लसिता महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता = *The Suśrutasaṁhitā of Sushruta. With the Nibandhasaṅgraha Commentary of Shree Dalhaṇāchārya* (Reprint, Varanasi: Chaukhamba Surbharati Prakashan, 2003, Bombay: Nirṇaya Sāgar Press), ARK: ark:/13960/t9j41sg94.
- Meulenbeld HIML Meulenbeld, G. J. (1999–2002), *A History of Indian Medical Literature*, 5 (Groningen: E. Forsten), ISBN: 9069801248.
- NE Wujastyk, D. et al. (2020), 'The Suśruta Project: New Edition', University of Alberta, <https://saktumiva.org/wiki/wujastyk/susrutasaṁhitā/start>, (on 30 Sept. 2022); Canadian Social Sciences and Humanities Research Council grant no. 435-2020-1077.

- SS Ācārya, Y. T. (1931b) (ed.), वैद्यवरश्रीडल्हणाचार्यविरचितया निबन्धसंग्रहाख्यव्याख्यया समुल्लसिता महर्षिणा सुश्रुतेन विरचिता सुश्रुतसंहिता = *The Suśrutasaṃhitā of Sushruta. With the Nibandhasangraha Commentary of Shree Dalhaṇāchārya* (Reprint, Varanasi: Chaukhamba Surbharati Prakashan, 2003, Bombay: Nirṇaya Sāgar Press), ARK: [ark:/13960/t9j41sg94](https://nbn-resolving.org/urn:nbn:de:hbz:5:1-63862-p0094-9).

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